Government of Kerala

SURVEY ON ORGANIC FARMING AND MARKETING IN KERALA: 2021-22

REPORT

Survey and Design Division
Department of Economics and Statistics

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Survey and Design Division
Department of Economics and Statistics

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P. PRASAD
MINISTER FOR AGRICULTURE
GOVERNMENT OF KERALA

Message

It is with great pleasure that I extend my warmest congratulations to all the officers in the Department of Economics and Statistics in publishing an invaluable book on ' Organic farming and Marketing in Kerala' on the basis of a survey conducted by the department . As the world increasingly recognizes the importance of sustainable agriculture, resources like this are crucial in guiding our transition towards more eco-friendly farming practices.

Organic farming not only benefits the environment by reducing pollution and conserving biodiversity but also supports the health and well-being of our communities. This book provides comprehensive database and insight for the implementation of "Jaiva Karshika Mission" organized and implemented by Government of Kerala in the State.

I encourage all stakeholders in the agricultural sector to engage with this material, apply its lessons, and contribute to the advancement of organic farming. Together, we can foster a more sustainable future for our agriculture and ensure a healthier planet for generations to come.

Warm regards,

P.Prasad

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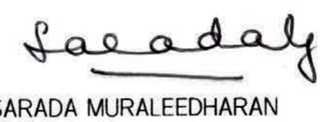
Message

The Department of Economics and Statistics serves as the nodal agency in the State responsible for collecting, compiling, consolidating, analyzing, and disseminating statistics related to various sectors of the Kerala economy. One of its key programmes, known as 'Surveys and Studies,' involves conducting ad-hoc surveys on topics of contemporary importance in State's social and economic sectors and for revising rates and ratios which are essential for GSDP computation. As part of this venture, a survey was conducted during the financial year 2021-'22 on the topic of 'Organic Farming and Marketing in Kerala.'

Organic agriculture embodies a holistic approach to food production, prioritizing environmental protection, biodiversity conservation, and public health. This is an era where climate change, soil degradation, and the depletion of natural resources present significant challenges to global food security. By avoiding chemical pesticides, herbicides, and genetically modified organisms, organic farming helps preserve the integrity of the ecosystem. As we prioritize sustainability in agricultural practices, organic agriculture is poised to pave the way for more sustainable and secure food providing system for the future.

Over the past two decades, various schemes have been implemented to promote organic farming and ensure the production of safe food. Though some notable achievements have been made in this field, there is a data gap in comprehensive studies on organic farming activities and its scientific practices in the State. In this context, the Department of Economics and Statistics conducted a survey on 'Organic Farming and Marketing in Kerala: 2021-22, based on which of an exhaustive report is brought out. This endeavour is expected to provide valuable insights into the challenges faced by the organic farming sector, facilitate adoption of sustainable practices, and address its shortcomings locally by mitigating human-wild animal conflict, climate change, and environmental degradation.

I congratulate the Directorate of Economics and Statistics for their commendable efforts in bringing out the report. I firmly believe that this report will be an important book of reference for all segments of society engaged in the field of organic farming.



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Preface

Date 22.06.2024

Organic farming is an environmentally sustainable agricultural practice that prioritizes soil health, biodiversity preservation, and ecological equilibrium. It relies on natural techniques to nurture plant growth while eschewing chemical fertilizers, pesticides, synthetic growth regulators, and genetically modified seeds. Organic farming employs organic pesticides, composted green manures, and alternative plant nutrients derived from natural sources. These practices enrich soil's chemical, biological, and physical properties while maintaining nutrient balance. By fostering soil health, organic farming controls weeds, pests, and diseases in an eco-friendly manner.

Organic farming combines traditional and science based modern techniques to promote ecological harmony and enhance overall environmental quality. The primary goal of organic farming is to produce safe, healthy, and nutritious food using traditional and natural methods. Conservation of agricultural biodiversity is crucial for organic farming. Crops and crop rotations chosen in such a way that it enhance soil fertility and structure. Even though organic farming is typically characterized by the absence of chemical fertilizers, it does not classify the produce as organic if the seeds utilized are genetically modified or hybrid. Instead, organic farming emphasizes conserving traditional seed varieties and exploring hybrid seed development through biotechnology.

Following the emergence of artificial fertilizers, chemical fertilizers and pesticides have gained widespread adoption in agriculture due to their affordability and convenience. Since the post-World War II period, chemical pesticides have been extensively utilized for pest management. The introduction of high yielding and hybrid seeds, irrigation methods, and modern agricultural machinery and practices has brought about significant transformations in farming. Notably, this agricultural approach, which revolutionized global food production, effectively addressed the severe food shortages of that time. However, in the ensuing years, the utilization of chemical fertilizers and pesticides surged, prompting widespread concern about their repercussions globally. With the proliferation of high yielding varieties, indigenous seeds vanished, and the soil turned toxic from the excessive application of chemical fertilizers and pesticides.

It was in 1962, that the American Marine Microbiologist and writer Rachel Carson released her globally renowned book **Silent Spring**, shedding light on the environmental consequences caused by chemical pesticides, especially DDT, sparking global discussions. Consequently, the world started earnestly contemplating alternative methods for modern agriculture. Masanobu Fukuoka, a proponent of natural farming and an agricultural scientist in Japan, vehemently opposed anti-natural farming practices in his book **One Straw Revolution**, advocating the need of prioritizing natural farming. This influential book has been translated into Malayalam by Sri. C. P. Gangadharan Master.

In the contemporary landscape of agriculture, characterized by the widespread utilization of chemical fertilizers, pesticides, hybrid seeds, and genetically modified organisms, there is evident contamination and degradation of soil, water, air, and food sources. This reality renders the sustainability of modern agricultural practices untenable. A return to traditional farming methods is also not a viable solution. In response, modern organic farming emerges as a corrective approach, seeking to rectify the flaws of contemporary agriculture while addressing the limitations of traditional methods. Its goal is the production of nutritious, toxin free food as needed.

Organic farming is undergoing rapid expansion on a global scale, and India reflects this trend with substantial progress in recent years. Although there exists a thriving international market for organic products, accessing it necessitates compliance with various standards. India has historically faced challenges in this regard, but governmental interventions have notably ameliorated the situation. Kerala, too, is witnessing concerted governmental efforts to promote organic farming. Nevertheless, there remains a dearth of statistical data regarding the extent of organic farming in the State. To bridge this gap, the Department of Economics and Statistics conducted a survey on organic farming and marketing in Kerala for the financial year 2021-22. This report is the result of the findings gleaned from that survey.

The survey was conducted using the list of organic farmers obtained from Principal Agricultural Offices of 14 districts under the Department of Agriculture Development and Farmers Welfare, Government of Kerala, as the population frame. The Department of Economics and Statistics extends sincere gratitude to the Director, Principal Agricultural Officers, and other district level staff of the Department of Agriculture Development and Farmers Welfare, Government of Kerala for providing access to the aforementioned list. Sri. George Mathai, a retired Joint Director from the Department of Agriculture Development and Farmers Welfare, Government of Kerala, provided his earnest and honest efforts in serving as the subject matter expert. His advice and guidance were instrumental in addressing technical and practical concerns from the inception of the survey through various stages of the schedule design. I wish to express heartfelt appreciation for his invaluable cooperation and expert counsel.

Heartfelt gratitude to the Statistical Investigators for their diligent field level data collection effort during the survey. I also extend my appreciation to the taluk and district level statistical officers for their supervision and meticulous scrutiny of schedules. Furthermore, I commend the district Deputy Directors for their coordination of survey activities. The overall supervision of the

survey was honestly done by the then Joint Director Sri. Manoj. M of the Survey and Design Division. At the state level, supervision, review, coordination, field inspection, and schedule scrutiny were efficiently carried out by the then Joint Director and the Research Officer of the Survey and Design Division. Special acknowledgments to Sri. Manoj. M, Additional Director (State Income), who has been instrumental in conceiving and completing this marvelous work, and all staff members who contributed to the survey. The staff of Computer Division also deserve appreciation for their invaluable technical support. Sri. Shibukumar. D. S, Deputy Director of the Computer Division, played an exceptional role that deserves special mention. Last but not the least, Mr. Vijay. R, Research Officer, Survey and Design Division, who toiled round the clock in bringing out such a magnificent report, which can be termed as 'first of its kind', needs a standing ovation. I would also like to appreciate Smt. Sarulatha. R. S, Research Officer, for her enthusiastic and dedicated performance in the conduct of training sessions for the survey.

The report on organic farming is characterized by its uniqueness on many counts. We eagerly seek readers to offer their valuable comments and suggestions on the report. It will definitely serve inspiration and guidance for the Department's future endeavours. We expect that the information contained in this report will prove beneficial to experts, researchers, and policymakers engaged in the realm of organic agriculture.

Vikasbhavan | **Sreekumar. B**
22/06/2024 | **Director**

Key findings

- At the state level, the average total agricultural land owned by an organic farmer is 261.37 cents. When examining in to district level data, Palakkad district leads with an average of 337.09 cents of land, closely followed by Kottayam district with 336.67 cents. On the other hand, Kollam district lags behind with the lowest average of 151.64 cents. **(Section 2.3, Page 14)**

- When categorizing total agricultural land based on size, it was observed that 71.02% of the farmers possess more than one acre of land, while 46.12% of farmers own more than two acres. **(Section 2.3, Page 14)**

- 62.96% of the overall agricultural land owned by organic farmers is allocated to organic farming. On examining the district wise figures, organic farmers in Kasaragod and Kannur districts have utilized 88.84% and 87.09% of their total agricultural land, respectively, for organic farming. **(Section 2.4, Page 15)**

- On average, an organic farmer holds 164.56 cents of organic farmland. When examining district level data, Kasaragod district leads with an average land holding of 268.67 cents, followed by Palakkad district in second place with 232.09 cents, and Wayanad district in third place with 216.69 cents. Pathanamthitta and Kollam districts are ranked lowest, with average organic farmland holdings of 88.52 cents and 79.49 cents, respectively. **(Section 2.4, Page 15)**

- When classifying the organic farming land by area, it was observed that 53.25% of farmers possess more than one acre of land, while 27.96% own more than two acres of land. **(Section 2.4, Page 15)**

- 80.93% of organic farmers engaged in cultivation on land they personally own, and 6.34% conducting cultivation on leased land. Furthermore, 12.73% of farmers cultivate on both their own land and leased land concurrently. **(Section 2.5, Page 16)**

- 81.68% of the total organic farming land is under the ownership of the farmers themselves, the remaining 18.32% being leased. When examining the district wise figures, it is observed that in Wayanad, Palakkad, and Idukki districts, the proportions of land owned by farmers are 96.80%, 94.81%, and 91.10% respectively. However, in Thiruvananthapuram district, only 54.71% of the organic farmland is owned by farmers. On average, an organic farmer possesses 134.42 cents of own land for cultivation, while the leased land averages at 30.14 cents per farmer. **(Section 2.5, Page 16)**

- When categorizing the area under organic cultivation based on ownership, it is observed that 48.45% of farmers who own their land, possess over one acre, while 24.20% have more than two acres. On the other hand, 48.05% of farmers who took land on lease possess more than one acre, and 22.38% own more than two acres. Interestingly, among farmers who have both owned and leased organic agricultural land, 19.08% possess over one acre, and 5.23% have more than two acres, in both categories.**(Section 2.5, Page 16)**

- When categorizing organic farming land based on terrain, 54.11% of farmers' land is identified as midland, 13.78% as lowland, and 24% as highland. Additionally, 8.11% of agricultural land spans across a combination of midlands, lowlands, and highlands.**(Section 2.6.1, Page 19)**

- Among the organic farmers, 4.58% have adopted modern farming methods involving chemical fertilizer application for less than 3 years, while 64.49% have utilized these methods for more than 3 years. Also, 30.93% of farmers asserted that they have adhered to organic farming practices since the inception of their farming endeavours.**(Section 3.1, Page 21)**

- Only 2.74% of organic farmers have complete soil test reports, and 2.08% keep partial records. Crop information is maintained by 50.70% of these farmers, while production details are documented by 23.96%.**(Section 3.2, Page 22)**

- Buffer zones are present in only 3.09% of the agricultural lands owned by organic farmers. Within this subset, 87.34% are encircled by natural land, whereas 12.66% are bordered by man-made boundaries.**(Section 3.3, Page 23)**

- Among the organic farmers, 13.94% have engaged in organic farming for a period of less than three years, 21.22% for a duration spanning three to five years, and 64.84% for more than five years.**(Section 3.4, Page 23)**

- When categorizing plots under long term single crop cultivation based on area, 11.92% of plots had an area less than 5 cents, 62.25% had an area between 5 cents and 50 cents, and 13.58% had an area between 50 cents and 100 cents. Additionally, there were 8.72% of plots with an area between 100 cents and 200 cents, and 1.43% of plots with an area between 200 cents and 250 cents. Meanwhile, the proportion of plots with an area exceeding 250 cents is 2.10%.**(Section 4.1, Page 25)**

- Of the plots utilized for long term single crop cultivation, 15.45% have been cultivated for less than 3 years, 19.54% for a duration falling between 3 and 5 years, and 65.01% for more than 5 years.**(Section 4.1, Page 25)**

- When classifying major crop plots cultivated as long term crops under mixed cropping, by area, 13.14% of plots had an area of less than 5 cents, 60.70% had an area ranging from 5 cents to 50 cents, and 15.07% had an area between 50 cents and 100 cents. Moreover, there were 7.75% of plots with an area ranging from 100 cents to 200 cents, and 1.41% of plots ranging from 200 cents to 250 cents. Additionally, 1.93% of plots had an area exceeding 250 cents. **(Section 4.2.1, Page 27)**

- Of the major crop plots cultivated as long term crops in mixed cropping, 10.41% were cultivated for less than 3 years, 14.14% were cultivated for a duration spanning between 3 and 5 years, and 75.45% were cultivated for more than 5 years. **(Section 4.2.1, Page 27)**

- When classifying long term crops in mixed cropping where minor crop plots (subplots) are cultivated alongside, based on their area, it was found that 52.66% of the subplots had an area of less than 5 cents, while 43.94% ranged between 5 cents and 50 cents. Additionally, 2.48% of the subplots occupied an area between 50 cents and 100 cents. There were 0.64% of subplots with an area between 100 cents and 200 cents, and 0.08% between 200 cents and 250 cents. Meanwhile, subplots exceeding 250 cents constituted 0.20% of the total. **(Section 4.2.2, Page 28)**

- Of the subplots within plots cultivated for long term crops for mixed cropping, 13.49% had less than 3 years of cultivation, 16.73% had a duration between 3 and 5 years, and 69.78% had more than 5 years of cultivation. **(Section 4.2.2, Page 28)**

- In the agricultural year 2020-21, 42.91% of the total organic agricultural land was allocated to cultivation of short term crops only. A farmer cultivated short term crops on an average of 82.24 cents of land. At the district level, the average land held by farmers in Palakkad, Malappuram, Kasaragod and Thrissur districts under short term crops is 254.00, 126.26, 100.87 and 82.32 cents respectively. **(Section 4.3, Page 29)**

- When classifying land under short term crops based on area, 8.02% of farmers cultivate short term crops on land below 5 cents, and 51.03% cultivate short term crops on 5 to 50 cents of land. Additionally, 17.51% have 50 to 100 cents of land, and 13.27% have 100 to 200 cents of land utilized for short term crops. Those who cultivated on 200 to 250 cents of land area accounted for 4.06%, and those who cultivated on more than 250 cents of land area accounted for 6.11%. **(Section 4.3, Page 29)**

- In the agricultural year 2020-21, when the land allocated to short term crops is subdivided based on the types of crops cultivated, 83.02% of the total subplots were cultivated only once. Additionally, 14.05% of the plots were cultivated twice, 2.68% were cultivated three times, and 0.25% were cultivated four times. **(Section 4.3, Page 29)**

- Only 3.60% of farmers conducted soil testing prior to the commencement of their organic farming activities. Among this subset, 45.65% relied on the State soil testing laboratory, 5.44% relied on Central government research centres, 14.13% on Kerala agricultural university, and 34.78% on other institutions for testing. **(Section 5.1, Page 31)**

- After initiating organic farming, only 8.65% of farmers have performed soil testing. Within this group, 39.37% relied on State soil testing laboratories, 9.05% on Central government research centres, 14.48% on Kerala agricultural university, and 37.10% on other institutions for testing. **(Section 5.2, Page 35)**

- 35.43% of the farmers utilized indigenous seeds, while 13.55% used hybrid seeds for cultivation. Meanwhile, 51.02% utilized both indigenous and hybrid seeds.**(Section 6.1, Page 41)**

- Among the organic farmers, only 69.54% have implemented seed care practices. Within this group, 93.86% have adopted organic methods, 1.01% chemical methods, and 5.13% both methods of seed treatment.**(Section 6.2, Page 42)**

- Out of the total organic farmers, 89.55% utilized traditional farming techniques for organic cultivation. Merely 0.51% adhered to farming methods necessitating international certification. Natural farming is practiced by 1.17%, while 8.77% employed an integrated version of traditional and natural farming approaches.**(Section 6.3, Page 42)**

- Only 70.79% of organic farmers claimed that all crops are cultivated exclusively through organic methods.**(Section 6.4, Page 43)**

- Of the farmers surveyed, 29.21% reported that they do not follow organic farming methods for all crops. Among these farmers, 77.61% stated that decrease in productivity is the reason for not adhering to organic methods, accounting for 22.67% of the total farmers surveyed. 42.09% of farmers mentioned crop damage due to pests or diseases as another cause of deviation from organic farming methods.**(Section 6.5, page 44)**.

- 77.41% of farmers primarily depend on green leaves manure for soil enrichment. 31.09% utilized compost, 23.96% used vermicompost, 16.64% applied decoction of leaves, and 22.04% used jeevamrutham. Moreover, 38.96% of farmers used other organic residues for soil enrichment, while 1.96% did not apply any specific method.**(Section 7.1, Page 45)**

- 57.04% of farmers exclusively utilized self-prepared products for soil enrichment. 7.12% of farmers bought all the necessary soil enrichment products. 0.98% of farmers relied entirely on freebies for soil enrichment. Additionally, 32.90% of farmers obtained soil enrichment products through a combination of self-preparation, purchase, and freebies.**(Section 7.2.1, Page 47)**

- Of the farmers, 78.78% have adopted organic manures for plant nutrition, while 10.10% have opted for the integrated manure/fertilization method. Additionally, 9.79% have embraced both approaches. Only 1.33% have refrained from applying any fertilizers for plant nutrition.**(Section 8.1, Page 51)**

- 29.72% of farmers used microbial inoculants/bio fertilizers for plant nutrition. Meanwhile, between 25% and 30% of farmers have used fish amino acid, jeevamrutham, and vermicompost as plant nutrients. Egg amino acid, panchagavyam, and leaf extracts of vriksha ayurveda have been adopted by roughly 10% of farmers for plant nutrition. Moreover, about 58.46% of farmers have applied alternative methods for plant nutrition.**(Section 8.2, Page 51)**

- 39.58% of farmers exclusively relied on self-prepared products for plant nutrition, while 15.23% purchased all their plant nutrition products. Only 1.80% of farmers solely utilized freebies for plant nutrition. Furthermore, 42.05% of farmers adopted a combination approach, incorporating at least two methods- self-preparation, purchase, or freebies- to acquire their plant nutrition products.**(Section 8.3.1, Page 53)**

- Of the farmers, 57.95%, 66.60%, and 55.32% have stated that they have been affected by sap sucking insects, leaf eating worms, and leaf hoppers respectively in their fields. Nematode infestation was reported by 18.48% of the farmers and the existence of other pests by 11.00%. Additionally, 11.39% of farmers do not consider pest infestation as a serious concern.**(Section 9.1, Page 57)**

- Among the farmers, 22.20% utilized pest management methods employing plant based products, 7.13% used opposite insects, 9.71% employed bio fertilizers/nematodes, 51.02% utilized bio mixtures prepared in the farm field, 16.76% used pheromone traps, 6.62% applied lamp traps, and 7.36% utilized trichoderma egg cards. Meanwhile, 19.77% of farmers did not implement any pest management methods.**(Section 9.2, Page 58)**

- 3.68% of farmers indicated that pest management measures is successful in a single application, while 11.71% suggested it requires two applications, and 14.72% claimed it necessitates three applications. Furthermore, 41.31% of farmers opined that it is effective when applied more than three times, and 8.81% deemed it ineffective. Additionally, 19.77% did not use any pest control measures.**(Section 9.3, Page 59)**

- 37.00% of farmers exclusively used self-prepared products for pest management, whereas 16.80% solely relied on purchased products. A mere 0.16% of farmers solely depended on freebies for pest management. Furthermore, 29.21% of farmers adopted a combination of methods, including self-preparation, purchasing, and acquiring freebies, for obtaining pest control products.**(Section 9.4.1, Page 60)**

- 38.21% of farmers reported the occurrence of fungal diseases in their farm fields, while 20.32% reported bacterial diseases and 24.08% encountered viral diseases. Furthermore, 4.62% of farmers reported facing other types of diseases.**(Section 10.1, Page 63)**

- 77.96% of the farmers stated that they are facing diseases in their crops. Specifically, 26.19%, 38.61%, and 18.87% of the farmers mentioned that their crops were infested by virus, fungus, and bacteria respectively. Meanwhile, the survey found that 26.19% of the farmers were unable to identify the crop disease.**(Section 10.2, Page 64)**

- Among the farmers, 12.65%, 31.36%, and 30.89% reported using bio fertilizers, plant based products, and leaf decoctions respectively for the purpose of managing crop diseases. 6.27% did not utilize any method to control diseases, while 14.45% mentioned using alternative decoctions, tinctures, and mixtures for this purpose.**(Section 10.3, Page 65)**

- Among the farmers surveyed, 27.96% relied solely on self-prepared products for disease control, while 23.26% exclusively relied on purchased products. A minimal 0.39% depended solely on freebies for disease control. Moreover, 20.09% of the farmers employed a mixed approach, utilizing a combination of methods such as self-preparation, purchase, and freebies for collecting and applying disease control products.**(Section 10.4.1, Page 66)**

- 3.68% of farmers indicated that disease management measures is successful in a single application, while 11.71% suggested it requires two applications, and 14.72% claimed it necessitates three applications. Furthermore, 41.31% of farmers opined that it is effective when applied more than three times, and 0.27% deemed it ineffective. Additionally, 28.31% did not use any disease control measures.**(Section 10.7, Page 68)**

- In the agricultural year 2020-21, the crop density in the harvested agricultural area amounted to 112.58%.**(Section 11.1, Page 69)**

- In the agricultural year 2020-21, a total of 97 distinct varieties of agricultural produce were planted and harvested, spanning both long term and short term crops. On average, an individual farmer cultivated 9.38 different crop varieties. Furthermore, the average proportion of farmers solely cultivating a single crop stood at 9.66% of the overall total.**(Section 11.2, Page 69)**

- In the agricultural year 2020-21, farmers harvested 1,11,93,686 kilograms of organic produce, incurring a production cost of Rs. 24,60,69,175.70/-. Their sales yielded an income of Rs. 41,12,49,002.00/-, resulting in a net income of Rs. 16,51,79,826.30/-. Hence, the ratio between income and expenses is 1.67.**(Section 11.3, Page 70)**

- During the agricultural year 2020-21, the average expenditure for cultivating crops on one cent of land totalled Rs. 607.64, with an earning of Rs. 1015.53, leading to a net income of Rs. 407.89. Moreover, the average net income for a farmer amounted to Rs. 64,674.95. To attain this level of income, a farmer needs to possess a minimum of 158.56 cents of organic farmland. However, approximately half of the surveyed farmers have less organic farmland than required.**(Section 11.3, Page 70)**

- 75.65% of farmers sold their produce in local markets, while 16.37% sold through farmers' fraternity. 9.91% chose ecoshops, and 3.25% opted for horticorp establishments. Moreover, 39.70% farmers engaged in direct sales.**(Section 11.4, Page 73)**

- Just 0.31% of farmers have exported their agricultural produces. These exports comprise vegetables, fruits, and value added products. The total revenue generated from these exports amounts to Rs. 14,28,000/-.**(Section 11.5, Page 74; Section 11.6, Page 75)**

- Only 17.46% of organic farmers engaged in processing their harvested produce into value added products, with the majority utilizing these processed goods for their personal consumption. Only a minuscule 0.16% of farmers chose to export these value-added products. **(Section 11.7, Page 75)**

- Out of the farmers surveyed, only 31.48% acknowledged deficiencies in secondary and micronutrients in their crops. In response to these deficiencies, 8.46% have implemented the foliar spray method, 43.41% have preferred soil application, and 48.13% have adopted both techniques.**(Section 11.8, Page 75)**

- Of the farmers surveyed, 60.61% have compared the cost of organic farming in the first year and subsequent years. Among them 60.98% reported that the cost is increasing, 31.01% stated that it is decreasing, and 8.01% mentioned that it remains unchanged.(**Section 11.9, Page 76**)

- Among the farmers surveyed, 62.18% conducted a comparison between production levels in the initial year and subsequent years. Within this group, 60.96% indicated a rise in production, 20.91% observed a decline, and 18.13% stated that there was no change in production levels.**(Section 11.10, Page 76)**

- 28.82% of the farmers stated that the yield from organic farming fetched a greater price compared to the yield from conventional pre organic farming. **(Section 11.11, Page 77)**

- At sales centres, only 15.31% of farmers sold their produce separately under the organic produce label. Meanwhile, a mere 1.84% of farmers have provided the necessary information for the traceability of their produce.**(Section 11.12, Page 77)**

- Among organic farmers, 3.48% have conducted scientific quality testing on their harvested produce.**(Section 11.13, Page 78)**

- Out of all farmers surveyed, 2.74% had conducted tests on their produce for residual toxicity. Among those who conducted the tests, 2.86% discovered toxic residues in their produce.**(Section 11.14, Page 78)**

- Only 2.31% of organic farmers have obtained organic certification for their organic farmland. **(Section 12.1, Page 79)**

- Out of the farmers who hold organic certification, 25.42% received the certification from Indocert, 15.26% attained it through Participatory Guarantee System (PGS) India, and 59.32% obtained certification from other agencies. **(Section 12.1.1, Page 79)**

- 76.86% of farmers have attended seminars on organic farming conducted by the Department of Agriculture, ATMA, etc. Moreover, 62.06% of farmers have undergone training in organic farming.**(Section 12.2.1, Page 81)**

- 58.69% of farmers are of the view that there is an increase in number of farmers engaging in organic farming as a result of the services offered through seminars and clusters.**(Section 12.2.2, Page 82)**

- 75.33% of organic farmers received subsidies or financial assistance from Krishi Bhavans for supporting their agricultural activities.**(Section 12.2.3, Page 82)**

- 71.93% of farmers cited that self-satisfaction was a significant factor influencing their transition to organic farming. More than 50% mentioned soil fertility, the high quality of organic produce obtained through organic farming, and health concerns arising from the application of chemical fertilizers as motivating factors.(**Section 12.3, Page 82**)

- Merely 20.05% of farmers have stated that they are experiencing financial gains upon shifting from conventional agricultural approaches to organic farming. At the same time, 28.82% of farmers have asserted that organic products fetch higher prices in comparison to those cultivated through modern farming methods. The high production cost and low productivity in organic farming create obstacles to achieve financial gains. Moreover, a segment constituting 33.63% of surveyed farmers refrained from conducting comparisons.**(Section 12.4, Page 83)**

- Survey results have emphasized the major challenges faced by farmers in the organic farming sector. Among these, 74.47% of farmers reported that they are experiencing crop losses due to the effects of climate change, while 54.27% are struggling with issues related to pest management. Furthermore, 50% of farmers have identified lower prices for their produce and crop damages caused by wild animal attacks as significant concerns.**(Section 12.5, Page 84)**

- Survey results revealed significant challenges faced by organic farmers in terms of severity. 27.41% of farmers pointed out that crop damage caused by wild animal attacks stand out as the foremost critical problem. Subsequently, issues such as crop loss due to climate change, problems faced in pest management, and lower prices were respectively ranked second, third, and fourth.**(Section 12.5.1, Page 85)**

- 65.66% of farmers identified the absence of shops selling organic produce exclusively as their major marketing challenge. Additionally, 48.75% highlighted reluctance from consumers to pay higher prices for organic products, while 41.15% cited the inadequacy of a non-exploitative marketing system.**(Section 12.6, page 89)**

- Facilities for preserving produce are available to only 3.41% of farmers. **(Section 12.7, Page 90)**

- Among the surveyed farmers, 35.04% possess an educational background equivalent to less than a 10th standard, while 27.53% have SSLC qualification. Additionally, 15.66% hold pre-degree/plus two qualifications, whereas 15.70% have attained graduation or post-graduation degrees, 6.07% have professional degree qualifications.**(Section 2.2, Page 14)**

Contributors

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Abbreviations

APEDA	:	Agricultural and Processed Food Products Export Development Authority
ATFAM	:	Attappadi Tribal Farmers Association for Millets
ATMA	:	Agriculture Technology Management Agency
BPKP	:	Bharatiya Prakritik Krishi Paddhati
CAC	:	Codex Alimentarius Commission
CEC	:	Cation Exchange Capacity
CH_4	:	Methane
C-N ratio/C-N Value	:	Carbon Nitrogen Ratio/ Carbon Nitrogen Value
CO_2	:	Carbon dioxide
EARAS	:	Establishment of an Agency for Reporting Agricultural Statistics
FAO	:	World Food and Agriculture Organization
FAO/WHO FSP	:	World Food and Agriculture Organization/World Health Organization Food Standard Programme
F-gases	:	Fluorinated gases
GEF	:	Global Environment Facility
GHG	:	Green House Gases
GHE	:	Green House Effect
Gt CO_2eq	:	Giga tons carbon dioxide equivalent
HEIA	:	High External Input Agriculture
ICAR-KVK	:	Indian Council For Agricultural Research- Krishi Vigyan Kendra
ICS	:	Internal Control System
IFOAM	:	International Federation of Organic Agriculture Movements
IPR Cell	:	Intellectual Property Rights Cell
LEISA	:	Low External Input Sustainable Agriculture
Mt	:	Million Tons
N_2O	:	Nitrous Oxide

NAB	:	National Accreditation Body
NEISA	:	No External Input Sustainable Agriculture
NPOP	:	National Programme for Organic Production
NSO	:	National Statistical Office
NSS	:	National Sample Survey
PDS	:	Peerumade Development Society
PGS	:	Participatory Guarantee System
PKVY	:	Parambaragat Krishi Vikas Yojana
PPQS	:	Plant Protection, Quarantine and Storage
t CO_2eq/cap	:	Tons of carbon dioxide equivalent per capita
UNDP	:	United Nations Development Programme
VFPCK	:	Vegetable and Fruit Promotion Council of Kerala
WHO	:	World Health Organization

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1

Concept, Definition and Methodology

1.1 Introduction

Agriculture, the fundamental pillar supporting the global populace, has its origins deeply embedded in human history, tracing back to the Neolithic era. In ancient times, pesticides were employed to combat crop threatening pests, while fertilizers gradually emerged to enhance crop growth. The progression of science and technology has catalysed revolutionary transformations in agriculture. A pivotal moment arrived with the invention of Paris Green Dye, the inaugural artificial insecticide, in 1867. The momentum of pesticide research surged notably during World War II. The onset of the Green Revolution and the introduction of high yielding seeds underscored the indispensability of chemical fertilizers and pesticides.

The initial era of adopting chemical fertilizer and pesticide usage was celebrated as agriculture's golden age. However, over time, their detrimental effects became apparent, leading to ecosystem instability and vast expanses of land turning barren. Its echoes resonate across in and around the globe, within India, and within our beloved Kerala. While chemical fertilizers initially bolstered productivity significantly, the rampant use of chemical pesticides to sustain this productivity has soared. Kerala is of no exception to this trend. The distressing aftermath of excessive chemical pesticide application remains painfully evident. This affliction affects people of all age groups, encompassing those with severe physical disabilities, individuals who are immobile, those with speech impairments, the critically ill, and those who have never achieved proper physical development, especially children who could not reach proper milestones in time. Our society witness the heart-breaking tragedy inflicted upon such individuals first-hand.

Because of the extensive use of chemical fertilizers and pesticides, they permeate plant tissues via soil, water, and air, persisting as residual toxins in agricultural products and infiltrating the human body through food intake, resulting in severe health issues. As Kerala is predominantly a consumer state, guaranteeing safety amidst dietary shifts, poses a major challenge. As part of the globalization driven consumer culture, the extent to which food items become contaminated is increasing at various stages, from production to processing, storage and distribution.

A famous quote of Hippocrates, the father of modern medicine:

Let food be thy medicine
And medicine be thy food.

This underscores the criticality of ensuring food safety within the settings of healthcare programme. The bottom line of the matter lies in the fact that consuming unsafe food is linked to various illnesses, whereas safe food is paramount for maintaining good health. Developed nations have acknowledged this, leading to a global shift towards contemplating safe agricultural practices in the latter part of the 20th century. Organic farming, characterized by cultivating crops in symbiosis with nature using recyclable organic materials and organic manures devoid of chemicals and synthetic growth regulators, is gaining traction. In essence, organic farming can be viewed as an alternative approach to sustainable, safe, and scientifically sound food production, by safeguarding soil and the environment.

Since the 1990s, the organic farming sector has experienced significant growth, leading to the formulation of policies by various countries regarding the production, processing, and marketing of organic crops. Legal frameworks have been established to regulate organic farming practices as well as guidelines for production, post-harvest management, processing, and marketing of organic products. Although its impacts have emerged globally, including in India and Kerala, products from India, including those from Kerala, have not gained significant recognition in the international organic market.

1.2 Perspective

High yielding seeds were extensively promoted to enhance agricultural output in response to burgeoning population needs. Concurrently, the widespread adoption of fertilizers and pesticides ensued. This agricultural approach, termed High External Input Agriculture (HEIA), entirely relies on external sources for seeds, fertilizers, and pesticides. However, HEIA has drawn criticism for its adverse effects on health and the environment as well as its heightened dependency on external systems, leading to increased costs. In response, Low External Input Sustainable Agriculture (LEISA) has garnered widespread acceptance as an alternative. LEISA emphasizes sustainable agriculture by minimizing reliance on external inputs. This approach, characterized by maximum self-sufficiency and minimal external input expenses, has rapidly proliferated. The subsequent evolution of LEISA involves using limited amounts of fertilizers and pesticides only in urgent situations, aiming towards No External Input Sustainable Agriculture (NEISA), a self-reliant farming method that operates without dependencies.

1.3 Organic farming

Fertilizers, herbicides, and pesticides, commonly utilized in modern agriculture, lead to air pollution and water contamination as they flow into drains, causing harm to water sources especially tributaries. The persistent application of synthetic fertilizers gradually diminishes soil organic content, disrupts microbial activity, alters soil composition, and restricts proper aeration. Additionally, the development of resistance among pests and disease causing organisms to chemical treatments poses escalating challenges for their control. In response to these issues, organic farming endeavours to promote sustainable agricultural practices by eschewing chemical fertilizers and synthetic pesticides, instead utilizing renewable organic materials in harmony with nature, while minimizing harm to the whole ecosystem.

The International Federation of Organic Agriculture Movements (IFOAM-Organics International) is a global organization dedicated to promoting organic agriculture. In 2022, this organization had over 791 affiliates across over 100 nations. Notable among its affiliates are 81 organizations hailing from Germany, 54 from China, 46 from India, and 45 from the USA. The Peerumedu Development Society (PDS), situated in the Idukki district of Kerala, is among the 46 affiliated organizations in India.

In September 2005, during the General Assembly of IFOAM-Organics International in Adelaide, Australia, a resolution was made to develop a concise definition of organic agriculture. A task force was established for this objective, and it took approximately three years to craft a definition that succinctly embodies the four fundamental principles of organic agriculture: the Principle of Health, the Principle of Ecology, the Principle of Fairness, and the Principle of Care. This definition was subsequently endorsed by the General Assembly in Vignola, Italy, in 2008. The definition is provided below.

Organic Agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and good quality of life for all involved.

The Food and Agriculture Organization (FAO), a specialized agency of the United Nations, is tasked with spearheading global endeavours to eradicate hunger by ensuring consistent access to nutritious food, thereby fostering food security and promoting well-being for all individuals. Similarly, the World Health Organization (WHO) is another specialized agency established by the United Nations, to address public health concerns. In conjunction with these entities, the Codex Alimentarius Commission (CAC) was established in 1963 to create food standards and guidelines through the collaborative FAO/WHO Food Standard Programme. In 1999, this commission delineated organic farming and established criteria regulating its production, processing, labelling, and marketing. The definition is as follows.

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.

The essence of organic farming is comprehensively described by both the definitions mentioned above. In addition to this, various nations, agronomists, and agricultural specialists have presented varied interpretations of organic farming. Nonetheless, the fundamental concept in all of these definitions remains consistent with the description provided above. In short,

Organic farming is an agricultural production system designed to sustain the health of soil, ecosystems, and mankind. It relies upon ecologically sound production methods, biodiversity, and cyclic systems suited to local environments. It integrates traditional practices, contemporary discoveries, and scientific principles to promote equitable interaction and enhance the well-being of all sectors involved. Organic farming exclusively employs environmentally safe production techniques thereby preventing the accumulation of harmful toxic residues. Production methods for plant nutrition and protection ought not to generate environmental issues. This is the essential message conveyed by these definitions.

[Data Sources:
(1) www.ifoam.bio, Official website of IFOAM-Organics International;
(2) www.fao.org, Official website of World Food and Agricultural Organization]

1.4 Organic farming Globally

Numerous nations prioritizing public health have adopted organic farming techniques devoid of artificial additives. According to a report from IFOAM-Organics International, in 2021, the collective area of organic agricultural lands globally amounted approximately to 76.40 million hectares. This figure marks a significant surge from 1999 when it stood at just 11 million hectares. The increase from that in the year 2020 was recorded at 1.3 million hectares (1.7%). China, France, and Spain witnessed the most notable increments. As of now, organic agricultural land constitutes 1.6% of the total available agricultural land worldwide. The countries boasting the largest number of organic farms are Australia (35.69 million hectares), Argentina (4.07 million hectares), and France (2.77 million hectares). Notably, Liechtenstein (40.2%), Samoa (29.1%), and Austria (26.5%) possess substantially higher proportions of organic agricultural land compared to the global average. Furthermore, in 20 countries, organic agricultural land constitutes 10% or more of the total agricultural land. Besides, significant areas of organic land are designated for forestry, beekeeping, aquaculture, forests, and grazing areas, totalling 31.85 million hectares. Consequently, the combined area dedicated to all organic farming activities amounts to 108.25 million hectares globally.

With 191 nations worldwide adopting this methodology, the organic farming sector is witnessing unprecedented growth. Numerous countries have formally acknowledged organic farming, with 74 countries fully implementing control measures adhering to IFOAM-Organics International standards and 21 countries partially doing so. Legislation has been enacted by fifteen countries. The global count of organic producers is on the rise, increasing from 2 lakhs producers two decades ago to 37 lakhs today. India (15,99,010), Uganda (4,04,246), and Ethiopia (2,18,175) boast the highest number of organic farmers. In 2021, there was a 4.90% increase in farmers transitioning into the organic farming sector compared to 2020.

The worldwide market for organic food and beverages expanded from 15.10 billion Euros in 2000 to 124.85 billion Euros by 2021. However, the marketing of organic agricultural products was limited to only a few industrialized countries. In 2021, the leading organic markets were the United States (48.62 billion Euros), Germany (15.87 billion Euros), and France (12.65 billion Euros). According to the Central European Bank, 1 Euro equalled 1.1827 US Dollars in 2021. Growth in the global organic agricultural products market decelerated in 2021. International conflicts and escalating food prices have negatively impacted the global organic food market. Following record breaking sales in 2020, market expansion slowed to just 5% in 2021. With an increasing proportion of the population worldwide becoming health conscious, the demand for chemical free organic products is rising; promising new milestones for the organic products market in the future.

[Data Source: Research Institute of Organic Agriculture FiBL & IFOAM - Organics International: The World of Organic Agriculture Statistics and Emerging Trends 2023]

1.5 Organic farming in India

The concept of organic farming is not unfamiliar within the Indian agricultural landscape. The Green Revolution marked a significant shift in India's agriculture with the introduction of high yielding and hybrid seeds and the widespread adoption of artificial fertilizers and pesticides to increase the productivity anyway to feed the people. Over time, the excessive use of chemical inputs reached its pinnacle, leading to environmental degradation and health concerns. Consequently, there emerged a gradual replacement of chemical fertilizers and pesticides with organic alternatives such as organic manures, composts, and tinctures. Presently, organic farming is emerging as a pivotal agricultural method in India. The increasing awareness about health and the adoption of eco-friendly farming practices have created new markets for organic products both domestically and internationally. In India, the number of consumers demanding organic goods is rising. Consequently, a considerable number of farmers have swiftly transitioned to organic farming. However, numerous hurdles persist in successfully marketing organic produce.

Organic certification plays a vital role in overcoming barriers in the marketing of organic products. Certified organic products hold a reputable position in the global export market. Recognizing this significance, the Government of India initiated the National Programme for Organic Production (NPOP) in 2000. Implementation of NPOP falls under the purview of the Agricultural and Processed Food Products Export Development Authority (APEDA), which operates under the Union Ministry of Commerce and Industry. The programme encompasses various activities including the accreditation of certification bodies, establishment of standards for organic production, and the promotion and marketing of organic agriculture. The standards set by NPOP for production and accreditation have garnered recognition from the European Commission and Switzerland, who deem them equivalent to their standards for the production of unprocessed plant products. As a result, nations importing organic produce readily accept Indian organic products certified by accredited bodies within the country.

The Central Government introduced the Parambaragat Krishi Vikas Yojana (PKVY) in 2015 to encourage organic farming practices, aimed at safeguarding soil health and environmental biodiversity. A sub scheme under PKVY, known as Bharatiya Prakritik Krishi Paddhati (BPKP), concentrates on fostering sustainable agriculture through traditional and indigenous methods. This initiative advocates the adoption of chemical free pesticides, promotes sound farming techniques, facilitates agricultural revolution/ transformation, and implements Participatory Guarantee System Organic Certification (PGS Organic Certification) on a nationwide scale through diverse projects. Furthermore, special markets for organic agricultural products, dedicated commercial units for organic pesticides and organic manures, and an exclusive package for organic agriculture were announced in the union budget for the fiscal year 2021-22.

According to 2021 data from IFOAM Organics International, India holds the 6th position globally in organic agricultural land and tops the list of the total number of producers. During this period, India boasted 15,99,010 organic agriculture producers. Moreover, the country has dedicated 2.66 million hectares (26,57,889 hectares) to organic farming, but it constitutes merely 1.5% of the total agricultural land. Surprisingly, there has been no increase (0%) in the total organic land from 2020 to 2021. Nonetheless, there has been a remarkable surge of 431.6% in total organic farming land over the past decade. If we consider the 1.68 million hectares (16,81,296 hectares) of organic agricultural land utilized for harvesting forest resources, the total organic agricultural land extends to approximately 4.34 million hectares (43,39,185 hectares).

Estimates provided by the Agricultural and Processed Food Products Export Development Authority (APEDA) for 2021-22 indicate India had a total organic agricultural land area of 9.12 million hectares

(9,11,98,65.91 hectares) under the National Programme for Organic Production (NPOP), which includes land under conversion. During this period, India yielded a total of 34.31 lakh metric tons (34,30,735.65 metric tons) of organic products, out of which 4.60 lakh metric tons (4,60,320.40 metric tons) were exported, resulting in approximately US$ 771.96 million (Rs. 5,249.32 crore) in foreign exchange earnings. In addition to this, there is 1.19 million hectares (11,85,700 hectares) of land currently under organic cultivation in 2021-22 as part of the scheme Parambaragat Krishi Vikas Yojana.

[Data Sources:
(1) Research Institute of Organic Agriculture FiBL & IFOAM - Organics International: The World of Organic Agriculture Statistics and Emerging Trends 2023;
(2) Annual Administrative Report: 2021-22 of Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Government of India;
(3) www.apeda.gov.in, Official website of Agricultural and Processed Food Products Export Development Authority, Government of India;
(4) Agricultural Statistics at a Glance 2022, Ministry of A&FW, Department of A&FW, E&S Division, Government of India]

1.6 Organic farming in Kerala

Since 2002, Kerala has commenced project endeavours aimed at promoting organic farming. In 2010, a comprehensive policy and action plan for organic farming was introduced. The primary aims of the policy are to nurture sustainable and profitable organic farming methods while guaranteeing the availability of toxin free water, soil, and food for all citizens. Numerous farmer associations and groups have played a pivotal role in disseminating information and enhancing awareness among farmers. Public discourse regarding the grave issues posed by chemical pesticides has spurred many individuals to venture into organic farming, leading to the establishment of new associations. Government has formulated and executed schemes, including offering subsidies to those who cultivate fallow land, earmarking funds to ensure a market for organic agricultural products, and organizing events to foster organic agriculture. Diverse schemes have been devised and executed to bolster sustainable agriculture and organic farming, along with providing incentives and resources for cultivating organic agricultural products in accordance with the standards outlined in the National Programme for Organic Production 2000.

Subhiksha Keralam is a scheme implemented by the State Government aimed at boosting food production and achieving self-sufficiency in the aftermath of the Covid pandemic by 2020. The scheme entails providing subsidies, fostering cooperation, and offering encouragement for agricultural cultivation. In the fiscal year 2020-21, the sub-mission on organic farming, a component of the Paramparagat Krishi Vikas Yojana, was rolled out through joint efforts of the central and state governments as part of the Subhiksha Surakshitham Project- Bharatiya Prakritik Krishi Paddhati (Kerala Agro Ecology Based Biodiversity Conservation). With the goal of attaining self-reliance in vegetable cultivation and ensuring food safety, the state government introduced a popular scheme in 2022 aimed at empowering households. The initiative is executed through coordinated efforts among various departments in conjunction with the Department of Agriculture. The overarching message of this extensive project is to instil an agricultural ethos among all individuals, fostering a sustainable agricultural sector in Kerala. Beyond individuals, entire segments of society including families, youth, women, political and voluntary organizations, religious institutions, schools, and colleges are integral components of the project's framework.

The United Nations Development Programme (UNDP), with support from the Global Environment Facility (GEF) of the United Nations, has initiated the Anchunadu UNDP project in Idukki district to safeguard the high-range region in the Southern Western Ghats. This endeavour aims to advance Sustainable Livelihood and Biodiversity Conservation through Multiuse Management of Anchunad and its adjacent Landscape, spanning the Idukki High-Range region and its environs. The project is centred on 2,59,878 hectares directly within the high range, which encompasses a total area of 6,00,000 hectares. It delineates the project area, covering 11 Grama Panchayaths, into four clusters: (1) Munnar cluster comprising Chinnakanal, Munnar, Devikulam; (2) Anchunadu cluster encompassing Vattavada, Kanthallur, Marayoor; (3) Kuttampuzha Cluster involving Mankulam, Adimali, Kuttampuzha, Athirapilli; (4) Idamalakudi Cluster specifically focusing on Idamalakudi. Collaborative partners in the project include the Haritha Kerala Mission and Kerala Forest and Wildlife Department. The project envisages to safeguard biodiversity and promote sustainable practices in the region.

In the estimates provided by the Agricultural and Processed Food Products Export Development Authority (APEDA) for the year 2021-22, it is reported that the total area earmarked to organic farming under the National Programme for Organic Production (NPOP) in Kerala, inclusive of land undergoing conversion, amounts to 43,681.54 hectares. During this period, Kerala yielded a total of 31,966.48 metric tons of organic products, out of which 7,337.49 metric tons were exported. This resulted in foreign exchange earnings of approximately US$ 45.38 million (Rs. 308.59 crore). Additionally, it is noted that in the year 2021-22, 96,380 hectares of land are under organic cultivation as part of the scheme Parambaragat Krishi Vikas Yojana.

[Data Sources:
(1) www.haritham.kerala.gov.in, Official website of Mission Haritha Keralam, Government of Kerala;
(2) www.apeda.gov.in, Official website of Agricultural and Processed Food Products Export Development Authority, Government of India;
(3) Annual Administrative Report: 2021-22 of Agricultural and Processed Food Products Export Development Authority, Government of India;
(4) Agricultural Statistics at a Glance 2022, Ministry of A&FW, Department of A&FW, E&S Division, Government of India;]

1.7 Background

Organic farming is gaining increasing importance in agriculture. Lifestyle diseases and related health issues drive the general public towards organic agricultural products. As a result, many farmers are adopting organic farming practices. In our state, a significant number of farmers are turning to organic farming. Scientific organic farming has emerged as an innovation in agriculture. Government is also implementing various schemes to promote organic farming. Despite Kerala's longstanding involvement in organic farming and efforts to produce organic agricultural products and value addition goods, there remains a lack of comprehensive understanding regarding organic farming practices and marketing in the state. Adequate data collection in this area has not yet been undertaken, as there are no large-scale studies or sample surveys revealing this information in the public domain. In general, the successful implementation of organic farming in the state, which can be said to be still in its infancy, requires a detailed study of various farming methods, income generation, marketing potential, and export/import potential. Recognizing this, the Department of Economics and Statistics has decided to conduct a survey on organic farming and marketing in Kerala to provide valuable information for the promotion of organic farming. This will assist government and non-government agencies involved in the sector in planning and implementing future activities. To facilitate this survey, an amount of Rs. 4 lakhs has been allocated in the state budget for the financial year 2021-22, and administrative sanction has been granted by the government as per GO(Rt) No: 330/2021/P&EA dated 04/08/2021.

1.8 Objectives

- To comprehend various organic farming practices;
- To understand the acreage, production costs, and yields of organic crops on a per crop basis;
- To explore the marketing prospects, storage, and revenues associated with organic agricultural products;
- To investigate the challenges faced by organic farmers;
- Above all, to identify real organic farmers.

1.9 Methodology

The sampling frame for the survey consisted of the roster of organic farmers obtained from the Principal agricultural offices of all districts, categorized by Krishi Bhavan. 20% of farmers from each Krishi Bhavan were selected for the survey using Circular systematic sampling method. The selection procedure was executed according to column 5 of the random sampling number table provided by the National Statistical Office (NSO).

Organic farmers were selected in a manner that organic farmers from all Krishi Bhavan got representation. If a Krishi Bhavan had only one organic farmer, that farmer was selected and the condition for selecting two organic farmers from a Krishi Bhavan was that, it should have a minimum of 8 such farmers. A reserve list was also compiled along with the selected list to maintain a sample size of 20% of the total. This reserve list served as a backup in cases where the investigator encountered difficulties in locating the organic farmer(s) or if the farmers were not fully cooperative during the survey. Further information regarding this is given in **Appendix Table 1.1.**(**Page 121**)

1.9.1 Reference period

The reference period for the survey is the agricultural year 2020-21 (July 1, 2020 to June 30, 2021). Agricultural data on area of agricultural land, information on crops, production, production costs, income, and export were collected within this timeframe. Additionally, information regarding farmers' issues and perspectives, along with documents, reports, benefits, financial aid, subsidies, etc., was collected based on the date of data collection (November 1 to December 31, 2021).

1.9.2 Data collection period

Field level data collection of the survey commenced on 1 November 2021 and completed on 31 December 2021.

1.9.3 Coverage

The sampling was done in such a way as to ensure representation across all the regions of the state, categorized by Krishi Bhavan. Hence, the survey results can be generalized to a certain extent at the state level.

1.10 Definitions

1.10.1 Organic farming

The definition of organic farming is given in **Section 1.3**.(**Pages 2-3**)

1.10.2 Organic farmers

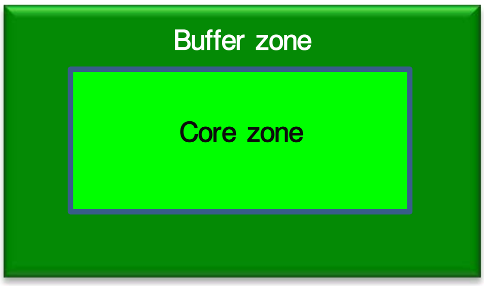
Organic farmers are individuals who cultivate a minimum of 5 cents of land in accordance with scientifically defined principles of organic farming. They are obligated to keep written records of all agricultural activities conducted on organic agricultural lands. Additionally, farmers must have practiced conventional farming for a minimum of three years before transitioning to organic practices. This definition does not apply to farmer selection. It is intended for authenticating real organic farmers. However, the survey's criteria for selecting farmers relied solely on the list of organic farmers provided by the Kerala Agriculture Development and Farmers Welfare Department.

1.10.3 Organic farmers or Farmers

In the report, those who took part in the survey and engage in organic farming are referred as *organic farmers*. Similarly, when mentioning a single person involved in this activity, the term *organic farmer* is used. Furthermore, the abbreviations *farmers* and *farmer* are referred interchangeably. Thus, within the report, the phrases *organic farmer/s* and *farmer/s* are used interchangeably.

1.10.4 Buffer zone

A buffer zone is established by delineating a boundary around the organic agricultural land to prevent the adverse effects of chemical fertilizers used in nearby areas or plots. Organic farming should be practiced in the buffer zone also. The area that falls within the buffer zone following the defined practices of organic farming is referred to as the core zone.



1.10.5 Net area, Gross area

The term, Net area, refers to the actual land area of a plot. The net area of a crop is determined by the area covered by its canopy. In cases where there are multiple crops in a plot, each crop is treated as a subplot, and the crop area is calculated accordingly. The total area of crops is recorded without exceeding the area of the plot. However, for the agricultural year 2020-21, the yielded crop area is recorded as gross area. This means that the areas are not adjusted to fit within the plot boundaries. The techniques utilized by the department in collecting agricultural statistics are employed to accurately measure the gross area of crops.

1.10.6 Chemical properties of soil

1.10.6.1 Carbon-Nitrogen ratio (C-N ratio)

The C-N ratio in soil, typically 24:1, is crucial for the presence of decomposers- microorganisms responsible for breaking down organic matter in soil, including remains of animals, plants, and birds. This ratio is deemed *optimal* as it enhances the activity of vital nutrients like Nitrogen, Phosphorus, and Potassium (NPK) for plant growth. When the C-N ratio falls below 24, indicating low carbon and high nitrogen levels, organic residues decompose rapidly in the soil. This level of ratio is considered *narrow*. Conversely, if the C-N ratio exceeds 24 indicating high carbon and low nitrogen levels, organic residues decompose slowly in the soil. This measure is considered *wide*.

1.10.6.2 Cation Exchange Capacity (CEC)

CEC is an indicator of soil fertility, referring to the ability to hold and exchange positively charged ions (cations) such as Calcium, Magnesium, and Potassium ions in a manner suitable for plant growth. The CEC value is typically expressed in milliequivalents per 100 grams of soil (meq/100g). Soils with higher CEC can hold more nutrients and make them available to plants over time, which is beneficial for crop growth. A low CEC indicates a low capacity of the soil to retain and transfer nutrients, while an adequate CEC indicates sufficient nutrient retention ability. The specific range of CEC varies based on the type of soil.

1.10.6.3 Soil pH (pH)

pH serves as the metric for gauging the acidity or alkalinity of soil, reflecting the abundance of H^+ ions within it. Its scale spans from 0 to 15. Soil registering a pH between 3.5 and 4.5 is classified as extremely acidic, while a pH range of 4.5 to 6 suggests moderate acidity, and 6 to 7 indicates slight acidity. A pH of 7 signifies neutrality, while values above 7 indicate alkalinity. If acidity remains unbalanced, plants will be unable to absorb nutrients from the soil.

1.10.7 Essential elements

Carbon, Hydrogen, Oxygen, Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulphur, Iron, Manganese, Zinc, Copper, Boron, Molybdenum, Chlorine, Nickel, Silica, Sodium, and Cobalt are classified as essential elements crucial for the growth of plants. If plants do not receive sufficient quantities of these elements, they are unable to fulfill their life cycle.

Among the essential elements, Carbon, Hydrogen, and Oxygen are obtained from the atmosphere. The presence of elements such as Nitrogen, Phosphorus, and Potassium in the soil greatly influences cultivation. These are known as primary nutrients. Nitrogen is crucial for optimal plant and leaf growth, Phosphorus contributes to the strength and firmness of roots, stems, and fruit, and Potassium supports abundant flowering and fruiting. Calcium, Sulphur, and Magnesium are secondary nutrients required by crops. Calcium acts as a regulator for the production of plant cells, Sulphur aids in vitamin and protein production in plants, and Magnesium supports chlorophyll production. Both primary and secondary nutrients are available to plants through organic manures, the natural cycle of plants that nourish them, and their decomposition into the soil.

Plants require elements such as Zinc, Boron, Molybdenum, Manganese, Silica, Copper, Nickel, Chlorine, and Iron in very small amounts for complete growth. However, their growth can only be fulfilled if these elements are obtained in a suitable manner. Zinc acts as an important factor for oxidation, while Boron acts as an accelerator of biological activity. Molybdenum helps convert nitrogen into ammonia during protein production, and Manganese accelerates photosynthesis as a green component. Copper aids in utilizing nitrogen in ammonia form and accelerates root functions. Chlorine helps plants absorb sunlight, and Iron gives leaves their green color. Many of these micronutrients are present in organic manures and micronutrient mixtures.

Different plants have varying requirements for elements like sodium and cobalt. Some plants, such as coconut trees, have a greater need for sodium obtained from salt, while leguminous plants benefit from cobalt, which aids in nitrogen uptake. Additionally, cobalt can improve a plant's ability to withstand drought conditions. To address cobalt deficiency, organic manures like compost can be added to the soil.

1.11 Field operations

1.11.1 Data collection

Data collection for the survey was carried out by investigators employed under schemes such as the National Sample Survey (NSS) and the Establishment of an Agency for Reporting Agricultural Statistics (EARAS), and other schemes, stationed at district and taluk offices of the department.

1.11.2 Supervision

Taluk Statistical Officers, Research Officers, and Additional District Officers conducted necessary field-level inspections and meticulous scrutiny of schedules to ensure data quality and efficient data collection mechanisms with norms.

1.11.3 Monitoring & Coordination

The Deputy Directors of the districts were solely responsible for overseeing the survey, which encompassed supervising and organizing field operations within their respective districts.

1.11.4 Software

The computer division within the department has developed an online application aimed facilitating the creation of an electronic database essential for the efficient and expeditious codification, analysis, and interpretation of the data gathered through the survey.

1.11.5 Data entry

The statistical investigators who carried out the data collection in the field entered the collected data into the online application.

1.11.6 Data validation, Table generation, and Report preparation

Activities related to data validation, table generation, and report preparation was conducted at the directorate level.

1.12 Questionnaire

The questionnaire utilized for gathering data is included in **Appendix A.(Pages 262-269)**

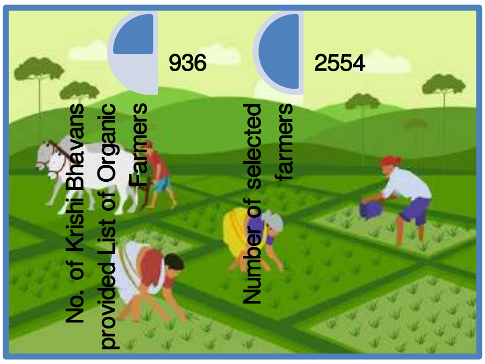
1.13 Challenges/Limitations

Within the surveyed farmer population, only a small subset has maintained the necessary records mandated by organic farming regulations. This has posed a significant challenge during the data collection. As a result, farmers have been unable to provide accurate assessments of production, income, and expenditure associated with organic farming activities. A notable portion of farmers are relying on memory to recall details such as soil test results, farming techniques utilized, and crop rotation schedules which leads to hindrance in filling the schedule by re-collecting the information from their memory.

2

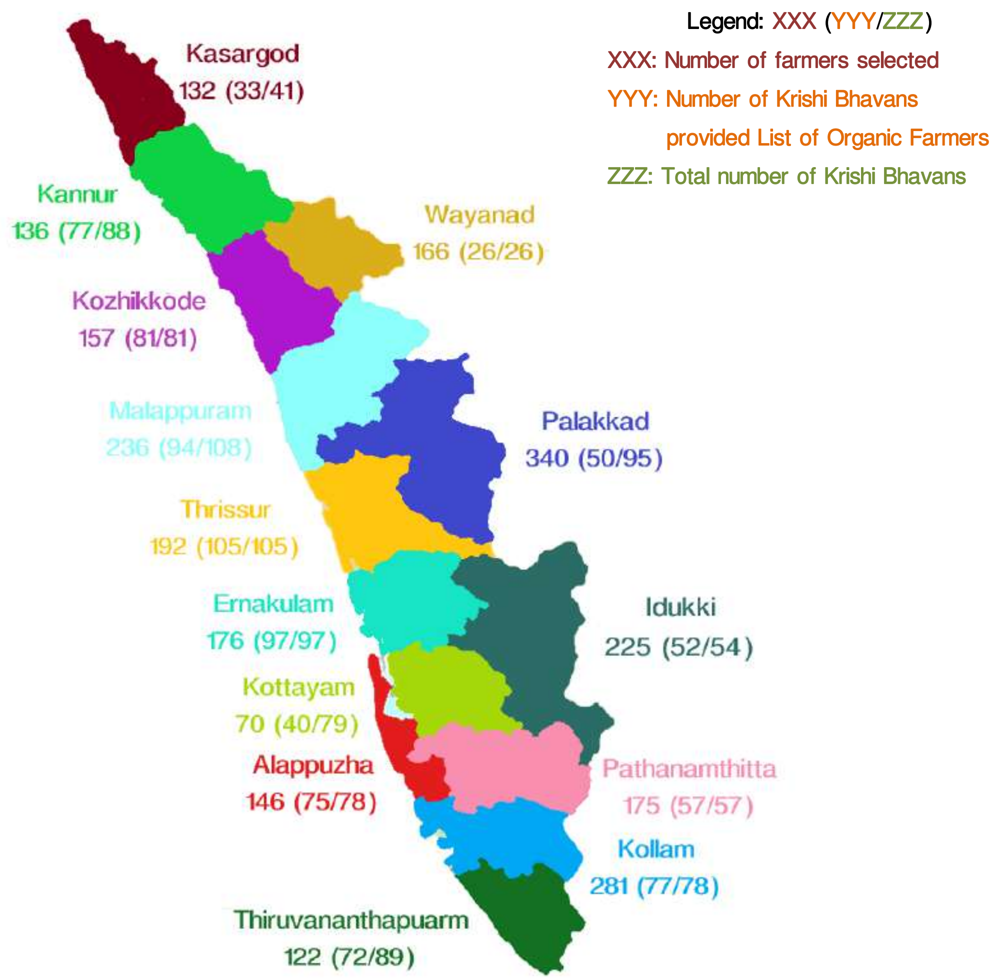
Basic information

2.1 Selected farmers



A total of 2554 (20.75%) farmers selected from the list of 12,306 available organic farmers supplied by Principal Agricultural Officers in the districts consitute the sample for the survey. The selection process was done in such a way that no Krishi Bhavan had been left out from the survey coverage. Circular systematic sampling method was adopted to select the farmers. By adopting this sample method, it could be ensured that the geographical features of the State reflected in the survey results to a large extent. **Figure 2.1** illustrates the district wise distribution of Krishi Bhavans, along with the number of Krishi Bhavans within which organic farmers are scattered, and the farmers selected for the survey. Additional details are provided in **Appendix Table 1.1**.(**Page 121**)

Figure 2.1: District wise distribution of Krishi Bhavans and selected organic farmers



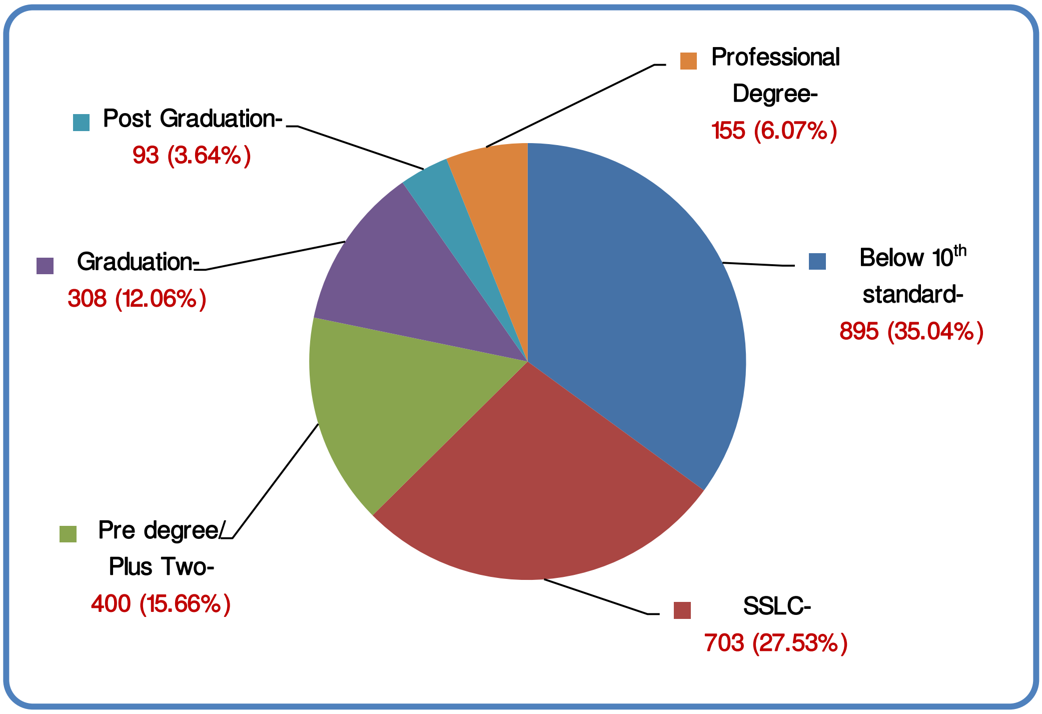
2.2 Educational qualifications

Of the 2554 organic farmers selected for the survey, 35.04% have below the 10th standard education, 27.53% have SSLC, and 15.66% possess pre-degree/plus two qualifications. Additionally, 21.77% of the organic farmers possess graduation, post-graduation, or professional degrees. The survey reveals that individuals with advanced educational backgrounds also participate in organic farming. Detailed information is presented in **Table 2.1** and **Figure 2.2** provided below.

Table 2.1: Educational qualifications of organic farmers

Sl No.	Educational Qualification	Farmers	
		Count	%
1	Below 10th standard	895	35.04
2	SSLC	703	27.53
3	Pre-degree/Plus Two	400	15.66
4	Graduation	308	12.06
5	Post-Graduation	93	3.64
6	Professional Degree	155	6.07
Total		2554	100

Figure 2.2: Educational qualifications of organic farmers



Among the 155 organic farmers holding professional degrees, 24 are from Thrissur district. In Pathanamthitta, Malappuram, and Ernakulam districts 21, 20, and 17 organic farmers have professional degree respectively. The district wise details of the educational qualifications of selected organic farmers are given in **Appendix Table 2.1.**(**Page 122**)

2.3 Total agricultural land

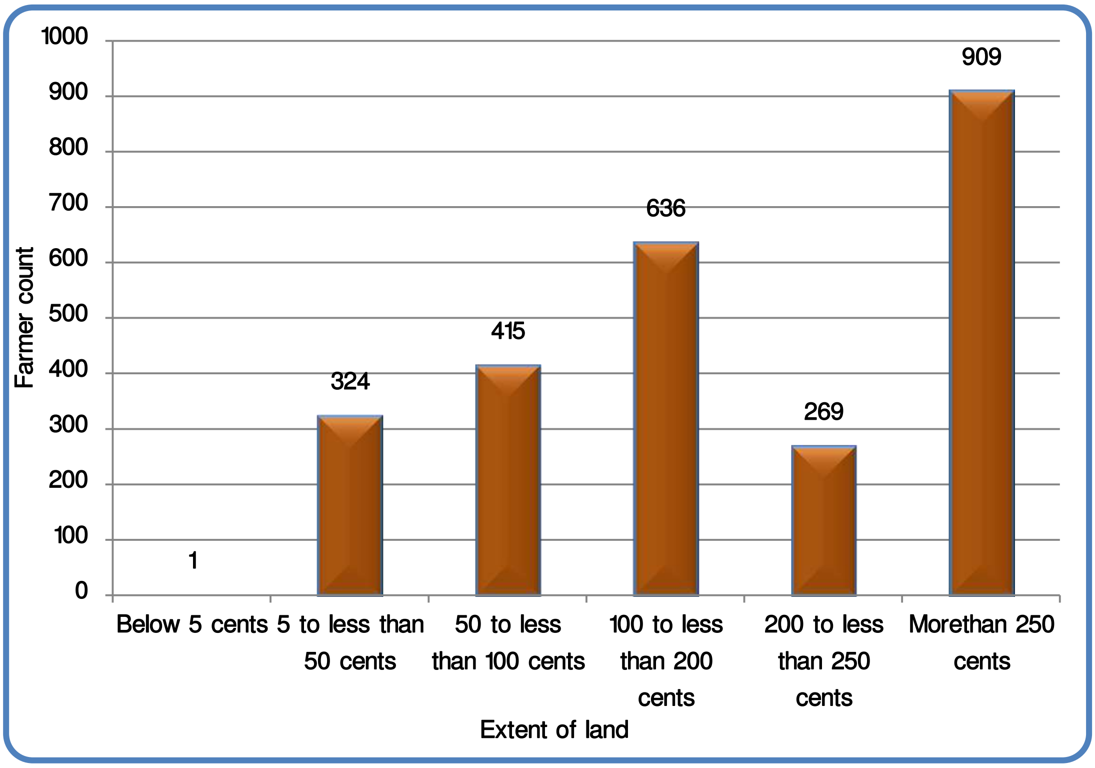
The aggregate agricultural land owned by the sample of 2554 farmers in the state amounts to 6,67,537 cents. On an average, each organic farmer possesses 261.37 cents of agricultural land. When analyzing the district wise data, Palakkad district stands first with an average of 337.09 cents of land, followed by Kottayam district with 336.67 cents of land. Kollam district, which ranks last, has an average of 151.64 cents of agricultural land. District wise information on total agricultural land is shown in **Appendix Table 2.2.**(**Page 123**)

When categorizing agricultural land by area, it was observed that 71.02% of the farmers have more than one acre of land. 46.12% of farmers own more than two acres of total agricultural land. Detailed information is given in **Table 2.2** and **Figure 2.3** below. District wise information on the classification of total agricultural land occupied by farmers is given in **Appendix Table 2.2.**(**Page 123**)

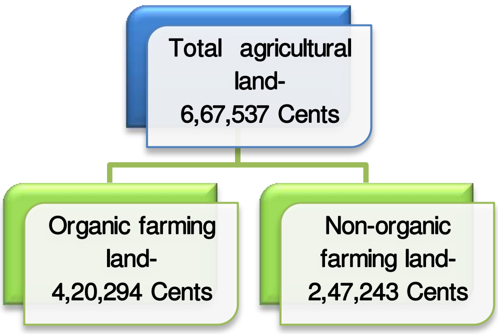
Table 2.2: Information on the total agricultural land of organic farmers

Sl No.	Extent of land	Farmers	
		Count	%
1	Below 5 cents	1	0.04
2	5 to less than 50 cents	324	12.69
3	50 to less than 100 cents	415	16.25
4	100 to less than 200 cents	636	24.90
5	200 to less than 250 cents	269	10.53
6	More than 250 cents	909	35.59
Total		**2554**	**100**

Figure 2.3: Information on the total agricultural land of organic farmers



2.4 Organic farming land



Out of the total 6,67,537 cents of agricultural land owned by 2554 organic farmers selected for the survey, 4,20,294 cents are being used for organic cultivation, while 2,47,243 cents are being used for non-organic cultivation. This indicates that 62.96% of the total agricultural land is allocated to organic farming. On examining the district wise figures, it is observed that farmers in Kasaragod and Kannur districts have utilized 88.84% and 87.09% of their total agricultural land respectively for organic farming. Farmers in Alappuzha and Pathanamthitta districts have utilized only 37.87% and 32.83% of their total land respectively for the purpose. District wise information on total organic agricultural land is provided in **Appendix Table 2.2.** (**Page 123**)

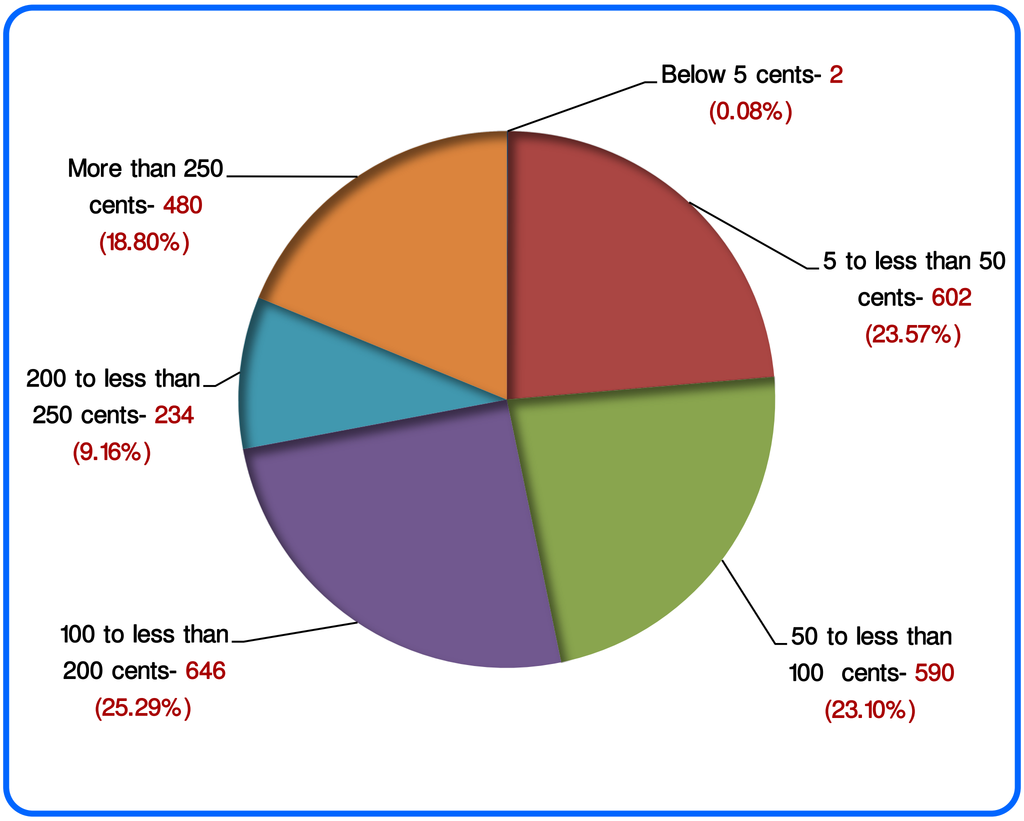
The average organic land held by a farmer is 164.56 cents. On scrutinizing the data at district level, Kasaragod district emerges on top with an average of 268.67 cents of land, followed by Palakkad district with 232.09 cents, and Wayanad district stood at third place with 216.69 cents. Pathanamthitta and Kollam districts rank last with average organic land holdings of 88.52 cents and 79.49 cents, respectively. District wise information on average organic land occupied by farmers are provided in **Appendix Table 2.2.**(**Page 123**)

When classifying organic farming land by size, it was observed that 53.25% of the farmers owned more than one acre, while 27.96% owned more than two acres. Furthermore, two farmers had less than 5 cents of organic land. The details of this classification are presented in **Table 2.3** and **Figure 2.4** below. District wise details regarding the classification of organic land held by farmers is available in **Appendix Table 2.3.**(**Page 124**)

Table 2.3: Distribution of organic farming land among Farmers

Sl No.	Extent of land	Farmers	
		Count	%
1	Below 5 cents	2	0.08
2	5 to less than 50 cents	602	23.57
3	50 to less than 100 cents	590	23.10
4	100 to less than 200 cents	646	25.29
5	200 to less than 250 cents	234	9.16
6	More than 250 cents	480	18.80
	Total	**2554**	**100**

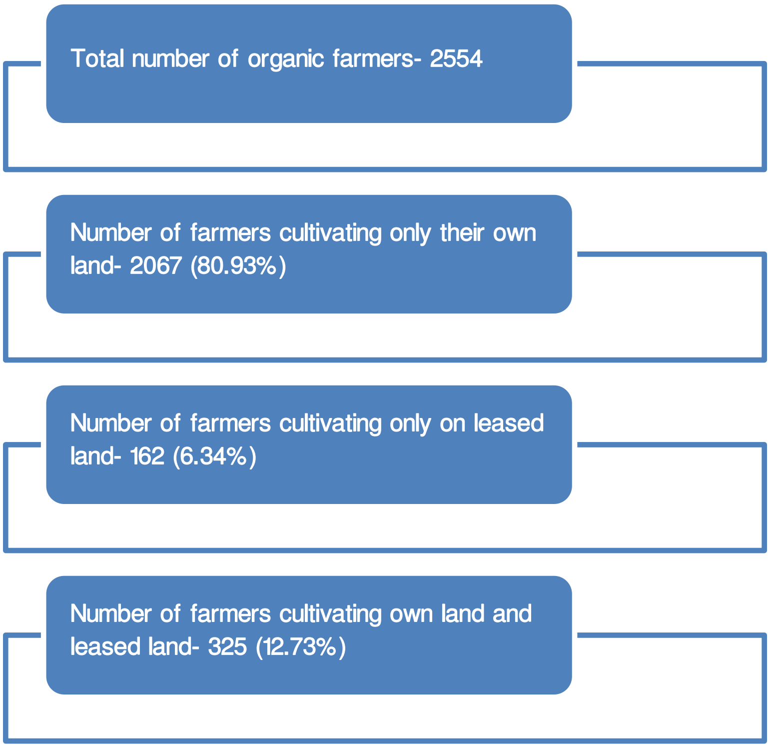
Figure 2.4: Distribution of organic farming land among farmers



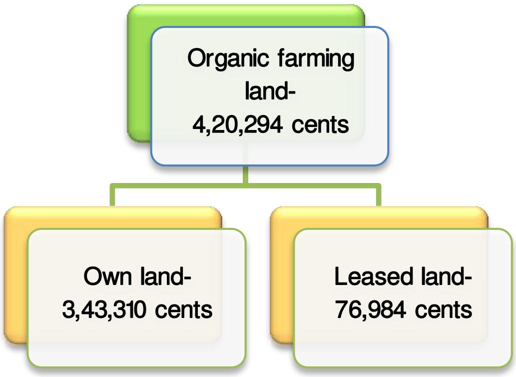
2.5 Organic farming land and tenancy status

Out of the 2,554 farmers surveyed, 80.93% are engaged in cultivation on land they personally own, while 6.34% are cultivating on leased land. Additionally, 12.73% of the farmers are managing cultivation on both their own land and leased land concurrently. These details are shown in **Figure 2.5** below. At the district level, 99.40% farmers in Wayanad and 99.24% farmers in Kasaragod districts possess ownership of the land they cultivate. The district specific figures in this regard are shown in **Appendix Table 2.3.**(**Page 124**)

Figure 2.5: Tenancy status of organic farming land



Out of 4,20,294 cents allocated for organic farming, 81.68% of the land is owned by the farmers themselves. The remaining 18.32% is leased. When examining the district wise break up, it is observed that Wayanad, Palakkad and Idukki districts show ownership percentages of 96.80%, 94.81% and 91.10% respectively, by farmers. However, in Thiruvananthapuram district, only 54.71% of the organic land is owned by farmers. On an average, an organic farmer possesses 134.42 cents of own land, whereas leased land averages at 30.14 cents. Detailed district wise data on organic farming land tenancy status is given in **Appendix Table 2.2.**(**Page 123**)

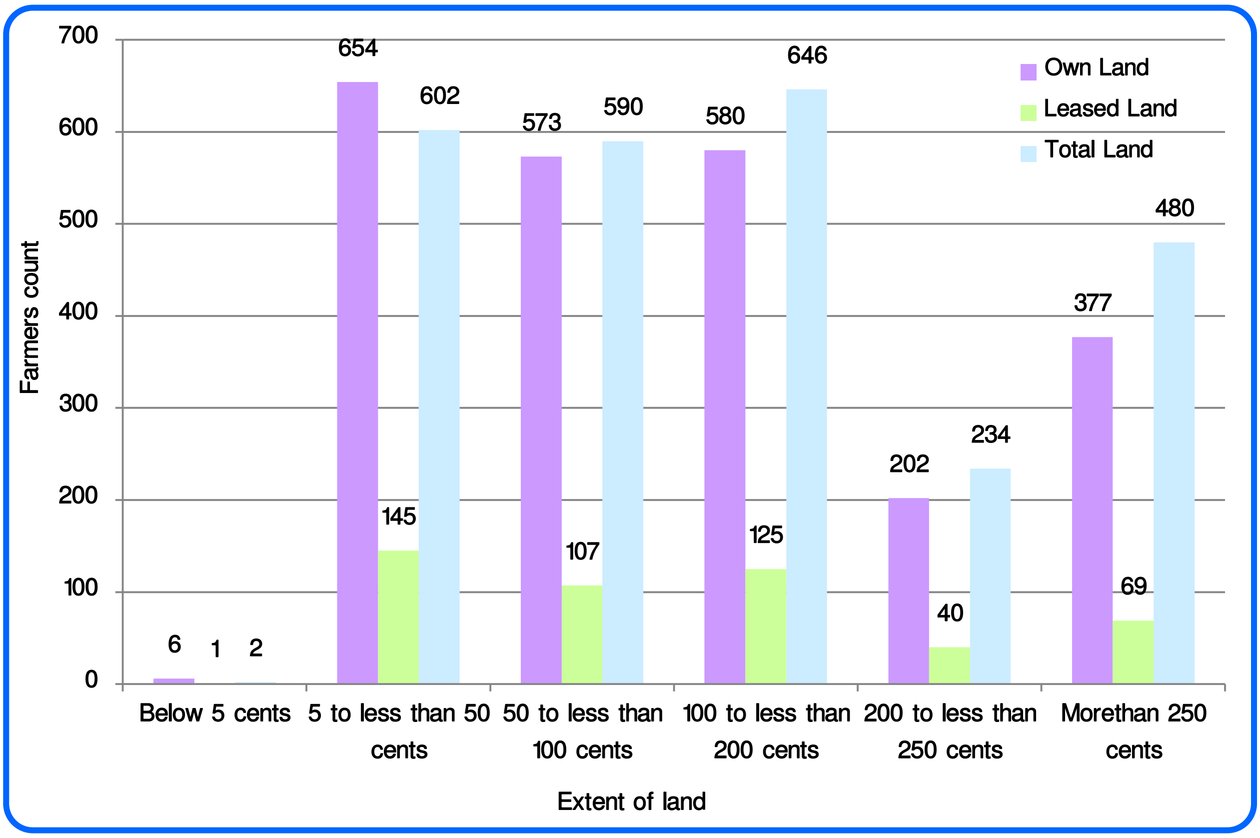


When categorizing the area under organic farming based on ownership, it is observed that 48.45% of land owning farmers possess more than one acre, while 24.20% own more than two acres. Similarly, 48.05% of farmers leasing land have more than one acre, with 22.38% owning more than two acres. Among the surveyed farmers, 12.73% possess both own and leased land. Within this group, 19.08% (62 farmers) possess more than one acre, and 5.23% (17 farmers) own more than two acres of organic agricultural land in both ownership categories. The details in this regard are given in **Table 2.4** and **Figure 2.6** below. Detailed district wise information is provided in **Appendix Table 2.3.**(**Page 124**)

Table 2.4: Distribution of organic farming land tenancy status among farmers based on extent of land

Sl No.	Extent of land	Tenancy status/Farmer				Total Farmers	
		Owned		Leased			
		Nos.	%	Nos.	%	Nos.	%
1	Below 5 cents	6	0.25	1	0.21	2	0.08
2	5 to less than 50 cents	654	27.34	145	29.77	602	23.57
3	50 to less than 100 cents	573	23.96	107	21.97	590	23.10
4	100 to less than 200 cents	580	24.25	125	25.67	646	25.29
5	200 to less than 250 cents	202	8.44	40	8.21	234	9.16
6	More than 250 cents	377	15.76	69	14.17	480	18.80
Total		**2392**	**100**	**487**	**100**	**2554**	**100**

Figure 2.6: Distribution of organic farming land tenancy status among farmers based on extent of land



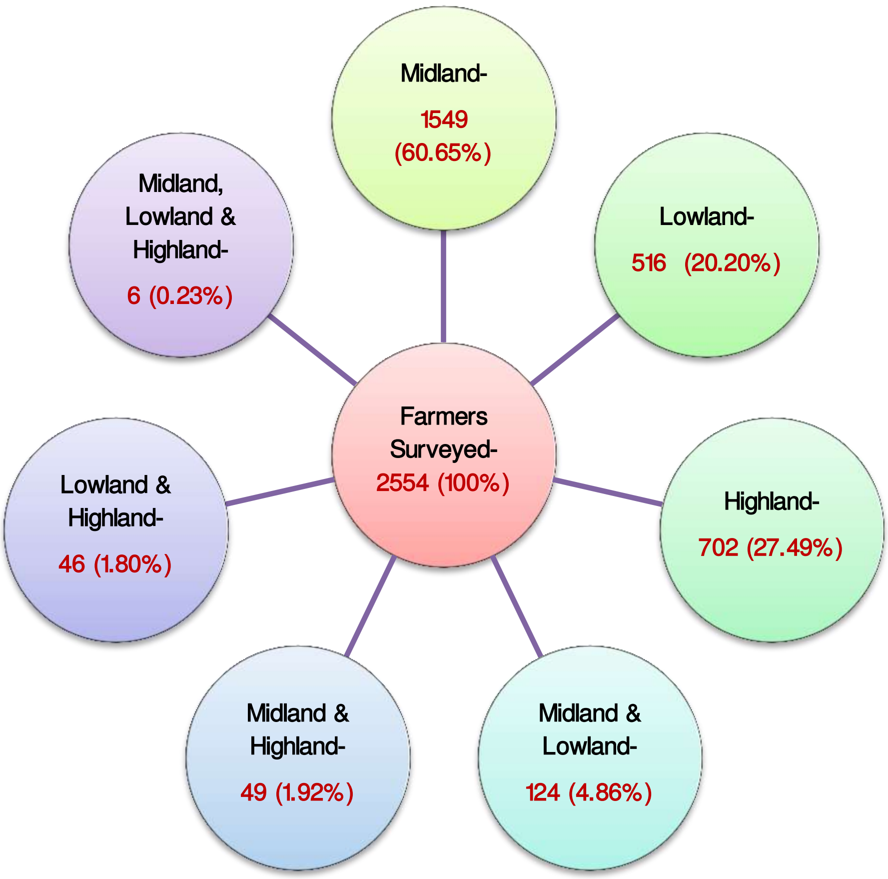
2.6 Terrain of organic land

When classifying the organic agricultural land owned by 2,554 farmers based on terrain into Midland, Lowland, and Highland, it was observed that many farmers had land across multiple categories. Specifically, 60.65% of the agricultural land was classified as midland, 20.20% as lowland, and 27.49% as highland. The survey further disclosed that 8.81% of individuals owned agricultural land spanning more than one category, including midland, lowland, and highland areas. The details in this regard are provided in **Table 2.5** and **Figure 2.7** below. District level data regarding the extent of terrain is available in **Appendix Table 2.4.**(**Page 125**)

Table 2.5: Information on organic agricultural land based on terrain

Sl No.	Terrain	Farmers	
		Count	Percentage
1	Midland	1549	60.65
2	Lowland	516	20.20
3	Highland	702	27.49
4	Midland & Lowland	124	4.86
5	Midland & Highland	49	1.92
6	Lowland & Highland	46	1.80
7	Midland, Lowland & Highland	6	0.23

Figure 2.7: Information on organic agricultural land based on terrain



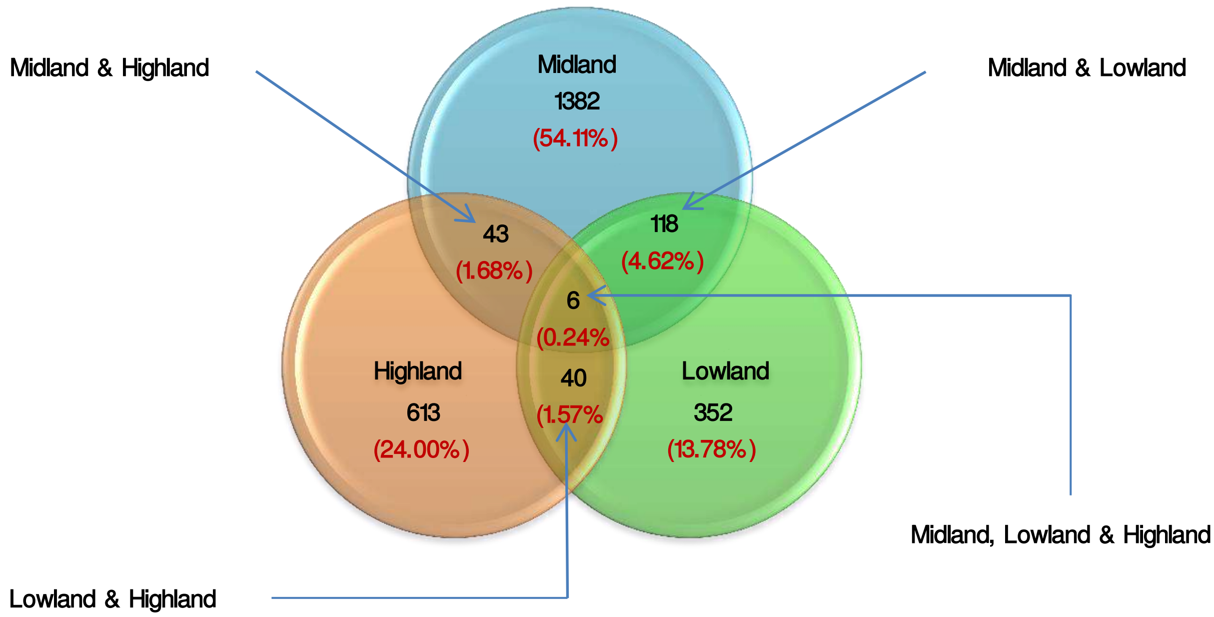
2.6.1 Terrain of organic land- Mutually exclusive events

Based on the terrain, the organic farming land of the 2,554 surveyed farmers was categorized into mutually exclusive classifications as Midland, Lowland, and Highland. The findings indicate that 54.11% of the farmers' land was categorized as lowland, 13.78% as midland, and 24% as highland. Moreover, 8.11% of the agricultural land was spread over a combination of midland, lowland, and highland areas. Further details are provided in **Table 2.6** and **Figure 2.8** below. District level information is also available in **Appendix Table 2.5**.(**Page 126**)

Table 2.6: Information on organic agricultural land based on terrain- Mutually exclusive events

Sl No.	Terrain	Farmers	
		Count	%
1	Midland	1382	54.11
2	Lowland	352	13.78
3	Highland	613	24.00
4	Midland & Lowland	118	4.62
5	Midland & Highland	43	1.68
6	Lowland & Highland	40	1.57
7	Midland, Lowland & Highland	6	0.24
Total		**2554**	**100**

Figure 2.8: Information on organic agricultural land based on terrain- Mutually exclusive events



Examining the aforementioned statistics, the clustering of farmers in the midlands or plains indicates the availability of fertile land for agricultural activities. This data holds significance for implementing interventions to support farmers in their respective regions in formulating organic agricultural policies.

3

Experience in Agriculture, Record Keeping, Buffer Zone

Keeping records is vital and essential for each organic farmer and is mandatory. Soil testing is another important parameter to assess the genuineness of organic farming practices. Identifying deficiencies in micro nutrients within the soil is vital for implementing effective soil nutrition strategies. Therefore, maintaining soil test reports is highly essential. A minimum period of 3 years is required for farmers for shifting from modern agriculture practices to organic farming by gradually eliminating chemical fertilizers and pesticides, and fungicides and to use these of organic in nature. Throughout this period, agricultural land can qualify for organic certification by adhering to the protocols involving standard soil nutrition and crop management practices.

During the conversion phase of the agricultural land, there is definitely a decrease in production, leading to a decline in income and an increase in cost. However, as the soil regains its health during this transitional period, production level rise, resulting increase in income. For effective monitoring and evaluating these changes, it is essential to maintain detailed records concerning the crops cultivated, extent of land, seed and seedlings used, production levels, marketing strategies, storage methods, production expenses, income, and profit/loss. By documenting information on these parameters, farmers can self-evaluate their farming practices accurately by assessing soil fertility and seasonal variation in the case of annual and seasonal crops in the short time and perennial crops in the long run.

Buffer zone is another crucial element of organic farming practice. They play a vital role in organic farming by preventing the spread of pesticides and other chemicals from nearby plots. This is also mandatory to define organic farming fundamentally. In contemporary agriculture, the absence of a buffer zone disqualifies farming practices from being considered organic, making it a mandatory requirement. Equally significant is farmers' understanding of the organic farming techniques applied on their agricultural land, as well as the timeframe during which conventional farming methods were utilized compared to the period dedicated to organic farming. This essential data was gathered through the survey and the particulars of which are outlined below.

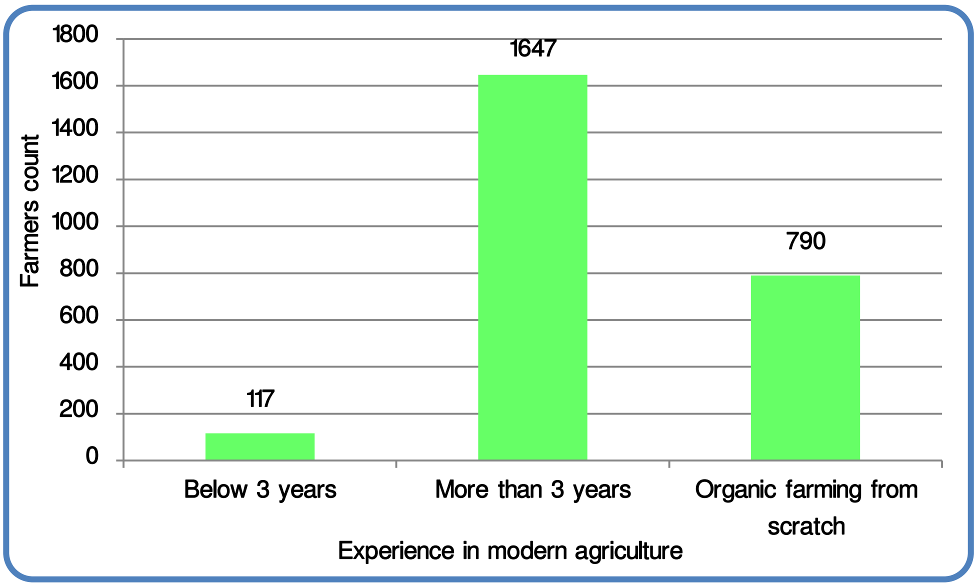
3.1 Experience in modern agriculture

Table 3.1: Farmers and experience in modern agriculture

Sl No.	Duration	Farmers	
		Count	%
1	Less than 3 years	117	4.58
2	More than 3 years	1647	64.49
3	Organic farming from scratch	790	30.93
Total		**2554**	**100**

The survey compiled data from 2554 farmers regarding the duration of time they engaged in modern agricultural practices before switching over to organic farming methods. Among these farmers, 4.58% practiced modern farming with chemical fertilizer application for less than 3 years, while 64.49% did so for over 3 years. Moreover, 30.93% of farmers stated that they had been adhering to organic farming methods since they commenced farming. These details are pesented in **Table 3.1** above and **Figure 3.1** below.

Figure 3.1: Farmers and experience in modern agriculture

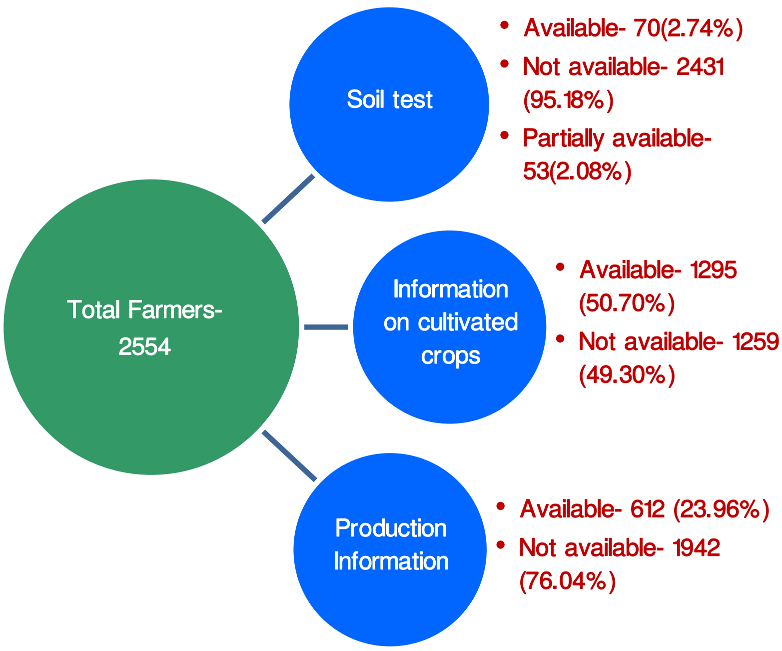


On analyzing the data at the district level, it is evident that more than 80% of farmers in the districts of Kollam, Pathanamthitta, Kottayam, Wayanad, and Kasaragod have transitioned to organic farming after engaging with modern farming techniques for more than 3 years. In Idukki and Palakkad districts, 61.78% and 49.41% of farmers, respectively, have made their transition. Meanwhile, between 24% and 40% of farmers in Thiruvananthapuram, Alappuzha, Ernakulam, Thrissur, Malappuram, and Kozhikode districts have reported practicing organic farming from the very beginning. The detailed related figures in this regard are delineated in **Appendix Table 3.1.**(**Page 127**)

3.2 Record keeping

The survey collected information on how farmers managed records pertaining to organically cultivated crops and the resulting agricultural output, as well as the availability of soil test reports. Among the surveyed farmers, soil test results are fully available with 2.74% of farmers and partially with 2.08% of farmers. Nearly, 50.70% of farmers maintain records of crop information, while 23.96% keep records of production information. These details are illustrated in **Figure 3.2**. District wise

Figure 3.2: Farmers and the keeping of basic records



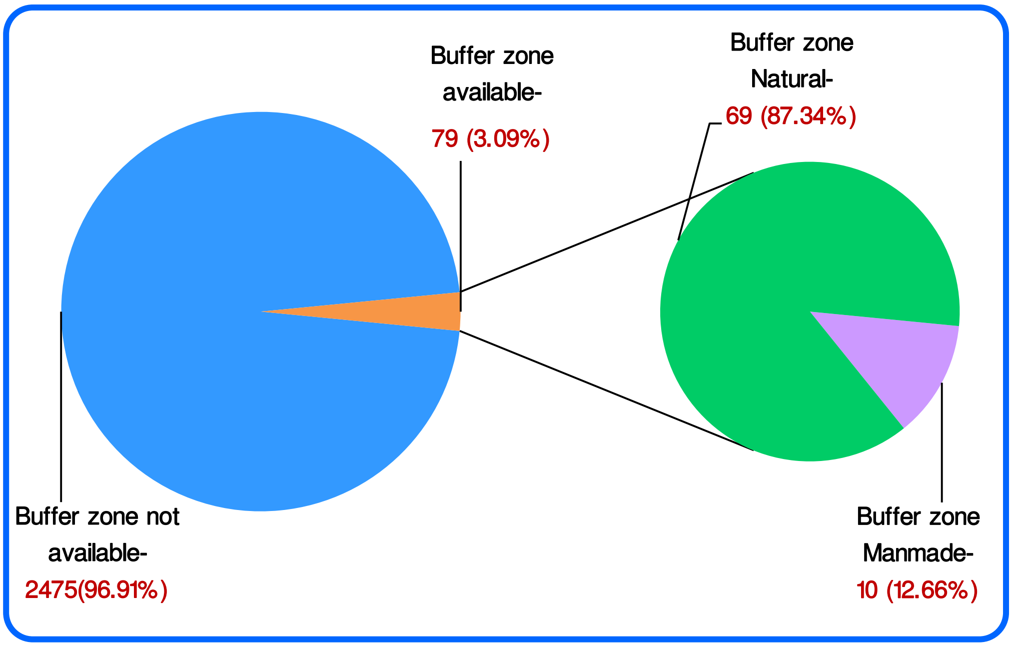
analysis indicates most farmers across all districts are not taking care of record keeping. Further details are provided in **Appendix Table 3.1.**(**Page 127**)

3.3 Buffer zone

Among 2554 organic farmers surveyed a meagre no. of farmers know about buffer zone and 3.09% possessed a buffer zone. Within this, 87.34% of them have natural land boundaries as buffer zone and 12.66% have constructed man made boundaries as buffer zones, varying in width from 1/2 meter to 12 meters, tailored to the soil texture and terrain slope of their respective area of cultivation. A significant portion of alternative farmers expressed the view that the agricultural lands surrounding their agricultural lands were either organically cultivated or sufficiently segregated by compound walls or adjacent roads, negating the necessity for a designated buffer zone. The details regarding this are provided in **Figure 3.3** below. At the district level, none of the surveyed farmers in Kollam, Pathanamthitta, and Ernakulam districts reported having a buffer zone on their agricultural land. District level information in this regard is presented in **Appendix Table 3.2.**(**Page 128**)

Buffer Zone	Creation of buffer zone	Buffer Zone - Constructed (m)
• Those who have- 79 (3.09%) • Those who don't have- 2475 (96.91%)	• Man made- 10 (12.66%) • Natural- 69 (87.34%)	• 0-2 : 4 (40%) • 2-4 : 1 (10%) • 4-6 : 3 (30%) • >6 : 2 (20%)

Figure 3.3: Details of buffer zones in organic farming land of farmers



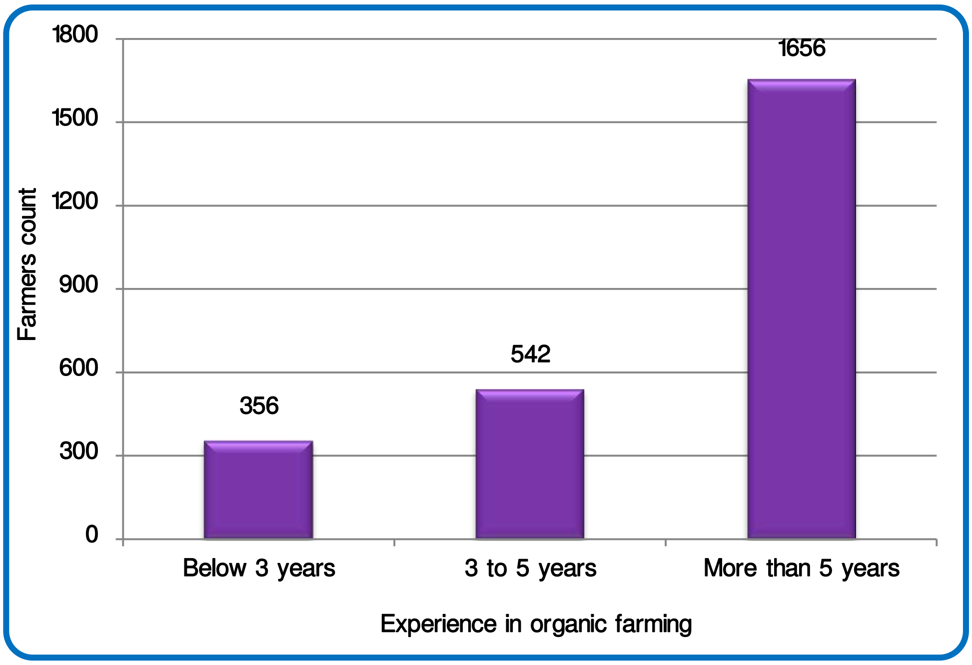
3.4 Experience in organic farming

The data on the duration of organic farming practice is gathered from surveyed farmers. It reveals that 13.94% of farmers have engaged in organic farming for a period of less than three years, 21.22% for a span of 3 to 5 years, and 64.84% for above 5 years. The details in this regard are given in **Table 3.2** and **Figure 3.4** below. The district level figures can be found in **Appendix Table 3.2.**(**Page 128**)

Table 3.2: Farmers and experience in organic farming

Sl No.	Duration	Farmers	
		Count	%
1	Less than 3 years	356	13.94
2	3 to 5 years	542	21.22
3	More than 5 years	1656	64.84
Total		2554	100.00

Figure 3.4: Farmers and experience in organic farming



The statistics provided above highlight the significant participation of both experienced and novice farmers within the farming community, contributing collectively to the organic farming sector within the state. This diversity underscores the varying degrees of involvement among farmers, reflecting a wealth of experience and ongoing development within State's organic agricultural domain. Further, these figures signify the expanding influence of organic farming across the state's agricultural landscape.

4

Information on crops

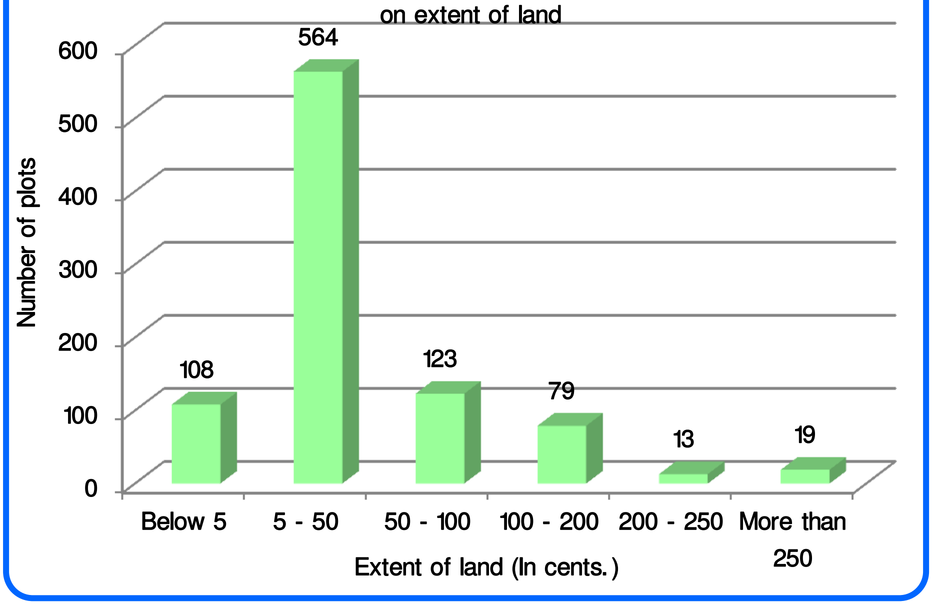
Crop cycle is crucial for ensuring agricultural profitability. Repeatedly cultivating the same crop will result in severe pest and disease issues including fertility of soil. However, employing proper crop rotation helps in maintaining a healthy balance of microorganisms, micronutrients, and mineral fertilizers in the soil, thereby reducing pest infestation and enhancing farming profitability. To comprehend this phenomenon, data regarding cultivated crops, their areas, and farming durations were collected from the selected organic farmers through the survey. Crops were classified into long term and short term varieties for the purpose of data collection. Crop area was determined using the concept of net area as defined in the agricultural statistics data collection as per the norms of EARAS scheme of the department.(**Chapter-1**, **Section-1.10.5**, **Page-9**).

Crops with a lifespan of less than one year were considered as short term crops, while those lasting more than a year were categorized long term crops. Agricultural products such as Banana, Plantain, Tapioca, Elephant Yam, Colocasia, Purple Yam, Chinese Potato/Coleus, and Lesser Yam typically grow for 6 to 12 months, yielding one harvest in their lifecycle, thus categorized as annual crops. For the purpose of the survey, if these annual crops are cultivated either individually or as the major crop alongside long term crops, they are recorded as long term crops. However, if they are cultivated alongside short term crops, they are recorded as short term crops. Farmers in the state are following the practice of cultivating long term crops either as single crops or mixed crops. Consequently, information regarding single crops and mixed crops was collected separately. The details are given below.

4.1 Long term crops- Monoculture

Out of the 2554 farmers surveyed, 462 have 906 plots in which long term crops and monoculture are being practiced. On categorizing these plots based on area, 11.92% of plots encompass an area of less than 5 cents, 62.25% fall within the range of 5 cents to 50 cents, and 13.58% span between 50 cents and 100 cents.

Figure 4.1: Classification of plots with long term single crop based on extent of land



There are 8.72% of plots having an area between 100 cents and 200 cents, and 1.43% between 200 cents and 250 cents and the number of plots with an area of more than 250 cents is 2.10%. The details regarding the number of plots are illustrated in **Figure 4.1** above.

The survey also focused on the duration of time agricultural crops were cultivated within the 906 plots mentioned above. Cultivation spans less than 3 years in 15.45% of the plots, between 3 to 5 years in 19.54% of the plots, and more than 5 years in 65.01% of the plots. Details regarding their distribution are given in **Figure 4.2** below.

Figure 4.2: Details of long term monoculture plots based on year of cultivation

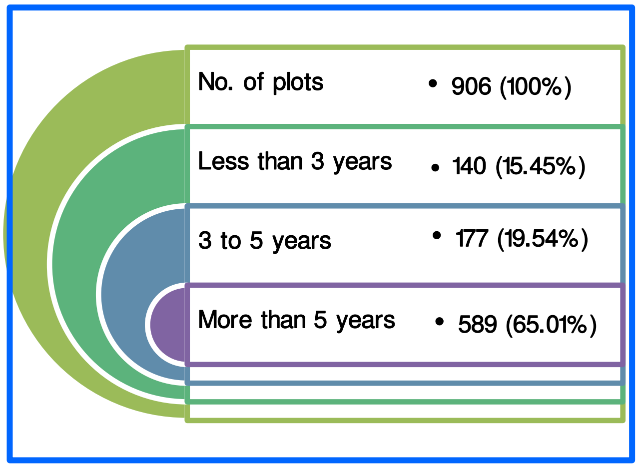


Table 4.1 presents detailed information on long term crops, including the number of plots allocated for single crop cultivation, their respective area, and the year of cultivation. The district wise breakdown of these plots can be found in **Appendix Table 4.1**.(**Page 129**)

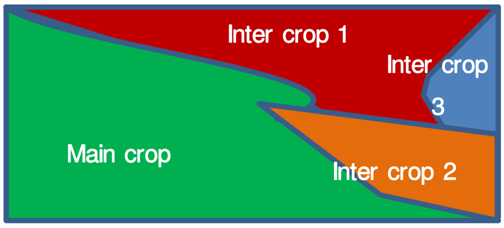
Table 4.1: Classification of long term single crop plots based on area and year of cultivation

Duration of cultivation (Year) / Extent of land (In cents.)		Less than 3	3 to 5	More than 5	Total Plots	
					Count	%
Less than 5		17	27	64	**108**	**11.92**
5 - 50		92	114	358	**564**	**62.25**
50 - 100		19	18	86	**123**	**13.58**
100 - 200		7	15	57	**79**	**8.72**
200 - 250		2	2	9	**13**	**1.43**
More than 250		3	1	15	**19**	**2.10**
Total Plots	Count	**140**	**177**	**589**	**906**	
	%	**15.45**	**19.54**	**65.01**		**100.00**

In the plots utilized for the cultivation of long term crops as single crops, details regarding crops, cultivated area, and cultivation period for the agricultural year 2020-21 are delineated in **Appendix Table 4.2** (**Pages 130-131**), and their district wise figures are outlined in **Appendix Tables 4.2.1 to 4.2.14.**(**Pages 131-140**)

4.2 Long term crops - Mixed crops

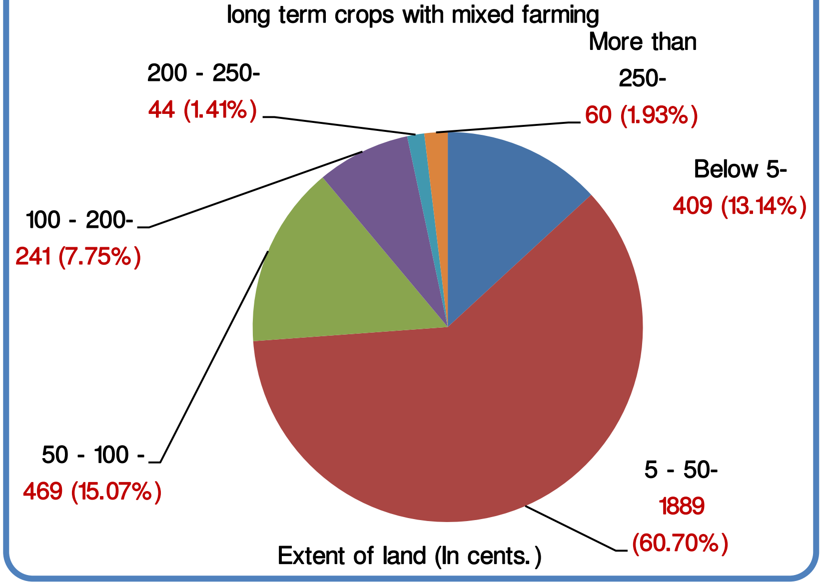
The farmers surveyed were categorized according to the acreage of land they earmark for cultivating long term crops in mixed cropping, encompassing both the primary long term crop and intercrops. Each mixed crop plot comprises a dominant crop accompanied by intercrops, the quantity of which varies depending on the number of intercrops as in the figure seen right here. Below are the details of these classifications.



4.2.1 Long term crops - Mixed cropping - Main crop

Out of the 2554 organic farmers surveyed, 1805 farmers have 3112 main crop plots in which long term crops and mixed cropping are being practiced. When classified by area, 13.14% of the plots had an area of less than 5 cents, 60.70% of the plots fell within the range of 5 to 50 cents, and 15.07% of the plots had an area between 50 cents and 100 cents. Additionally, there were 7.75% of the plots with an area between 100 cents and 200 cents, and 1.41% of the plots ranged between 200 cents and 250 cents. There were 1.93% of the plots with an area of more than 250 cents. These details are illustrated in **Figure 4.3** and **Table 4.2** below.

Figure 4.3: Classification of main crop plots based on area under long term crops with mixed farming



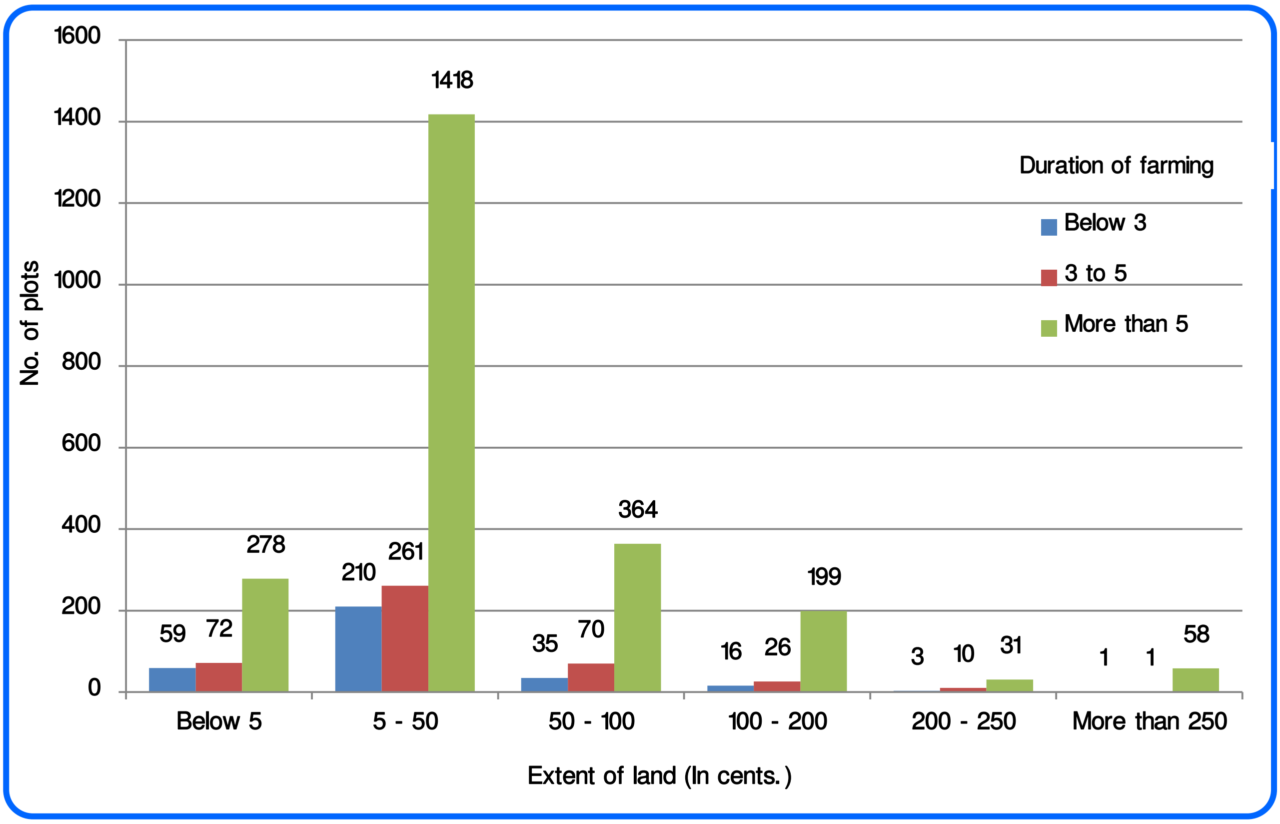
In the specified 3112 main crop plots, information on the duration of agricultural crop cultivation was collected. Of these plots, 10.41% have been cultivating for less than 3 years, 14.14% fall within the range of 3 to 5 years, and 75.45% have been cultivating for more than 5 years. For further details, please refer **Table 4.2** and **Figure 4.4** presented below. The district wise information of main crop plots is available in **Appendix Table 4.3.**(**Page 141**)

Table 4.2: Classification of main crop plots based on area and year of cultivation under long term crops with mixed farming

Extent of land (In cents.) \ Duration of cultivation (Year)		Less than 3	3 to 5	More than 5	Total Plots Count	Total Plots %
Less than 5		59	72	278	**409**	**13.14**
5 - 50		210	261	1418	**1889**	**60.70**
50 - 100		35	70	364	**469**	**15.07**
100 - 200		16	26	199	**241**	**7.75**
200 - 250		3	10	31	**44**	**1.41**
More than 250		1	1	58	**60**	**1.93**
Total Plots	Count	**324**	**440**	**2348**	**3112**	
	%	**10.41**	**14.14**	**75.45**		**100.00**

The information regarding main crops, their corresponding area, and the year of cultivation within plots where long term crops are cultivated as mixed crops during the agricultural year 2020-21 is shown in **Appendix Table 4.4** (**Pages 142-143**), with district wise data provided in **Appendix Tables 4.4.1 to 4.4.14.** (**Pages 143-154**)

Figure 4.4: Classification of main crop plots based on area and year of cultivation under long term crops with mixed farming



4.2.2 Long term crops - Mixed cropping - Intercrops

Out of the 2554 organic farmers surveyed, it was found earlier that 1805 of them collectively managing 3112 major crop plots to long term crops with mixed cropping. These plots encompass a total of 7051 intercrop subplots of distinct crops. When categorizing these subplots by area, it was noted that 52.66% have an area less than 5 cents, 43.94% fall within the range of 5 cents to 50 cents, and 2.48% occupy an area between 50 cents to 100 cents. Additionally, 0.64% of the subplots span

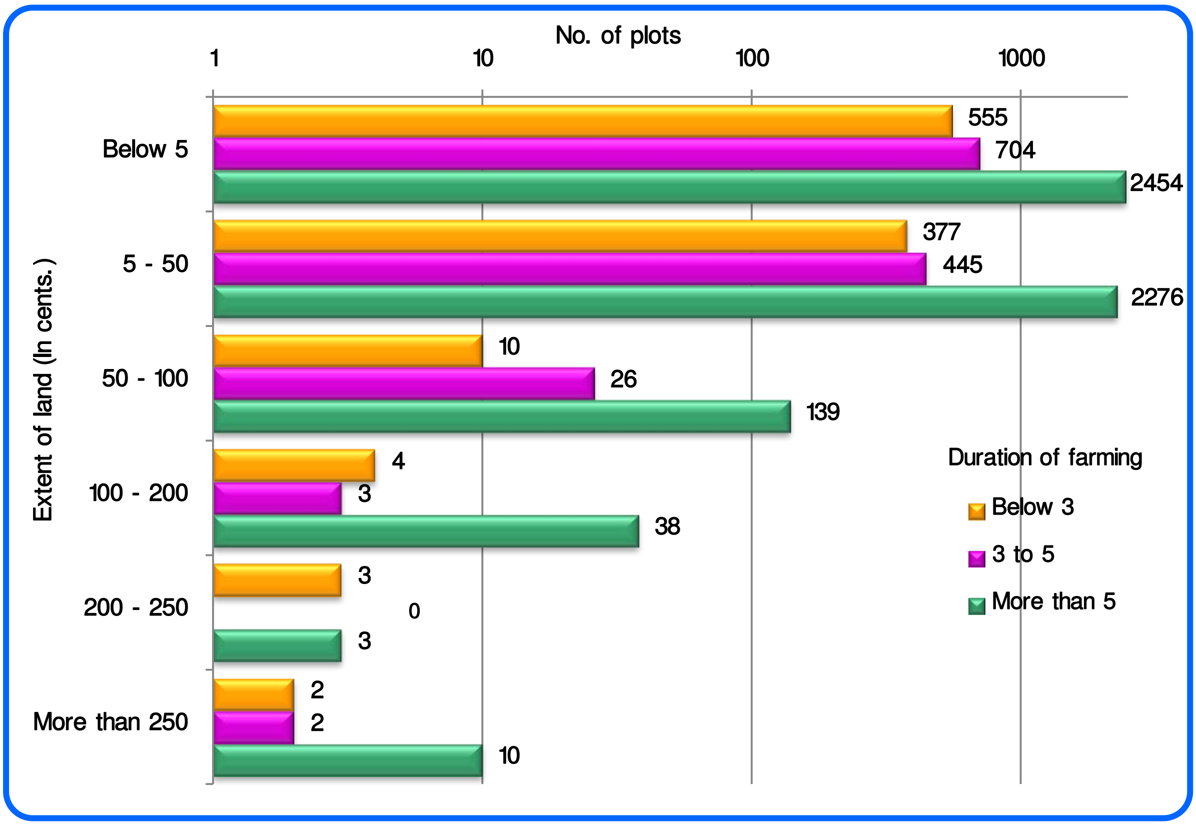
Table 4.3: Classification of intercropped subplots based on area and year of cultivation under long term crops with mixed farming

Duration of cultivation (Year) / Extent of land (In cents.)		Less than 3	3 to 5	More than 5	Total Plots	
					Count	%
Less than 5		555	704	2454	**3713**	**52.66**
5 - 50		377	445	2276	**3098**	**43.94**
50 - 100		10	26	139	**175**	**2.48**
100 - 200		4	3	38	**45**	**0.64**
200 - 250		3	0	3	**6**	**0.08**
More than 250		2	2	10	**14**	**0.20**
Total Plots	Count	**951**	**1180**	**4920**	**7051**	
	%	**13.49**	**16.73**	**69.78**		**100.00**

an area from 100 cents to 200 cents, while 0.08% lies within the range of 200 cents to 250 cents. Subplots exceeding 250 cents constitute 0.20% of the total. Detailed information is provided in **Table 4.3** above.

Within the above 7051 subplots, information pertaining to the duration of cultivation was also collected. Among these, 13.49% of the subplots had commenced cultivation for a period of less than 3 years, 16.73% had cultivation spanning between 3 to 5 years, while 69.78% had cultivation on going for more than 5 years. Details can be found in **Table 4.3** and **Figure 4.5**. District wise figures of these subplots are available in **Appendix Table 4.5.**(**Page 155**)

Figure 4.5: Classification of intercropped subplots based on area and year of cultivation under long term crops with mixed farming



In the plots where long term crops are cultivated in mixed configurations, the details of intercrops, their respective area, and the year of cultivation for the agricultural year 2020-21 is given in **Appendix Table 4.6** (**Pages 156-158**), and their district-wise figures are presented in **Appendix Tables 4.6.1 to 4.6.14.**(**Pages 159-182**)

4.3 Short term crops

Of the 2,554 farmers surveyed, 2,193 farmers cultivated exclusively short term crops during the agricultural year 2020-21, covering an area of 1,80,353.68 cents. According to the survey, 42.91% of the total organic farming land of 4,20,294 cents, was solely dedicated to the cultivation of short term crops (**Chapter- 2, Section- 2.4, Page- 15**). On an average, 82.24 cents of land is being used for cultivating short term crops only. On scrutinizing the district level data, it was observed that farmers in Palakkad, Malappuram, Kasaragod, and Thrissur districts possessed more land for short term crop cultivation, with an average area of 254.00, 126.26, 100.87, and 82.32 cents respectively, surpassing the state average. The situation prevailing in other districts is less than the state average. Detailed district wise figures are provided in **Appendix Table 4.7.**(**Page 183**)

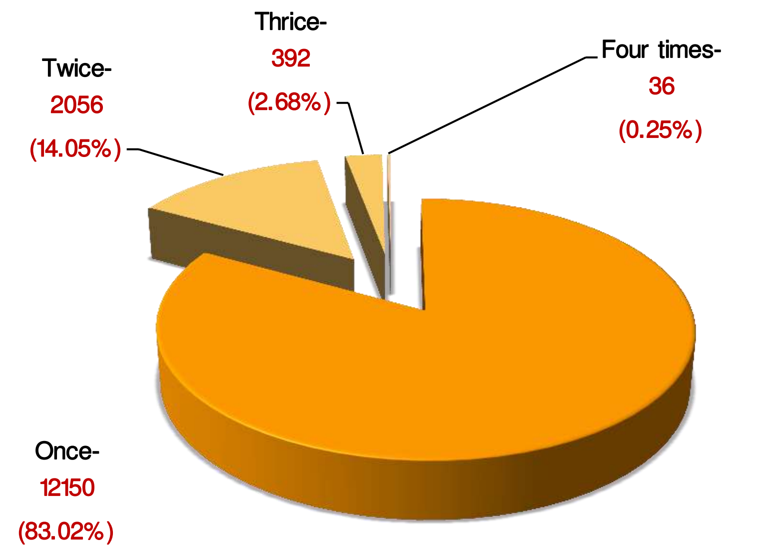
The plots of exclusive short term crops of 2,193 farmers were classified based on area. Among these, 8.02% of farmers cultivate less than 5 cents of land, while 51.03% cultivate between 5 and 50 cents of land. 17.51% possess land ranging from 50 to 100 cents, and 13.27% use land between 100 and 200 cents for short term crop cultivation. Those who cultivated between 200 and 250 cents of land area accounted 4.06%, and those who cultivated more than 250 cents of land area accounted for 6.11%. For more detailed information, please refer to **Table 4.4**, with district wise data available in **Appendix Table 4.7.**(**Page 183**)

Table 4.4: Distribution of organic farming land exclusively used for cultivating short term crops based on area

Sl No.	Extent of land (In cents.)	Farmers	
		Count	%
1	Less than 5	176	8.02
2	5 - 50	1119	51.03
3	50 - 100	384	17.51
4	100 - 200	291	13.27
5	200 - 250	89	4.06
6	More than 250	134	6.11
	Total	**2193**	**100**

In previous observations, it was noticed that 2,193 farmers were exclusively involved in cultivation of short term crops. These agricultural lands were categorized based on the crops cultivated during the agricultural year 2020-21, totaling 14,634 subplots. Data regarding the frequency of cultivation in these subplots were collected through the survey. Out of the total subplots, 83.02% were cultivated only once, 14.05% were cultivated twice, 2.68% were cultivated thrice, and 0.25% was cultivated four times. These particulars are available in **Figure 4.6**, and district level figures are provided in **Appendix Table 4.8.**(**Page 183**)

Figure 4.6: Crop wise subplots and their respective cropping frequency in the agricultural land exclusively cultivated with short term crops



Information on crops and their cropping frequency in areas where short term crops are cultivated for the agricultural year 2020-21 can be found in **Appendix Table 4.9** (**Pages 184-185**). The district wise figures are given in **Appendix Table 4.9.1 to 4.9.14.**(**Pages 185-198**)

When examining the data related to long term and short term crops, it is evident that the implementation of crop rotation in agricultural practices is meagre within a single agricultural year. This presents a significant hurdle in rising profitability of organic farming.

5

Soil Testing

Soil constitutes a fundamental asset vital for the sustenance of human life. Its fertility plays a pivotal role in facilitating robust crop growth and ensuring optimal yields. Within agricultural practices, fertilizers are regarded as indispensable. However, achieving maximum yields necessitates the application of fertilizers with a comprehensive understanding of soil characteristics. Soil testing emerges as a scientific methodology essential for enhancing the efficiency and profitability of agricultural pursuits. Through this approach, the availability of essential plant nutrients in the soil is assessed, customized to the fertility profile of each distinct region. Moreover, soil acidity and micronutrient levels are significant factors influencing soil fertility, with soil testing providing critical insights for necessary adjustments. Hence, it is imperative to conduct soil testing both prior to and subsequent to initiating organic farming endeavours. Furthermore, meticulous recording of data from these assessments in registers or reports is essential for informed decision making. The survey collected data from selected farmers regarding soil tests conducted before and after transitioning to organic farming, elucidating the establishments they relied upon and the chemical properties and plant nutrient elements documented in the soil test reports. Their details are given below.

5.1 Soil testing before transitioning to organic farming

The survey revealed that only 3.60% of the 2,554 surveyed farmers had conducted soil testing before initiating organic farming. Within this subset, 45.65% relied on the State soil testing laboratory, 5.44% on Central government research centres, 14.13% on Kerala agricultural university, and 34.78% on other institutions. At the district level, 10.66%, 6.86%, 8.89%, and 5% of farmers undertook soil testing in Thiruvananthapuram, Pathanamthitta, Idukki, and Palakkad districts respectively. In the remaining districts except Kottayam and Ernakulam, less than 4% of farmers had conducted soil testing. Notably, none of the surveyed farmers from Kottayam and Ernakulam districts had undertaken any component of soil testing. While government institutions were the primary choice for soil testing across most districts, a greater proportion of farmers in Kollam, Idukki, Palakkad, and Malappuram sought testing from other institutions. Only 40 (43.48%) out of the 92 farmers who claimed to have conducted soil tests maintained either complete or partial records. These details are available in **Figure 5.1** below. On verifying the data at the district level, it was observed that soil test reports were provided by nine farmers in Thiruvananthapuram district and 1 to 5 farmers in other districts excluding Kottayam and Ernakulam. Detailed district wise figures are available in **Appendix Table 5.1.(Page 199**)

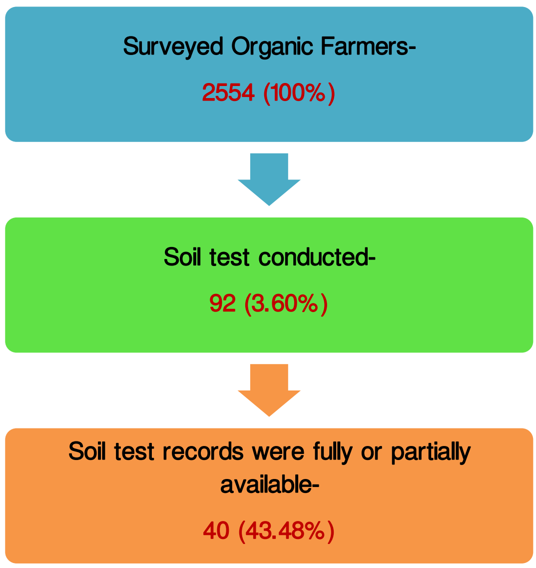
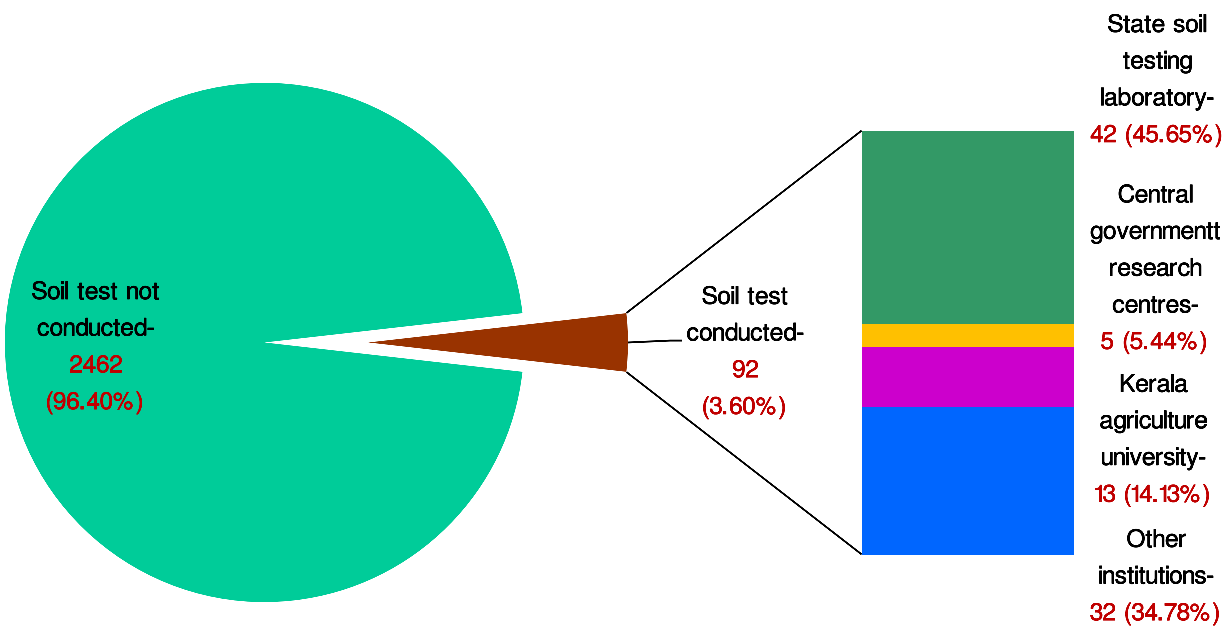


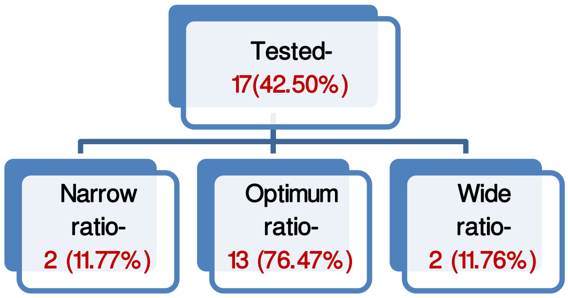
Figure 5.1: Details of farmers who conducted soil tests before starting organic farming



5.1.1 Chemical properties

5.1.1.1 Carbon-Nitrogen ratio (C-N ratio)

Figure 5.2: Carbon - Nitrogen ratio and farmers



Out of 40 organic farmers, only 17 had conducted soil tests that included the Carbon-Nitrogen (C-N) ratio analysis. Among these 17 reports, 2 indicated a narrow C-N ratio, 13 demonstrated an optimum ratio, and 2 revealed a wide ratio. Overall, the C-N ratio was generally satisfactory. These details are available in **Figure 5.2**. District level data analysis showed that no farmers in Thiruvananthapuram, Alappuzha, Kottayam, Ernakulam, Thrissur, and Malappuram districts had tested the soil's C-N ratio. However, a wide C-N ratio range was observed in the farm fields of one farmer each from Pathanamthitta and Idukki districts. Details of district level data are provided in **Appendix Table 5.2**.(**Page 200**)

5.1.1.2 Cation exchange capacity (CEC)

Table 5.1 : Cation exchange capacity and farmers

Sl No.	Rating of CEC	Farmers Count	Farmers %
1	Low	0	0
2	Moderate	5	83.33
3	Adequate	1	16.67
Total		**6**	**100.00**

Out of the 40 farmers whose soil test reports were available, only 6 had conducted tests for Cation Exchange Capacity (CEC). Among these 6 reports, 5 indicated moderate CEC values, while 1 showed an adequate value. Based on these test reports, the CEC is considered satisfactory. At the district level, only one farmer in each of the following districts- Kollam, Pathanamthitta, Idukki, Palakkad, Kannur, and Kasaragod has tested the CEC in their farm fields. In other districts, no farmers have conducted tests for CEC levels. Details in this regard are provided in **Table 5.1** above, and the district wise figures are also available in **Appendix Table 5.2.**(**Page 200**)

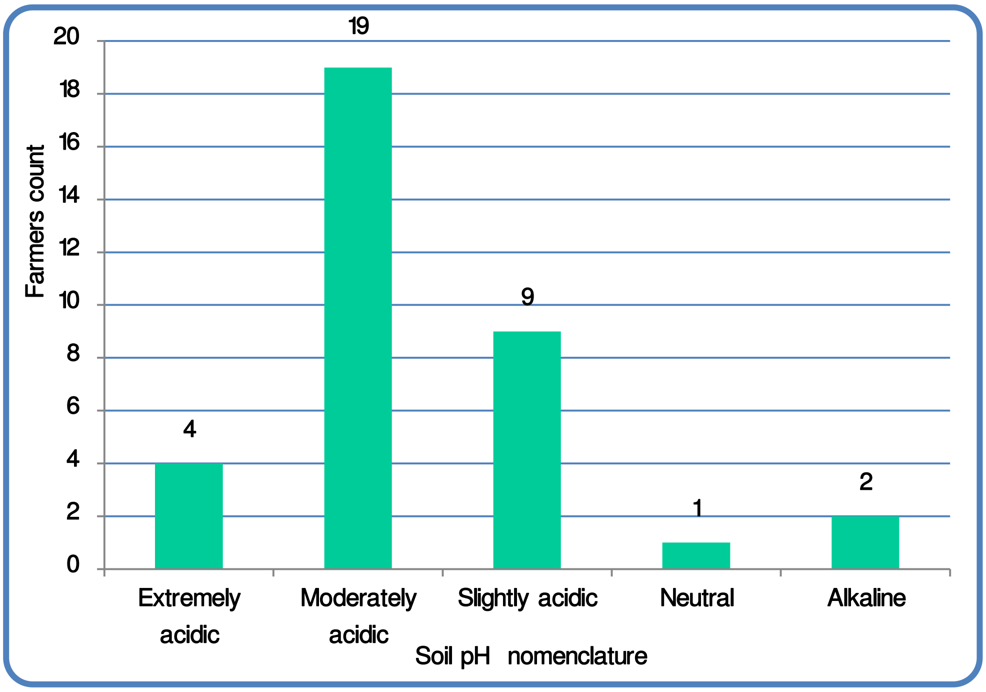
5.1.1.3 Soil pH

Of the 40 farmers with available soil test reports, 35 have conducted pH level tests. Among these, 4 plots were found to have extremely acidic soil, 19 plots had moderately acidic soil, and 9 plots exhibited slightly acidic soil. This indicates a prevalence of acidic soil across most farmers fields. The data also show that one farmer's land is neutral, while two others possess alkaline soil. The details in this regard can be found in **Table 5.2** and **Figure 5.3** below. At the district level, it is notable that no farmers in Kottayam and Ernakulam districts conducted soil pH tests. In the Idukki district, the soil pH in one farmer`s plot is reported to be neutral. Additionally, one farmer each in the Palakkad and Wayanad districts has soil with alkaline pH levels. Detailed district wise figures are available in **Appendix Table 5.2.**(**Page 200**)

Table 5.2: Soil pH and farmers

Sl No.	Nomenclature	Farmers	
		Count	%
1	Extremely acidic	4	11.43
2	Moderately acidic	19	54.29
3	Slightly acidic	9	25.71
4	Neutral	1	2.86
5	Alkaline	2	5.71
Total		**35**	**100.00**

Figure 5.3: Soil pH and farmers



5.1.2 Plant nutrients

5.1.2.1 Primary nutrients

Among a cohort of 40 farmers with accessible soil test reports, 25 conducted tests for soil nitrogen levels. The results revealed that 15 plots had low nitrogen levels, 9 plots exhibited medium levels, and 1 plot had high level. Phosphorus testing was performed by 31 farmers, with 24 reports indicating sufficient phosphorus levels and 7 reports indicating low levels. Additionally, 32 farmers had their soil tested for potassium, of which, 24 plots had adequate potassium levels, while 8 plots showed deficiency. The presence of deficiencies in nitrogen, phosphorus, and potassium underscores the need for appropriate fertilization strategies. Detailed information is presented in **Table 5.3** below.

Table 5.3: Details of primary nutrients in soil and farmers

Sl No.	Rating of primary nutrients	Nitrogen		Phosphorus		Potassium	
		Farmer count	%	Farmer count	%	Farmer count	%
1	Low	15	60.00	7	22.58	8	25.00
2	Medium	9	36.00	12	38.71	18	56.25
3	High	1	4.00	12	38.71	6	18.75
Total		**25**	**100.00**	**31**	**100.00**	**32**	**100.00**

The district level data indicates that no farmer in Kottayam, Ernakulam, and Thrissur districts have conducted soil tests for primary nutrients. Additionally, soil testing has not been conducted for nitrogen levels in Alappuzha district and for phosphorus levels in Kozhikode district. Details regarding the availability of primary nutrients in soil across these districts, as determined from test reports prior to the implementation of organic farming, is provided in **Appendix Table 5.3.**(**Page 201**)

5.1.2 Secondary nutrients

Among the 40 farmers with accessible soil test reports, 21 had their soil tested for calcium, 20 for magnesium, and 21 for sulphur. Approximately half of these farmers reported deficiencies in these elements within their farm fields. Additional details are available in **Table 5.4** below.

Table 5.4: Levels of secondary nutrients in soil and farmers

Sl No.	Rating of secondary nutrients	Calcium		Magnesium		Sulphur	
		Farmer count	%	Farmer count	%	Farmer count	%
1	Low	11	52.38	13	65.00	12	57.14
2	Medium	7	33.33	6	30.00	7	33.33
3	High	3	14.29	1	5.00	2	9.53
Total		**21**	**100.00**	**20**	**100.00**	**21**	**100.00**

On examining the district level data, it has been observed that no farmer in Kottayam and Ernakulam districts have conducted soil tests for secondary nutrients. Additionally, farmers in Wayanad district have not tested for calcium and magnesium levels, while sulphur levels remain untested in the Thiruvananthapuram district. The district level information regarding the availability of secondary nutrients in the soil prior to the implementation of organic farming is recorded in **Appendix Table 5.3.**(**Page 201**)

5.1.2.3 Micro nutrients

Out of the 40 farmers who provided soil test reports, 19 had specifically tested for zinc, 22 for boron, 9 for molybdenum, and 17 for manganese. Additionally, 9 farmers had conducted tests for silica, 18 for copper, 8 for nickel, 8 for chlorine, and 19 for iron. Notably, none of the reports showed elevated levels of molybdenum, nickel, or chlorine. Analysis of the reports unveiled that a significant number of farm fields exhibited deficiencies in boron. Furthermore, various levels of other micronutrients were identified, classified as medium, low, and high, as outlined in **Table 5.5**.

Table 5.5: Soil micro nutrient levels and farmers

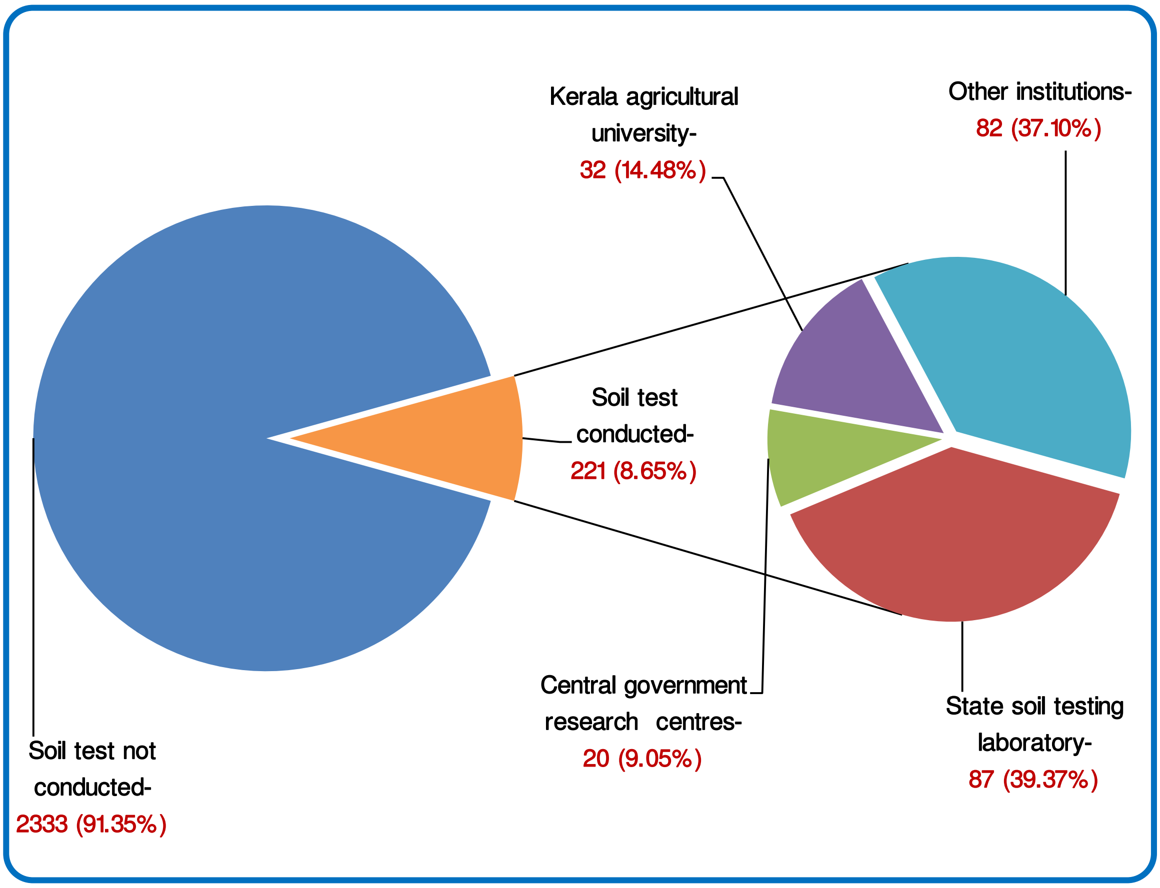
Sl No.	Rating of micro nutrients	Zinc		Boron		Molybdenum		Manganese		Silica		Copper		Nickel		Chlorine		Iron	
		Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%
1	Low	6	31.58	19	86.36	2	22.22	5	29.41	2	22.22	5	27.78	2	25.00	2	25.00	5	26.32
2	Medium	11	57.89	2	9.09	7	77.78	8	47.06	6	66.67	9	50.00	6	75.00	6	75.00	9	47.37
3	High	2	10.53	1	4.55	0	0.00	4	23.53	1	11.11	4	22.22	0	0.00	0	0.00	5	26.31
Total		**19**	**100.00**	**22**	**100.00**	**9**	**100.00**	**17**	**100.00**	**9**	**100.00**	**18**	**100.00**	**8**	**100.00**	**8**	**100.00**	**19**	**100.00**

On scrutinizing the district level data, it is evident that none of the farmers in Kottayam and Ernakulam districts conducted tests to ascertain the presence of micro nutrients in the soil. In Wayanad district, only boron levels were assessed, while in Thiruvananthapuram district, farmers conducted tests for boron and manganese. Similarly, the presence of numerous micro nutrients were not tested in majority of districts. The detailed micro nutrient status of the soil, as per the test reports conducted prior to the initiation of organic farming are outlined in **Appendix Table 5.4.**(**Page 202-203**)

5.2 Soil testing after transitioning to organic farming

According to the survey, out of the 2,554 farmers involved, only 8.65% had conducted soil testing subsequent to transitioning to organic farming practices. Within this subset, 39.37% resorted to the State soil testing laboratory, 9.05% to Central government research centres, 14.48% to Kerala agricultural university, and 37.10% to other institutions for conducting tests. At the district level, in Thiruvananthapuram, Idukki, Kasaragod, Wayanad, and Kannur districts, 22.13%, 19.56%, 16.67%, 12.65%, and 11.76% of the farmers respectively had undergone soil testing. In other districts, except in Ernakulam, 4% to 8% of farmers undertook soil testing. Interestingly, only one participant in the Ernakulam district reported having conducted soil testing. Furthermore, it was observed that more than half of the farmers conducting soil testing in Idukki district relied on sources other than government institutions. Out of the 221 farmers who claimed to have conducted soil testing, only 110 (49.77%) kept records either fully or partially. Notably, only one farmer each from Pathanamthitta and Ernakulam districts, and two from Kannur district, maintained records. Soil testing reports were maintained by 4 to 17 farmers from other districts. Details in this matter is available in **Figure 5.4** and the district wise figures are provided in **Appendix Table 5.5**.(**Page 204**)

Figure 5.4: Details of farmers who conducted soil tests after starting organic farming



5.2.1 Chemical properties

5.2.1.1 Carbon-Nitrogen ratio (C-N ratio)

Among the 110 organic farmers who provided soil test reports, only 22 had assessed the Carbon-Nitrogen (C-N) ratio of their farm fields. Within this subset, 2 reports indicated a narrow ratio, 12 demonstrated an optimum ratio, and 8 displayed a wide ratio. It is noteworthy that a wide C-N ratio in agricultural soil can lead to a decelerated decomposition of residues, thereby impeding the timely availability of essential nutrients to plants. Details in this regard are available in **Table 5.6**. District wise analysis revealed that none of the farmers in Thiruvananthapuram, Pathanamthitta, Kottayam, and Kasaragod districts had tested their soil's C-N ratio. In Kollam, Alappuzha, and Kozhikode districts, only one farmer each reported a wide C-N ratio in their farm fields. Moreover, five farmers in Idukki district reported similar findings. Additionally, two farmers in Kozhikode district indicated a narrow C-N ratio. These details are available in **Appendix Table 5.6.**(**Page 205**)

Table 5.6: Carbon-Nitrogen ratio and farmers

Sl No.	Carbon-Nitrogen Ratio	Farmers	
		Count	%
1	Narrow	2	9.09
2	Optimum	12	54.55
3	Wide	8	36.36
Total		**22**	**100.00**

5.2.1.2 Cation exchange capacity (CEC)

Of the 110 organic farmers whose soil test reports were accessible, only 20 farmers had conducted tests to determine Cation Exchange Capacity (CEC). Among these reports, 3 indicated a low value, 12 depicted a moderate value, and 5 illustrated an adequate value. Based on the available test reports, the CEC is considered satisfactory. This information is presented in **Table 5.7**. At the district level, none of the farmers in Alappuzha, Ernakulam, Palakkad, Malappuram, Wayanad, Kannur, and Kasaragod districts had checked the CEC. Further details can be found in **Appendix Table 5.6**.(**Page 205**)

Table 5.7: Cation exchange capacity and Farmers

Sl No.	Rating of CEC	Farmers	
		Count	%
1	Low	3	15.00
2	Moderate	12	60.00
3	Adequate	5	25.00
	Total	**20**	**100.00**

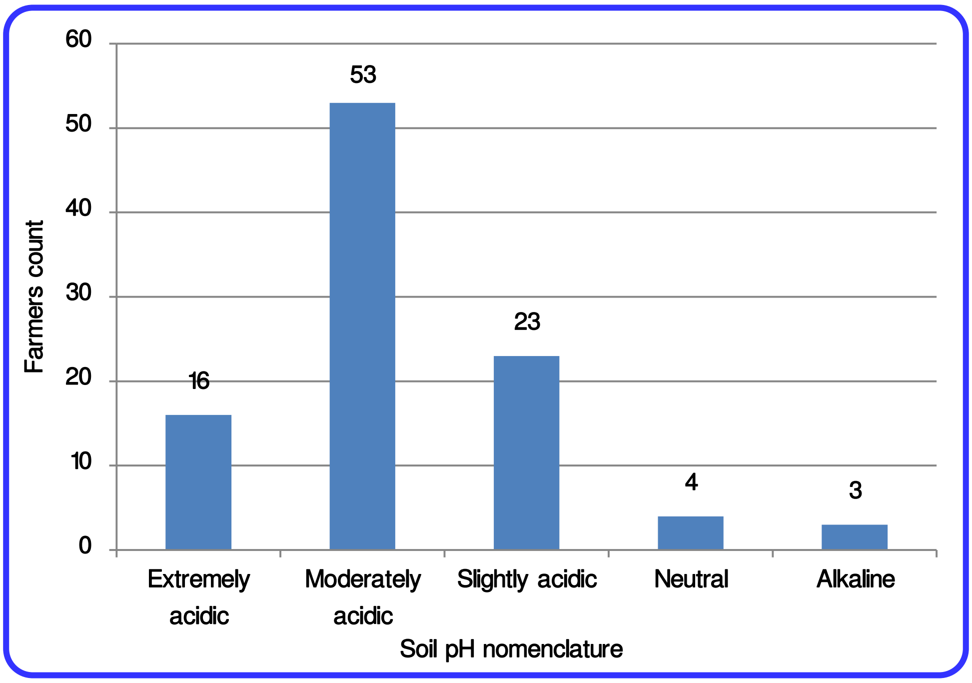
5.2.1.3 Soil pH

Among the 110 farmers for whom soil test reports were accessible, pH levels were assessed on the agricultural lands of 99 farmers. Within this subset, 16 plots exhibited extremely acidic soil, 53 plots demonstrated moderately acidic soil, and 23 plots showed slightly acidic soil conditions. Only 4 farmers had neutral pH levels in their plots, indicating neither acidity nor alkalinity. Furthermore, alkaline soil was detected in 3 plots. Overall, acidic soil predominates in the majority of farmers agricultural lands. For more detailed information, refer to **Table 5.8** and **Figure 5.5** below.

Table 5.8: Category of soil pH and farmers

Sl No.	Nomenclature	Farmers	
		Count	%
1	Extremely acidic	16	16.16
2	Moderately acidic	53	53.54
3	Slightly acidic	23	23.23
4	Neutral	4	4.04
5	Alkaline	3	3.03
	Total	**99**	**100.00**

Figure 5.5: Category of soil pH and farmers



Analyzing the data at the district level, there is one farmer in each of the districts of Idukki, Ernakulam, Thrissur, and Wayanad who reported soil pH levels that are neutral, neither acidic nor alkaline. Similarly, in the districts of Thiruvananthapuram, Kollam, and Palakkad, there is one farmer each whose soil pH levels are alkaline. Detailed district wise figures are available in **Appendix Table 5.6**.(**Page 205**)

5.2.2 Plant nutrients

5.2.2.1 Primary nutrients

Out of a total of 110 farmers for whom soil test reports were available, 66 farmers had tested soil nitrogen level. Among these, 14 plots indicated low nitrogen levels, 40 plots demonstrated medium nitrogen levels, and 12 plots narrated high nitrogen levels. Out of the 84 farmers who underwent testing for phosphorus presence, 16 were found to have low levels, 27 had medium levels, and 41 had high levels. Additionally, 88 farmers tested for potassium content in their soil. Of these, 66 plots showed satisfactory potassium levels, while 22 plots were deficient in potassium. The deficiencies in nitrogen, phosphorus, and potassium underscore the need for the application of appropriate organic manure. Further details are provided in **Table 5.9** below.

Table 5.9: Details of primary nutrients in soil and farmers

Sl No.	Rating of primary nutrients	Nitrogen		Phosphorus		Potassium	
		Farmer Count	%	Farmer Count	%	Farmer Count	%
1	Low	14	21.21	16	19.05	22	25.00
2	Medium	40	60.61	27	32.14	45	51.14
3	High	12	18.18	41	48.81	21	23.86
Total		**66**	**100.00**	**84**	**100.00**	**88**	**100.00**

After examining the district wise data, it is evident that farmers in the Ernakulam district have not conducted primary nutrient testing in their soil. Additionally, there is an absence of nitrogen level`s testing in the Pathanamthitta district. Most cultivated areas across the districts exhibit satisfactory nitrogen levels, however, elevated nitrogen levels are notably present in the Kottayam, Idukki, Palakkad, Kozhikode, and Wayanad districts. The levels of phosphorus and potassium show considerable variation across districts, ranging from minimal to abundant presence. Nitrogen, phosphorus, and potassium are crucial elements in organic farming, highlighting the necessity for balanced application of organic manure to address deficiencies, particularly in nitrogen deficient farm fields. Elevated levels of nitrogen and phosphorus are beneficial for crop growth, with organic manures playing a significant role in enhancing the NPK content in the soil. The details in this matter are documented in **Appendix Table 5.7.**(**Page 206**)

5.2.2.2 Secondary nutrients

Out of 110 farmers with accessible soil test reports, 49 farmers have undergone testing for calcium levels, 47 for magnesium levels, and 58 for sulphur levels. The results indicate that 19 farmers exhibit low calcium levels, 23 have low magnesium levels, and 15 have low sulphur levels. The detection of these deficiencies in secondary nutrients underscores the need for the application of appropriately proportioned organic manure to address these imbalances. Particulars in this regard are shown in **Table 5.10** below.

Table 5.10: Levels of secondary nutrients in soil and farmers

Sl No.	Rating of secondary nutrients	Calcium		Magnesium		Sulphur	
		Farmer Count	%	Farmer Count	%	Farmer Count	%
1	Low	19	38.78	23	48.94	15	25.86
2	Medium	29	59.18	22	46.81	41	70.69
3	High	1	2.04	2	4.25	2	3.45
Total		**49**	**100.00**	**47**	**100.00**	**58**	**100.00**

On reviewing the district level data, it has been observed that none of the farmers in Kottayam district have conducted assessments for calcium and magnesium levels, as well as for calcium levels specifically in Pathanamthitta district. For further details, please refer to the information provided in **Appendix Table 5.7.**(**Page 206**)

5.2.2.3 Micro nutrients

Out of the total 110 farmers for whom soil test reports were available, 52 farmers had done zinc testing, 55 farmers had done boron testing, 15 farmers had done molybdenum testing, and 55 farmers had done manganese testing. Additionally, 15 farmers had their soil tested for silica, 53 for copper, 17 for nickel, 16 for chlorine, and 54 for iron. Notably, no high presence of silica, nickel, or chlorine was recorded. The analysis revealed a prevalent deficiency of boron in the majority of the farmers' soils. In contrast, the levels of other micronutrients exhibited considerable variability, with some soils showing adequate concentrations, others minimal, and a few exhibiting excessive amounts. Further details in this regard are presented in **Table 5.11** below.

Table 5.11: Soil micro nutrient levels and farmers

Sl No.	Rating of micro elements	Zinc		Boron		Molybdenum		Manganese		Silica		Copper		Nickel		Chlorine		Iron	
		Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%	Farmer count	%
1	Low	9	17.31	32	58.18	3	20.00	4	7.27	3	20.00	10	18.87	3	17.65	3	18.75	5	9.26
2	Medium	39	75.00	19	34.55	11	73.33	35	63.64	12	80.00	31	58.49	14	82.35	13	81.25	34	62.96
3	High	4	7.69	4	7.27	1	6.67	16	29.09	0	0.00	12	22.64	0	0.00	0	0.00	15	27.78
Total		**52**	**100.00**	**55**	**100.00**	**15**	**100.00**	**55**	**100.00**	**15**	**100.00**	**53**	**100.00**	**17**	**100.00**	**16**	**100.00**	**54**	**100.00**

Examining the district level figures, it is evident that Kollam, Alappuzha, Idukki, Palakkad, Wayanad, and Kasaragod districts have undergone marginal testing for all micro nutrients in soil. Many other districts lack comprehensive testing for the presence of numerous micro nutrients, as outlined in **Appendix Table 5.8.**(**Pages 207-208**)

Upon closer scrutiny, it becomes evident that soil nutrient concentrations in Kerala exhibit considerable disparities across different districts. Further examination reveals significant variations in both primary and secondary nutrients among and within districts. The economic viability of organic agriculture, as a profitable venture, depends on evaluating these local level inconsistencies.

The survey results underscore the critical importance of raising awareness among farmers regarding the necessity of soil testing. Such awareness is essential for enhancing agricultural productivity, addressing nutrient deficiencies, understanding the region specific nutrient composition, and implementing appropriate nutritional practices.

A comprehensive understanding of soil health and quality, coupled with the adoption of suitable nutritional strategies, is pivotal for transitioning towards sustainable and productive organic farming practices. These statistics provide valuable insights for farmers and agronomists, enabling them to take the requisite measures to achieve these objectives.

6

Seed, Seed Care, Cultivation Practice

The critical components of organic farming methods include the selection and nurturing of seeds for cultivation and the implementation of appropriate agricultural practices in farm fields. Hybrid seed development generally involves chemical processing, which can negatively impact yields when used in conjunction with organic manures. Therefore, it is essential to prioritize the use of traditional and indigenous seeds for cultivation and to advocate for the organic development of hybrid seeds. The effective mainstreaming of organic farming depends on the suitability and productive capacity of the seeds employed in the process.

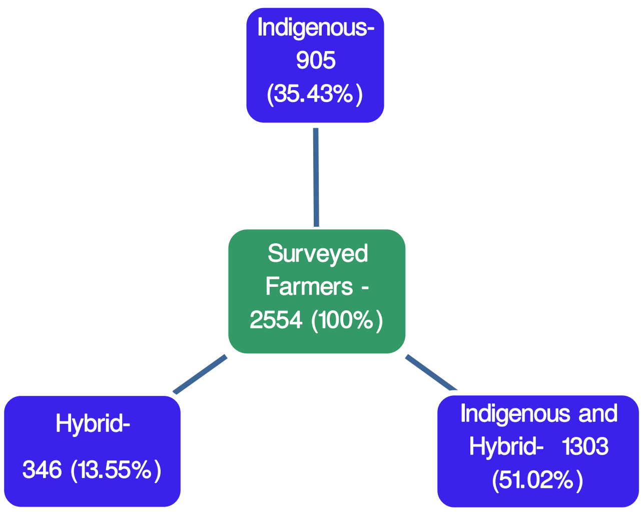
Various procedures are implemented for seed care procedures from the time of seed germination to prevent hindered growth caused by pathogen attacks. Among these methods, Beejamrutham holds significant importance. It is prepared by blending water, lime, cow urine, cow dung, lime juice, and soil in predetermined proportions and at specific intervals. In the cultivation of crops like Elephant Yam, Colacasia, etc., another seed care technique involves immersing the seeds in wood ash/champal/venner or a mixture of ash and dung. Additionally, micro organisms like Pseudomonas are employed for seed care treatments.

The farmer's expertise in organic farming methods applied to agricultural fields is crucial for ensuring profitability in organic farming practices. In light of these considerations, data collected from the organic farmers selected for the survey encompasses information on the types of seeds utilized, techniques employed for seed nurturing, and the specific organic farming methodologies implemented on their farms. These details are outlined below.

6.1 Seed Varieties

Out of the 2,554 farmers surveyed, 35.43% utilized indigenous seeds, while 13.55% opted hybrid seeds for cultivation. Furthermore, the survey revealed that 51.02% of farmers used both indigenous and hybrid seeds. These results are outlined in **Figure 6.1**. When the district wise figures are examined, it was observed that 68.89% of farmers in Idukki district and 57.35% in Palakkad district relied solely on indigenous seeds for cultivation. Additionally, 26.69% of farmers in Kollam district and 21.69% in Wayanad district exclusively used hybrid seeds for cultivation. Detailed district wise figures in this regard are available in **Appendix Table 6.1.**(**Page 209**)

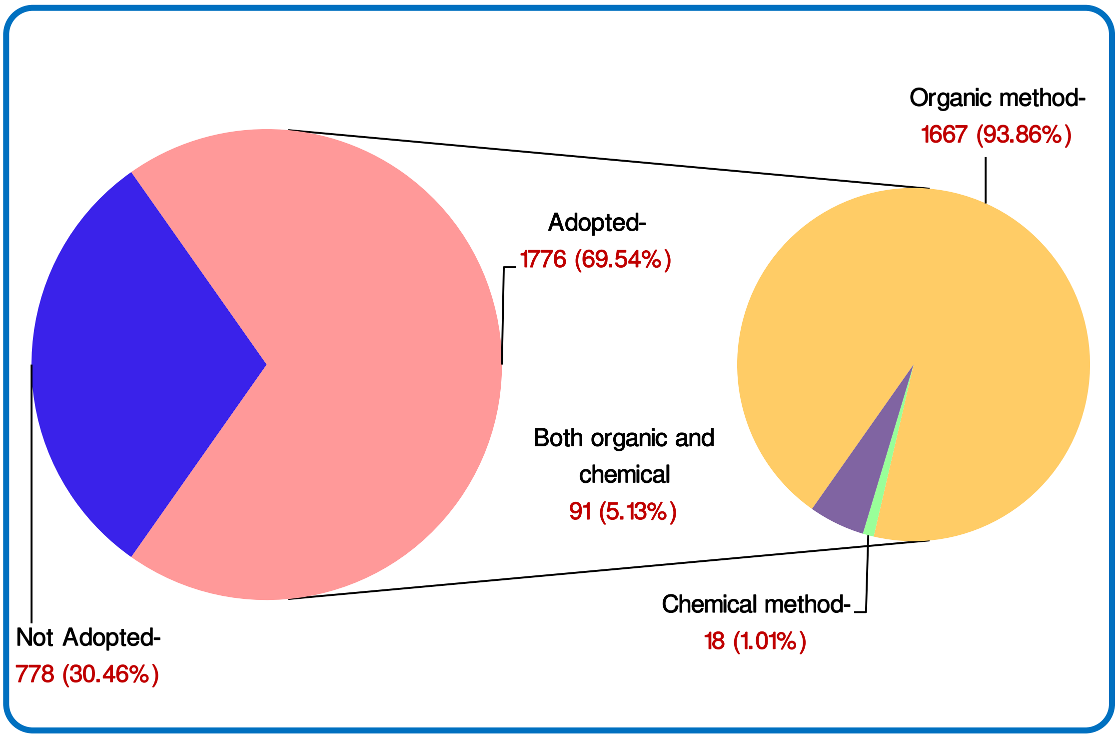
Figure 6.1: Details of seeds used by farmers for cultivation



6.2 Seed care

Statewide, 69.54% of farmers have implemented seed care practices. Among these, 93.86% have chosen organic methods, 1.01% have opted for chemical methods, and 5.13% have utilized both methods for seed treatment, as illustrated in **Figure 6.2**. District level data reveal that only 44.92% of farmers in Malappuram, 49.24% in Kasaragod, and 21.69% in Wayanad have adopted seed care measures. In contrast, over 50% of farmers in other districts have implemented seed care practices. Notably, in Thiruvananthapuram, Alappuzha, Kottayam, Thrissur, Palakkad, and Kozhikode districts, a total of 18 farmers reported exclusively using chemical methods for seed treatment. Further information can be found in **Appendix Table 6.1(Page 209)**.

Figure 6.2: Details of seed care practices adopted by farmers



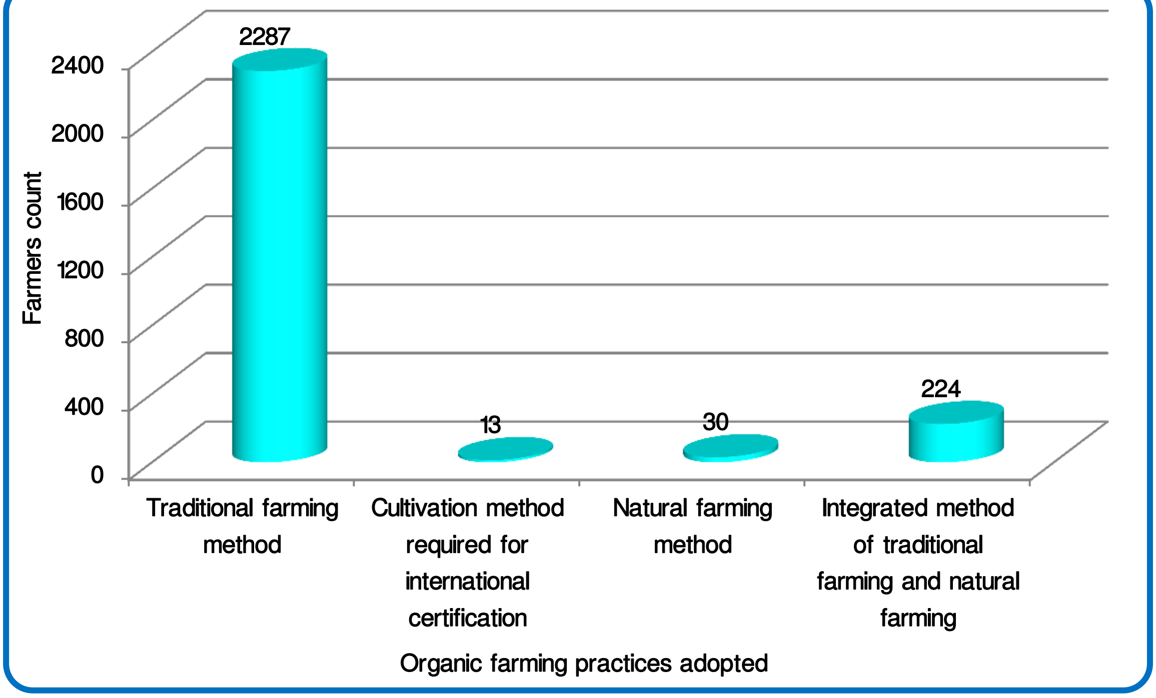
6.3 Organic farming perspective

The farmer's comprehension of the organic farming techniques employed on their agricultural fields is critically important for the success and profitability of organic farming. Data on this subject was gathered through the survey. The survey results reveal that 89.55% of the farmers rely on traditional methods for their organic farming practices. Only a small fraction, 0.51%, have adopted techniques that require international certification. Furthermore, 1.17% of the surveyed farmers engaged in natural farming, while 8.77% used an integrated version of traditional and natural farming methods. Detailed information is provided in **Table 6.1** and **Figure 6.3** below.

Table 6.1: Details about organic farming practices adopted by farmers in their farms

Sl No.	Organic farming method	Farmers	
		Count	%
1	Traditional farming method	2287	89.55
2	Cultivation method required for international certification	13	0.51
3	Natural farming method	30	1.17
4	Integrated method of traditional farming and natural farming	224	8.77
	Total	**2554**	**100**

Figure 6.3: Details about organic farming practices adopted by farmers in their farms

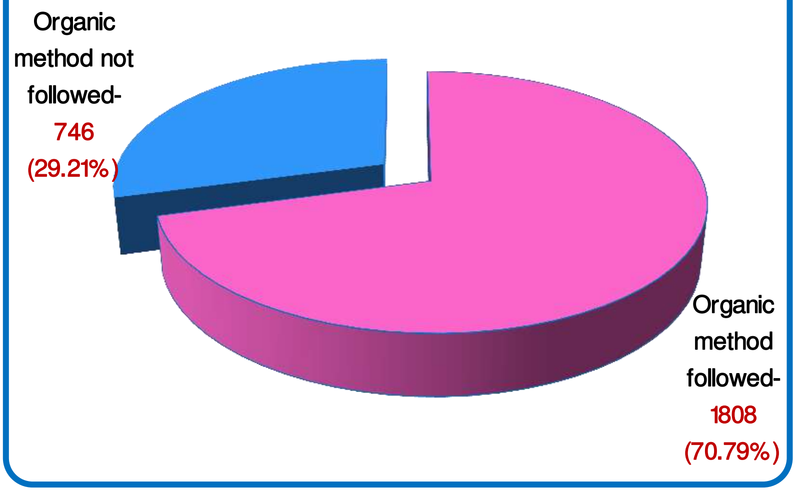


When examining the district level data, it was observed that in Alappuzha district, the entirety of the surveyed population (100%) has adopted traditional farming methods. Additionally, one farmer each in the districts of Ernakulam, Thrissur, and Palakkad, along with two farmers each in Malappuram and Wayanad districts, and six farmers in Kannur district, have implemented the farming practices required for international certification. Notably, none of the farmers practicing natural farming methods, which constitute 1.17% of the total farming population, are from Pathanamthitta, Alappuzha, Idukki, and Kasaragod districts. Detailed district wise figures are available in **Appendix Table 6.2.**(**Page 210**)

6.4 Cultivation method of crops

Information was collected to determine if all crops cultivated on organic farm fields were grown using organic methods. The results indicated that only 70.79% of the surveyed organic farmers confirmed that all their crops were entirely cultivated organically, as detailed in **Figure 6.4**. District wise analysis revealed significant variations: 85.71% of farmers in Pathanamthitta, 70% in Kottayam, 46.98% in Kollam, and 43.37% in Wayanad reported that not all of their crops were grown organically. Additionally, farmers in other districts expressed similar opinion, with percentages ranging from 6% to 40%. District wise figures are available in **Appendix Table 6.2.**(**Page 210**)

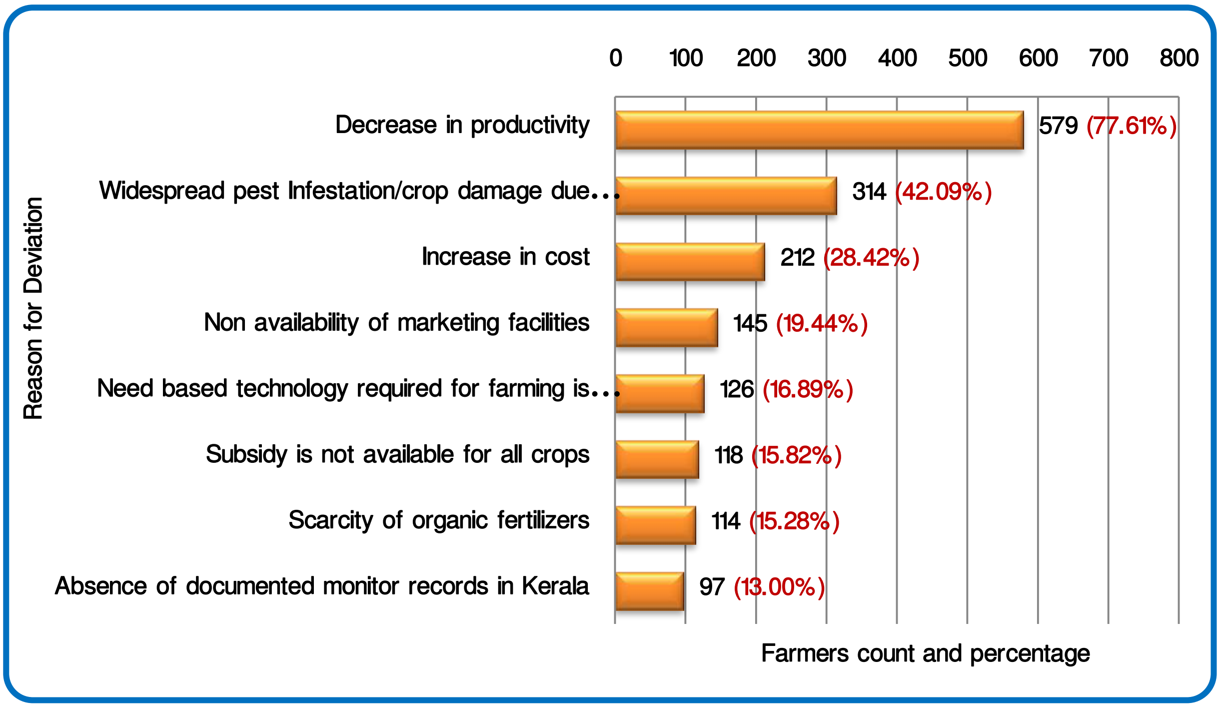
Figure 6.4: Details regarding farmers who adhere to organic farming methods across all the crops



6.5 Deviation from organic farming

Information was collected from 746 organic farmers, representing 29.21% of the total surveyed organic farming population, who reported non-compliance with organic farming practices across all crops. The majority of these farmers cited multiple reasons for their deviation. Among them, 77.61% identified decrease in productivity as the primary factor for departing from organic farming, accounting for 22.67% of the overall surveyed organic farmers. Furthermore, 42.09% of the farmers attributed their deviation to extensive pest infestation and crop damage caused by diseases. Additionally, various other issues were mentioned by farmers as contributing factors for their non-compliance, as detailed in **Figure 6.5**.

Figure 6.5: Reasons for deviation from organic farming



On examination of district level data, it was revealed that farmers apart from those in Alappuzha and Idukki expressed their foremost concern as low productivity. Whereas, farmers those in Alappuzha district highlighted crop damage inflicted by pests and diseases as their primary issue, while those in Idukki district identified both crop loss due to pests and diseases, as well as the lack of subsidies for all crops, as significant challenges. A substantial portion of farmers in Pathanamthitta district reported encountering the aforementioned difficulties. Further information about these can be seen in **Appendix Table 6.2**.(**Page 210**)

Although proclaiming themselves as organic farmers and faithfully implementing organic farming techniques on their farm fields, a significant portion of farmers have acknowledged resorting to chemical methods when confronted with crop challenges. Consequently, the findings of the survey underscore the imperative need for the development and provision of robust solutions to assist farmers in tackling these issues.

7

Soil Enrichment

Effective management of nutrients and soil fertility are fundamental for the success of organic farming. By implementing appropriate fertilization practices guided by soil testing, it becomes feasible to address nutrient imbalances in agricultural lands and enhance yields. Utilizing fertilization techniques rooted in scientific principles can improve soil's physical properties, such as its water absorption and storage capacity, thereby creating favourable environments for microorganism proliferation. Nitrogen is a critical element essential for plant development. Plants cannot directly access nitrogen from the air; instead, they rely on absorbing nitrate ions, nitrite ions, and ammonium ions from the soil through their root hairs. However, certain bacteria, notably Rhizobium, have the remarkable ability to convert atmospheric nitrogen into nitrate. These bacteria reside within the roots of various plants such as Peas, Horse gram, Black gram, Tephrosia purpurea/Kozhinjil, and Mimosa pudica/Touch-me-not, effectively extracting nitrogen from the atmosphere. Upon the death of these plants, essential nutrients are infused into the soil. Decomposers, including microorganisms such as bacteria and fungi, play a crucial role in breaking down organic residues, enriching soil fertility, and facilitating nutrient recycling for subsequent plant growth. Additionally, incorporating sustainable agricultural methods such as crop rotation, organic material utilization, and efficient irrigation management can significantly enhance overall soil health and increase nutrient accessibility for plants. Hence, adopting appropriate soil enrichment techniques is essential to ensure the long term prosperity, productivity, and effective nutrient regulation of organic farming. The farmers who participated in the survey were evaluated based on the approaches utilized for soil enrichment. These details are outlined below.

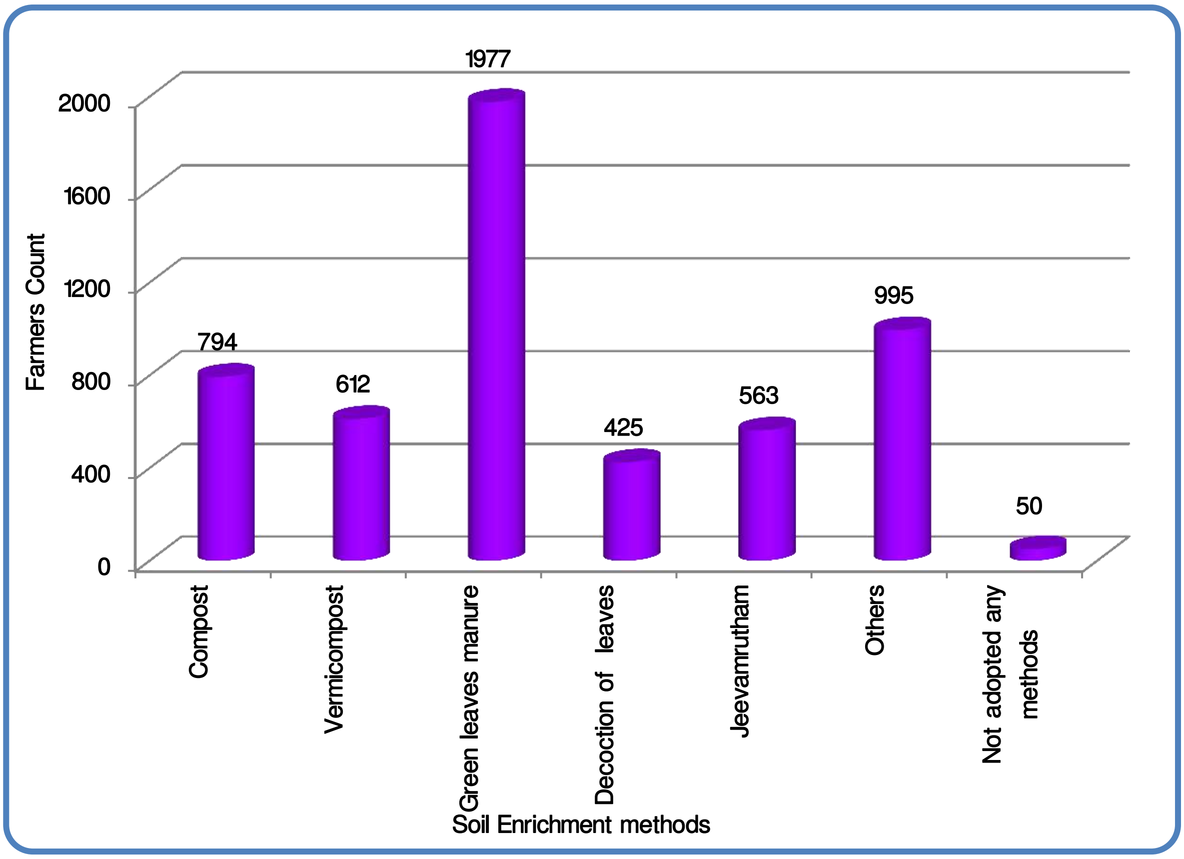
7.1 Soil enrichment

Table 7.1: Details regarding soil enrichment practices adopted by farmers

Sl No.	Enrichment technique	Farmers	
		Count	%
1	Compost	794	31.09
2	Vermicompost	612	23.96
3	Green leaves manure	1977	77.41
4	Decoction of leaves	425	16.64
5	Jeevamrutham	563	22.04
6	Others	995	38.96
7	Not adopted any methods	50	1.96

The farmers who involved in the survey employed a range of techniques to enhance soil fertility, encompassing the application of compost, vermicompost, green leaves manure, decoction of leaves, jeevamrutham, and assorted alternative compost fertilizers. A notable observation was the prevalent adoption of multiple fertilizers and infusion methodologies for soil amelioration. Notably, 77.41% of farmers predominantly favoured green leaves manure for soil enrichment. Compost, vermicompost, decoction of leaves, and jeevamrutham were utilized by 31.09%, 23.96%, 16.64%, and 22.04% of farmers, respectively. Furthermore, 38.96% of farmers incorporated animal excreta, bird droppings, and diverse organic residues in their soil enhancement practices, employing various forms including compounds, blends of different constituents, fermented liquids, and through drying and grinding processes. However, 50 farmers opined that they did not adopt any specific method for soil enrichment. Further details are provided in **Table 7.1** above and **Figure 7.1** below.

Figure 7.1: Details regarding soil enrichment practices adopted by farmers



District level information regarding the techniques adopted by farmers for soil enrichment, as well as the raw materials utilized in the production of other fertilizers and infusions, are available in **Appendix Table 7.1 and 7.2** respectively.(**Pages 211, 212**)

7.2 Mode of availability of soil enrichment products

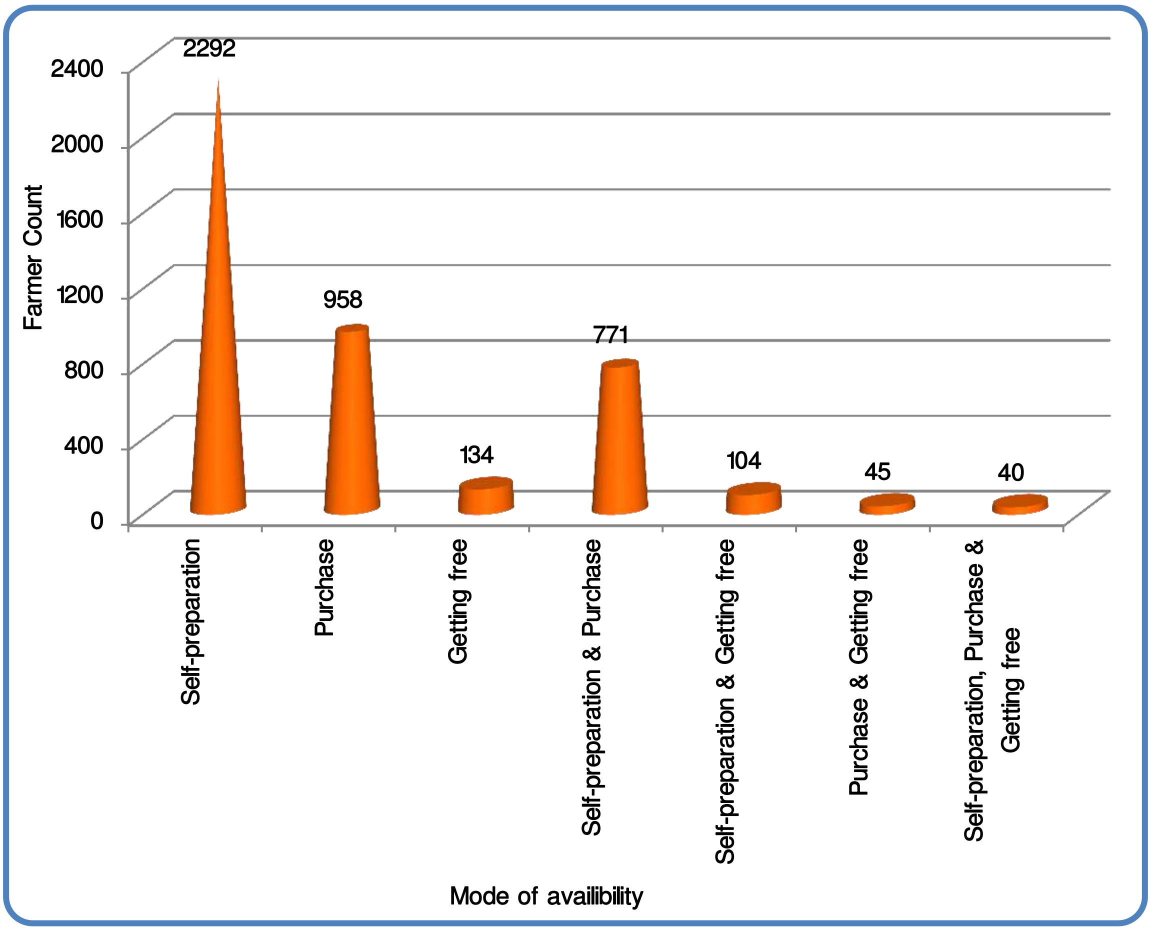
Data have been collected regarding the accessibility of soil enrichment products, including compost, vermicompost, green leaves manures, decoction of leaves, jeevamrutham, and other alternative compost fertilizers, through the survey. Of the surveyed farmers, a substantial 89.74% reported producing at least one of the aforementioned products themselves. Additionally, 37.51% of farmers indicated purchasing at least one product, while 5.25% acknowledged receiving at least one product as a freebie. Furthermore, a notable portion of farmers acquire these products through a combination of methods, encompassing self-preparation, purchase, and freebies.

Table 7.2: Methods adopted by farmers to obtain soil enrichment products

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	2292	89.74
2	Purchase	958	37.51
3	Getting free	134	5.25
4	Self-preparation & Purchase	771	30.19
5	Self-preparation & Getting free	104	4.07
6	Purchase & Getting free	45	1.76
7	Self-preparation, Purchase & Getting free	40	1.57

Specifically, 1.57% of farmers reported utilizing all three methods to obtain these products. Detailed district wise details on this regard are provided in **Appendix Table 7.1**.(**Page 211**)

Figure 7.2: Methods adopted by farmers to obtain soil enrichment products



7.2.1 Mode of availability of soil enrichment products - Mutually exclusive events

The accessibility methods employed by farmers for soil enrichment products, such as compost, vermi-compost, green leaves manure, decoction of leaves, jeevamrutham, and other alternative compost fertilizers, are categorized as mutually exclusive events. Among the surveyed farmers, 57.04% opted exclusively for self-prepared products for soil enrichment, while 7.12% relied solely on purchased items for this purpose. A marginal 0.98% of farmers exclusively utilized freebies for soil enrichment. Furthermore, 32.90% of farmers employed a combination of self-preparation, purchase, and freebies for soil enrichment. Detailed information can be found in **Table 7.3** and **Figure 7.3** below.

Table 7.3: Methods adopted by farmers to obtain soil enrichment products - Mutually exclusive events

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	1457	57.04
2	Purchase	182	7.12
3	Getting free	25	0.98
4	Self-preparation & Purchase	731	28.62
5	Self-preparation & Getting free	64	2.51
6	Purchase & Getting free	5	0.20
7	Self-preparation, Purchase & Getting free	40	1.57
	Total	**2504**	**98.04%**

Figure 7.3: Methods adopted by farmers to obtain soil enrichment products - Mutually exclusive events

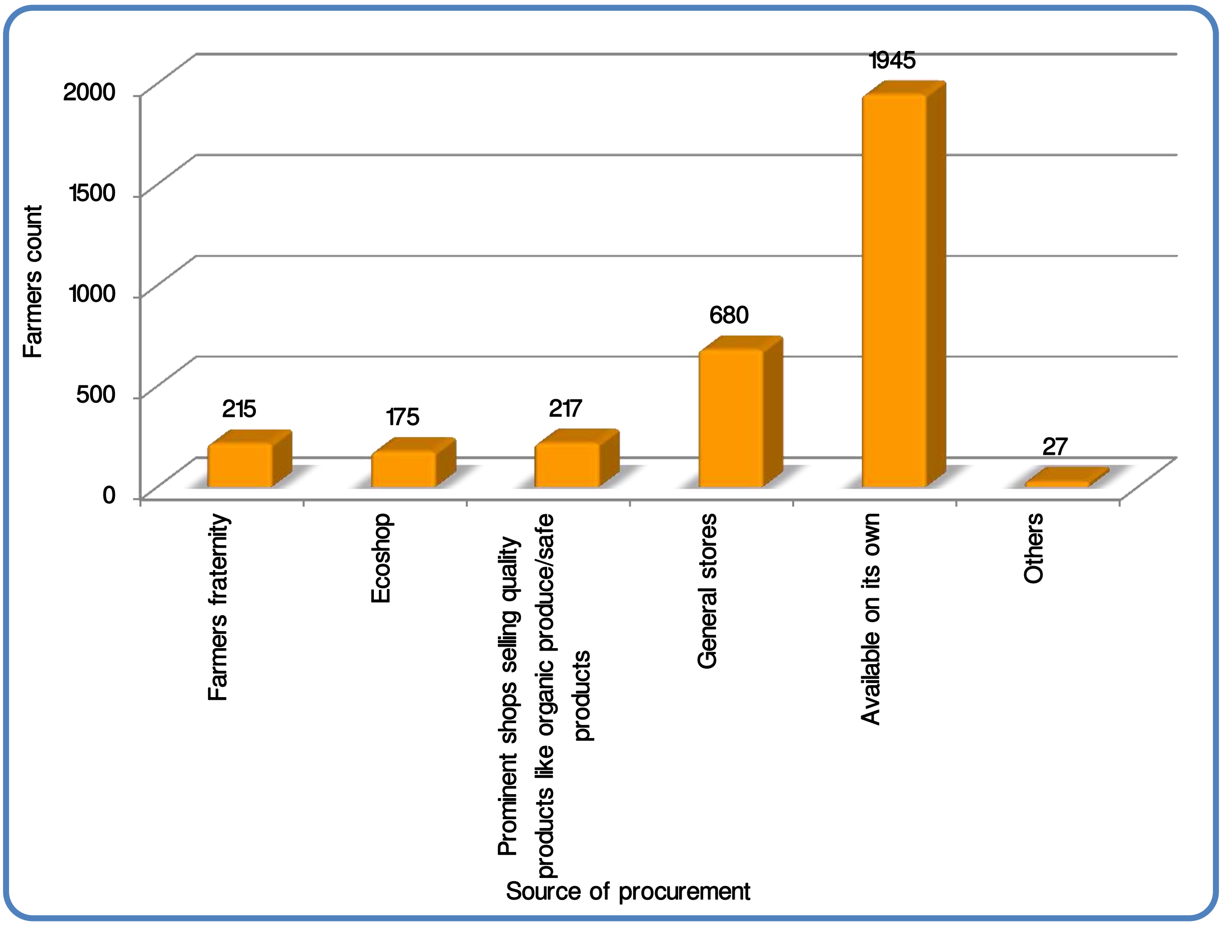
7.3 Procurement of raw materials for the self-preparation of soil enrichment products

Table 7.4: Method of procuring raw materials for the self-preparation of soil enrichment products and No. of farmers

Sl No.	Procurement ways	Farmers	
		Count	%
1	Farmers fraternity	215	8.42
2	Ecoshop	175	6.85
3	Prominent shops selling quality products like organic produce/safe products	217	8.50
4	General stores	680	26.62
5	Available on its own	1945	76.16
6	Others	27	1.06

Data have been gathered regarding the procurement practices of raw materials by farmers engaged in the self-preparation of soil enrichment substances like compost, vermicompost, green leaves manure, decoction of leaves, jeevamrutham, and other alternative compost fertilizers. These materials are predominantly acquired from farmers fraternity, Ecoshop, prominent shops selling organic or safe products, and general stores. A significant portion of farmers rely on multiple channels for acquiring raw materials. Additionally, 76.16% of farmers utilized materials available with them as raw materials. A small percentage (1.06%) also resorted to non traditional sources such as neighbours, online markets, agricultural universities, Krishi Bhavans, dairy farmers, societies, and fellow farmers for obtaining raw materials. Details in this regard are provided in **Table 7.4** and **Figure 7.4** below. For detailed district wise information, please refer to **Appendix Table 7.3.**(**Page 213**)

Figure 7.4 : Method of procuring raw materials for the self-preparation of soil enrichment products and No. of farmers

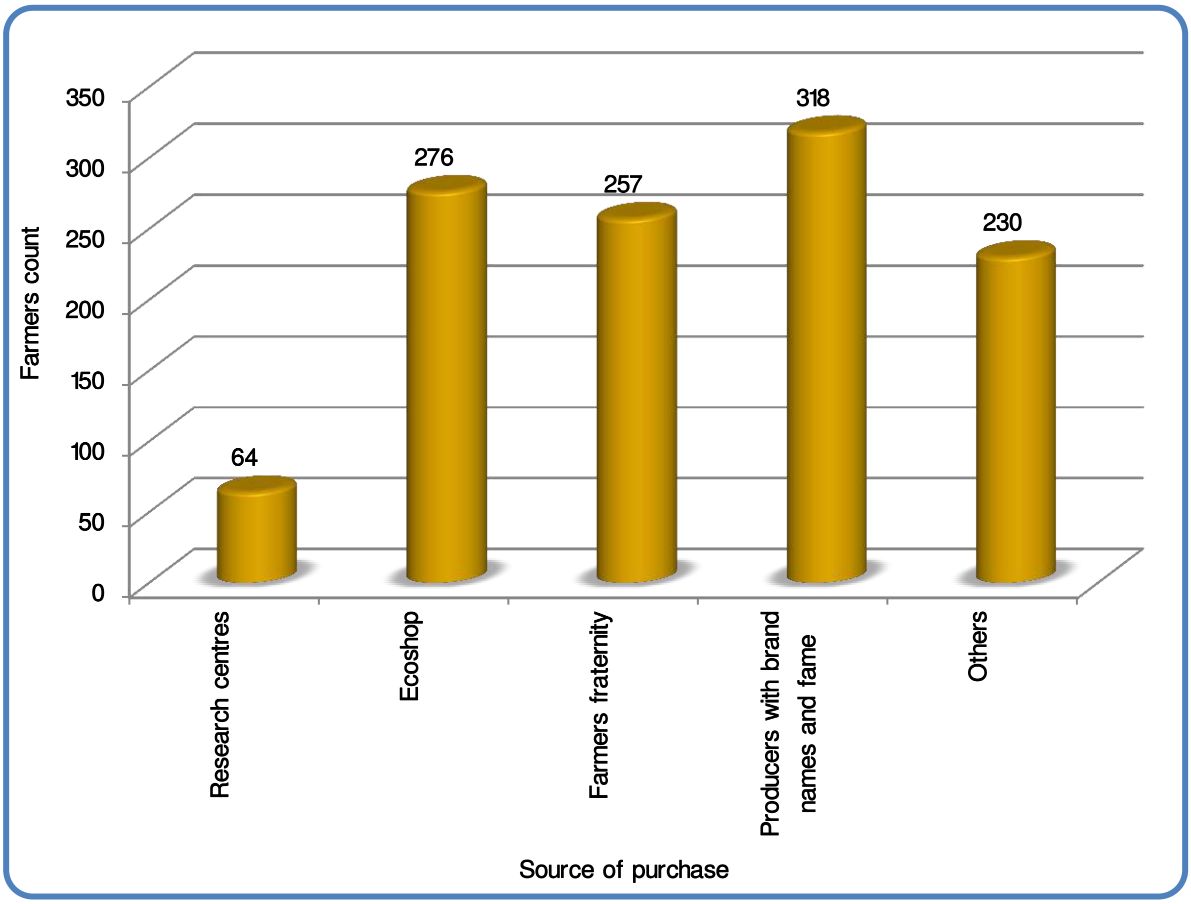


7.4 Mode of purchase of soil enrichment products

Table 7.5: Details of establishments from which farmers purchase pre made soil enrichment products			
Sl No.	Establishment	Farmers	
		Count	%
1	Research centres	64	2.51
2	Ecoshop	276	10.81
3	Farmers fraternity	257	10.06
4	Producers with brand names and fame	318	12.45
5	Others	230	9.01

Through the survey, data was gathered regarding the sources from which farmers purchase soil enrichment products like compost, vermicompost, green leaves manure, decoction of leaves, jeevamrutham, and similar fertilizers. The findings reveal that these products are bought from various establishments including research centres, ecoshops, farmers fraternity, and producers with brand names and fame. Merely 2.51% of farmers relied on research centres for their purchases. Approximately 10% to 13% of farmers purchased these products from ecoshops, farmers' fraternity, and producers with brand names and fame. 230 farmers are observed to procure soil enrichment products from diverse sources such as neighborhood houses, rice mills, dairy farmers, regular shops, online markets, other farmers, agricultural nurseries, agricultural cooperatives, Krishi Bhavan, Krishi Vigyan Kendra, farms, quality shops, and fertilizer selling shops. Detailed information regarding these sources is provided in **Table 7.5** and **Figure 7.5** below. District wise data on this matter are provided in **Appendix Table 7.3**.(**Page 213**)

Figure 7.5: Details of establishments from which farmers purchase pre made soil enrichment products



8

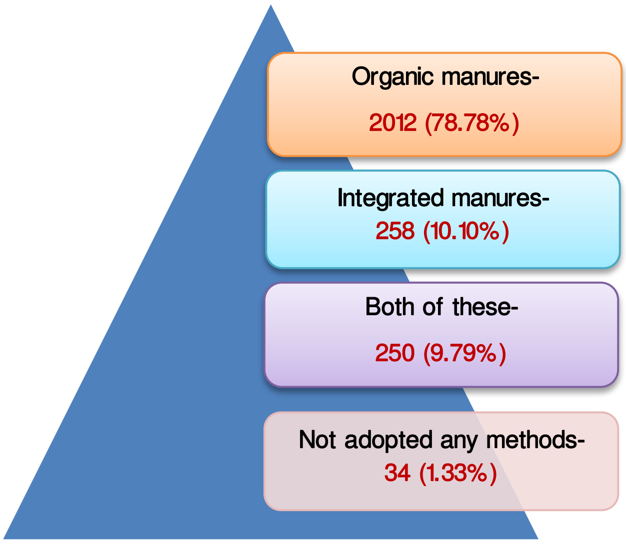
Plant Nutrition

Organic farming techniques prioritize plant nutrition as a critical aspect, focusing on methods that enhance soil fertility to regulate plant growth. The use of organic manures and integrated manure techniques is core to this approach, as they not only promote plant growth but also improve the availability of primary, secondary, and micro nutrients by fostering beneficial conditions for soil microorganisms. Bio fertilizers such as azospirillum, phosphobacter, acetobacter, mycorrhizae, azolla, fish amino acid, and egg amino acid, along with infusions like jeevamrutham, panchagavyam, vermicompost, and leaf extracts in vriksha ayurvedha, significantly contribute to increasing the organic matter in the soil. Information collected from surveyed farmers provides insight into the techniques employed for plant nutrition, the various plant nutrient products utilized, and the channels through which these products are accessible. The details of these aspects are elaborated below.

8.1 Plant nutrition

Out of a total of 2554 farmers surveyed, 78.78% opted for organic manures for plant nutrition, while 10.10% preferred integrated manures, and 9.79% utilized both methods concurrently. A minority, specifically 1.33%, did not apply any methods for plant nutrition. The details are outlined in **Figure 8.1**. On analyzing the district specific data, it was revealed that 94.67% of farmers in Idukki district and 91.53% in Malappuram district exclusively relied on organic manures for plant nutrition. Additionally, in the Varappuzha area of Ernakulam district, 30 farmers cultivating pokkali rice, and in the Addichilthotti tribal colony of Thrissur district, 4 farmers, did not adopt any methods of plant nutrition. The details of the district wise figures in this regard are available in **Appendix Table 8.1.** (**Page 214**).

Figure 8.1: Details of manure applications adopted by farmers for plant nutrition



8.2 Plant nutrition inputs

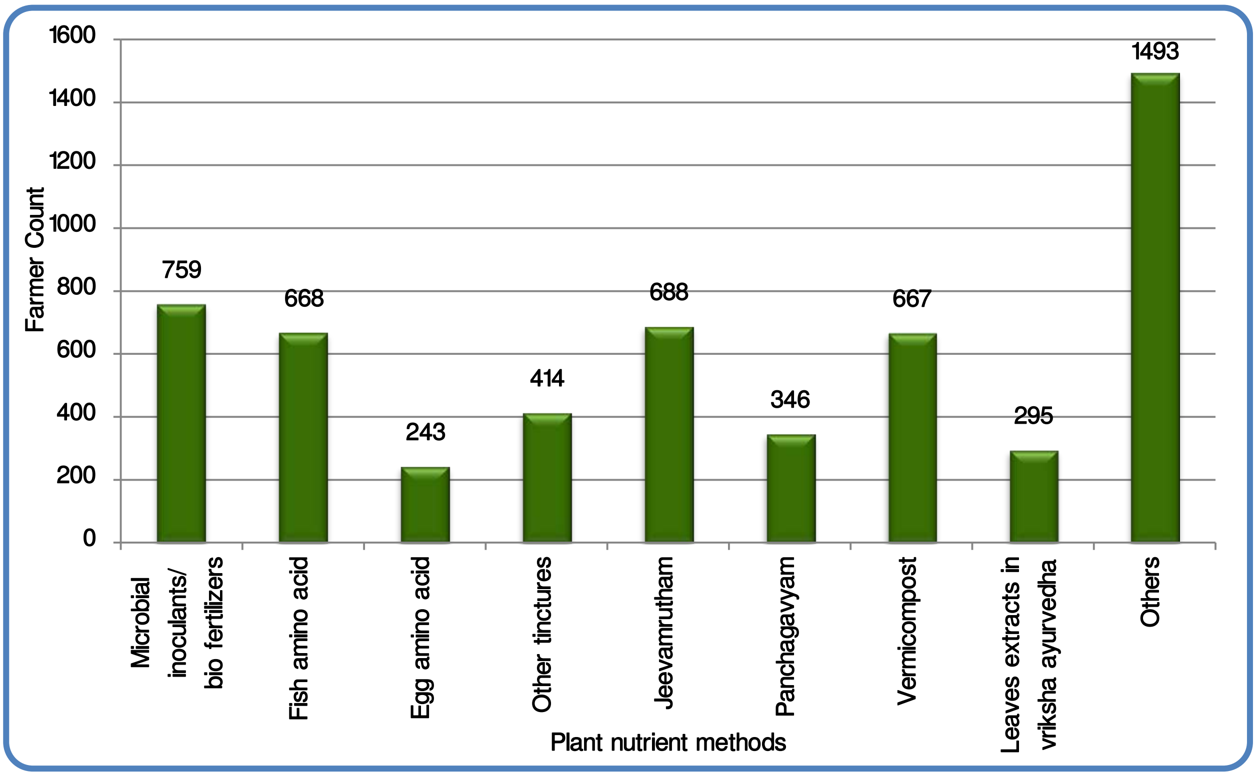
29.72% of the surveyed farmers utilized microbial inoculants/bio fertilizers for plant nourishment. Similarly, the use of fish amino acid, jeevamrutham, and vermicompost as plant nutritional inputs ranged between 25% and 30%. Approximately 10% of farmers adopted egg amino acid, panchagavyam, and leaf extracts of vriksha ayurveda for plant nutrition. Additionally, 58.46% of farmers incorporated alternative fertilizers, alongside various organic and inorganic wastes, bird droppings, and animal excretes and residues, either in their original forms or as compounds and mixtures, for plant nutrition. These details are presented in **Table 8.1** and **Figure 8.2** below. District level data are available in **Appendix Tables 8.1** and **8.2**.(**Pages 214, 215**)

Table 8.1: Details of inputs used by farmers for plant nutrition

Sl No.	Inputs	Farmers	
		Count	%
1	Microbial inoculants/Bio fertilizers	759	29.72
2	Fish amino acid	668	26.16
3	Egg amino acid	243	9.51
4	Other tinctures	414	16.21
5	Jeevamrutham	688	26.94
6	Panchagavyam	346	13.55
7	Vermicompost	667	26.12
8	Leaves extracts in vriksha ayurvedha	295	11.55
9	Others	1493	58.46

* Vriksha Ayurveda is a treatise authored by Surapala, a distinguished physician who served in the court of King Bhimapala, who reigned over Bengal during the Pala Empire in the 10th century.

Figure 8.2: Details of inputs used by farmers for plant nutrition



8.3 Mode of availability of plant nutrition inputs

Information has been gathered on the availability channels of various agricultural products employed for plant nutrition, encompassing bio fertilizers, fish amino acid, egg amino acid, other tinctures, jeevamruthum, panchagavyam, vermicompost, and leaves extracts within the framework of vriksha ayurvedha. A total of 77.56% of farmers engage in the self-preparation of at least one of the aforementioned products, while 50.67% purchase at least one of these items. Furthermore, 21.65% of farmers have obtained at least one of the plant nutrition products as free of cost. Additionally, a substantial segment of farmers who employ these products through multiple procurement avenues, with 9.16% utilizing all three methods: self-preparation, purchase, and getting free. Detailed information is provided in **Table 8.2** and **Figure 8.3** below. District wise data is provided in **Appendix Table 8.3**.(**Page 216**)

Table 8.2: Methods adopted by farmers to obtain plant nutrient inputs

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	1981	77.56
2	Purchase	1294	50.67
3	Getting free	553	21.65
4	Self-preparation & Purchase	801	31.36
5	Self-preparation & Getting free	403	15.78
6	Purchase & Getting free	338	13.23
7	Self-preparation, Purchase & Getting free	234	9.16

Figure 8.3: Methods adopted by farmers to obtain plant nutrient inputs

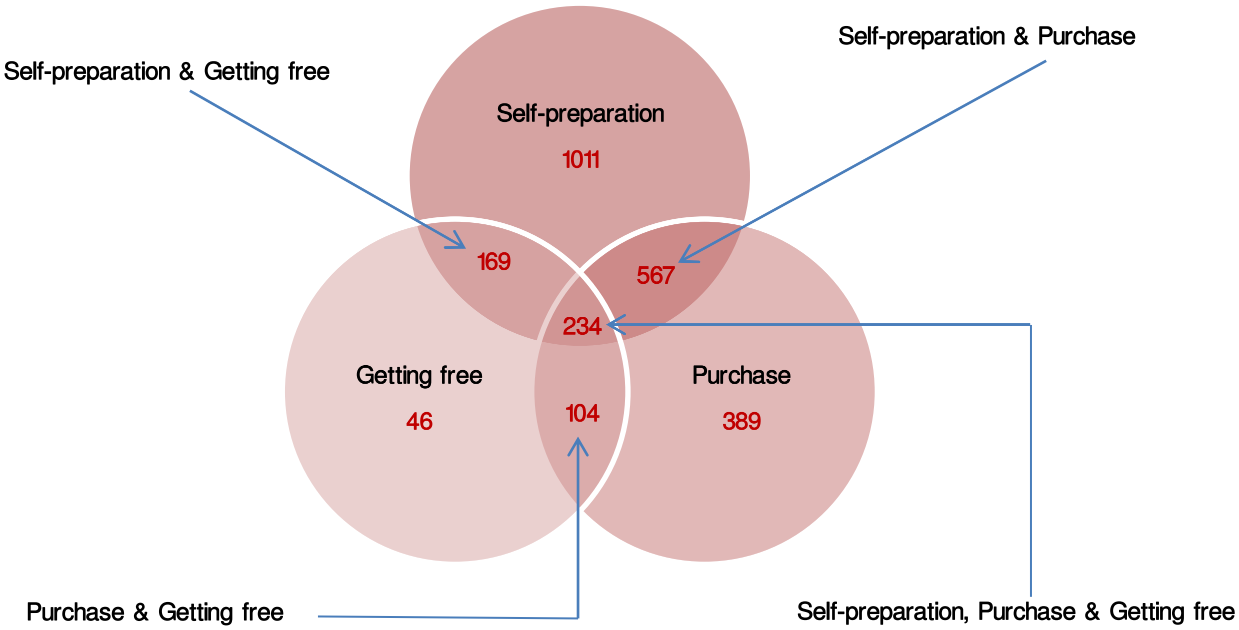
8.3.1 Mode of availability of plant nutrient inputs - Mutually exclusive events

Farmers were categorized into distinct groups based on the mode of availability of various plant nutrition products such as bio fertilizers, fish amino acid, egg amino acid, other tinctures, jeevamruthum, panchagavyam, vermicompost, and leaves extracts in vriksha ayurvedha. A total of 39.58% of farmers exclusively utilized self-prepared products for plant nutrition, while 15.23% procured all necessary products through purchase. Only 1.80% of farmers relied solely on freebie products for plant nutrition. Furthermore, 42.05% of farmers obtained their plant nutrition products through a combination of self-preparation, purchase, and freebies. Detailed district wise figures in this regard are documented in **Appendix Table 8.3.**(**Page 216**)

Table 8.3: Methods adopted by farmers to obtain plant nutrient inputs - Mutually exclusive events

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	1011	39.58
2	Purchase	389	15.23
3	Getting free	46	1.80
4	Self-preparation & Purchase	567	22.20
5	Self-preparation & Getting free	169	6.62
6	Purchase & Getting free	104	4.07
7	Self-preparation, Purchase & Getting free	234	9.16
Total		**2520**	**98.67**

Figure 8.4: Methods adopted by farmers to obtain plant nutrient inputs - Mutually exclusive events



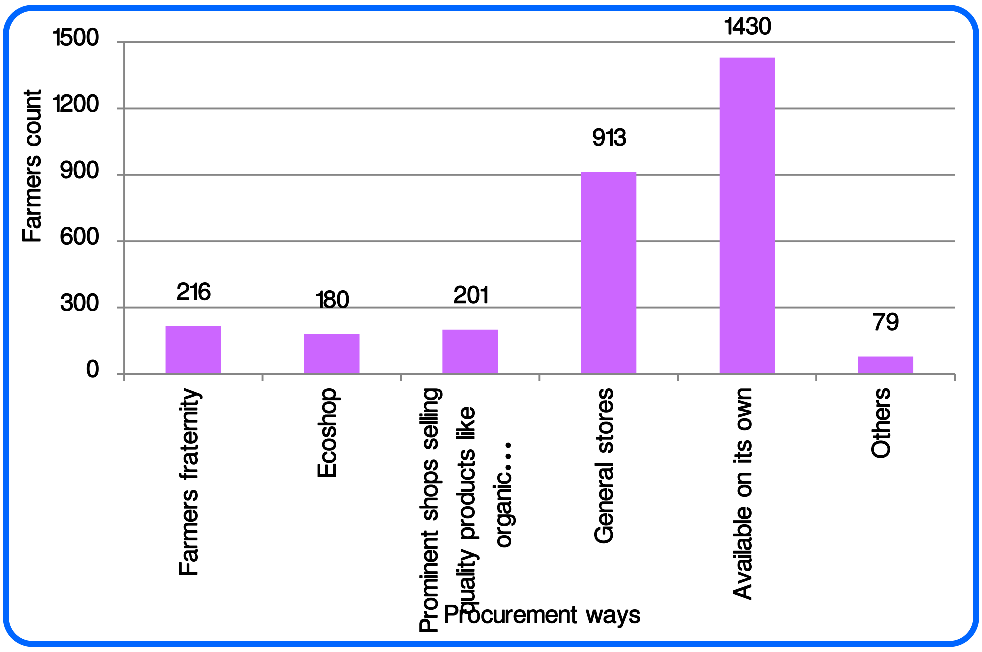
8.4 Procurement of raw materials for the self-preparation of plant nutrition products

Surveyed farmers predominantly relied on a variety of sources to procure raw materials essential for the production of plant nutrition products, including bio-fertilizers, fish and egg amino acids, other tinctures, jeevamruthum, panchagavyam, vermicompost, and leaf extracts in vriksha ayurvedha. These sources primarily encompassed farmers' fraternity, ecoshops, prominent shop selling organic/safe products, general stores, and similar establishments. Additionally, raw materials were sourced from a diverse range of avenues such as local neighbourhood houses, online markets, agricultural universities, Krishi Bhavan, Krishi Vigyan Kendra, fellow organic farmers, dairy farms, cooperatives, local markets, fish markets, other agricultural producers, and fertilizer depots. For further details, please refer to **Table 8.4** and **Figure 8.5** below and district wise data provided in **Appendix Table 8.3.**(**Page 216**)

Table 8.4: Method of procuring raw materials for the self-preparation of plant nutrition products and No. of farmers

Sl No.	Procurement ways	Farmers	
		Count	%
1	Farmers fraternity	216	8.46
2	Ecoshop	180	7.05
3	Prominent shops selling quality products like organic produce/safe products	201	7.87
4	General stores	913	35.75
5	Available on its own	1430	55.99
6	Others	79	3.09

Figure 8.5: Method of procuring raw materials for the self-preparation of plant nutrition products and No. of farmers



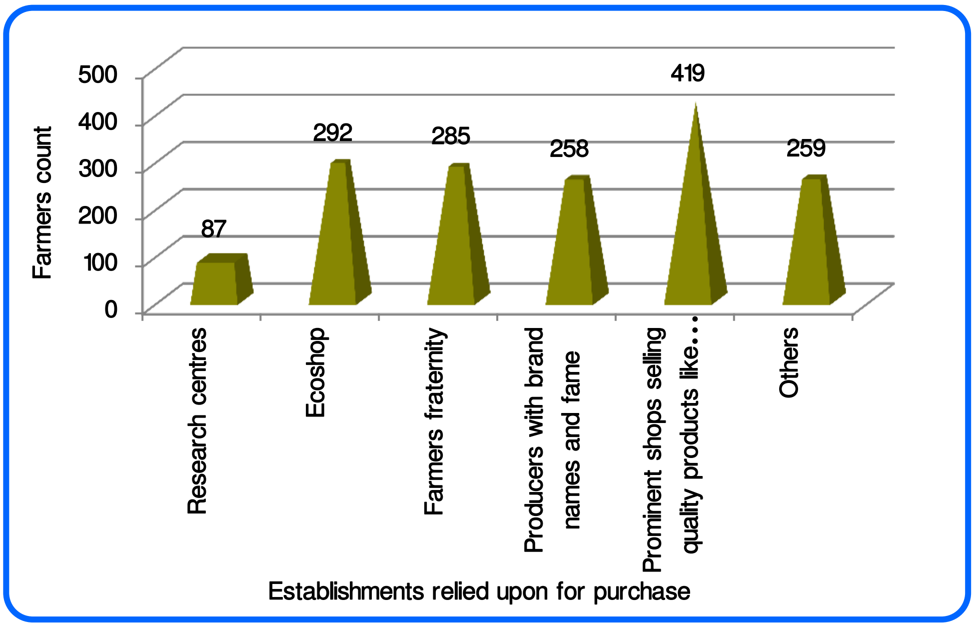
8.5 Mode of purchase of plant nutrition inputs

Table 8.5: Details of establishments from which farmers purchase plant nutrition inputs

Sl No.	Establishment	Farmers	
		Count	%
1	Research centres	87	3.41
2	Ecoshop	292	11.43
3	Farmers fraternity	285	11.16
4	Producers with brand names and fame	258	10.10
5	Prominent shops selling quality products like organic produce/safe products	419	16.41
6	Others	259	10.14

Surveyed farmers mainly relied on research centres, ecoshop, farmers` fraternity, producers with brand names and fame, prominent shops selling organic produce/safe products for the purchase of plant nutrition inputs such as bio fertilizers, fish amino acid, egg amino acid, other tinctures, jeevamruthum, panchagavyam, vermicompost, and leaves extracts in vriksha ayurvedha, and similar items. Moreover, they explore alternative channels such as neighbouring households, estate company, online markets, herbal vendors, coffee mills, agricultural nurseries, Krishi Bhavan, Krishi Vigyan Kendra, societies, dairy farmers, local stores, fellow farmers, other merchants, fertilizer depots, and general stores for procurement. The details are outlined in **Table 8.5** above and **Figure 8.6** below, and district wise data is available in **Appendix Table 8.4**.(**Page 217**)

Figure 8.6: Details of establishments from which farmers purchase plant nutrition inputs



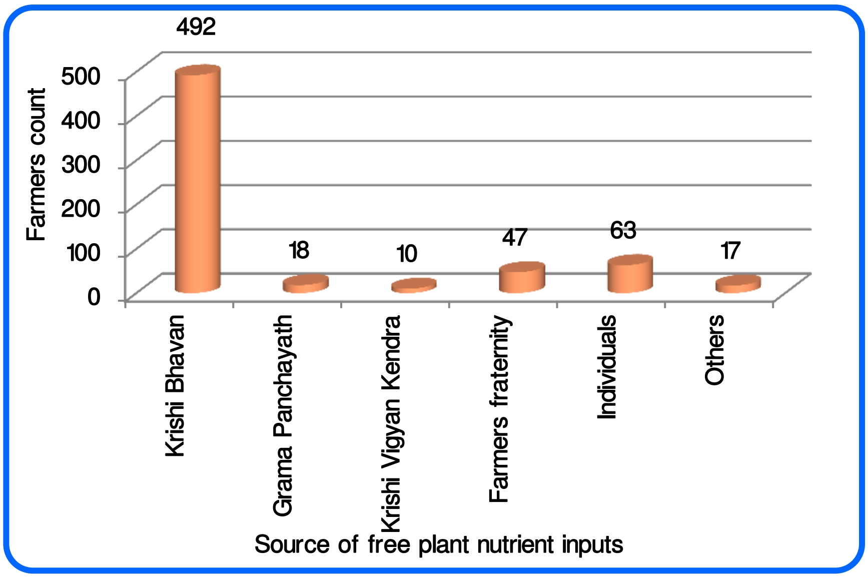
8.6 Source of getting plant nutrition inputs for free

Plant nutrition products such as bio fertilizers, infusions, composts, and alternative fertilizers have been distributed as freebies to a limited number of farmers by various entities including Krishi Bhavan, Grama Panchayath, Krishi Vigyan Kendra, farmers fraternity, individuals, kudumbashree, society, and farms. The particulars of these are provided in **Table 8.6** and illustrated in **Figure 8.7** below. Also, district level figures are available in **Appendix Table 8.4.(Page 217**)

Table 8.6: Sources of free plant nutrient inputs and farmers

Sl No.	Source of free items	Farmers	
		Count	%
1	Krishi Bhavan	492	19.26
2	Grama Panchayath	18	0.70
3	Krishi Vigyan Kendra	10	0.39
4	Farmers fraternity	47	1.84
5	Individuals	63	2.47
6	Others	17	0.67

Figure 8.7: Sources of free plant nutrient inputs and farmers



9

Pest Management

Farmers implement a variety of pest management strategies in farm fields and crops, which are as critical as organic farming techniques such as soil fertilization and plant nutrition. These strategies include the use of fungal and bacterial allies such as Trichoderma, Beauveria, Verticillium, and Pseudomonas. Additionally, diversification of crop cultivation promotes the proliferation and efficacy of beneficial pests, thereby enhancing resistance to harmful ones. However, micro pests such as nematodes, which are abundant in soil, pose significant threats to crops, particularly when the same crop is cultivated persistently in a single location, leading to a surge in their populations. Furthermore, insects such as leaf hoppers and mealy bugs are notorious for their detrimental effects on agricultural yields. The survey collected data on pest infestations in agricultural fields and crops, as well as the counter measures employed by farmers to combat these pests. The findings of this survey provide valuable insights into pest management practices in organic agriculture. The detailed results are presented below.

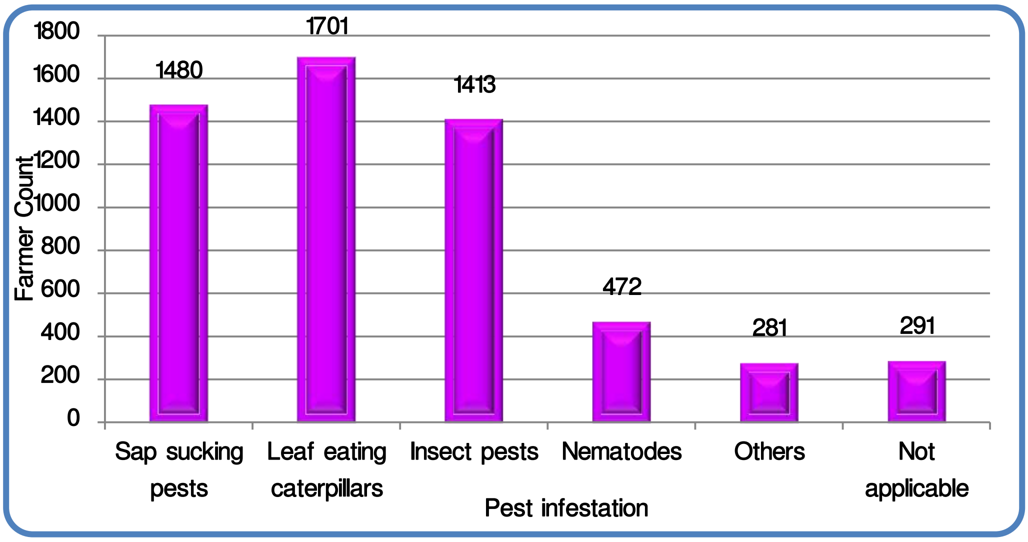
9.1 Pest infestation in farm fields

In the survey, 57.95% of farmers reported experiencing attacks from sap sucking insects, 66.60% noted infestations by leaf eating caterpillars, and 55.32% observed various insect pests in their fields. Additionally, 18.48% of farmers reported nematode infestations, while 11.00% indicated the presence of other pests. Notably, 11.39% of farmers did not consider pest infestation to be a significant problem. These findings are summarized in **Table 9.1** and illustrated in **Figure 9.1** below.

Table 9.1: Details of pest infestations faced by farmers in their farm fields

Sl No.	Pest information	Farmers	
		Count	%
1	Sap sucking pests	1480	57.95
2	Leaf eating caterpillars	1701	66.60
3	Insect pests	1413	55.32
4	Nematodes	472	18.48
5	Others	281	11.00
6	Not applicable	291	11.39

Figure 9.1 : Details of pest infestations faced by farmers in their farm fields



On examining district level data, it becomes evident that a majority of farmers across various geographical areas are experiencing pest infestations from sap sucking insects, leaf eating caterpillars, and other insect pests. In the districts of Palakkad, Malappuram, and Wayanad, 32.06%, 23.31%, and 40.36% of farmers respectively reported that pest attacks do not pose a significant concern. These details are provided in **Appendix Table 9.1 (Page 218**), and details of other pests encountered on farm fields are provided in **Appendix Table 9.2**.(**Page 218**)

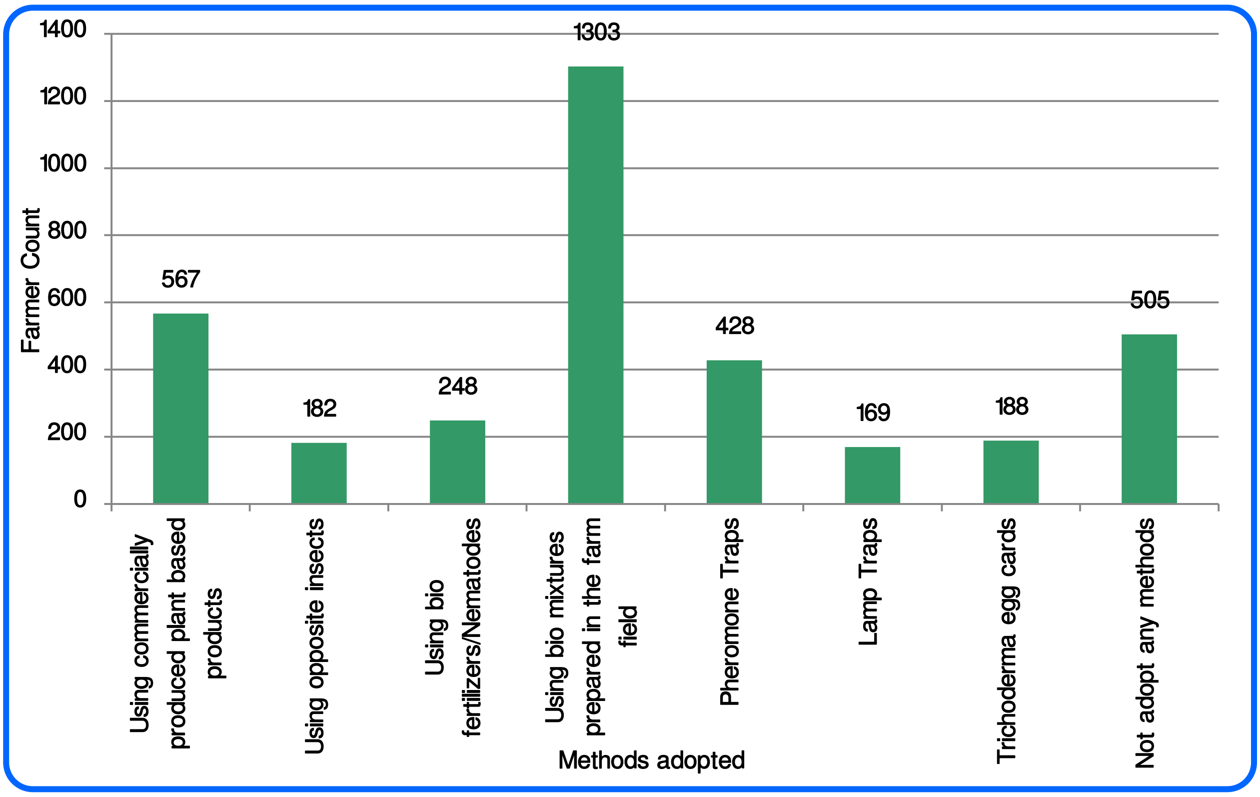
9.2 Pest management in crops

According to the survey findings, farmers implemented a variety of methods to manage pests in their crops. Specifically, 22.20% used commercially produced plant based products, 7.13% utilized opposite insects, 9.71% relied on bio fertilizers/ nematodes, 51.02% employed on bio mixtures prepared in the farm field, 16.76% utilized Pheromone traps, 6.62% used Lamp traps, and 7.36% used Trichoderma egg cards. Additionally, it was found that 19.77% of farmers did not employ any pest management method. The details are provided in **Table 9.2** and **Figure 9.2** below. Analysis of district level data revealed that 49.15% of farmers in Malappuram district did not use any pest management method. Further details can be found in **Appendix Table 9.3**.(**Page 219**)

Table 9.2: Methods adopted by farmers for pest management

Sl No	Adopted method	Farmers	
		Count	%
1	Using commercially produced plant based products	567	22.20
2	Using opposite insects	182	7.13
3	Using bio fertilizers/Nematodes	248	9.71
4	Using bio mixtures prepared in the farm field	1303	51.02
5	Pheromone Traps	428	16.76
6	Lamp Traps	169	6.62
7	Trichoderma egg cards	188	7.36
8	Not adopt any methods	505	19.77

Figure 9.2: Methods adopted by farmers for pest management



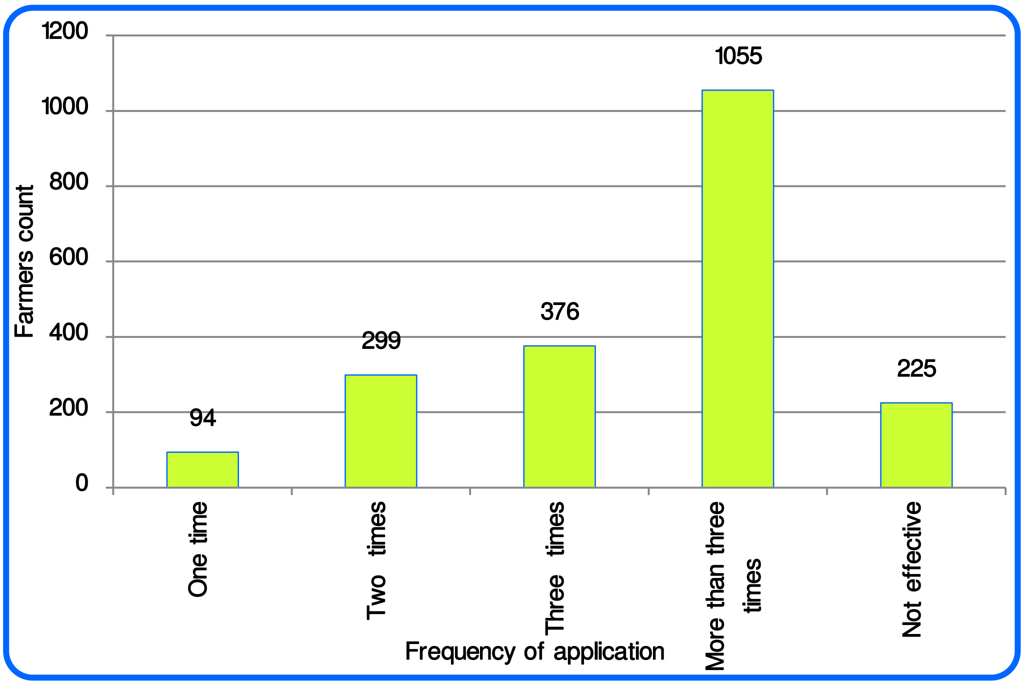
9.3 Application of pest management measures

Data were collected from surveyed farmers regarding the frequency of pest management application required for effective control. Among them, 3.68% reported applying pest management measures once, 11.71% twice, and 14.72% three times. Additionally, 41.31% indicated that effectiveness necessitated more than three applications, while 8.81% found pest management measures ineffective. These details are presented in **Table 9.3** and **Figure 9.3** below. Furthermore, 19.77% of the farmers did not utilize any pest management measures, as documented in **Section 9.2**(**Page 58**). District wise figures in this regard are available in **Appendix Table 9.3.**(**Page 219**)

Table 9.3: Frequency of application of pest management measures by farmers

Sl No.	Frequency of application	Farmers	
		Count	%
1	One time	94	3.68
2	Two times	299	11.71
3	Three times	376	14.72
4	More than three times	1055	41.31
5	Not effective	225	8.81
Total		**2049**	**80.23**

Figure 9.3: Frequency of application of pest management measures by farmers



9.4 Mode of availability of pest management measures

Through the survey, data has been collected on the mode of acquisition of pest management products such as commercially produced plant based products, opposite insects, bio fertilizers/nematodes, bio mixtures prepared in the farm field, pheromone traps, lamp traps, trichoderma egg cards etc. by farmers, which reveals insightful trends. The results indicate that 63.00% of farmers have utilized at least one self-prepared product. In contrast, 42.29% have used at least one purchased product, and 2.19% have employed at least one product obtained as a freebie. Moreover, a significant number of farmers have sourced pest management products through multiple channels, including self-preparation, purchase, and freebies. The details are available in **Table 9.4** and **Figure 9.4** below and district wise figures are provided in **Appendix Table 9.4.**(**Page 220**)

Table 9.4: Methods adopted by farmers to obtain pest management measures

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	1609	63.00
2	Purchase	1080	42.29
3	Getting free	56	2.19
4	Self-preparation & Purchase	644	25.22
5	Self-preparation & Getting free	45	1.76
6	Purchase & Getting free	32	1.25
7	Self-preparation, Purchase & Getting free	25	0.98

Figure 9.4: Methods adopted by farmers to obtain pest management measures

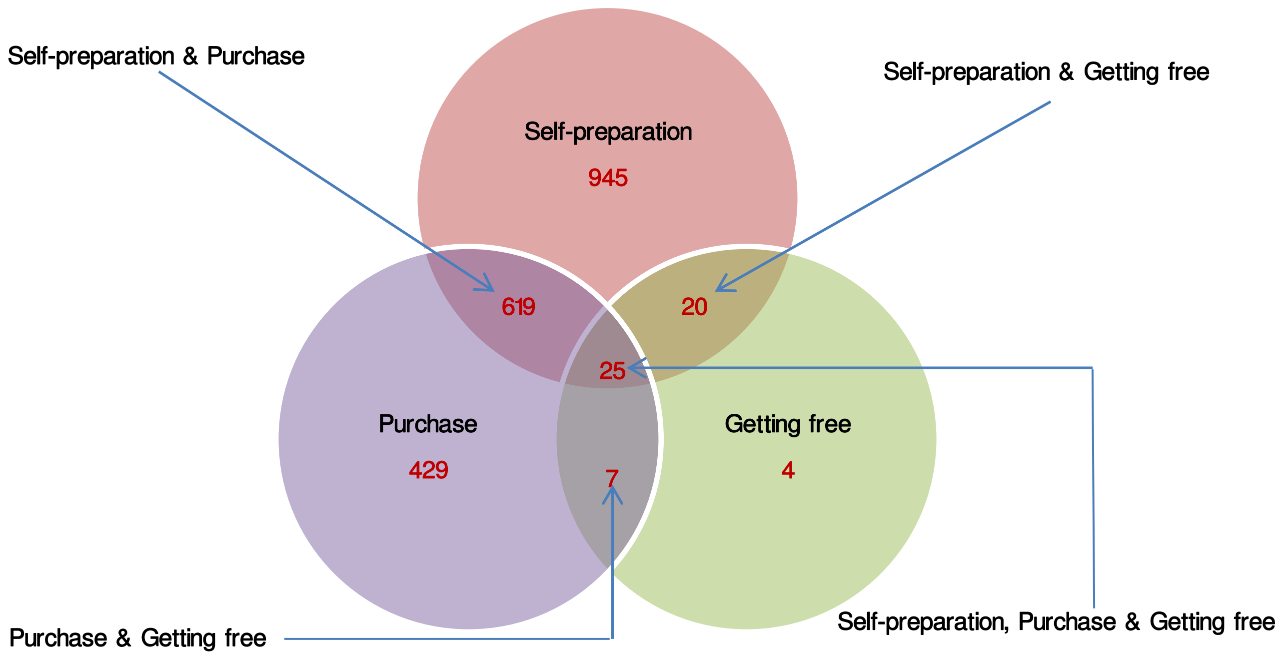
9.4.1 Mode of availability of pest management measures - Mutually exclusive events

The procurement methods for pest management products such as commercially produced plant based products, opposite insects, bio fertilizers/nematodes, bio mixtures prepared in the farm field, pheromone traps, lamp traps, trichoderma egg cards etc., among farmers encompass a variety of approaches. These methods are categorized into distinct and mutually exclusive events. Among the surveyed farmers, 37.00% exclusively relied on products they prepared themselves. In contrast, 16.80% of the farmers purchased all the necessary pest management items. A small proportion, 0.16%, used only freebie products provided for pest management. A combined strategy involving self-preparation, purchase, and freebie items was adopted by 26.27% of farmers. These details are available in **Table 9.5** and **Figure 9.5** below, and district-wise figures in **Appendix Table 9.4.**(**Page 220**)

Table 9.5: Methods adopted by farmers to obtain pest management measures - Mutually exclusive events

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	945	37.00
2	Purchase	429	16.80
3	Getting free	4	0.16
4	Self-preparation & Purchase	619	24.24
5	Self-preparation & Getting free	20	0.78
6	Purchase & Getting free	7	0.27
7	Self-preparation, Purchase & Getting free	25	0.98
Total		**2049**	**80.23**

Figure 9.5: Methods adopted by farmers to obtain pest control measures - Mutually exclusive events



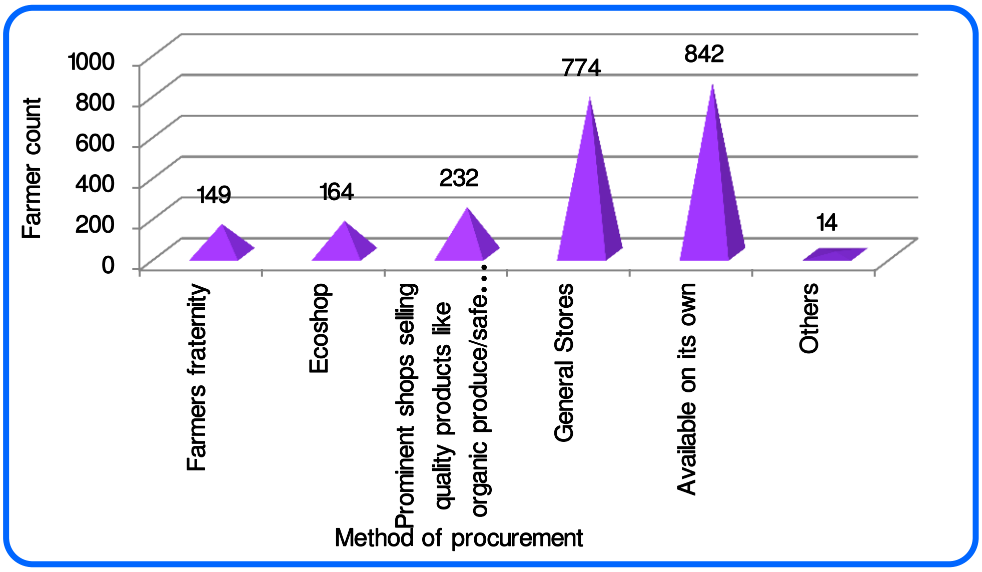
9.5 Procurement of raw materials for the self-preparation of pest management measures

Table 9.6: Procurement method of raw materials by farmers for the self-preparation of pest management measures

Sl No.	Method of procurement	Farmers	
		Count	%
1	Farmers fraternity	149	5.83
2	Ecoshop	164	6.42
3	Prominent shops selling quality products like organic produce/safe products	232	9.08
4	General Stores	774	30.31
5	Available on its own	842	32.97
6	Others	14	0.55

Information has been collected on the various methods employed by farmers to acquire the essential raw materials needed for the preparation of pest management products by themselves. These products include, commercially produced plant based products, opposite insects, bio fertilizers/nematodes, bio mixtures prepared in the farm field, pheromone traps, lamp traps, trichoderma egg cards, etc. The primary sources for these materials are farmers` fraternity, ecoshops, prominent shops selling quality products like organic produce/safe products, general stores, and materials owned by the farmers themselves. Additionally, a smaller segment of farmers obtains raw materials from alternative sources such as ayurveda shops, agricultural universities, and societies. These details are presented in **Table 9.6** and **Figure 9.6**. Moreover, district level data is documented in **Appendix Table 9.4.(Page 220**)

Figure 9.6: Method of procuring raw materials by farmers for the self-preparation of pest management measures



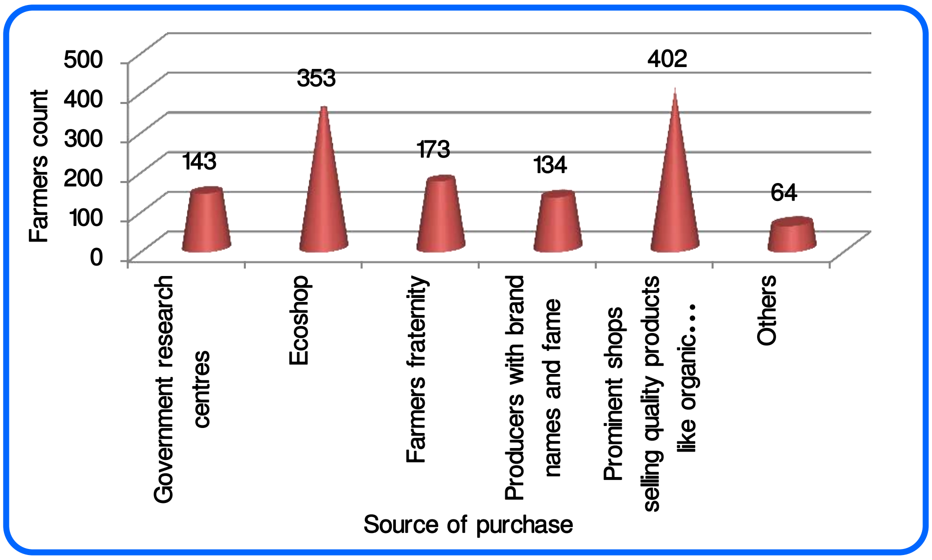
9.6 Mode of purchase of pest management measures

Information regarding the establishments from which farmers purchase pest management products is provided in **Table 9.7** and **Figure 9.7** below. In addition to the establishments listed, farmers also rely on a variety of other sources such as cooperative society, online market, general stores, agricultural college, pesticide shop, Krishi Bhavan, Krishi Vigyan Kendra, Mankomb Rice Research Centre, other farmers, Raidco, fertilizer depot, fertilizer shop, etc., for acquiring pest management products. The district level data pertaining to this aspect is available in **Appendix Table 9.4**.(**Page 220**)

Table 9.7: Details of establishments from which farmers purchase pest management measures

Sl No.	Establishments	Farmers Count	Farmers %
1	Government research centres	143	5.60
2	Ecoshop	353	13.82
3	Farmers fraternity	173	6.77
4	Producers with brand names and fame	134	5.25
5	Prominent shops selling quality products like organic produce/safe products	402	15.74
6	Others	64	2.51

Figure 9.7: Details of establishments from which farmers purchase pest management measures



10

Disease Management

The occurrence of diseases in agricultural fields and crops, along with the methods employed for their management, is of paramount importance in organic farming practices. This involves creating conditions that favour beneficial microorganisms in the soil and utilizing these microorganisms to combat harmful microbes and pathogens through organic management techniques. Notable examples of such beneficial organisms include fungi such as Trichoderma and Penicillium, as well as bacteria like fluorescent Pseudomonas. These organisms, along with plant based products, decoctions, organic mixtures, and infusions, can be incorporated into the soil alongside fertilizers, sprayed onto plants, or applied to planting materials to effectively control diseases. The information gathered from surveyed farmers regarding the diseases encountered in their agricultural lands and crops, along with the measures taken to mitigate them, is presented below.

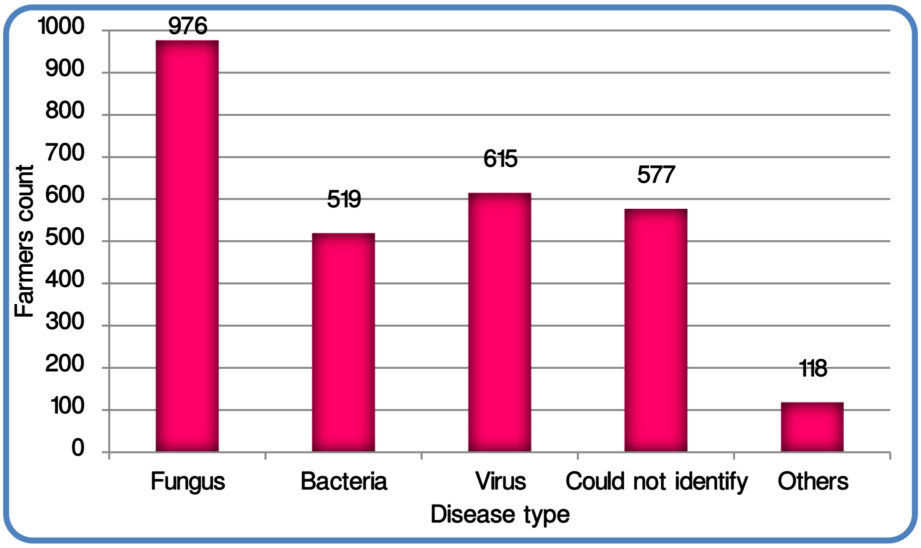
10.1 Disease outbreaks in farm fields

38.21%, 20.32%, and 24.08% of the farmers reported instances of fungal, bacterial, and viral diseases respectively within their farm fields. Additionally, 4.62% of farmers are grappling with other diseases. Concurrently, a notable 22.59% of farmers expressed their inability to accurately identify certain diseases prevalent in their farm fields. This issue necessitates significant scrutiny, ascertaining whether it stems from farmers lack of experience in disease identification or the emergence of novel disease types. The details are provided in **Table 10.1** and **Figure 10.1** below.

Table 10.1: Details of diseases faced by farmers in their farm fields

Sl No.	Disease type	Farmer	
		Count	%
1	Fungus	976	38.21
2	Bacteria	519	20.32
3	Virus	615	24.08
4	Cannot identify	577	22.59
5	Others	118	4.62

Figure 10.1: Details of diseases faced by farmers in their farm fields

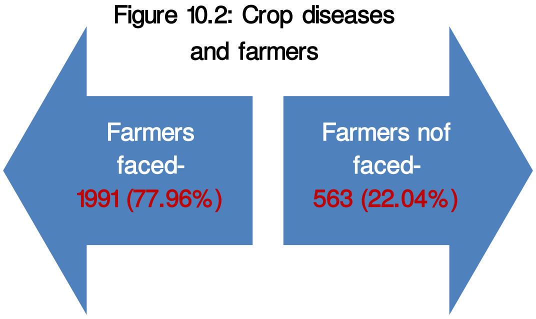


Analyzing the data at the district level reveals that 84.09%, 77.07%, and 70.55% of farmers in Kasaragod, Kozhikode, and Alappuzha districts, respectively, have reported instances of fungal diseases. The majority of bacterial and viral infections are reported from Kozhikode district. In districts excluding Idukki, Kozhikode, Wayanad, and Kasaragod, a range of 20% to 38% of farmers have expressed their inability to accurately identify certain diseases. Further information regarding the diseases mentioned above, as well as additional diseases, are provided in **Appendix Table 10.1** and **10.2** respectively.(**Page 221**)

10.2 Crop diseases

As per the survey, 77.96% of farmers reported observing diseases in their crops. At the district level, the prevalence of crop infections was reported by more than 65% of farmers in all districts except Palakkad. In Palakkad, only 37.35% of farmers observed crop infections. The details are illustrated in **Figure 10.2** and district wise figures are provided in **Appendix Table 10.3**.(**Page 222**)

Figure 10.2: Crop diseases and farmers

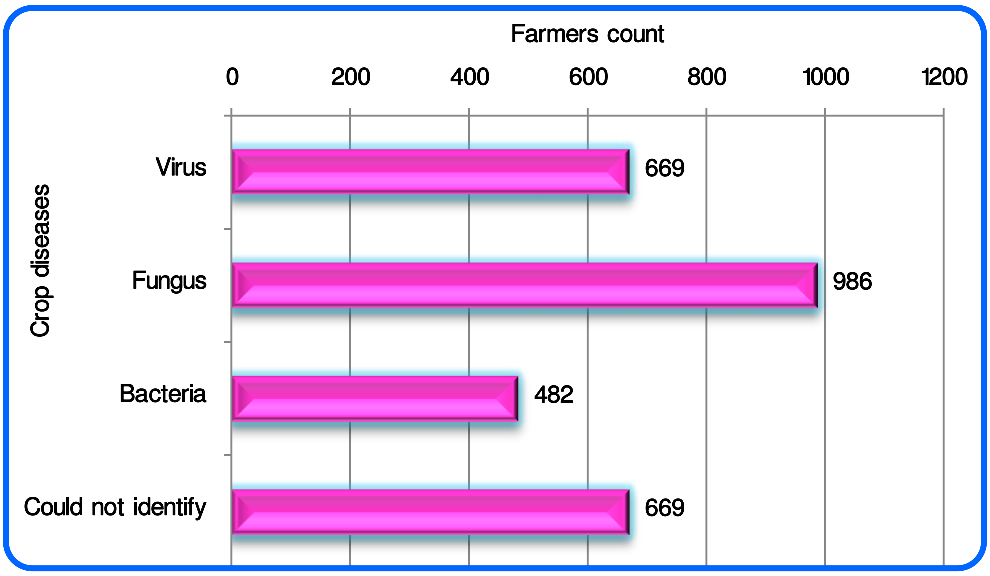


The survey revealed that 26.19%, 38.61%, and 18.87% of farmers reported crop diseases due to virus, fungus, and bacteria, respectively. Additionally, 26.19% of farmers reported being unable to identify certain crop diseases. This issue requires urgent attention, whether it is due to a lack of experience among farmers in identifying diseases or the emergence of new disease types. Addressing and resolving this problem is crucial. Further details are provided in **Table 10.2** and **Figure 10.3** below.

Table 10.2: Types of diseases faced by farmers in their agricultural crops

Sl No.	Infection type	Farmers	
		Count	%
1	Virus	669	26.19
2	Fungus	986	38.61
3	Bacteria	482	18.87
4	Cannot not identify	669	26.19

Figure 10.3: Types of diseases faced by farmers in their agricultural crops



An analysis of district level data indicates that most districts have reported concurrent instances of viral, fungal, and bacterial diseases. However, in Idukki district, where viral diseases are relatively uncommon, there is a significant prevalence of both fungal and bacterial diseases. Similarly, Wayanad district shows a high incidence of fungal diseases. Further details on this regard are available in **Appendix Table 10.3.**(**Page 222**)

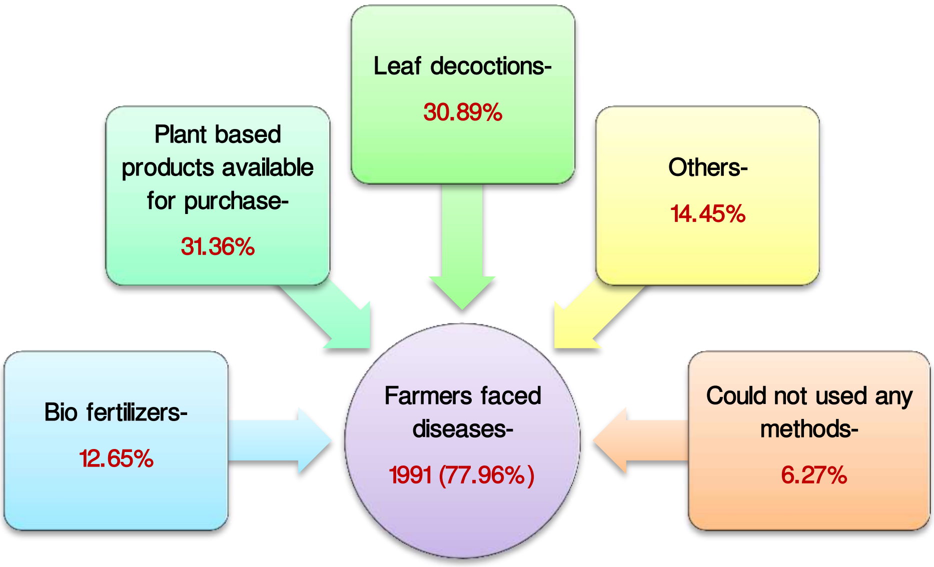
10.3 Disease management in crops

In the survey, 12.65% of farmers reported using bio fertilizers, 31.36% used plant based products, and 30.89% employed leaf decoctions for managing crop diseases. Additionally, 6.27% of farmers did not use any methods for disease management, while 14.45% utilized alternative fertilizers, tinctures, and mixtures. The details are provided in **Table 10.3** and **Figure 10.4** below. District wise data regarding these practices are given in **Appendix Table 10.3**(**Page 222**), and details about other disease management methods adopted is available in **Appendix Table 10.4.**(**Page 223**)

Table 10.3: Methods adopted by farmers for disease management

Sl No.	Adopted method	Farmers	
		Count	%
1	Using bio fertilizers	323	12.65
2	Using plant based products available for purchase	801	31.36
3	Using leaf decoctions	789	30.89
4	Others	369	14.45
5	Could not use any methods	160	6.27

Figure 10.4: Methods adopted by farmers for disease management



10.4 Mode of availability of disease management measures

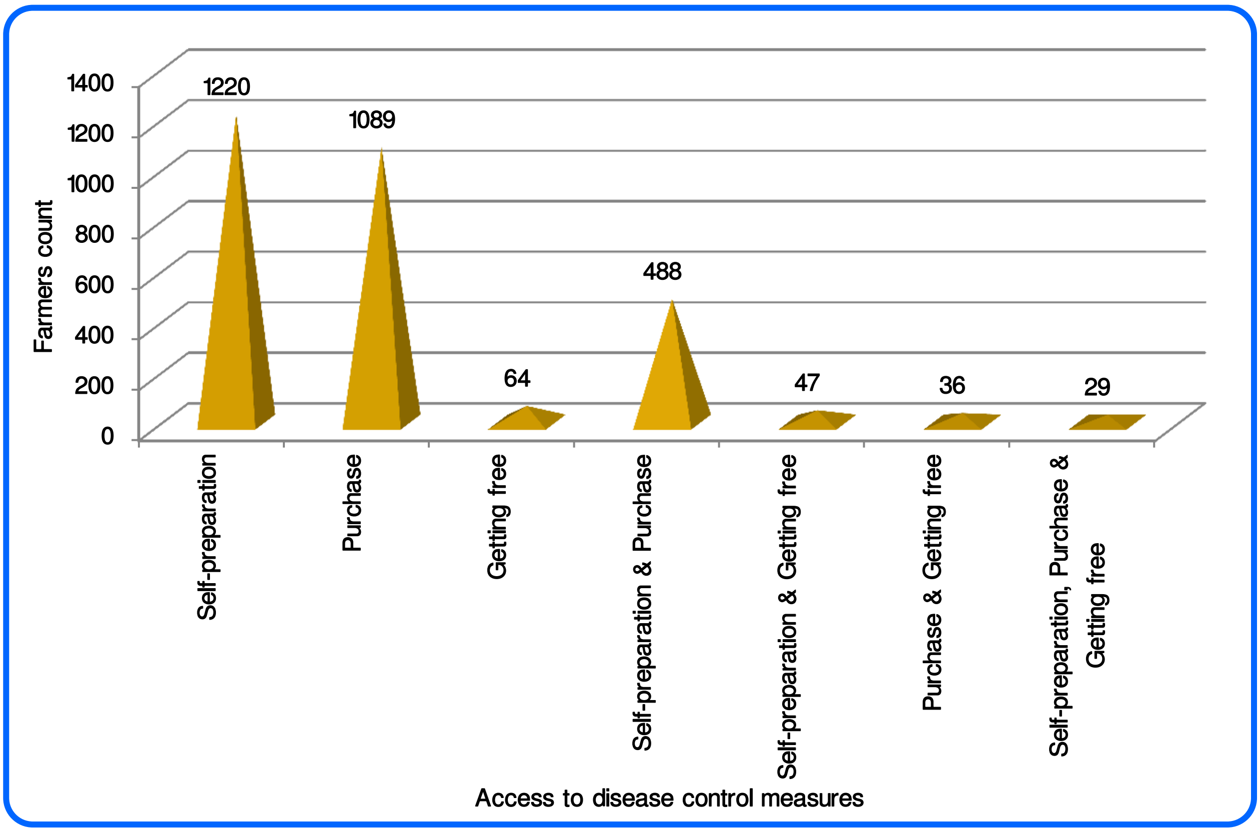
47.77% of farmers personally prepared at least one disease management product, such as bio fertilizers, plant based products, or leaf decoctions, or alternative products. Additionally, 42.64% of farmers purchased at least one of these items. Furthermore, 2.51% of the surveyed farmers received at least one product as a freebie. A significant number of farmers acquired products through a combination of self-

Table 10.4: Methods adopted by farmers to obtain disease management measures

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	1220	47.77
2	Purchase	1089	42.64
3	Getting free	64	2.51
4	Self-preparation & Purchase	488	19.11
5	Self-preparation & Getting free	47	1.84
6	Purchase & Getting free	36	1.41
7	Self-preparation, Purchase & Getting free	29	1.14

preparation, purchase, and freebies. Detailed figures are presented in **Table 10.4** above and **Figure 10.5 below**. District wise figures are available in **Appendix Table 10.5**.(**Page 224**)

Figure 10.5: Methods adopted by farmers to obtain disease management measures



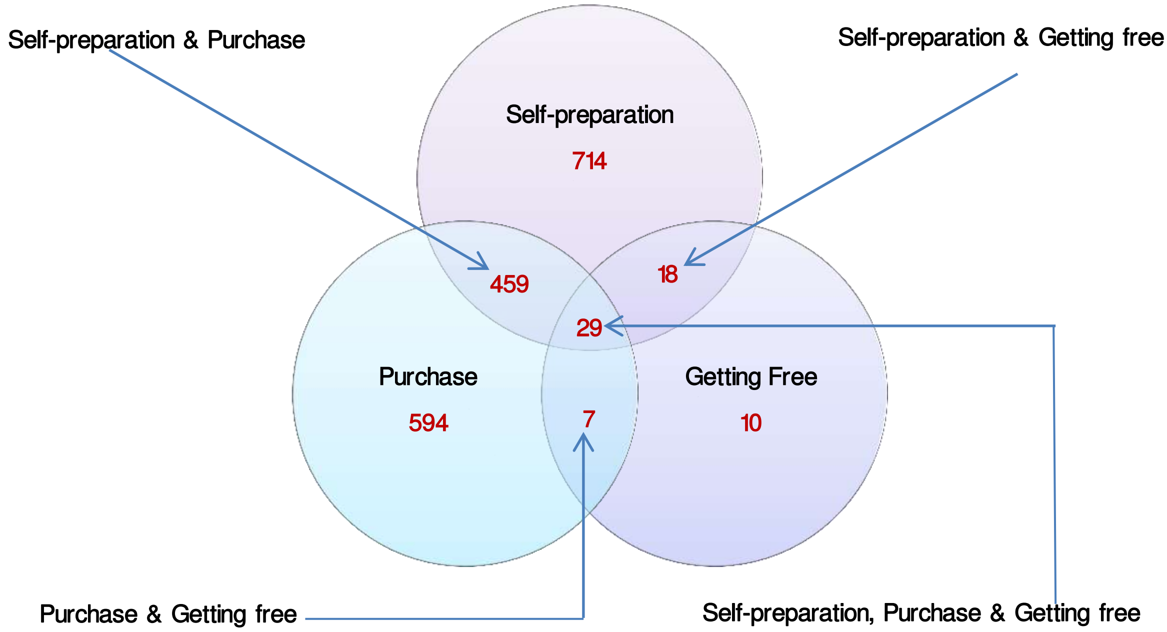
10.4.1 Mode of availability of disease management measures - Mutually exclusive events

When categorizing the methods used to acquire disease management measures such as bio fertilizers, plant based products, and leaf decoctions into mutually exclusive categories, 27.96% of farmers exclusively used self-prepared items, 23.26% used only purchased items, and a mere 0.39% relied solely on freebies. Additionally, 20.08% of farmers utilized a combination of self-preparation, purchasing, and freebie. Detailed information is given in **Table 10.5** and **Figure 10.6** below. District wise figures are available in **Appendix Table 10.5**.(**Page 224**)

Table 10.5: Methods adopted by farmers to obtain disease management measures - Mutually exclusive events

Sl No.	Mode of availability	Farmers	
		Count	%
1	Self-preparation	714	27.96
2	Purchase	594	23.26
3	Getting free	10	0.39
4	Self-preparation & Purchase	459	17.97
5	Self-preparation & Getting free	18	0.70
6	Purchase & Getting free	7	0.27
7	Self-preparation, Purchase & Getting free	29	1.14
Total		**1831**	**71.69**

Figure 10.6: Methods adopted by farmers to obtain disease management measures - Mutually exclusive events



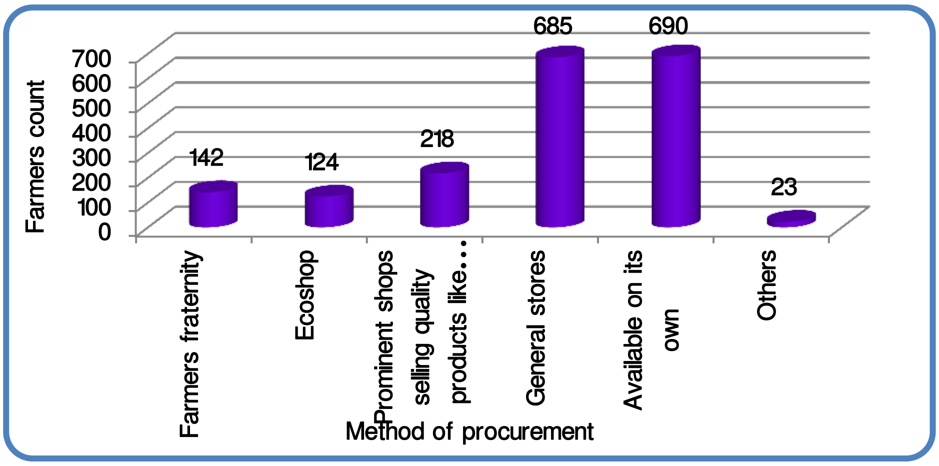
10.5 Procurement of raw materials for the self-preparation of disease management measures

According to the survey finding, farmers procure raw materials for preparing disease management products, such as bio fertilizers, plant based products, and leaf decoctions, from various sources. These sources include farmers fraternity, ecoshop, prominent shops selling quality products like organic produce/safe products, general stores, as well as other avenues such as ayurvedic shops, Krishi Bhavan, and societies. Additionally, farmers often utilize materials they have owned or cultivated themselves. The details of these sources are available in **Table 10.6** and **Figure 10.7** below, with district wise figures provided in **Appendix Table 10.5**.(**Page 224**)

Table 10.6: Method of procuring raw materials by farmers for the self-preparation of disease management measures

Sl No.	Method of procurement	Farmers	
		Count	%
1	Farmers fraternity	142	5.56
2	Ecoshop	124	4.86
3	Prominent shops selling quality products like organic produce/safe products	218	8.54
4	General stores	685	26.82
5	Available on its own	690	27.02
6	Others	23	0.90

Figure 10.7: Method of procuring raw materials by farmers for the self-preparation of disease management measures



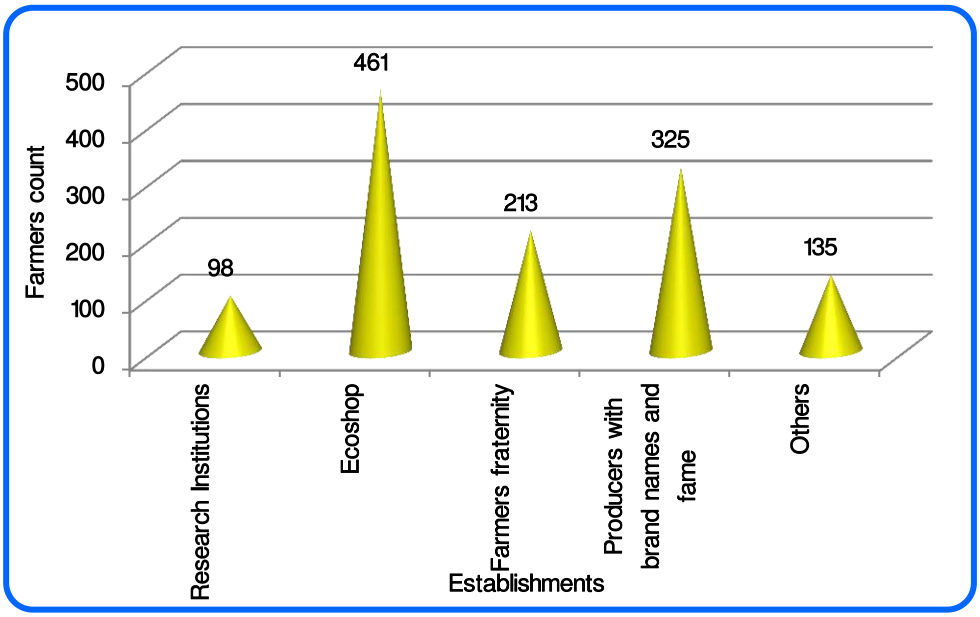
10.6 Mode of purchase of disease management measures

For the procurement of disease management products such as bio fertilizers, plant based products, and leaf decoctions, alternative products, etc., farmers have depended on various establishments. These include research institutions, ecoshops, farmers fraternity, producers with brand names and fame, as well as other establishments like agricultural nurseries, agro service societies, ayurvedic medicine shops, online markets, agricultural colleges, Krishi Bhavans, Krishi Vigyan Kendra, cooperative societies, shops selling organic products, other vendors, fertilizer shops, general stores, and shops selling homeopathic medicines. Detailed information on these sources is presented in **Table 10.7** and **Figure 10.8**, and district wise figures are shown in **Appendix Table 10.5**.(**Page 224**)

Table 10.7: Details of establishments from which farmers purchase pest management measures

Sl No.	Establishment	Farmers	
		Count	%
1	Research Institutions	98	3.84
2	Ecoshop	461	18.05
3	Farmers fraternity	213	8.34
4	Producers with brand names and fame	325	12.73
5	Others	135	5.29

Figure 10.8: Details of establishments from which farmers purchase pest management measures



10.7 Application of disease management measures

Information was collected from surveyed farmers to determine the frequency at which they apply disease control measures and their perceived effectiveness. It revealed that 3.68% apply these measures once, 11.71% twice, and 14.72% three times. Furthermore, 41.31% of farmers believe that effectiveness requires more than three applications, while only 0.27% reported ineffectiveness. Details in this regard are presented in **Table 10.8**. Moreover, 28.31% did not employ any disease management measures or not facing any diseases, as seen in **Section 10.2, 10.3** (**Page 64, 65**). District wise figures in this regard are available in **Appendix Table 10.5**.(**Page 224**)

Table 10.8: Frequency of application of disease management measures by farmers

Sl No	Frequency of application	Farmers	
		Count	%
1	One time	94	3.68
2	Two times	299	11.71
3	Three times	376	14.7
4	More than three times	1055	41.31
5	Not effective	7	0.27
	Total	**1831**	**71.6**

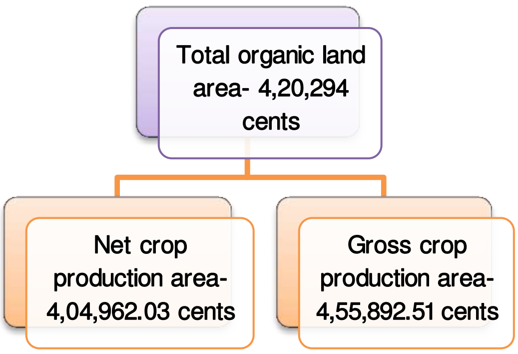
11

Production and Marketing

To ensure economic returns from organic farming, it is crucial that agricultural crops achieve higher productivity and have strong marketing potential, along with effective market penetration. This not only leads to better yields but also helps to address the complexities involved in organic production and marketing. Achieving these goals is essential for sustaining the organic farming model and attracting new farmers to the practice. Data on crop yields, production, cost of production, income, methods of sale, export, and processing of value added products were collected from the agricultural lands of the surveyed organic farmers. Additionally, key information on scientific quality control tests and residual toxicity tests, which reflect the integrity of organic products, was gathered. These findings will be valuable for understanding the nuances of organic farming, adopting sustainable and profitable organic farming practices, attracting new farmers, and developing comprehensive projects.

11.1 Production area

As per the survey findings, 2,554 surveyed farmers revealed that they harvested crops from 404,962.03 cents of land during the agricultural year 2020-21. This was out of a total of 420,294 cents of cultivated organic land. Furthermore, the total harvested area for all crops amounted to 455,892.51 cents. This results in a crop density of 112.58%, demonstrating efficient land use. Detailed figures are available in **Appendix Table 11.1(Page 225)**.



11.2 Crop diversity in production

2554 surveyed farmers have cultivated/ harvested 97 varieties of agricultural produce in the long/short term crops categories during the agriculture year 2020-21. The survey revealed a diverse range of crops being cultivated by farmers, with each farmer cultivating 9.38 varieties. The survey also revealed that there are 23,951 distinct crop plots, indicating that each crop variety is cultivated by an average of 246.92 farmers, representing approximately 9.66% of the total farmers surveyed. For detailed information, refer to **Table 11.1**, with specific crop data provided in **Table 11.3** (**Pages 71-73**). At the district level, Thrissur district has the highest average number of crops per farmer at 14.11, while Palakkad district has the lowest at 5.21. Detailed district level data is provided in **Appendix Table 11.1(Page 225)**

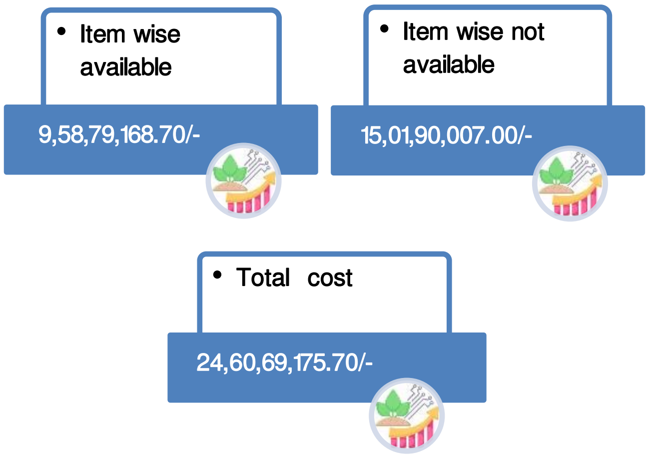
Table 11.1: Organic farming production: Crops diversity and farmers

Sl No.	Particulars	Quantity
1	No. of farmers surveyed	2554
2	Number of crops harvested/cultivated	97
3	Total number of farmers based on crops	23951
4	Average number of crops cultivated per farmer	9.38
5	Average number of farmers cultivated one crop	246.92

11.3 Production, Cost of production and Income

From the total 2,554 farmers selected for the survey, a combined total production of 1,11,93,686.47 kilograms of organic produce for the agricultural year 2020-21 was reported. Efforts were made to collect detailed production cost data for the crops; however, most farmers could not provide specific information, as they had not recorded such data in registers. Consequently, production costs were collected either item wise for available items or as total costs where item wise data was unavailable. Since the information was recalled from memory by the farmers, there might be fluctuations in its accuracy. The total income reported by the farmers amounted to Rs. 24,60,69,175.70. Further details in this regard are provided in **Figure 11.1** and **Table 11.2** below.

Figure 11.1: Cost of production of crops (In Rs.)



In the agricultural year 2020-21, farmers reported earning a total of Rs. 41,12,49,002.00 from the sale of organic agricultural products. This activity resulted in a net income of Rs. 16,51,79,826.30 from organic farming. The income-expenditure ratio stands at 1.67, indicating that a substantial portion of the income is consumed by expenses. These details are provided in **Table 11.2** below, with district wise figures available in **Appendix Table 11.1**.(**Page 225**)

Table 11.2: Summary of Production, Cost of production, and Income of harvested crops

Sl No.	Particulars			Quantity
1	Production (Kg)			**1,11,93,686.47**
2	Production Cost (In Rs.)	i	Item wise available	**9,58,79,168.70**
		ii	Item wise unavailable	**15,01,90,007.00**
		iii	Total **[(i)+(ii)]**	**24,60,69,175.70**
3	Income through sales (In Rs.)			**41,12,49,002.00**
4	Net Income (In Rs.) **[(3)-(2)]**			**16,51,79,826.30**
5	Income-expenditure ratio			**1.67**

During the agricultural year 2020-21, agricultural produce from a total of 404,962.03 acres of land were harvested, as indicated in **Section 11.1** (**Page 69**) of the report. Consequently, the average production cost of crops per cent of land amounted to Rs. 607.64, with an income of Rs. 1015.53 and a net income of Rs. 407.89. Furthermore, the average net income for a farmer is reported to be Rs. 64,674.95 annually. Achieving this net income necessitates the possession of at least 158.56 cents of organic land. However, it is notable from the data presented in **Table 2.3** of **Chapter 2**, **Section 2.4** (**Page 16**) that nearly half of the farmers surveyed fall short of this requirement. Detailed information regarding crop yields, total cultivated area, production, production costs, and income from sales outlined in **Table 11.3** below.

Table 11.3: Crop wise information on harvested area: Crop area, Production, Cost of production, and Income from sales

Sl No.	Crop Name	Farmer Count	Area (In cents.)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	101	1811.34	8124.3	52500	192160
2	Custard apple/Soursop	21	43.75	889	500	32100
3	Apple	3	22	31	-	0
4	Ginger	805	4226.62	116020.8	972240	5021057
5	Potato	9	72	2730	6000	49500
6	Black gram/Urad	1	30	100	10000	0
7	Sesamum	24	1429	1529	62300	238400
8	Banana	842	20347.5	1187680	12332135	39849943
9	Cardamom	47	2481.5	6784	1121650	15057600
10	Orange	9	362.3	1140	1300	18700
11	Brinjal	113	971.45	30080	147940	737050
12	Sugarcane	4	372	86923	680000	840000
13	Cinnamon	5	20	118	20000	0
14	Aloe vera	5	113.55	10048	150000	301150
15	Arecanut	927	28010.55	471137.6	11682590	60591273
16	Cashew	78	2231	12638	246650	1098340
17	Purple Yam/Kachil	356	1532.7	69392	254910	1930655
18	Coffee	330	19648.1	199040	879840	13730548
19	Malabar Tamarind/Brindle Berry	67	142.4	3246	7700	462170
20	Ash Gourd	349	1968.9	69772.5	333655	1080135
21	Black Pepper	884	23776.15	86838.45	3942944	29464340
22	Cow Pea/Bush Snake Bean	88	1373	23989	119980	897940
23	Chinese Potato/Coleus	133	918.95	18509	95470	680535
24	Pineapple	50	491.7	19960	463150	745150
25	Cocoa	191	6463.75	66104	570365	3796825
26	Guar/Cluster Bean	10	15.45	94	-	1700
27	Cauliflower	160	956.23	8963	31700	263525
28	Ivy Gourd/Coccinia grandis	376	1807.9	94464.8	875005	2470419
29	Cabbage	167	814.48	16973	35600	359210
30	Carrot	32	177.07	4487	14200	215110
31	Cloves	48	274.5	819.5	49900	391850
32	Little Millet/Chama	76	3829.5	9554	15500	87750
33	Water Apple/Bell Fruit	31	42.2	1413	600	1000
34	Spinach	721	6238.55	123804	536985	4628385
35	Bottle Gourd	113	720.95	31998	63240	532830
36	Small Onion/Shallot	12	118.25	792	-	24600
37	Lemon	25	52.25	907	2650	41600
38	Elephant Yam	953	5983.45	292179	823230	5119759
39	Colocasia	864	4145.15	112019.75	570300	3123406
40	Maize/Corn	62	2529	9982	51000	97845
41	Nutmeg Fruit	377	7068.95	38637.8	1218900	10856075
41.1	Nutmeg Seed	1	3	1	1000	2000
41.2	Nutmeg Mace	77	728.3	835.85	30900	840255
42	Jowar	6	265	1290	2000	36700
43	Indian Blackberry/Java Plum	9	10	58	500	0

Sl No.	Crop Name	Farmer Count	Area (In cents.)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
44	Dragon Fruit	12	122.1	1554	28050	157800
45	Tomato	445	1638	31601	161965	719625
46	Watermelon	23	334.3	16012	20000	369175
47	Foxtail Millet/Thina	15	845	1365	3500	19200
48	Pigeon Pea/Thuvara	151	7550	22830	58700	559600
49	Coconut	1547	83183.8	2188546	14351310	58737931
50	Tea	6	36	3559	31500	54600
51	Lesser Yam	70	343.4	11049	22800	288055
52	Ponderosa Lemon/Wild Lemon	31	39.1	2163	3500	48400
53	Ground Nut	69	2677.2	9285	13350	235840
54	Gooseberry	12	9.75	53	400	0
55	Paddy	446	72257.8	1013702	13644030	28409937
56	Green Chilli	841	2916.975	39018.9	334670	1930650
57	Snake Gourd	401	4373.4	162487	977600.35	3476252
58	Pappaya	206	880.05	50192	192050	879125
59	Pea Bean/Long Yard Bean	11	25	3105	20000	20000
60	Bitter Gourd	736	7052.9	196488.32	2018025	7117895
61	Passion Fruit	86	311.75	8665	71350	409580
62	Guava	82	235.68	25548	69250	259000
63	Jack Fruit	436	2285.75	140702	76300	304360
64	Beans	86	1002.2	16569	44500	641090
65	Beetroot	22	48	1200	1250	23725
66	Turmeric	899	6225.23	129180.9	838850	4399517
67	Pumpkin	335	1912.95	58718	189725	853685
68	Sweet Potato	62	223.4	4842	37725	93000
69	Tapioca	738	13202.65	912986.25	2882445	11846231
70	Other tuber crops	95	809.85	19994	576100	915675
71	Other millets	86	2480.5	8545	32200	344905
72	Other vegetables	341	2511.955	122510.55	447700	3964140
73	Other fruits	131	785.55	17819	53450	615590
74	Other plantain	1351	20226.75	1616725	6827724	26200101
75	Other spices	13	69.6	1076	42000	304350
76	Other medicinal plants	20	420	4420	83400	425100
77	Mangosteen	68	654.75	9420	164800	845700
78	Pomegranate	10	64.83	697	-	4500
79	Mango	452	2366.05	125921	177750	1299530
80	Horse Gram	27	1185	2025	10000	50900
81	Drumstick	88	127.4	1684	7250	16860
82	Rambutan	158	1186.1	25477	857850	2675650
83	Rubber	143	19285	171927	7208300	21203305
84	Ragi	157	10054	23962	97000	311775
85	Kidney Beans	75	2115.5	8026	62600	322005
86	Cowpea(Trailing)	1089	14129.25	304891	2092350	11237455
87	Brinjal Green Long	802	2609.605	73822.6	321580	1573645
88	Vanilla	6	69	113	4000	70200
89	Tamarind	50	95	2250	14750	51480

Sl No.	Crop Name	Farmer Count	Area (In cents.)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
90	Plantain	8	69	3290	35000	50100
91	Lady Finger/Okra	944	5235.04	123863.6	575630.35	3410263
92	Betel Leaves	36	436.1	24604	930050	1938720
93	Garlic	13	18.5	559	3000	47350
94	Cucumber	426	4281.4	197890	684310	2960010
95	Breadfruit	19	29.5	2620	500	40230
96	Big Onion/Savala	1	1	25	-	0
97	Strawberry	12	203	6012	-	2605600
Total		**2554**	**455892.01**	**11193686**	**95879168.70**	**411249002**

***Cost of Production: Includes only what is available crop wise. Otherwise, '-' is marked. In addition, item wise expenditure from all the farmers is not available for the items for which the amount has been recorded. The cost of production for all such items is 15,01,90,007.00/-. This figure should be added to the cost of production noted in the table to obtain the total cost of production overall.**

The analysis of income-expenditure ratios among districts reveals Kozhikode as the leading district, closely pursued by Kottayam. In contrast, Palakkad ranks lowest in this ratio, with Malappuram trailing closely. The variation in these ratios spans from 1.07 to 2.65 across districts, a significant range of 1.58. The mean income-expenditure ratio stands at 1.86 across districts, accompanied by a standard deviation of 0.54. Disparities observed are primarily attributed to variations in both costs incurred and income generated from agricultural activities, encompassing both short term and long term crop cultivation practices. A comprehensive analysis is needed to delve deeper into this matter. Detailed district level data including production of crops for which yield is available, production costs, income, and average number of crops cultivated per farmer, and average number of farmers cultivating a crop is available in **Appendix Table 11.1** (**Page 225**). Also, district wise information on crop wise gross area, production, production costs, and income from sales are provided in **Appendix Table 11.2** to **11.15**.(**Pages 226-247**)

The cost of production solely considered cash expenditures directly incurred by the farmer. Factors such as the value of self-supplied fertilizers and raw materials, the labour provided by the farmer and their family members, free inputs, land costs, subsidies, financial aid, and other benefits are excluded from the calculation of production costs. Notably, the comprehensive evaluation of production sustainability, costs, and income, necessitates access to historical data regarding production output, associated costs, and income levels. The absence of such records renders farmers unable to conduct an objective analysis of the viability and long term sustainability of their agricultural endeavours.

11.4 Selling of harvested produce

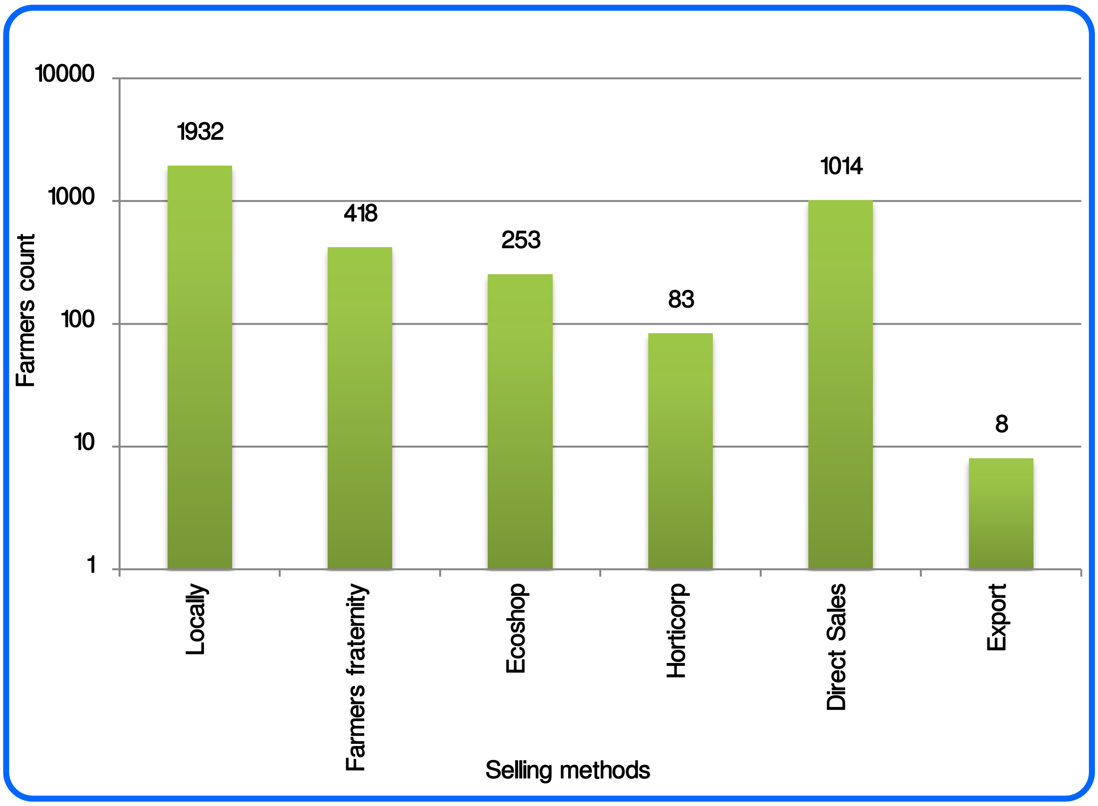
The survey findings indicate a diversified approach among farmers in selling their agricultural produce, with a notable reliance on various distribution channels. Specifically, the majority, comprising 75.65%, opt to sell locally, while 16.37% prefer the farmers fraternity avenue, followed by 9.91%

Table 11.4: Methods by which farmers sold harvested produce

Sl No.	Selling Method	Farmers Count	Farmers %
1	Locally	1932	75.65
2	Farmers fraternity	418	16.37
3	Ecoshop	253	9.91
4	Horticorp	83	3.25
5	Direct Sales	1014	39.70
6	Export	8	0.31

at Ecoshop establishments, and a marginal 3.25% at Horticorp establishments. Furthermore, a significant portion, totaling 39.70% of farmers, engage directly in sales, whereas a mere 0.31% resorted to exports. Notably, all surveyed farmers allocate a portion of their produce for personal consumption or own use. The details in this regard are provided in **Table 11.4** above and **Figure 11.2** below.

Figure 11.2: Methods by which farmers sold harvested produce

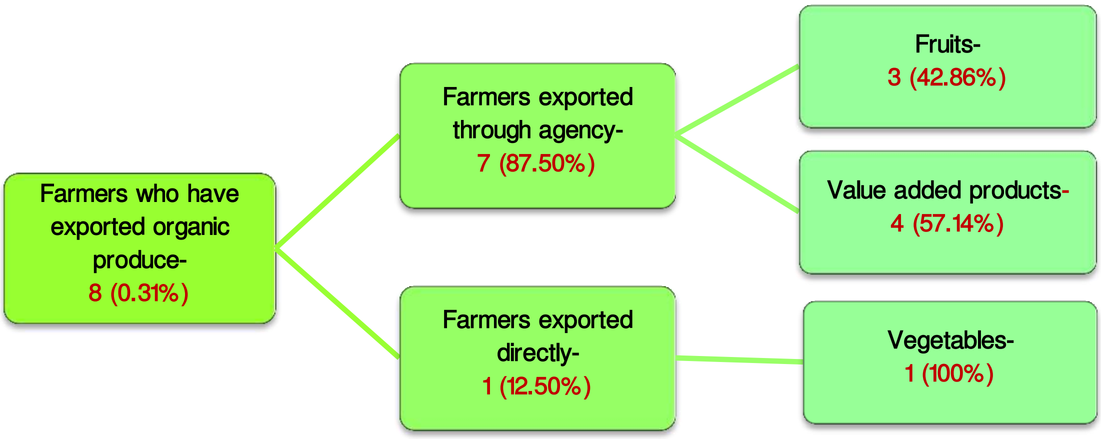


Examining district level data revealed that 63.35% of farmers in Kollam, 62.50% in Ernakulam, and 52.65% in Palakkad sold their agricultural produce at local markets. Conversely, in other districts, a higher proportion, ranging from 71% to 95%, relied on local markets for selling their produce. Following local markets, between 50% and 80% of farmers in Thiruvananthapuram, Pathanamthitta, Alappuzha, Kottayam, Thrissur, and Kozhikode districts engaged in direct selling, while in other districts, this percentage varied from 14% to 46%. Moreover, a range from 1% to 42% of farmers relied on farmers' fraternity, 1% to 30% on ecoshops, and 1% to 9% on Horticorp. Only a negligible 0.31% of farmers engaged in exporting their produce. Additionally, each participating farmer allocated a portion of their agricultural yield for personal consumption, a practice observed uniformly across all districts. Further detailed district wise statistics on this matter are available in **Appendix Table 11.16**.(**Page 248**)

11.5 Export of products

Eight of the surveyed farmers have engaged in the exportation of their agricultural produce. Among these, one farmer opted for direct exportation while the remaining seven utilized intermediary agencies for this purpose. The exported items span a range including vegetables, fruits, and value added products. Notably, farmers hailing from districts such as Idukki, Thrissur, Malappuram, and Kannur were involved in these export activities. Further details referenced in **Appendix Table 11.17**.(**Page 249**)

Figure 11.3: Details of exported products and export methods



11.6 Export earnings

Data pertaining to the volume of agricultural products exported by farmers alongside their respective income can be found in **Table 11.5**. The district wise figures are provided in **Appendix Table 11.17**.(**Page 249**)

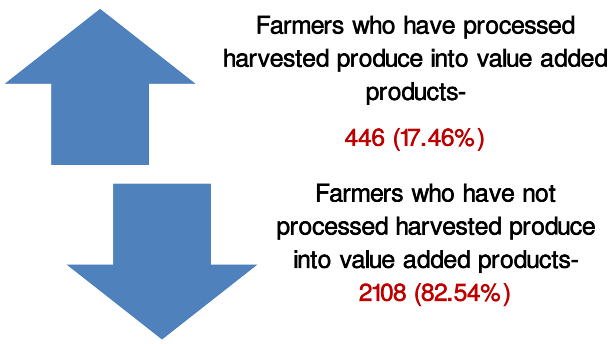
Table 11.5: Earnings from exports

Sl No.	Exported items	Quantity (Kg)	Earnings (Rs.)
1	Vegetables	1,800	72,000
2	Fruits	7,700	2,78,000
3	Value added products		14,28,000

11.7 Value added products

A mere 17.46% of organic farmers involved themselves in the processing of harvested produce to create value added goods. The predominant portion of these processed items being consumed or utilized by the farmers themselves. It is noteworthy that only four farmers were found to export value added products, as detailed in **Section 11.5** (**Page 74**). Further details in this regard are available in **Figure 11.4** below. District wise figures are provided in **Appendix Table 11.18**.(**Page 250**)

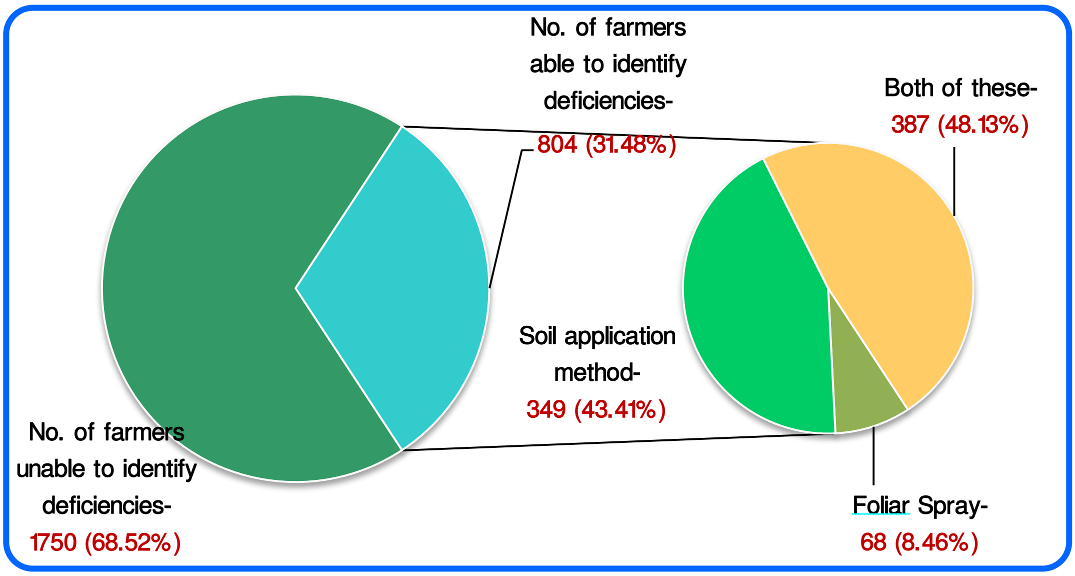
Figure 11.4: Information on farmers who have processed harvested produce into value added products



11.8 Deficiency of secondary-micronutrients and remedial solutions

Among the 2554 farmers surveyed, a minority of 31.48% acknowledged the presence of deficiencies in secondary nutrients and micronutrients within their crops. According to the survey findings, 8.46% of these farmers opted for the foliar spray method, 43.41% preferred soil application, and 48.13% utilized both techniques to address the deficiency of these elements. The details are given in **Figure 11.5** below and the district wise information in **Appendix Table 11.18**.(**Page 250**)

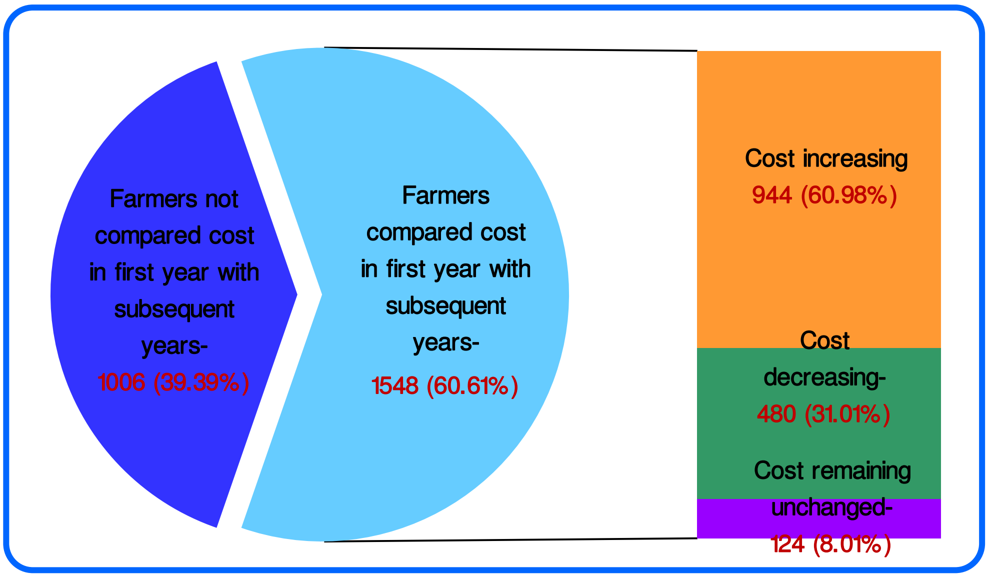
Figure 11.5 : Information on remedial measures adopted by farmers identifying deficiency of secondary and micronutrients



11.9 Cost comparison

Among the farmers surveyed, 60.61% have conducted a comparative analysis of production costs between the initial year and subsequent years in organic farming. Within this subset, 60.98% observed an increase in costs, 31.01% noted a decrease, and 8.01% reported no change. The remaining 39.39% of farmers abstained from such cost assessments. Notably, this subset constitutes 30.93% of the total surveyed farmers who stated that they commenced their farming endeavours directly as organic farmers, as seen in **Chapter 3**, **Section 3.1**, **Table 3.1** (**Page 21**). Further details in this regard are available in **Figure 11.6** below, with district wise figures provided in **Appendix Table 11.19.**(**Page 251**)

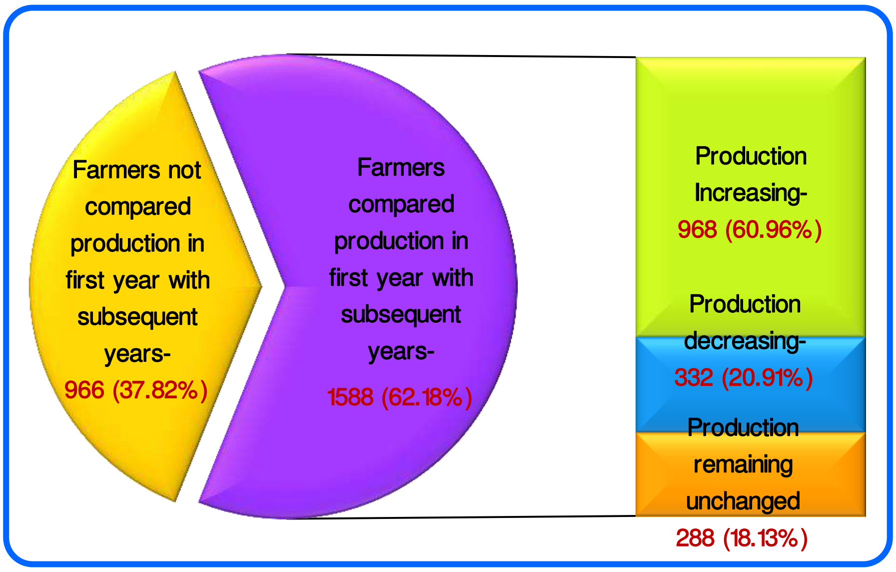
Figure 11.6: Details of farmers who have undertaken comparative analyses of organic production costs



11.10 Production comparison

In the survey, 62.18% of farmers compared their production levels between the initial year and subsequent years. Among these farmers, 60.96% reported an increase in production, 20.91% reported a decrease, and 18.13% noted that their production remained unchanged. The remaining 37.82% of farmers did not engage in production comparisons. Of this latter group, 30.93% indicated that they began their farming practices organically from the outset, as documented in **Chapter 3**, **Section 3.1**, **Table 3.1** (**Page 21**). Further details are illustrated in **Figure 11.7**, with district level information provided in **Appendix Table 11.19.**(**Page 251**)

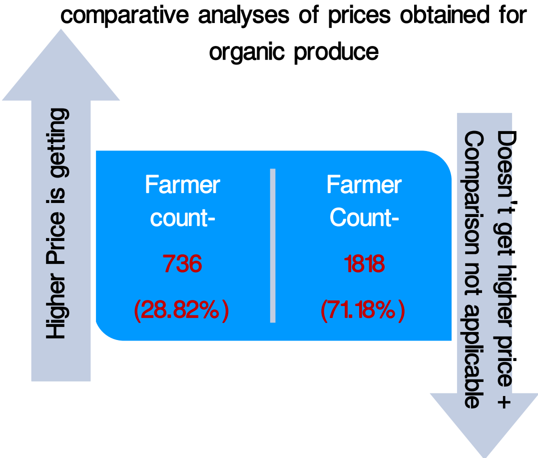
Figure 11.7: Details of farmers who have conducted comparative analyses of organic farming production



11.11 Price comparison

28.82% of farmers reported that organic agriculture products command higher prices compared to conventional modern agriculture products. At the same time, 71.18% of farmers either did not receive a premium price for organic products or did not engage in price comparisons. This group include 30.93% of the total surveyed farmers, who indicated that they have practiced organic farming since the beginning of their agricultural practices, which was seen in **Chapter 3**, **Section 3.1**, **and Table 3.1** (**Page 21**). The details in this regard are available in **Figure 11.8**, and district wise figures are provided in **Appendix Table 11.19.**(**Page 251**)

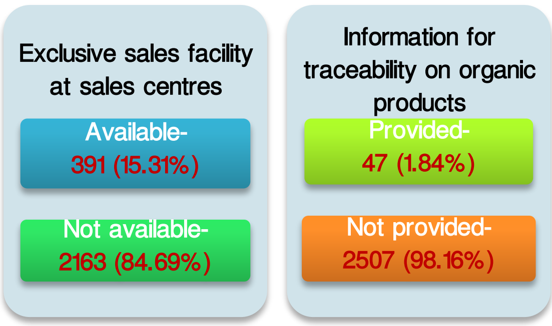
Figure 11.8: Farmers who have conducted comparative analyses of prices obtained for organic produce



11.12 Exclusive sales, Traceability

Only 15.31% of the surveyed farmers exclusively sold their organic agricultural produce at sales centres, ensuring these products were clearly differentiated from conventional ones. A mere 1.84% of farmers provided the necessary information for the traceability of their produce. These details are presented in **Figure 11.9**, with district level data detailed in **Appendix Table 11.20.**(**Page 252**)

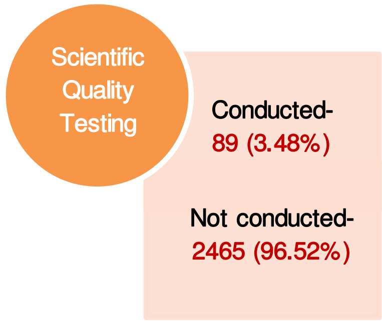
Figure 11.9 : Farmers stance on Exclusive sales facility, Traceability



11.13 Scientific quality test

Scientific quality testing is performed to verify that whether organic produce meets established standards and contains desirable levels of nutrient rich components. Among the surveyed farmers, 3.48% have subjected their produce to such scientific quality testing. Detailed information about these farmers is presented in **Figure 11.10**, and district wise information is provided in **Appendix Table 11.20**.(**Page 252**)

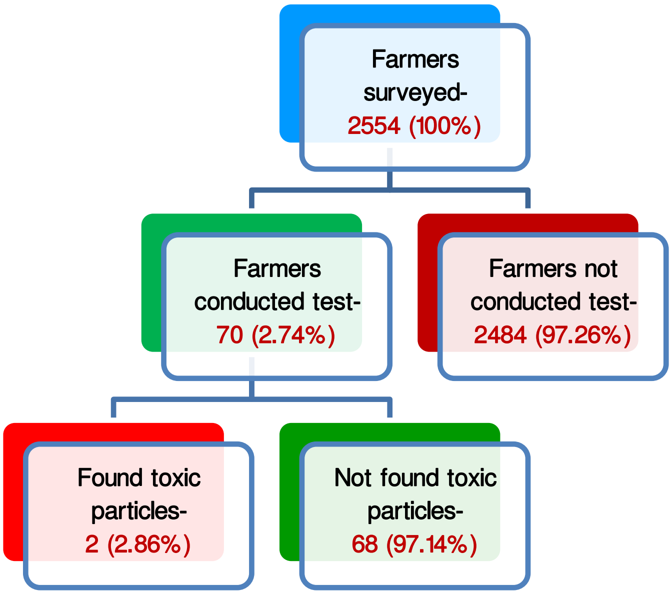
Figure 11.10: Details of farmers who have conducted scientific quality tests



11.14 Residual toxicity test

Residual toxicity refers to the enduring presence of pesticides and chemical residues on agricultural produce subsequent to their application. Despite the generally low levels detected in food testing, even minute quantities hold the potential to induce various health complications. Relying solely on sensory perception is insufficient for discerning the toxicity of food; instead, precise scientific methodologies are requisite for accurate evaluation. Of the farmers surveyed, 70 conducted tests on their crops specifically for residual toxicity. Notably, two of these farmers openly disclosed instances where toxicity was detected during the assessments. The details in this regard are available in **Figure 11.11**, and district wise figures are provided in **Appendix Table 11.20**.(**Page 252**)

Figure 11.11: Details of farmers who have conducted residual toxicity test



12

Organic Certification, Services Available and Challenges Faced by Farmers

Organic farming necessitates improved market access to achieve profitability and enhance farmers incomes. International markets require compliance with various standards for the production of organic agricultural products, making organic certification essential for agricultural lands to meet these criteria. Although the certification process is complex and relatively expensive, the central government, through the National Programme for Organic Production (NPOP), has established guidelines to streamline it. Additionally, governments and their agencies provide several services and benefits to promote organic farming. Despite these efforts, farmers encounter numerous challenges in the organic farming sector. Through the survey, information was collected from farmers regarding the availability of organic certification, the government services and benefits available, and the problems faced in this regard. The details are presented below.

12.1 Organic certification

Out of the 2,554 farmers surveyed, only 2.31% hold organic certification, as detailed in **Figure 12.1**. District level analysis reveals that 10.22%, 6.63%, and 7.35% of farmers in Idukki, Wayanad, and Kannur districts, respectively, possess organic certification. In contrast, the percentage of certified organic farmers in Thiruvananthapuram, Kottayam, Thrissur, Palakkad, Malappuram, and Kozhikode districts ranges from 0.40% to 2.90%. However, none of the farmers surveyed in Kollam, Pathanamthitta, Alappuzha, Ernakulam, and Kasaragod districts have obtained organic certification. Further details are available in **Appendix Table 12.1.**(**Page 253**)

Figure 12.1: Number of farmers with organic certification for their agricultural land

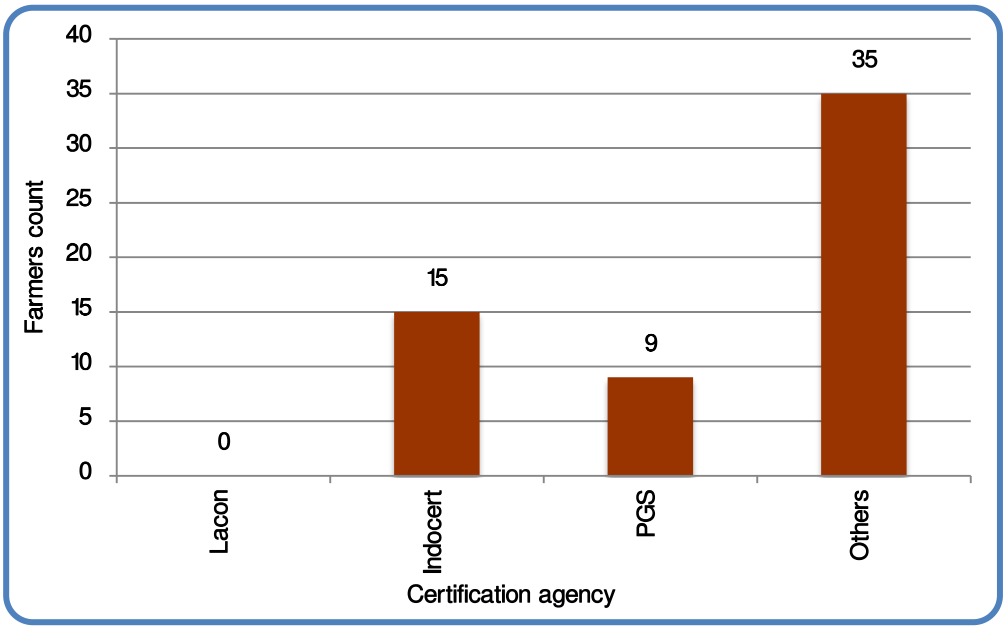
12.1.1 Certification agency

Out of the 59 farmers with organic certification, 25.42% have land certified by Indocert, 15.26% possess land certified by Participatory Guarantee System (PGS) India, and 59.32% holds land certified by other agencies. None of the farmers who participated in the survey seem to have land certified by Lacon. Such details are available in **Table 12.1** and **Figure 12.2** below, and district wise figures are in **Appendix Table 12.1.**(**Page 253**)

Table 12.1: Details of agencies that have provided organic certification to farm fields

Sl No.	Agency	Farmer	
		Count	%
1	Lacon	0	0
2	Indocert	15	25.42
3	PGS	9	15.26
4	Others	35	59.32
Total		**59**	**100.00**

Figure 12.2: Details of agencies that have provided organic certification to farm fields



12.1.2 Certification cost and Information of crops

12.1.2.1 Indocert

Indocert, an institution recognized by the National Accreditation Body (NAB), is authorized to certify the management, production, processing, marketing, and harvesting of organic crops and forest resources in alignment with the standards set by the National Programme for Organic Production (NPOP) of the Government of India. Indocert granted organic certification to the agricultural lands of 15 farmers across the districts of Idukki, Thrissur, Palakkad, Malappuram, Wayanad, and Kannur. According to surveyed farmers, the expenditure for obtaining this certification ranged from Rs. 500 to Rs. 6000. The details of farmers having organic certification in each district as well as the crops cultivated in the certified land during the agricultural year 2020-21 is provided in **Appendix Table 12.2**.(**Page 253**)

12.1.2.2 PGS

The Participatory Guarantee System (PGS) India, also referred to as Farmer participation certification, is an organic certification awarded to farmers participating in the Parambaragat Krishi Vikas Yojana (PKVY) and the Subhiksham Surakshitham Padhathi - Bharatiya Prakritik Krishi Paddhati (BPKP), which is part of the Kerala Agro Ecology Based Biodiversity Conservation scheme. To obtain this certification, farmers must register on the designated website, *pgsindia-ncof.gov.in*. The PGS certification is issued for agricultural land, ensuring that all produce cultivated on the certified land meets organic standards and can therefore be sold at premium prices. This system operates on a group basis, but each individual farmer within the group receives a separate certificate. The certification process is conducted in two phases over a period of three years.

1. **Phase I :** PGS India, Green certificates are awarded to farmers who have enrolled in the program and are in the transitional phase towards organic farming. For crops with shorter growth cycles, farmers are required to comply with the prescribed crop management practices detailed in the NPOP Standards for duration of up to 24 months before their initial harvest. Conversely, for crops with longer growth cycles, this compliance period extends to 36 months.
2. **Phase II :** Farmers who have obtained the PGS India Green certificate in the past can receive the PGS India organic certificate following a three year period, contingent upon pesticide residue toxicity assessments.

According to the survey, nine farmers in the districts of Thiruvananthapuram, Kottayam, Palakkad, and Wayanad have received organic certification for their farm fields through Participatory Guarantee Systems (PGS). These farmers mentioned that they didn't have to spend any money to get this certification. District wise information on certified farmers and the crops cultivated on their farm fields during the agricultural year 2020-21 is provided in **Appendix Table 12.3.**(**Page 254**)

12.1.2.3 Others

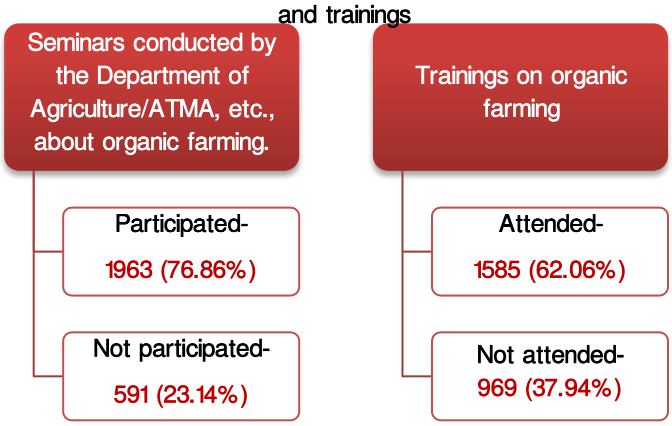
According to the survey findings, 35 farmers claimed that they possess organic certification from other agencies for their farm fields. These assertions were made by farmers hailing from the districts of Thiruvananthapuram, Idukki, Kozhikode, Wayanad, and Kannur. Among this group, 16 farmers disclosed incurring expenses ranging from Rs.20 to Rs.1500 for obtaining certification, while the remaining 19 farmers indicated that they did not spent any associated costs. District wise data regarding the availability of organic certification for these farmers and details regarding the crops cultivated on their farm fields during the agricultural year 2020-21 is available in **Appendix Table 12.4.**(**Pages 254-255**)

12.2 Services and Benefits

12.2.1 Seminars/Trainings

Out of the 2,554 farmers surveyed, 76.86% participated in seminars on organic farming organized by the Department of Agriculture/Agriculture Technology Management Agency (ATMA), and similar entities. Additionally, 62.06% of the total farmers received training in organic farming. These details are presented in **Figure 12.3**, with district wise details provided in **Appendix Table 12.5.**(**Page 256**)

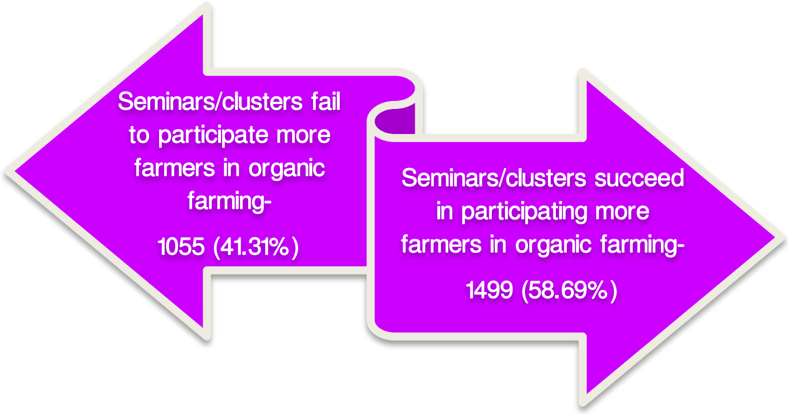
Figure 12.3: Details of farmers who have participated in seminars and trainings



12.2.2 Organic farming participation

Among the 2554 organic farmers surveyed, 58.69% indicated that more farmers are engaging in organic farming due to the services offered through seminars and clusters. These details are presented in **Figure 12.4** and district wise figures are provided in **Appendix Table 12.5.(Page 256**)

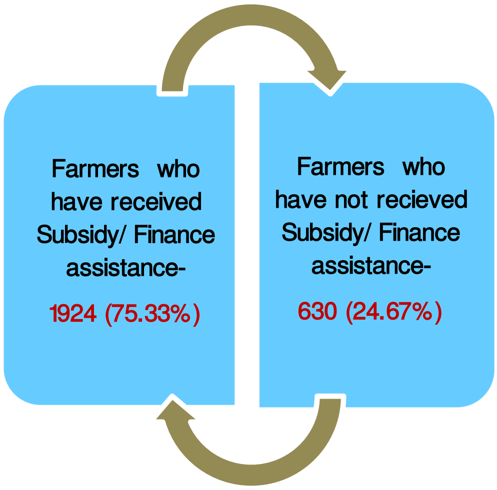
Figure 12.4: Seminars, Clusters and Organic farming participation



12.2.3 Subsidy/Financial assistance

Out of the 2,554 farmers surveyed, 75.33% have accessed subsidies or financial assistance at the Krishi Bhavan level for agricultural activities. Detailed information is presented in **Figure 12.5** below, with district wise figures available in **Appendix Table 12.5.(Page 256**)

Figure 12.5: Subsidy/Financial assistance



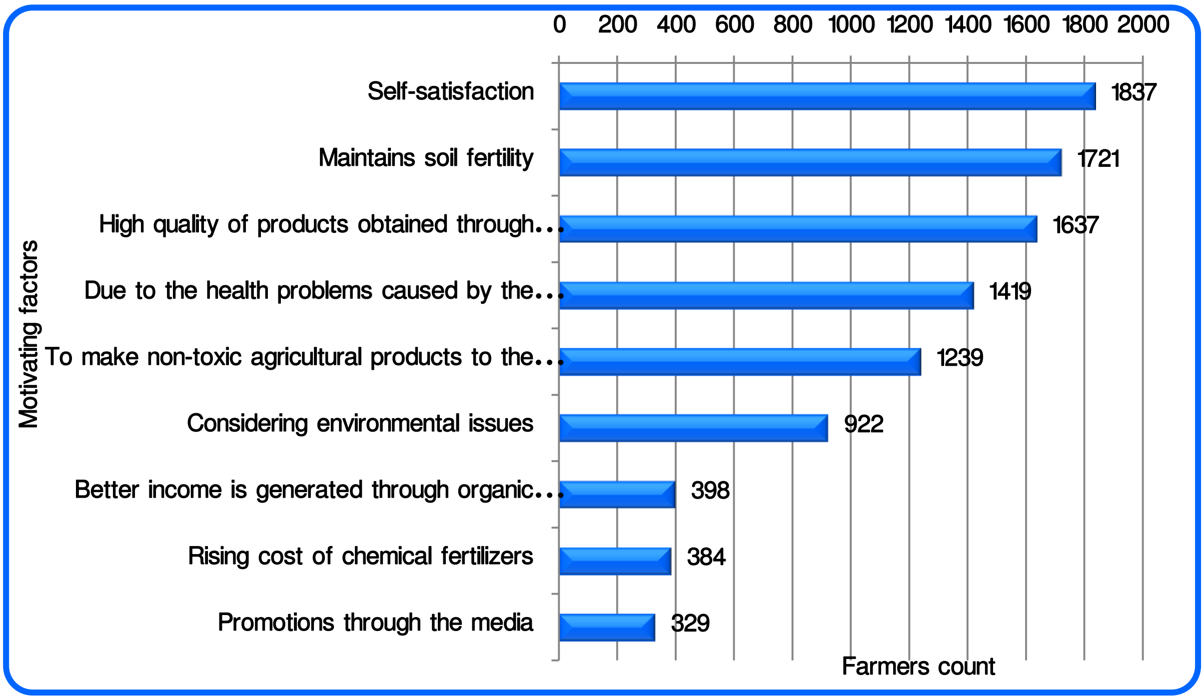
12.3 Motivation for switching over to organic farming

The survey revealed several motivational factors for farmers transitioning to organic farming. A significant majority of farmers cited multiple reasons. Notably, 71.93% of the farmers identified self-satisfaction as the primary motivation. Additionally, over 50% of the participants highlighted the importance of maintaining soil fertility, the high quality of organic produce obtained through organic farming, and concerns about health problems caused by the application of chemical fertilizers. Furthermore, 48.51% and 36.10% of the farmers indicated that supplying non-toxic agricultural products to the society and addressing environmental issues, respectively, were influential factors in their decision to adopt organic practices. A smaller proportion, less than 16%, mentioned reasons such as better income is generated through organic farming, the rising cost of chemical fertilizers, and promotions through the media. Detailed information in this regard is available in **Table 12.2** and **Figure 12.6** and district wise details provided in **Appendix Table 12.6** (**Page 257**).

Table 12.2: Details of the factors that motivated farmers for switching over to organic farming

Sl No.	Motivation factors	Farmer	
		Count	%
1	Self-satisfaction	1837	71.93
2	Maintains soil fertility	1721	67.38
3	High quality of products obtained through organic farming	1637	64.10
4	Due to the health problems caused by the application of chemical fertilizers	1419	55.56
5	To make non-toxic agricultural products to the society	1239	48.51
6	Considering environmental issues	922	36.10
7	Better income is generated through organic farming	398	15.58
8	Rising cost of chemical fertilizers	384	15.04
9	Promotions through the media	329	12.88

Figure 12.6: Details of the factors that motivated farmers for switching over to organic farming



12.4 Financial improvement

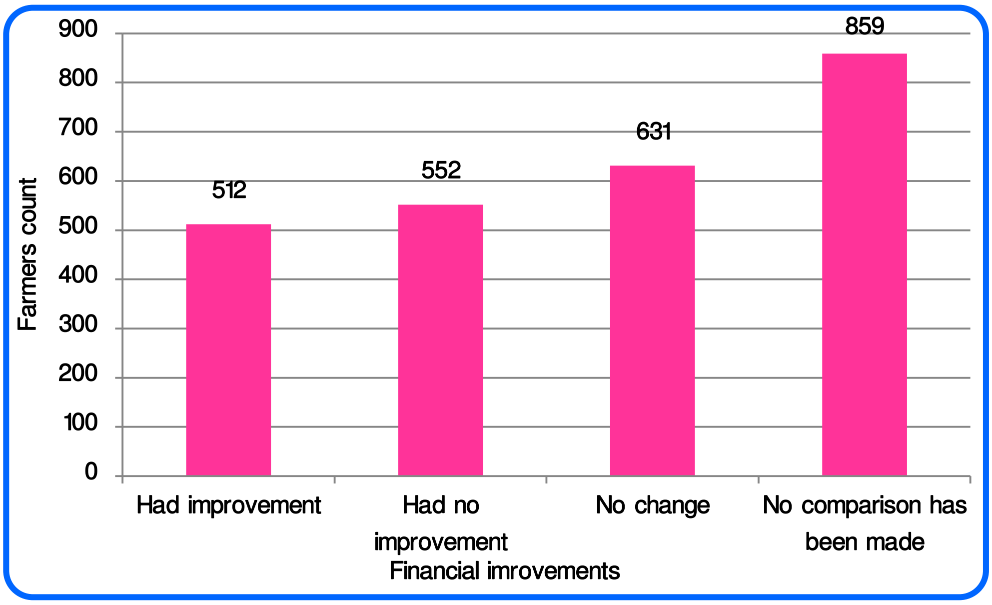
Data were collected from the farmers concerning the financial ramifications associated with transitioning from conventional to organic farming. Among the surveyed farmers, 20.05% reported witnessing financial improvements subsequent to the transition. Moreover, 28.82% of farmers previously expressed the view that organic produce fetch higher prices compared to produce from conventional agricultural practices, as expounded upon in **Chapter 11, Section 11.11, Page 77.** However, the attainment of financial gains is impeded by various challenges inherent to organic farming, notably including high cost of production and low productivity. Notably, a segment constituting 33.63% of surveyed farmers refrained from conducting comparisons. This subset which comprises 30.93% of the

Table 12.3: Information on the financial benefits of transitioning to organic farming

Sl No.	Financial benefits	Farmer	
		Count	%
1	Had improvement	512	20.05
2	Had no improvement	552	21.61
3	No change	631	24.71
4	No comparison has been made	859	33.63
	Total	**2554**	**100.00**

overall surveyed farmers, indicated an initial engagement in organic farming practices without transitioning from conventional methods, as detailed in **Chapter 3**, **Section 3.1**, **Table 3.1** (**Page 21**). Further details on this matter is provided in **Table 12.3** and **Figure 12.7**, while district wise statistics are also available in **Appendix Table 12.6**.(**Page 257**)

Table 12.7: Information on the financial benefits of transitioning to organic farming



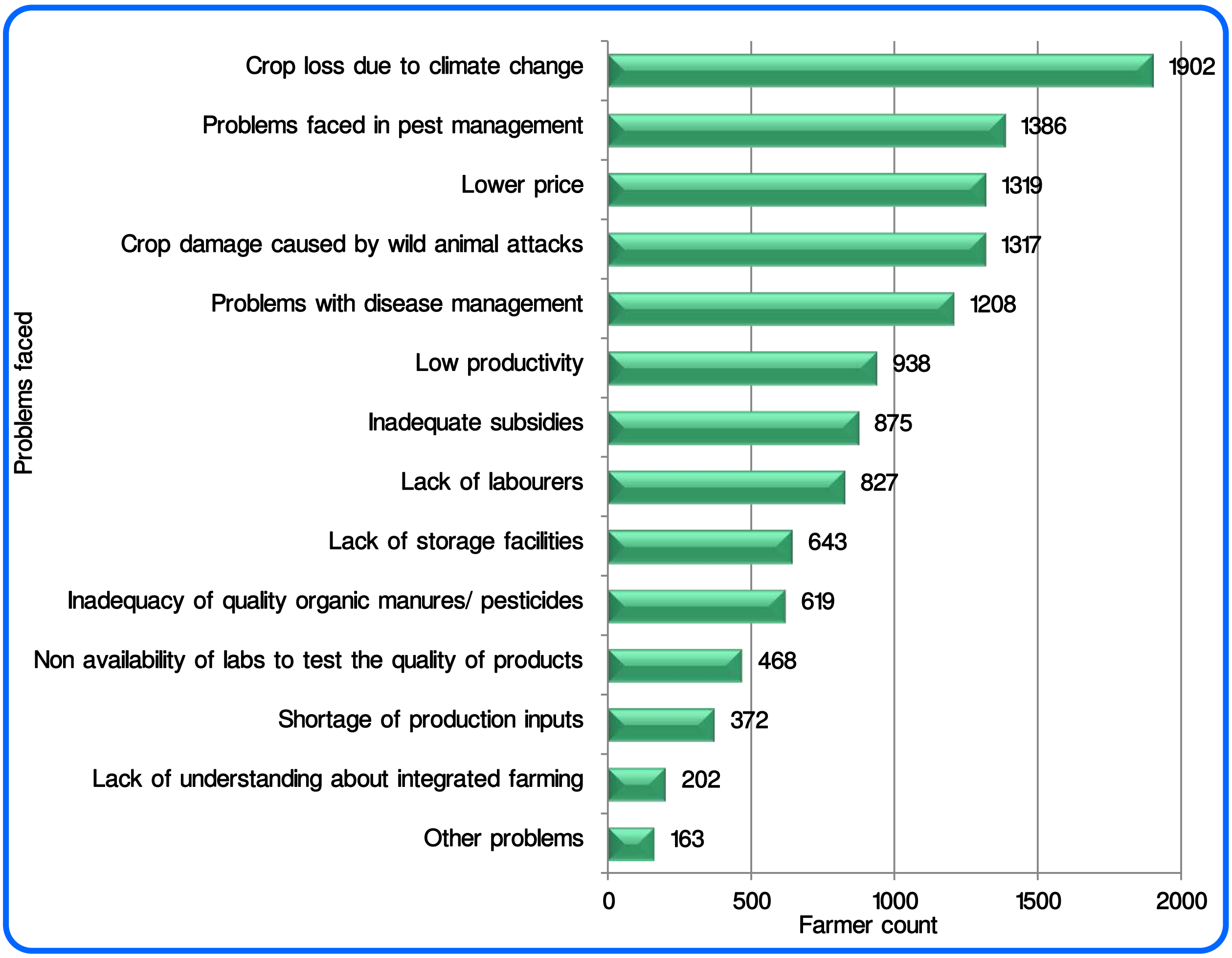
12.5 Problems faced by organic farmers

More than half of the farmers surveyed reported experiencing crop loss due to climate change, problem faced in pest management, lower prices, and crop damage caused by wild animal attacks. Only 7.91% of the farmers indicated a lack of understanding regarding integrated farming practices. Additionally, 6.38% of the farmers mentioned other issues that are not specifically addressed in the questionnaire. The survey findings highlight that crop loss due to climate change is the primary concern among the farmers. Further details are provided in **Table 12.4** and **Figure 12.8** below.

Table 12.4: Problems faced by organic farmers

Sl No.	Problems encountering	Farmer	
		Count	%
1	Crop loss due to climate change	1902	74.47
2	Problems faced in pest management	1386	54.27
3	Lower price	1319	51.64
4	Crop damage caused by wild animal attacks	1317	51.57
5	Problems with disease management	1208	47.30
6	Low productivity	938	36.73
7	Inadequate subsidies	875	34.26
8	Lack of labourers	827	32.38
9	Lack of storage facilities	643	25.18
10	Inadequacy of quality organic manures/pesticides	619	24.24
11	Non availability of labs to test the quality of products	468	18.32
12	Shortage of production inputs	372	14.57
13	Lack of understanding about integrated farming	202	7.91
14	Other problems	163	6.38

Figure 12.8: Problems faced by organic farmers



At the district level, the primary challenge faced by farmers in Thiruvananthapuram, Kollam, Pathanamthitta, Kottayam, Idukki, Ernakulam, Thrissur, Kozhikode, and Kannur is crop loss due to climate change. In contrast, pest management emerges as the principal issue for farmers in Alappuzha and Kasaragod districts. Additionally, survey findings reveal that the majority of farmers in Palakkad, Malappuram, and Wayanad districts are predominantly affected by crop damage due to wild animal attacks. Further details on these and other challenges experienced by farmers are available in **Appendix Table 12.7** and **12.8** respectively.(**Pages 258, 259**)

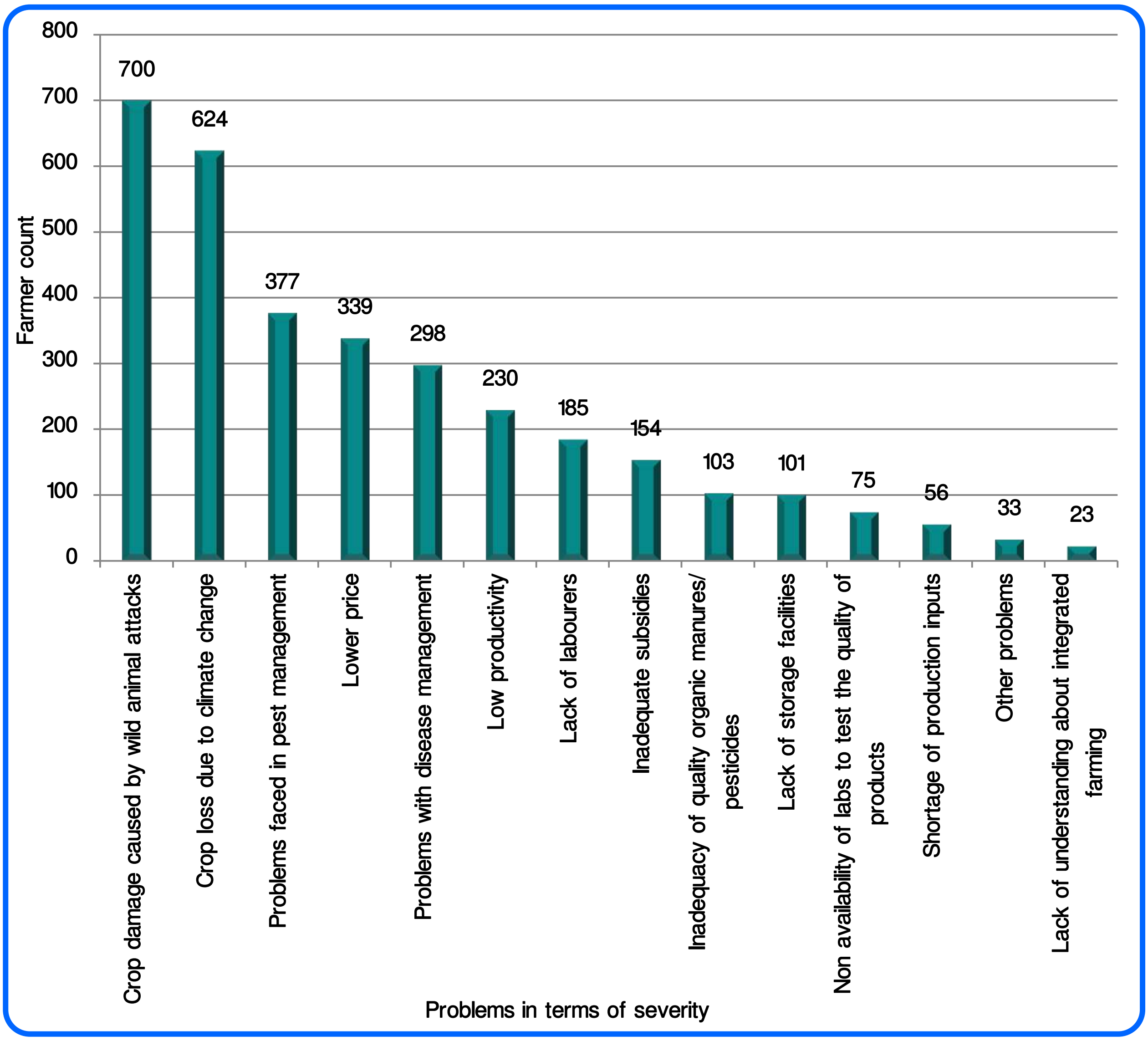
12.5.1 Problems faced by organic farmers - Ranked by severity

In **Section 12.5** (**Page 84**), it is noted that a significant majority of surveyed farmers reported facing multiple challenges associated with organic farming. These farmers ranked the various problems they faced on a scale from 1 to 14 based on their severity. Crop damage resulting from wild animal attacks emerged as the most critical issue for organic farmers in the state, with 27.41% of farmers ranking it as their primary concern. Following this, crop loss due to climate change, problems faced in pest management, and lower price were identified as the second, third, and fourth most significant issues, respectively. A negligible percentage of farmers, less than 1%, indicated that a lack of understanding about integrated farming was a major concern. Details are provided below in **Table 12.5** and **Figure 12.9**, with district wise figures available in **Appendix Table 12.9**.(**Page 260**)

Table 12.5: Severity wise ranking of problems faced by organic farmers

Rank No.	Problems faced	Farmer Count	Farmer %
1	Crop damage caused by wild animal attacks	700	27.41
2	Crop loss due to climate change	624	24.43
3	Problems faced in pest management	377	14.76
4	Lower price	339	13.27
5	Problems with disease management	298	11.67
6	Low productivity	230	9.01
7	Lack of labourers	185	7.24
8	Inadequate subsidies	154	6.03
9	Inadequacy of quality organic manures/pesticides	103	4.03
10	Lack of storage facilities	101	3.95
11	Non availability of labs to test the quality of products	75	2.94
12	Shortage of production inputs	56	2.19
13	Other problems	33	1.29
14	Lack of understanding about integrated farming	23	0.90

Table 12.9: Severity wise ranking of problems faced by organic farmers



Climate change

Global warming is a result of the progressive increase in the Earth's atmospheric temperature. This phenomenon is primarily driven by the significant emission of greenhouse gases (GHGs) into the atmosphere, the depletion of the ozone layer, which acts as a protective shield for the planet, and extensive deforestation. Greenhouse gases emit infrared radiation, which effectively traps heat and raises the earth's temperature through a process known as the Greenhouse Effect (GHE).

Global warming has precipitated abnormal climatic changes, leading to an increased frequency of extreme events such as droughts, cold spells, storms, sea attacks, and monsoon calamities. Consequently, climate change disrupts the global economy and adversely affects human life. The heightened incidence of floods and droughts exacerbates poverty and hunger, compromising essential elements of a secure life, including access to drinking water, food, shelter, health, and education. Livelihoods, particularly those dependent on agriculture and related activities, are significantly impacted. Modern agricultural practices contribute substantially to global warming through the production and utilization of chemical fertilizers and pesticides, the operation of large scale farm machinery, the burning of agricultural residues, and various stages of food processing, storage, distribution, and consumption. These activities release significant amounts of greenhouse gases. The primary driver of climate change is the excessive consumption of fossil fuels, which leads to the emission of carbon dioxide, methane, nitrous oxide, and other greenhouse gases. In particular, the use of artificial nitrogen fertilizers in agriculture results in the release of substantial quantities of nitrous oxide into the atmosphere. It is estimated that direct agricultural activities at the farm fields/farm gate contribute approximately 14.23% to the greenhouse effect in the atmosphere.

According to the World Food and Agriculture Organization, the global annual emission of greenhouse gases resulting from human activity stood at 52 Gt CO_2eq (Giga tons of carbon dioxide equivalents) in 2020. This figure marks a 4% decline from the 2019 level of 54 Gt CO_2eq, primarily attributable to the significant reduction in economic activities amid the Covid-19 pandemic. Nevertheless, these emissions are 34% higher than they were in 2000, driven by promiscuous industrial activities and excessive reliance on petroleum products and other fossil fuels. In 2020, greenhouse gas emissions stemming from activities within the global food system totaled 16 Gt CO_2eq, representing a 3% decrease from 2019 but a 9% increase from 2000. The food chain systems contributed to 31% of the total emissions in 2020, marking a consistent downward trend from the 38% recorded in 2000. However, this decline is attributed to the slower growth rate of emissions from food chain systems compared to other sectors of the economy. Indeed, non-food chain emissions have surged by nearly 50% since 2000. Over this period, per capita emissions from food chain systems have dropped from 2.4 t CO_2eq/cap (Tons of carbon dioxide equivalents per capita) to 2.0 t CO_2eq/cap.

In 2020, approximately 50% of the total greenhouse gas emissions from the food system, equating to 7.4 Gt CO_2eq, originated from agricultural activities. An additional one-third, amounting to 5.6 Gt CO_2eq, was attributed to pre and post production processes, while about one-fifth, totaling 3.1 Gt CO_2eq, were linked to land use changes. Within the food system, carbon dioxide (CO_2) emissions remained steady at 7.9 Gt, with any increases being offset by natural biodiversity activities. Methane (CH_4) emissions increased from 173 Mt (Million Tons) to 193 Mt, representing a 14% rise, and nitrous oxide (N_2O) emissions rose from 7 Mt to 9 Mt, a 12% increase. Over the past two decades, the proportion of CO_2 emissions within the total greenhouse gas emissions from the food system decreased from 29% to 21%, and the proportion of CH_4 emissions decreased from 58% to 53%. Conversely, the proportion of N_2O emissions remained stable at 78% throughout this period. Furthermore, emissions of fluorinated gases (F-gases), used in the cold chains of the food retail sector, declined from 32% to 26%.

Organic farming plays a crucial role in mitigating the greenhouse effect and global warming by eliminating reliance on synthetic chemicals derived from finite fossil fuels. Instead, it employs organic manures, which aid in carbon sequestration in the soil and reduce atmospheric emissions through plant uptake. Techniques such as on-farm biomass recycling, crop rotation, and nitrogen fixing plant cultivation enhance return of carbon to the soil, fostering carbon storage. Additionally, organic farming methods effectively retain nitrogen compounds in the soil, preventing their release into the atmosphere and enhancing productivity. Numerous studies have demonstrated that regions practicing organic agriculture exhibit substantially higher levels of soil organic carbon.

[Data Sources: (1) Greenhouse Gas Emissions from Agrifood Systems Global, Regional and Country Trends, 2000-2020 FAOSTAT Analytical Brief 50; (2) www.fao.org, Official website of World Food and Agricultural Organization]

Modern agricultural techniques are currently prevalent, providing potential solutions to mitigate crop losses induced by climate change. Some of these practices include:

1. Polyhouse farming:

Polyhouse farming entails the application of a polythene sheet to cover agricultural land. This unique setup effectively controls temperature and humidity, thereby expediting plant growth. Nutrients are dissolved in water and dispensed through drip irrigation. Despite the initial costliness, the output surpasses that of traditional farming methods by a substantial margin.

2. Precision farming:

Precision farming is an approach that entails thorough examination of agricultural soil, assessing nutrient levels, pH, and water availability using contemporary technology. Subsequently, appropriate crop choices are made for cultivation based on this data. Utilizing polythene sheeting to cover the soil, this method can minimize irrigation needs and efficiently manage weed growth.

3. Hydroponics

Hydroponics is the technique wherein plants are grown in a solution containing nutrients.

4. Aeroponics

Aeroponics involves cultivating plants with their roots suspended in the air, where nutrients are sprayed directly onto them. This technique eliminates the need for soil. While it has demonstrated successful cultivation, there are constraints hindering its widespread adoption as a farming method.

Furthermore, advanced agricultural techniques like micro irrigation, fertigation, and farming methods based on GIS/GPS are also available.

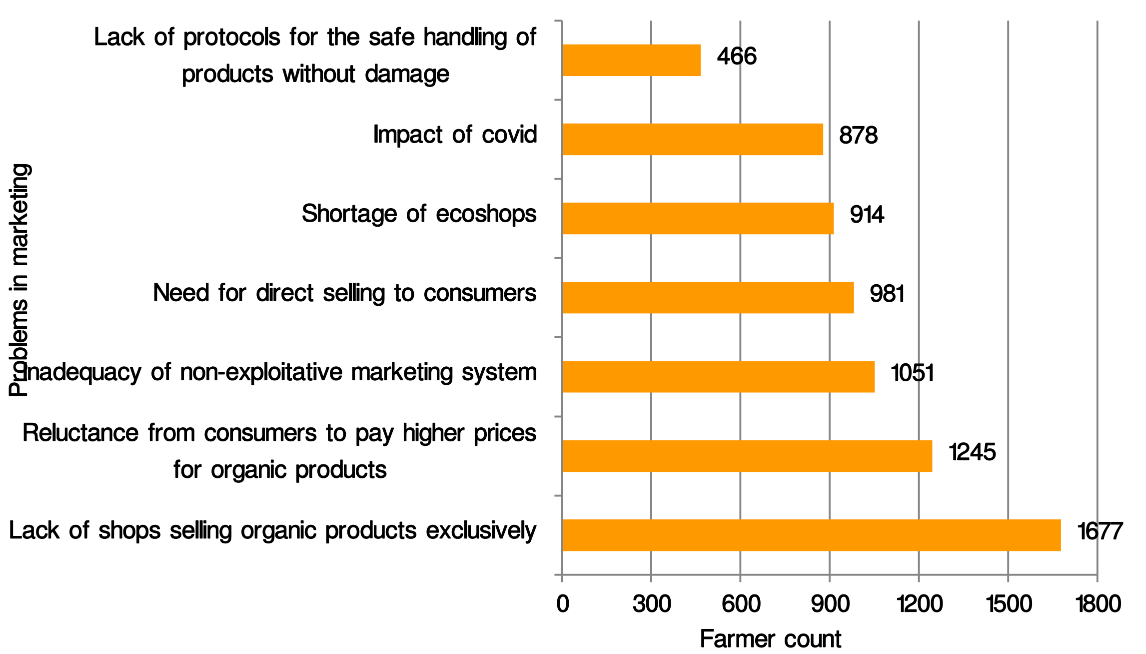
12.6 Problems faced in marketing

The study gathered data on the challenges encountered by farmers in the marketing of agricultural produce. Predominantly, 65.66% of farmers expressed concern over the absence of shops dedicated solely to selling organic products. Additionally, 48.75% of farmers pointed out consumers hesitancy to pay higher prices for organic produce, while 41.15% identified the inadequacy of a marketing system that ensures fair treatment of producers. Further details regarding these are provided in **Table 12.6** and **Figure 12.10** below, and their district wise figures are given in **Appendix Table 12.10.**(**Page 261**)

Table 12.6: Problems faced by farmers in marketing agricultural products

Sl No	Problems faced	Farmer	
		Count	%
1	Lack of shops selling organic products exclusively	1677	65.66
2	Reluctance from consumers to pay higher prices for organic products	1245	48.75
3	Inadequacy of non-exploitative marketing system	1051	41.15
4	Need for direct selling to consumers	981	38.41
5	Shortage of ecoshops	914	35.79
6	Impact of covid	878	34.38
7	Lack of protocols for the safe handling of products without damage	466	18.25

Figure 12.10: Problems faced by farmers in marketing agricultural products



12.7 Facilities for preserving products

According to the findings presented in **Figure 12.11**, a mere 3.41% of the farmers surveyed possess facilities dedicated to preserving produce. Within this subset, 11.49% have used zero energy cool chambers as a viable substitute for conventional cold storage systems for safeguarding vegetables, fruits, and similar perishable items, citing its cost effectiveness and environmentally sustainable attributes. Additionally, a significant portion of farmers, constituting 50.58%, utilized refrigerators for preservation, while 37.93% resorted to alternative techniques such as drying, utilizing dryers, barn/granary, plastic tanks, freezers, and storage rooms to maintain product integrity. Further details are available in **Table 12.7** and **Figure 12.12** below. District wise figures are provided in **Appendix Table 12.10.**(**Page 261**)

Figure 12.11: Information on farmers who have facilities to preserving produces without damage

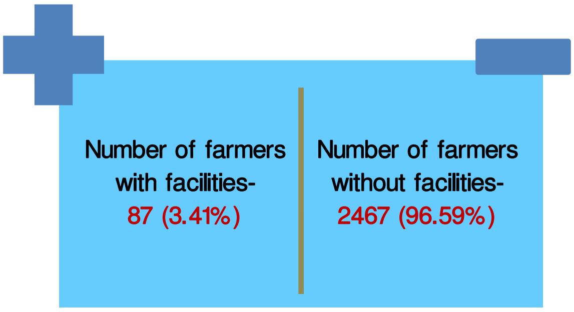
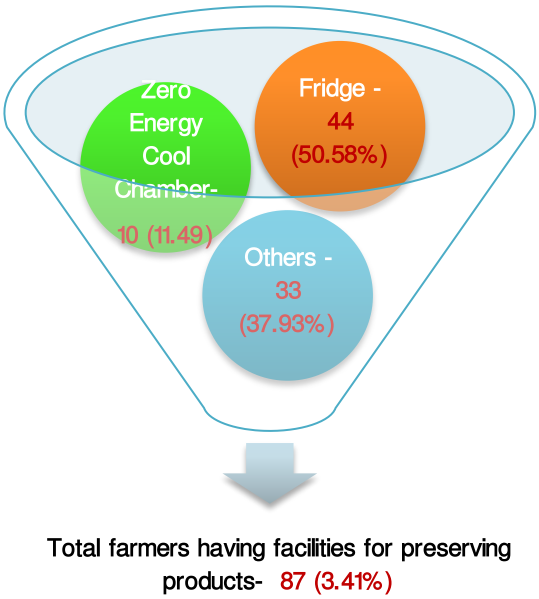


Table 12.7: Details of facilities available to farmers for preserving products without damage

Sl No.	Available facilities	Farmer	
		Count	%
1	Zero energy cool chamber	10	11.49
2	Fridge	44	50.58
3	Others	33	37.93
	Total	**87**	**100.00**

Figure 12.12: Details of facilities available to farmers for preserving products without damage



13

Farmers Comments

The survey was conducted with the aim of studying the various farming methods popularized as organic farming in Kerala, their potential and practicality, application of organic manures and bio pesticides, production, marketing, cost of production, income, drawbacks in organic farming, and problems faced by farmers, etc. In addition to the information collected through the pre designed questionnaire, experienced farmers shared many other opinions and suggestions regarding this sector with the field level officers. They are both consequential and important and therefore should be discussed as part of a comprehensive survey report. This chapter merely summarizes such information. It is presumed that the feelings and thoughts of the farmers will create a dynamic to conceptualize some projects in the field of organic agriculture and seriously consider their relevance and urgency. In general, the difficulties faced by the agriculture sector are also affecting organic farmers. Additionally, farmers also shared some practical difficulties in adopting organic farming. The diverse opinions of the farmers are documented below in a similar fashion, along with a summarized version of similar opinions expressed by multiple farmers. General comments from more than one district are presented first, followed by district specific observations. It is important to note that all opinions, except those enclosed in boxes, represent the viewpoints of the farmers.

General comments from districts

1. Wild animal attacks (Hilly areas)

Crop damage caused by wild animal attacks is a major challenge faced by farmers residing in the hilly areas of the state. Creatures like Wild boars or feral pigs, peacocks, monkeys, and elephants are responsible for extensive destruction of crops, resulting in financial burdens for the farmers. Feral pigs and elephants not only cause crop damage but also pose a threat to human lives and domestic animals, leading farmers to abandon agriculture.

Solar fences are costly but effective in deterring pigs from entering farm fields. Many farmers have financed the construction independently due to limited subsidies. By initiating projects for installing solar fences, local government institutions could alleviate the financial burden on farmers. Additionally, subsidies should be expanded for fence construction. Wild boars disrupting agricultural activities should be classified as vermin, allowing farmers to eradicate them on their farm fields.

The recompense provided for agricultural damages caused by wildlife intrusion is inadequate. Farm fields utilizing fish amino acid, egg amino acid, and compost witness a noticeable increase in disturbances by wild boars or feral pigs. It is imperative for the government to establish a lasting solution to this predicament, as a significant number of farmers are abandoning agriculture due to the threat posed by wild animals or wild creatures. Additionally, the severity of pest infestations in agricultural areas further worsens the situation.

2. Labour shortage and Increased cost of labour (Thiruvananthapuram, Pathanamthitta, Thrissur, Palakkad, Malappuram, Wayanad)

Farmers are grappling with the challenge of rising labour costs, exacerbated by shortage of labour in many regions. Inefficiencies among existing workers further drive up wages, adding to the financial strain. Additionally, essential infrastructure for paddy cultivation, including the construction of side ditches and the provision of machinery landing facilities, planting, and ridge preparation, entails significant expenses. Mounting losses have been prompting many farmers to abandon paddy cultivation altogether.

Furthermore, farmers trained in organic farming face difficulty in securing skilled labour for tasks such as preparing plant nutrition products like Jeevamritham, Panchagavyam, and other leaf decoctions. Moreover, workers require training to effectively handle and apply these specialized materials to crops, incurring additional expenses since they are to be paid like regular agricultural work.

Given the scarcity of labour in the organic farming sector, it is imperative to implement solutions such as employment guarantee schemes and Karshika karma sena to effectively support agricultural tasks.

3. Leased farming (Thiruvananthapuram, Kannur)

Many lessees primarily opt to cultivate crops such as paddy, banana, tapioca, and vegetables on their leased land. Organic farming proves advantageous only if the same land remains leased in subsequent years. It tends to be costlier, particularly for extended leases, leading to significant costs and possible financial losses. Lessees often do not receive financial support, as landowners obtain ineligible benefits by presenting the land tax receipts of leased lands. Thus, government intervention through special financial assistance or subsidies can support lessees engaged in organic farming on leased land, encouraging its continuity to some extent.

4. Pest management (Thiruvananthapuram, Pathanamthitta, Kannur)

Organic farmers encounter a significant challenge with pest infestation affecting their farm fields and cultivated crops. The utilization of organic manures inadvertently contributes to the proliferation of pests. When organic pesticides prove ineffective in eradicating them, resorting to chemical methods becomes necessary, albeit on a limited scale. Pests like the Rhinoceros beetle, Red palm weevil, and Hornworm in coconut, Banana root borer, and Rice stem borer, Brown plant hopper, Gall midge in paddy cause widespread damage on crops, leading to substantial financial losses for farmers leasing land. Given that organic farming demands more time and resources for pest management, it would be advantageous to provide high quality bio fertilizers, organic pesticides and manures at subsidized rates through initiatives such as Krishi Bhavan, Kudumbashree, and other governmental schemes.

5. Price stability (Thiruvananthapuram, Pathanamthitta, Wayanad, Kannur)

There is no mechanism in place to establish sufficient markets for organic products and ensure better price stability. Farmers often fail to receive the actual price for their produce from governmental bodies such as Horticorp, Ecoshop, and VFPCK, with instances where the produce remains uncollected. Additionally, delayed payments for sold products pose challenges in financing subsequent sowing. It is imperative to establish a dedicated system, utilizing organizations such as Horticorp, Ecoshop, and VFPCK, or similar establishments, to acquire organic produce and ensure fair pricing. Sufficient price stability and market viability can be attained by mandating the sale of a certain percentage of organic produce in regular vegetable shops. Moreover, the government ought to procure organic products at reasonable rates.

6. Allied agricultural activities (Pathanamthitta, Idukki, Thrissur, Palakkad, Kannur, Kasaragod)

Since the dawn of agricultural civilization, the practice of livestock management (Pastoralism) alongside farming has been ingrained. Farms yield by-products that serve as fodder for cattle, while cattle waste becomes fertilizer for crops. Milk production and its sale contribute significantly to the income of medium scale farmers. Moreover, various activities like fish farming, poultry rearing, pig farming, goat husbandry, and beekeeping are prevalent. These practices not only enrich the soil but also provide raw materials for the self-production of plant nutrients and fertilizers such as Panchagavyam, Jeevamrutham, and other tinctures etc. Consequently, there is a call for more initiatives to promote integrated farming. Furthermore, due to the reliance on family labour for most farming tasks, farmers often struggle to accurately gauge costs and income.

Different opinions from districts

1. Thiruvananthapuram

- Bitter gourd, snake gourd, cowpea, and comparable crops are commonly cultivated with trailing support structures known as bowers. However, these structures can be expensive, especially for farmers who lease their land. Giving subsidies for trailing support structures, akin to the subsidies granted for rain shelters, polyhouses, and drip irrigation, could result in substantial advantages.
- Farmers in Vamanapuram Grama Panchayath have pointed out that insurance companies currently only compensate only for bananas damaged by natural disasters, neglecting to provide coverage for those affected by diseases.
- A system needs to be implemented to guarantee the quality of organic manures, such as neem cake and bone meal, etc., acquired through Krishi Bhavan as well as open markets, as numerous products currently available are of substandard quality.
- High quality seeds are essential for maximizing yields in organic agriculture. However, there are instances where seeds acquired from Krishi Bhavans do not meet the required standards. It is crucial to ensure the availability of seeds during their respective growing seasons. Moreover, establishing a programme at Krishi Bhavans where local farmers cultivate indigenous seeds tailored to local conditions and then supply them to Krishi Bhavans would yield significant advantages.
- If there is a crop failure in one season, it results in a financial crisis for cultivating the crop in the subsequent season. Hence, prompt measures should be implemented to provide compensation.
- The allocation of subsidized machinery, fertilizers, pesticides, seeds, and planting materials by Krishi Bhavan sometimes remains out of reach for deserving farmers. It is imperative to distribute these benefits fairly by considering the farm field size and financial status.

- In certain areas of the district, like Attingal and Vetoor Grama Panchayaths, the summer season bring about severe water scarcity, posing obstacles to the widespread cultivation of paddy and bananas. Nonetheless, through collaborative efforts involving Minor irrigation, Krishi Bhavan, and Local self government institutions, alongside the rehabilitation of dormant ponds in the vicinity, and the implementation of water supply mechanisms such as lift irrigation, it becomes feasible to alleviate the water scarcity and promote agriculture.
- Water connection through Krishi Bhavan for irrigation is currently limited to the land owned by farmers. Steps need to be taken to allow farmers who have been cultivating in leased land for a significant period to access this vital resource.
- Tractors and paddy reaper are not being delivered promptly for paddy cultivation. It is necessary to guarantee a sufficient supply of agricultural machinery in each Grama Panchayath involved in rice farming. Furthermore, initiatives should be taken to develop technical remedies to reduce substantial paddy losses due to uneven terrain in areas where land is ploughed with tractors and harvested with machines.
- Natural disasters and prolonged droughts pose a significant crisis for the agricultural sector. Floods and strong winds damage numerous crops such as bananas, rice, and vegetables. If sufficient financial support is not given, many farmers may be compelled to abandon agriculture altogether.
- If conventional organic farmers experience financial losses, they may opt to exit the agricultural sector and seek alternate employment opportunities. The influx of new generation into farming is limited. Hence, it is imperative to incentivize and support existing regular farmers through assistance and collaboration to sustain their operations.
- During the rainy season, when the Neyyar dam releases water, it inundates the farm fields, causing significant harm to crops. To mitigate this devastation, it is imperative to construct either a wall or a culvert along the riverbank.
- Applications for crop damage compensation are currently filed online via Akshaya. However, the overwhelming influx at the Akshaya centre forces farmers to take multiple days off work to complete the submission process. Additionally, many eligible applications are denied due to insufficient technical expertise within the Akshaya staff. To address these issues, it is suggested that the receipt and submission of applications for crop damage be exclusively handled through Krishi Bhavan.
- The foundation of the organic farming technique lies in the utilization of indigenous cow breeds raised on lush green pastures. Their dung, abundant in microorganisms, serves as the basis for plant nutrients inputs like Jeevamrutham, Panchagavyam and other decoctions, which result in increased yields. Given that indigenous cow breeds are typically costlier, it is imperative to provide them to farmers at subsidized rates and ensure that at each Krishi Bhavan level an adequate number of such cows are available. This is essential for the effective advancement of organic farming as envisioned by the government. This initiative also creates additional income generation opportunities for organic farmers, thereby supporting their livelihoods.

- Agriculture should be included in the curriculum from primary education onwards, aiming to instil an appreciation for agriculture among children and foster their interest in organic farming, thus preserving our agricultural heritage. By introducing agriculture instructors, incentivizing children with grace marks for successful farming in their homestead gardens and school premises through the provision of complimentary seeds and fertilizers, motivation levels can be significantly boosted. Moreover, engaging the expertise of the finest organic farmers in the vicinity can further enrich this initiative, allowing children to gain valuable insights into traditional farming practices.
- Innovative strategies for warehousing and marketing are essential to effectively procure organic produce from farmers promptly and preserve its quality until it reaches the consumers.
- Marketing products cultivated using chemical fertilizers as organic creates challenges for real organic farmers to access the markets. Therefore, it is essential to establish mechanisms for consumers to differentiate authentic organic products.
- Agricultural loans are currently inaccessible to eligible farmers through banking institutions. It is imperative to undertake essential measures to facilitate the provision of loans from banks to real farmers.
- The allocation of fund towards agriculture in the state surpasses that of other states significantly. Nevertheless, there exists a lack of proportional agricultural crop production here. It is imperative for officials to undertake necessary steps to investigate and address this matter.

2. Kollam

- Sufficient training has not been received from the department of Agriculture on the subject of organic farming.
- Farmers engaged in fully organic farming primarily grow seasonal crops. They utilize chemical fertilizers to a limited extent in crops like paddy, bananas, and coconuts.
- A significant portion of the individuals listed as organic farmers have openly told that they are not organic farmers.
- Many farmers have adopted organic farming methods, especially utilizing grow bags for cultivation, spurred on by the encouragement from local government institutions and the Krishi Bhavan. Those listed as organic farmers in Alappad Grama Panchayath rely solely on grow bags for their cultivation practices.
- In times of seasonal surplus, agricultural products frequently struggle to fetch desirable prices. Climate change is pinpointed as the leading factor causing damage to crops.

3. Pathanamthitta

- Improving soil structure and fertility stands as the primary focus within organic farming methodologies. There are instances in which farmers who have done soil tests facilitated by the Agriculture department lack access to the resultant reports. Consequently, they encounter difficulty in preparing the soil for cultivation at the right time and enhancing its fertility.

- There is a scarcity of facilities available for testing the quality of organic products.
- Ensuring sufficient pricing for produces is crucial. Additionally, it is crucial to establish amenities for the sale of produces in local markets.
- Organic farming needs to progress further in its efforts to rejuvenate soil and human health, which have been adversely affected by excessive dependence on chemical fertilizers and pesticides. It is crucial that farmers, whose livelihoods depend solely on agriculture, must receive vital support and government schemes.

4. Alappuzha

- Alappuzha, a district situated at an elevation below sea level, is renowned for its stunning backwaters, coastal vistas, and expansive paddy fields. However, the district faces substantial challenges from floods and high tides, especially affecting the agricultural sector. Kanjikuzhi Grama Panchayath in the district is well known for its thriving vegetable cultivation.
- The distribution of seeds, plants, and other necessary materials via Krishi Bhavan after the sowing season poses a challenge to starting cultivation.
- A significant number of farmers lack awareness concerning organic certification and traceability.
- Some farmers utilize innovative techniques such as terrace farming, plastic mulching, and drip irrigation for vegetable cultivation. Additionally, a farmer cultivated Gerbera flowers commercially.
- During the survey, it was noted that agricultural land within Arur Grama Panchayath was submerged in water. To address waterlogging, it is necessary to enhance water drainage by excavating the streams adjacent to the farm fields.
- In the Pattanakkad Grama Panchayath, a farmer safeguards his agricultural land by constructing a buffer zone of a specified width to deter the infiltration of saltwater.
- Organic farmers face significant obstacles, including the fraudulent sale of vegetables from different states masquerading as organic produce and the absence of a minimum support price for organic goods.
- Thaikal Spinach, a seed cultivated traditionally in the Thaikal region within Cherthala south Grama Panchayath, stands out due to its unique hue, taste, and remarkable immunity against diseases.
- The Cowpea known as Kanjikuzhi lentils, developed by Mr. Subhakesan, a farmer from the Kanjikuzhi Grama Panchayath, have gained immense popularity nationwide. This particular variety, with a length of around 37 inches and weighing up to 80 grams, demonstrates exceptional durability when compared to other varieties.
- Some farmers contend that homeopathic medicine is effective in treating crop diseases. They argue that implementing integrated farming methods could enhance the profitability of organic farming.
- Soil testing is conducted by Krishi Bhavan, but farmers are not provided with the results. The reports are kept at Krishi Bhavan, and only necessary guidance is given to the farmers. The soil

testing centre in Njarakkal, Ernakulam District, which operates under the Fisheries department, remains as the only facility equipped for conducting soil tests required for organic farming.

- Ensure accessibility of agricultural finance through banks and guarantee insurance coverage for agricultural loans.
- Not every farmer follows organic farming principles in full manner. Most use small amounts of chemical fertilizers and pesticides.
- For six years in a row, a farmer has been cultivating Raktasali rice, characterized by its red hued paddy and grains. Raktasali rice, acclaimed for its medicinal properties in Ayurveda as well as its delightful taste, is capable of being harvested and sold at a rate of Rs.350/- per kilogram.

Raktasali

Raktasali, a type of medicinal rice seed, has been cultivated for approximately 3000 years. It is believed to have been grown by tribal communities in Wayanad for the dynasties of Kerala. This particular rice variety is a repository of diverse antioxidants and micro nutrients. Cultivating Raktasali rice is uncommon in Kerala, and inadequate attention can lead to the entire ear of rice turning into chaff. Selenium myo-inositol, found in Raktasali rice, is esteemed for its disease fighting properties. This rice variety is abundant in vitamins, sodium, minerals, and amino acids. Both the paddy and straw are characterized by their red color, while the bran is notably dark red. Raktasali rice typically takes 140 days to reach maturity.

5. Kottayam

- Farmers who follow Mr. Subhash Palekar's Zero cost cultivation/Zero budget farming approach have taken part in the survey.
- While commonly labelled to as organic farmers, there are those among them who occasionally resort to chemical fertilizers and pesticides. For instance, fetran fungicide is employed to combat fungal infections in nutmeg crops.
- Some farmers mistakenly apply fertilizers such as sterameal and fungicides like bordeaux mixture under the misconception that these are organic products.
- Some farmers hold a thorough grasp of organic farming techniques. They utilize this expertise to promote their produce under their own brand, integrating technology to refine their approaches and attain higher yields.
- There are farmers who strongly disagree with the buffer zone technique.

- In the district, certain farmers grow paddy using indigenous seeds, and then proceed to mill it into rice and sell it directly. Meanwhile, others earn substantial profits by marketing organically cultivated vegetables as seeds and various value added products.

6. Idukki

- Organic farmers who have received national awards have also participated in the survey.
- Although it is widely believed that cardamom cultivation cannot be maintained using organic farming methods, there are farmers in the district who solely employ organic practices. In the Udumbanchola taluk, there exists a farmer who has erected a buffer zone within his agricultural land.
- Farmers without organic certification face challenges in selling their produce and securing better prices. The Peerumedu development society (PDS) serves as the local organic marketing cooperative, procuring spices at prices higher than market rates and offering complimentary organic medications through soil and crop testing initiatives.
- The primary source of income for the people of Mankulam Grama Panchayath revolves around agriculture and its ancillary activities. Black pepper and coffee are cultivated entirely through organic methods, while chemical fertilizers are employed in the cultivation of cardamom. Given the geographical characteristics of the Grama Panchayath, there exists a significant risk of chemical fertilizers seeping into adjacent areas.
- Organic manures and bio pesticides should be made available at reasonable prices, and organic farmers should be provided with training in their production and application. Workshops should be organized to raise awareness about organic farming, led by the Department of Agriculture/ATMA, to share knowledge and encourage sustainable agricultural practices.
- The standards for organic certification should be eased, and subsidies should be extended to cover a broader array of crops.
- Promotion of organic farming is imperative to supply society with agricultural products that are free from toxic substances, alongside implementing a specialized marketing system for crops cultivated under challenging conditions.

7. Ernakulam

- In the district, only a minority engage in organic farming as their primary source of income. Most farmers rely on homestead manures such as cow dung, poultry manure, and green manure for their agricultural needs. The challenging climate in the state poses significant obstacle to widespread crop cultivation while adhering strictly to organic pest management and nutritional practices.
- Despite a lack of comprehension regarding the buffer zone, majority of the farmers remain adamant in their belief that their land is free from chemicals. Quality assessment is hindered by the absence of laboratories for product testing.
- Organic manures should be made more affordable, and training should be provided for their production. By implementing additional initiatives to support organic farming, substantial

improvements in the health sector can be realized. Therefore, efforts should be made to attract more farmers to this field and enhance the skills of those already involved.

- Even those who meticulously prepare plant nutrients such as Panchagavyam and Jeevamritham, as well as pest management products using authentic organic methods, often overlook the importance of soil testing and establishing buffer zones.
- In the district, there are no farmers who have adequate production for exporting. Consequently, there is a lack of preparation or endeavour towards organic certification by the farmers.
- Following the flood in 2018, the Pokkali cultivation has faced setbacks. The traditional practice of alternating six months of shrimp farming with six months of paddy cultivation in the Pokkali fields has been disrupted. Those engaged in rice cultivation are compelled to do so because obtaining permission for shrimp farming is contingent upon rice cultivation. Additionally, a considerable number of these individuals merely sow subsidized seeds without undertaking the subsequent harvest.
- The government should create a marketing initiative aimed at promoting organic products.
- While numerous individuals have participated in seminars concerning organic farming, such sessions have not significantly succeeded in raising awareness among farmers about the precise definition of organic farming, quality control tests, certification processes, and the marketing opportunities inherent in organic farming.

8. Thrissur

- Organic cultivation and harvesting of vegetables and tubers for personal consumption can be achieved without reliance on external inputs.
- Although many farmers may not grasp the concept of a buffer zone entirely, they do not ignore the potential threat of chemical fertilizers seeping from nearby farms into organic farming areas. As a result, a considerable number of individuals abstain from cultivating all crops organically. Instead, certain farmers adopt for a divided strategy, practicing organic farming on one part of their agricultural land, while turning to chemical fertilizers on another.
- Most farmers primarily use organic manures for plant nutrition, with a small amount of chemical fertilizers being used during planting. The lack of integrated fertilization raises the risk of seeds dying without sprouting.
- Difficulty in identifying pests and pathogens responsible for crop diseases persists as an issue. Organic farming is yet to devise a thoroughly effective method for disease management, leading to notable impacts on yields.
- Transitioning from modern agriculture to organic methods elicits divergent viewpoints on productivity levels. Some assert that organic agriculture yields lower outputs compared to conventional methods, while others contend the opposite.
- Organic farming is preferred on a group basis. Self-produced manures like cow dung and compost are ineligible for subsidies due to the absence of a GST bill, which mandates subsidies for fertilizers. Consequently, the sale of surplus is encountering challenges.

- Biogas units are seen on certain farm fields, supplying cooking gas alongside fertilizer.
- Introducing a government level mechanism for selling organic agricultural products through social media and online platforms would be advantageous.
- Farmers encounter challenges such as the cost of cultivation necessary for organic farming and the unpredictability in yields. Moreover, inadequate pricing and the absence of a market for organic produce deter farmers from engaging in organic farming.
- Awareness classes are necessary to advocate organic farming techniques, enhance the quality of produce, and deploy efficient pest management strategies. Furthermore, steps should be taken to guarantee the prompt availability of high quality seeds, organic manures, and bio pesticides necessary for agriculture.
- The incursion of saline water into the Chavakkad coastal region has resulted in significant reduction of agricultural productivity. Refrain from imposing age restrictions on attending specific organic farming workshops.
- Adichilthotti tribal village, among the tribal villages in the state, has been honoured with the state award for its exemplary organic farming practices. If the produce cultivated by the farmers are collected, branded, and sold under the Tribal valley scheme, it can ensure fair compensation for the farmers and can deliver high quality products to consumers.
- Marketing organic products continue to be a significant challenge. While there exists a demand from consumers seeking quality items at reasonable prices, the absence of dedicated retail outlet networks poses a hindrance. In conventional supermarkets, organic and non-organic products are typically not offered separately, resulting in farmers receiving uniform prices for their produce regardless of its organic status. To address this issue, farmers have begun to collaborate regionally, establishing small market like setups where they can sell their organic produce directly to consumers one day a week. Additionally, many consumers resort to purchasing directly from farmers, visiting their homes to buy what they need. However, the lack of a structured system for marketing organic products independently remains a notable drawback. Encouraging the establishment such as Ecoshops, Horticorp retailing outlets, other exclusive organic produce selling shops and fostering partnerships with organic farming associations could serve as viable solutions to this challenge.
- Organic farming requires significant labour and expenses, justifying its preference over other agricultural practices. As a result, it deserves subsidies and customized support programmes. Ensuring the sustainability of farming depends on obtaining higher prices for organically cultivated crops. Hence, it is crucial for the government to establish a system for storing and marketing organic agricultural products at the Grama Panchayath level, bypassing intermediaries.

9. Palakkad

- The staff of the Millet village project, under Agriculture department, aided in the identification of farmers across various hamlets within the Agali, Sholayur, and Putur Grama Panchayaths situated in the Attappadi block.

- As a result of abstaining from the use of chemical fertilizers in agriculture, there tends to be a lower prevalence of disease in both the soil and crops.
- In 2017, after the commencement of the **Millet Village Project**, there was a significant increase in the cultivation of small grains. Prior to this initiative, farmers had experienced exploitation during the sale of millet grains. However, following the implementation of the millet village project, there was a noticeable rise in the prices received for food grains.

A special report on the Millet Village Project is given at the end of this chapter. Please refer to **page 107** for details.

- The markets for vegetables are situated at a considerable distance, resulting in elevated expenses and logistical challenges associated with travel.
- Kadukamanna, situated within the Putur Grama Panchayath, is home to the Kurumba tribe, known for their adherence to the Panchakkad agricultural technique. This village, nestled in the forest approximately 2.5 kilometres away from Anavai hamlet, is reachable by vehicle. With a population of 59 families, Kadukamanna follows a traditional farming approach where land is cleared and burned, and crops are cultivated sequentially in a single plot for three years before rotating to the next. Preparations for the rainy season involve burning the land and planting Tuvara, Amara/Avara, Pumpkin (Mathan), and Ash Gourd (Kumbalam). When these crops reach half a foot in height, a mixture of Ragi, Chama, Mustard, and Spinach is sown between them, followed by soil stirring. This technique, known as Panchakkad farming, is their customary method. While goats and cows are reared on the farm field, their manure is not utilized for cultivation there. Instead, manure is solely employed in cultivating long term crops such as areacanut and pepper. The produce is primarily sold through the Kurumba society and Kudumbashree. However, challenges persist due to the lack of transportation facilities and inadequate roads, which significantly hinder marketing efforts. Mustard and Kudiraivali (Barnyard Millet) stand out as the main crops in this region, with their production steadily increasing each year through organic farming practices.

Shifting Agriculture

In shifting cultivation, a group of people select a particular plot for agriculture. At first, they cut the bushes, plants and clear the plot. Then dry them and burn them to ashes. After rain, they till the soil with digging stick or hoe. Seeds of different crops are thrown at the onset of monsoon, which become ready to harvest with the advent of winter. In tribal India, about 11% of the population practices this cultivation. They produce Rice, Millet, Coconut, Sugar cane, Plantains and Vegetables.

Shifting cultivation is generally known as **Slash and Burn** agriculture and **Swidden** agriculture. In different regions of India, it has different names such as Jhum, Dahia, Podu, and Bewar.

- There is a lack of storage facilities and shops selling organic products. Officials involved in the millet village initiative have stated that most farmers have organic certification from Indocert.

However, this certification was not in possession of the farmers during the data collection phase. Ragi, Thina, Chama, Maize, Tuvara, and Groundnut are the primary crops cultivated in this area. A small number of farmers use chemical fertilizers in a restrained manner.

- Numerous farmers across different regions of the district have embraced organic farming, inspired by the Parambaragat Krishi Vikas Yojana (PKVY) scheme implemented by Krishi Bhavan. Generally, there exists a prevalent belief among many farmers that agriculture cannot progress without chemical fertilizers.
- A farmer hailing from Kannambra Grama Panchayath has expressed that the income generated from the sale of rice obtained through the pounding of organically cultivated paddy is notably insufficient. He suggests that offering a subsidy for converting paddy into rice could greatly alleviate this issue. Additionally, he propose that marketing organic paddy as value added products such as rice, rice biscuits, under a government scheme label at Supplyco outlets, would prove advantageous.
- Suitable laboratories and systems need to be established for assessing the chemical and biological composition of soil prior to seed sowing.
- The world's largest Navara rice farm grown organically is owned by a farmer located along the banks of Shokanashini in Peruvembu Grama Panchayath. This farm has been certified organic by Indocert.

Navara

Navara is a variety of rice crop imbued with medicinal attributes, traditionally cultivated in Kerala. It is esteemed within both traditional medicine and Ayurveda, under various names such as Njavara, Navira, Njavira, Namara, Nakara, and Nakarapuncha. Navara typically matures in a span of 60 days and is esteemed for its therapeutic properties. There are two notable variants: Black Navara and Red Navara, each possessing distinct medicinal qualities. While Black Navara predominates in North Kerala, Red Navara enjoys greater popularity in the southern regions. It stands as a rarity among Kerala's agricultural products, having been accorded the prestigious Geographical Indication status. It is a special recognition bestowed upon products of geographical significance, distinguished by their geographical exclusivity and traditional excellence. Such accolades are granted in recognition of exceptional quality and uniqueness, often bearing the name of the region. Amidst the prevalence of exotic heirloom seeds, Navara stands out as a rare gem preserved through generations.

- Many farmers used chemical fertilizers such as masuriphos and ekalax in addition to organic manures due to concerns about low yields. This indicates that many farmers do not adhere strictly to organic farming practices.

- Crops cultivated using organic methods encounter limited acceptance in the mainstream market. Farmers are increasingly abandoning agriculture due to the impacts of climate change. Obtaining organic certification entails significant expenses and time investment.
- The introduction of GST has led to increased time and financial investment in branding products. Consequently, there is a risk of substandard products being marketed under reputable brand names, undermining the credibility of organic products when they are popularized in the market.
- Given the expenses involved in cultivating and producing organic goods, it is advisable to institute a dedicated support price or governmental subsidy for such products.
- The Department of Agriculture needs to organize additional awareness programmes and provide more support to farmers.
- Organic products often fail to command the same price as their non-organic counterparts due to the fact that many crops do not attain the expected appearance and coloration.

10. Malappuram

- It is imperative to raise awareness among the populace regarding the quality of organic agricultural products.
- Create a system at the Krishi Bhavan level to facilitate the sale of organic produce, along with providing storage facilities equipped with appropriate collection amenities.
- Organic produce lacks an exclusive market, often resulting in prices that fail to accurately represent the costs linked with organic farming.
- High quality organic manures and pesticides ought to be accessible at reduced rates through Kudumbashree. Additionally, there should be provision for bio pesticides capable of efficiently preventing all types of pests and diseases.
- Technical knowledge ought to be disseminated to enhance productivity. Greater incentives should be allocated to promote organic farming within the agricultural sector.
- Sufficient testing facilities must be established to uphold the quality standards of organic products. Having access to high quality seeds, seedlings, and planting materials is imperative. Subsidies should be allocated proportionately based on the production of organic agricultural crops.
- Employing migrant workers in the agricultural sector raises concerns about security.

11. Kozhikode

- Numerous farmers engaged in terrace farming and cultivating crops in grow bags using solely organic materials. The majority of these farmers utilize the yields from organic farming for their personal consumption.
- The scarcity of fertilizers and pesticides necessary for organic farming, coupled with their rising costs, is significantly affecting agriculture. The inadequate pricing is frequently linked to the absence of Ecoshops in the district and the reluctance of current ones to buy all the produce from farmers. Moreover, rural areas exhibit lower demand for organic produce compared to urban regions.

- The Department of Agriculture's initiatives to encourage organic farming have attracted more farmers to the practice, but a significant portion lacks comprehensive understanding of organic farming techniques. It is imperative to raise awareness among farmers regarding the importance of embracing natural methods for plant protection and pest management.
- Farmers involved in organic farming should receive timely benefits and adequate respect and support.

12. Wayanad

- In Wayanad, which is an agricultural district, every movement within the agricultural sector significantly influences the district's economy and people's livelihoods. With a majority reliant on agriculture related activities, adopting practices that sustain soil health, environmental integrity, and community wellbeing is imperative. Given the rising awareness in both scientific and social spheres, numerous farmers in the district are shifting to organic farming, spurred by government initiatives and advocacy from various organizations promoting eco-friendly agricultural methods aimed at preserving nature and its resources.
- A considerable number of farmers within the district are involved in cultivating plantation crops such as coffee, pepper, arecanut, and others. This practice is the continuation of traditional farming methods. Primarily, farmers use only cow dung and green manures as fertilizers, with no application of pesticides or chemical fertilizers.
- Farmers are not adopting essential scientific practices in organic farming, including the establishment of buffer zones, conduction of soil tests, and evaluation of residual toxicity.
- A small subset of farmers receives training in diverse organic farming techniques and implements these based on their knowledge and practical experiences. Primarily, they combine traditional farming methods with natural farming practices. Moreover, there are skilled farmers who impart training to fellow farmers through different organizations. Individuals among them have gained recognition for explaining organic farming methodologies through platforms such as YouTube channels.
- Farmers commonly possess knowledge about organic farming techniques, including the use of fertilizers, pest management, and disease management, but there remain a limited adoption of scientifically driven organic farming practices at the practical level. This is primarily due to the scarcity of high quality organic manures and pesticides, as well as insufficient access to quality raw materials necessary for their production on farms.
- There is presently no appropriate biological pesticides available to prevent rotting diseases and other crop diseases occurring during the rainy season.
- While pest management can frequently be accomplished through biological means, biological methods are not an option for addressing diseases induced by climate change.
- During the monsoon season, some farmers use bordeaux mixture to prevent fruit rot disease and mahali disease in arecanut.

- Organizations such as Wayanad service society (WSS) and Vanamoolika operate in the marketing sector, directly sourcing coffee and pepper from farmers and exporting these products to foreign markets. Additionally, farmers are guaranteed a higher price for their organic produce compared to what they would receive in the public market.
- Several farmer associations within the district, along with several individual farmers, are engaged in the exportation of organic produce to other states. They are branding these products as value added items and successfully entering into the market and yielding substantial income.
- Other organic farmers are compelled to market their organic produce in public markets as if they were conventional products. Despite the involvement of agencies such as farmers' fraternity and Horticorp in marketing efforts, ensuring adequate markets for organic farmers and guarantee improved price stability remains uncertain.
- In addition to establishing a dedicated marketplace for organic agricultural produces, there is a pressing need to shift the consumption habits of individuals. It is crucial to emphasize the incorporation of organically cultivated vegetables, grains, and other food items into diets for improved health. Many organic farmers struggle to access local market opportunities due to the challenge of offering their produce at competitive prices.
- Shifting to organic farming is typically challenging for farmers during the initial years. They must educate themselves on new farming methods and restore soil fertility depleted by chemical fertilizers and pesticides, using biological techniques. This process incurs higher production costs and often results in lower yields initially. However, after 5 to 8 years, the soil's natural fertility is usually restored, leading to improved production. Experienced organic farmers suggest that governmental assistance should be consistently provided to farmers during the transition period. Some argue for the necessity of policy formulation in this domain.
- Climate change has had a significant impact on agriculture, particularly evident in increased soil erosion during heavy rainfall. In hilly areas, the application of fertilizers such as cow dung, green manure, and compost to crops often leads to runoff, resulting in crop decay as these fertilizers take time to be absorbed by the plants.

A rare collection of paddy seeds

Jeerakashala and Gandakashala stand as the primary aromatic rice cultivars in Wayanad, renowned for their delectable flavour and medicinal attributes. These varieties fetch the highest prices in the market due to their exceptional quality standards. Additionally, Wayanad boasts a diverse range of rice strains including Ponni, Kothandan, Kolawada, Basmati, Navara, Erumakari, Chomala, Chembalavasanam, Shasttika, Niketan, Suvarna, Raktasali, Kalamalli Phool, Thavalakannan, Kariga Javali, Kunji, Krishna Kamod, Black Chempavu, among others. The district is also home to organic farmers who possess a unique collection of rice seeds.

13. Kannur

- For the optimal growth and health of plants, it is essential to utilize a moderate quantity of chemical fertilizers in addition to organic manures.
- Placing beehives on organic farm fields is advantageous for pollination.
- The farmer, managing a beach resort in Kannur, intertwines organic farming with tourism; maintain the agricultural land in a manner that captivates visitors. Furthermore, they prepare dishes utilizing vegetables, fruits, and fish sourced directly from the farm field to the tourists.
- In addition to being a source of income, numerous farmers in the district nurture a deep affection for agriculture akin to the love they hold for their own children. They inherit knowledge and encouragement from their ancestors and garnered numerous accolades in the realm of agriculture. These farmers actively engage in organizing seminars and classes, serving as exemplary figures and mentors for the new generation.
- Farmers with years of experience in organic farming said that agriculture can be profitable. They implement extensive seed care techniques and make their own organic manures and pesticides on their homesteads.
- Farmers engaged in organic farming for their livelihood are experiencing favourable yields and income. Their primary market tends to be local or direct sales, with many customers visiting the farm land to purchase products directly. The superior quality of organic produce is a key factor attracting consumers to these farm fields. However, farmers say that they do not receive fair prices from entities like Horticorp or Ecoshop. The perceived inadequacies in the beauty, size, and shape of the organic produce result in price reductions.
- Farmers have stated that organic farming can be profitable for those who use it effectively, with costs decreasing over time. However, newcomers to organic farming may find it unprofitable at first, particularly if they need to buy organic manures and pesticides externally.
- One significant drawback lies in the production instability of organic farming. Even in favourable climatic conditions, organic farms frequently yield less compared to modern agricultural practices in similar environments.
- The intermediaries exploit the absence of protocols for the preservation of products.
- There is a farmer in the district who focuses on cultivating Krishna Kamod, a rare variety of rice.

Krishna Kamod

Krishna Kamod, a rare fragrant rice seed is also recognized as Gujarat Vasumathi. These rice plants exhibit greater height in comparison to other varieties and typically require approximately 150 days to attain maturity suitable for harvesting.

- Farmers informed that soil samples were collected for testing purposes, yet in certain instances, the reports have not been received. Additionally, there are cases where the received reports are incomplete or entirely missing, while in others, farmers have submitted reports to the Krishi Bhavan.

Some individuals believe that since samples are collected from only one location, there is a lack of confidence in the accuracy of soil testing.

14. Kasaragod

- The scarcity of Ecoshops and their hesitance to procure all organic produce from farmers create challenges in the marketing sector.
- The market does not offer fair prices that accurately reflect the production costs associated with organic produce.
- At present, there exist no mechanisms for carrying out scientific quality assessments of produces.
- The demand for organic agricultural goods is higher in urban areas in comparison to rural regions.
- Due to the ineffectiveness of bio pesticides alternatives, chemical pesticides are used along with organic manures and bio pesticides.

Millet Village Project

The Millet Village project was initiated in Attappadi in 2017, aiming to promote the cultivation of traditional crops among the tribal communities of Attappadi in Palakkad district. These crops include Ragi, Chama, Thina(Foxtail millet), Kutriwali, Panivarag, Varag, Kambu, and Mani cholam. The project also aimed to facilitate the production and consumption of non-toxic nutrition. Attappadi comprises 192 hamlets inhabited by the Kurumba, Irula, and Muduga tribes. The Department of Agriculture Development and Farmers Welfare, in collaboration with the Department of Scheduled Tribes Development, jointly decided to implement the Millet Village project when the cultivation of small grains, which were once the mainstay crops of Attapadi tribals, was dwindling. Prior to the commencement of the millet village project, only a handful of farmers from the kurumba tribe cultivated Ragi and Chama crops for their sustenance. However, with the introduction of the millet village Attappadi project, small grain cultivation has experienced a revival in 40 hamlets inhabited by the Kurumba, Irula, and Muduka tribes.

In the initial phase of the project, even seeds were not readily available. The inception of the millet village project commenced with the provision of small grain seeds for cultivation in Attapadi. This endeavour was made possible through collaborative efforts with the National Seeds Corporation Palakkad, the Vegetable and Fruit Promotion Council (VFPCK) Alathur, the Indian Council for Agricultural Research- Krishi Vigyan Kendra (ICAR-KVK) Coimbatore, and Dharwad Agricultural University. As time progressed, the millet village project expanded its reach, increasing the number of hamlets and farmers, with the hamlets under the project rising from 40 to 71. Presently, in all 71 hamlets, the cultivation of small grains is flourishing. Each farmer has secured ample seeds for their own cultivation needs. Furthermore, beyond mere cultivation, these grains have become an integral part of the daily diet for the villagers. The millet village project has achieved remarkable success by boosting the cultivation area of various crops in Attapadi, including thuvara, mustard, groundnut, sesame, peas, and others, through a subsidy programme. Notably, the cultivation of the Mexican crop Chia (Salvia Hispanica) has thrived in Attappadi, proving to be profitable for farmers. The millet village project now distributes Chia seeds to numerous areas in Kerala. Given the comparatively low income from small grain farming compared to other crops, farmers depend heavily on subsidies provided by the millet village project. Initially set at Rs. 4,000 per acre, the subsidy has been increased to Rs 4,800. Cultivating one acre costs around Rs.10,000, with a notable portion of the harvest being lost due to wildlife interference from wild animals and birds. However, with proper guarding and protection, the maximum yield can reach up to 400 kg per acre.

In the financial year 2019-20, funding from the Department of Scheduled Tribes Development was not forthcoming for the project undertaken in collaboration with the Department of Agriculture Development and Farmers' Welfare. Despite this, the Department of Agriculture persevered in sustaining small grain cultivation by identifying and utilizing funds from the Re-build Kerala Initiative Attappadi Tribal Comprehensive Sustainable Agricultural Development Project. In addition, subsidies for farmers were consistently extended during this period. The construction of a small grain processing facility at Cheerakadav, supported by the Re-Build Kerala Initiative Attappadi, has been successfully accomplished. Once the necessary electricity connection is obtained, the processing plant will be fully operational. This significant milestone enables the processing of small grains cultivated in Attappadi, facilitating their transformation into value added products that can be distributed to those in need and marketed through farmer producer groups.

Cultivating small grains proves to be the most appropriate crop choice for the climate prevalent in Attapadi. The climate conditions permit a single cultivation cycle in western Attapadi and two cycles in eastern Attapadi annually. Over the span of five years, the millet village project has successfully cultivated 3457 hectares of small grains along with 1688 hectares dedicated to pulses, oilseeds, and vegetables.

Model hamlet development

As part of the millet village initiative in Attapadi, the development of model hamlets is underway, with five hamlets identified for this purpose. These efforts encompass a range of activities unique to this project, distinct from those implemented elsewhere. Meleparapp-anthara and Kattekad hamlets in Agali Grama Panchayath, Mele Samparkode in Sholayur Grama Panchayath, and Kurukkathikall and Veetiyoor in Putur Grama Panchayath are the focus areas for model hamlet development. Distribution of planting materials for cash crops, fruit trees, and winter vegetables, along with the provision of agricultural implements, beekeeping training for women, and the construction of grain drying sheds, have been successfully completed as scheduled. Furthermore, ongoing efforts include the establishment of irrigation facilities, initiation of tasks such as electric fencing, and land terracing.

Construction of beehives

The establishment of beehives has proven extremely advantageous in regions frequently plagued by wild elephant intrusions. The construction of beehives has been completed in Kattekkad, Varagampadi, and Vallavatti hamlets. Additionally, beehive construction has commenced in Neelikuzhi hamlet. This endeavour is carried out through the collaboration with Raidco, Mannarkad. With the deployment of beehives, farmers are able to safeguard their crops while also generating supplementary income through the harvesting and selling of honey. Furthermore, farmers have undergone comprehensive training under the millet village project to bolster their expertise in beekeeping.

Geographical index determination

The millet village project has successfully concluded the geo indexing activities for Attapadi tuvara and Attukombu avara crops. This initiative, led by the Intellectual Property Rights (IPR) Cell of the Kerala Agricultural University, aims to determine the geographical index, thereby aiding farmers in securing improved prices for their Attappadi thuvara and Attukombu avara crops. This will facilitate the branding and marketing of the produce under the prestigious name of Attappadi.

Distribution of grain storage

The project has equipped the Attapadi tribals with ample grain storage facilities, enabling them to store grains in the traditional manner. These facilities include bamboo bins capable of holding up to 200 kg of grains. To preserve the integrity of the bamboo containers, a longstanding method involves coating them with a mixture of ground fenugreek seeds and wax.

Farmer producers group

The Farmer producers group which comprises of tribals from Attapadi has successfully completed its registration under the companies act and has commenced operations. Referred to as the Attappadi Tribal Farmers Association for Millets (ATFAM), the organization is dedicated to the processing and marketing of small grains. With the establishment of ATFAM, the group aims to procure small grains from local farmers and convert them as value added products. These small grains will undergo processing to create value added products, which will then be distributed across Kerala through ATFAM. This initiative is supported by the Re-build Kerala Initiative's Attappadi tribal comprehensive sustainable agricultural development plan. The resulting products are of superior quality and are positioned for both local consumption and export to international markets.

Organic certification

Organic certification endeavours have commenced with the goal of fostering organic farming practices through the millet village project and bestowing organic certifications upon farmers' plots. As part of this initiative, three Internal control systems (ICSs) have been established across three Grama Panchayaths in Attapadi, following directives from Indocert, an agency in Kerala accredited by the Agricultural and Processed Food Products Export Development Authority(APEDA). The initial phase has seen the launch of organic certification operations in 40 hamlets. Under the millet village project, awareness campaigns and training sessions on organic farming are being conducted for farmers within their respective hamlets.

After three successive years of operation, a total of 741.97 hectares of agricultural land, owned by 926 farmers spread across 40 hamlets, have been granted organic certification. Furthermore, during the initial years of the subsequent phase, 152.60 hectares of land, belonging to 392 farmers residing in 22 hamlets, have been awarded C1 Certificates. This represents a noteworthy milestone, possibly a first in India, where such a substantial number of tribal individuals are collectively obtaining organic certificates. This feat merits recognition as a noteworthy accomplishment of the Government of Kerala.

[Source of special report: Principal Agriculture Office, Department of Agricultural Development and Farmers Welfare, Palakkad. Report available on December 2021]

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International Year of Millets (IYM 2023)

In March 2021, the United Nations accepted India's proposal to designate 2023 as the International Year of Millets (IYM 2023). This initiative highlights the significance of various small grains such as Jowar, Bajra, Ragi, Kakum, Kutki, Foxtail, Chena, Sema, Kadon, Barnias (Horsetail), Muthira, among others, collectively known as Nutri Millets. Health experts stress the importance of integrating these micronutrient and fiber rich small grains, alongside traditional flour and wheat, into bakery products in specific proportions. They argue that such incorporation can yield significant health benefits, underlining the pivotal role of healthy foods in shaping the future of the food industry.

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Observations

Kerala, renowned for its verdant landscapes, natural splendor, mild climate, and diverse topography, is distinguished by its 44 rivers, numerous streams, lakes, ponds, backwaters, fertile soil, majestic mountains, and rich biodiversity. This picturesque state, however, is experiencing a shift away from its traditional agricultural practices due to the growing allure of urban lifestyles and non-agricultural pursuits. Consequently, Kerala has transitioned into a predominantly consumer society. This shift has brought about significant health challenges, including diet-induced obesity, lifestyle diseases, and the concerning presence of harmful pesticide residues in food products exceeding safe limits. These issues pose substantial challenges to the healthcare system. To address these concerns, it is essential to prioritize the adoption of a healthy diet that promotes overall wellbeing. Kerala's favourable environment is ideally suited for the practice of scientific organic farming, which can ensure the availability of safe and nutritious food. Although Kerala has showcased commendable practices and achievements in certain areas of organic farming, it is crucial to expand these efforts and highlight the importance of organic farming across various sectors to achieve comprehensive goals. Based on a thorough analysis of survey data and feedback from farmers, several strategies have been identified to achieve further advancement in organic farming practices in Kerala and are stated below. These strategies aim to bolster the practice of organic farming, thereby promoting the health and wellbeing of the population while preserving the state's natural resources and biodiversity.

- Improving soil fertility solely through the use of organic manures is feasible only when the soil in each region undergoes classification and thorough examination to determine its structure and identify deficient minerals. Following this, the appropriate quantities of micronutrients must be administered. It is imperative to raise awareness among farmers about the necessity of conducting soil tests in this manner.
- The preservation of broad spectrum of crop diversity is critical in addressing the challenges posed by climate change and shifting food preferences within agriculture. This necessitates the conservation of traditional biodiversity, seeds, and agricultural knowledge. Indigenous crops, having naturally adapted to regional climates and soil structures, exhibit inherent resistance traits. The extinction of these nutritionally valuable native food crops results in the depletion of essential biological resources. Only those crops capable of withstanding environmental stressors can evolve into new, high-quality varieties. Therefore, there is an urgent need to establish seed banks dedicated to the conservation of indigenous crops and seeds, with a focus on expanding their repositories. To achieve this goal, the formation of farmer groups is essential. These groups should be supported by the leadership and technical expertise of institutions such as Kerala Agricultural University, Krishi Vigyan Kendra, and Krishi Bhavan. These organizations can play a pivotal role in

the regional production of indigenous seeds and the promotion of local agricultural knowledge societies.

- A mechanism should be instituted to ensure that farmers have timely access to locally sourced seeds, seedlings, and planting materials tailored to the specific conditions and attributes of each region, and produced using organic methods. Additionally, there should be an increased emphasis on incentivizing research and experimentation focused on the organic development of hybrid seeds.
- Farmers should be provided with a scientific education that enables them to utilize beneficial insects and organisms for pest management effectively. Additionally, initiatives should be pursued to investigate modern scientific approaches, including radiation-assisted methods, for experimental pest management.
- An initiative is required to establish an international market for agricultural products, ensuring fair income for farmers. Despite strong product demand, the market currently lacks a centralized system. Implementing such an initiative would enable farmers to increase their earnings and enhance agricultural productivity. Moreover, it would facilitate the processing and scientific packaging of agricultural produce for market distribution. Key components of this initiative could include the development of regional storage, processing, and marketing facilities for organic produce. This would allow farmers the opportunity to sell stored produce profitably based on prevailing market conditions.
- Establishing a system to ensure equitable pricing and the marketing of organic agricultural produce through social media and online platforms, while simultaneously providing essential traceability information, would significantly benefit farmers.
- Primary processing encompasses the transformation of organic agricultural resources into raw materials suitable for the production of diverse goods. This phase involves a series of activities including drafting, dehydrating, crushing, scraping, and descaling, with the possibility of product grading. By instituting enterprises that incorporate contemporary systems into the primary processing of organic agricultural produce, it is possible to create a spectrum of inventive products and generate employment prospects.
- Following harvest, organic agricultural produces traverse through several stages encompassing management, storage, value added processing, and distribution before reaching consumers. As a result of this progression, consumers typically acquire the produce at a notably higher price compared to the initial farm gate price. Within the domain of value added products, enterprises guided by farmers fraternity may be established, thereby enhancing farmers' income.
- Laboratories for assessing the quality, toxicity, and residual toxicity of organic agricultural produce should be established at both district and taluk levels. These facilities should be adeptly designed to provide commendable services to farmers and consumers alike, while also ensuring affordability.
- The allocation of funding towards seeds, seedlings, fertilizers, planting materials, and implements is pivotal in bolstering food security and generating employment opportunities within the agricultural sector. Consequently, the introduction of subsidies and specialized programs tailored for organic

farming is imperative. Such resource allocation should prioritize fairness, effectiveness, and outcome oriented strategies.

- A necessary mechanism ought to be instituted to guarantee adequate recompense for farmers in instances of crop damage resulting from encroachments by wild animals. It is imperative to undertake scientific investigations with equitable consideration for both the conservation of forest and wildlife resources and the sustenance of farmers` livelihoods.
- Animal and bird excreta, such as cow dung and poultry manure, are advocated as essential fertilizers for all crops due to their composition that enhances the chemical, physical, and biological properties of soil. These organic materials contain secondary and micro nutrients vital for crop development; alongside serving as crucial sources of organic matter that sustain soil dwelling microorganisms. Therefore, cow dung and bird droppings play indispensable roles in organic farming. To ensure profitability in organic farming, strategic plans for the balanced expansion of livestock and poultry are deemed imperative.
- Farmers should be provided with extensive training designed to develop integrated organic farming models that are easily accessible and applicable for them. This training should be orchestrated in conjunction with the cooperation of various governmental departments including Agriculture, Animal husbandry, Dairy development, Fisheries, Water resources, and Local self government. By embracing integrated farming practices and employing innovative agricultural methods, it becomes possible to conserve unique agricultural resources while concurrently enhancing farmers' incomes.
- Promote the comprehensive adoption and optimization of homestead farming, grow bag farming, terraced farming, high tech farming, and vertical farming, with careful adaptation to local environmental and socio economic conditions. Encourage all individuals to actively engage in the cultivation and utilization of at least one or two crops for their personal consumption.
- Additional research efforts should be prioritized in this field, with a focus on openly disseminating successful strategies to address farmers concerns regarding the effectiveness of pest management and fertilizer application without dependence on chemical pesticides. This approach is essential for sustaining high productivity levels across extensive agricultural regions.
- The agricultural sector is currently facing a crisis marked by low productivity, high production costs, shortage of labour, inadequate post-harvest management systems, and lack of accessible markets. This situation underscores the critical need for an effective system to disseminate innovative knowledge in organic farming to farmers. Addressing this need involves organizing recurrent training sessions for officials on organic farming standards, production techniques, provision of inputs compatible with new methodologies, and other technological advancements. These officials would then promptly transmit this knowledge to farmers.
- Promoting modern agricultural practices such as polyhouse and precision farming is instrumental in mitigating the impacts of climate change. It is imperative to educate the populace about advanced scientific techniques in organic farming, including vertical farming, hydroponics, and aquaponics. These innovative methods are particularly effective in urban environments and areas with

suboptimal soil conditions for conventional farming. Providing technical training can facilitate the adoption of these practices, enhancing their implementation and success.

- Farmers must receive comprehensive knowledge on the critical importance of obtaining organic certification, as well as an in-depth understanding of its potential benefits. This education should include detailed explanations of how organic certification can facilitate their access to the international organic market, thereby creating increased opportunities for income growth.
- Integrate the principles of organic farming into the foundational science syllabus of primary schools and establish organic clubs within these educational institutions. Implement organic club initiatives on fallow land adjacent to school premises, utilizing support from local authorities and employment guarantee programs. Introducing the concept of an organic farm within school premises will provide early exposure to agricultural practices centered on safe food production. This approach aims to cultivate a nuanced understanding of innovative technological solutions among children at various developmental stages.
- Establish a mechanism for the centralized procurement of organic produce, cultivated by local farmers under the administration of local self-government institutions, and further, its integration into the school lunch program will promote the development of a healthier future population. This initiative ensures equitable prices for organic farmers and strengthens connections between regional agricultural heritage, economic prosperity, and future generations.
- Consumers should be adequately informed about the nutritional content of substances found in organic products, as well as the benefits associated with their consumption. Additionally, there should be a structured approach to promoting the sale of safe products, effectively integrating the organic agriculture sector with other segments of the food industry. It is essential to develop and disseminate scientific metrics that demonstrate the feasibility of achieving safe and sustainable health by reducing air, soil, and water pollution, and minimizing residual toxins in food. Even if the cost of procuring safe food is marginally higher, it is imperative to emphasize that significant reduction in healthcare costs can be achieved by decreasing the prevalence of diseases.
- The critical issue of accumulating waste presents a significant challenge for both rural and urban areas. Although the government has implemented comprehensive mechanisms to address this issue, concerns remain regarding the capacity of these systems to manage the continuous influx of new waste generated daily. Consequently, it is essential to initiate self-employment ventures that focus on processing organic waste at its source. The organic fertilizers produced can subsequently be marketed and distributed to farmers as agricultural inputs.
- The advancement of the commercial viability of scientific organic farming in Kerala can be significantly enhanced by promoting the aggregation of adjacent farms into clusters. This approach is critical given the limited land available to individual farmers for agricultural crop production. By clustering farms, resources can be pooled, and economies of scale can be achieved, thereby improving the efficiency and profitability of organic farming practices in the region.

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Conclusion

According to the Agricultural Statistics at a Glance reports for 2021 and 2022, published by the Ministry of Agriculture, India experienced an 8.42% decline in the total utilization of NPK fertilizers from the agricultural year 2020-21 to 2021-22. This decline contrasts with the trend observed between 2016-17 and 2020-21, during which the application of chemical fertilizers per hectare of land increased annually. Specifically, Kerala recorded a significant 17.41% reduction in the gross usage of NPK fertilizers from 2020-21 to 2021-22. However, an analysis of data from 2018-19 to 2020-21 reveals a steady increase in the application of chemical fertilizers per hectare of land within the state. Furthermore, information from the official website of the Directorate of Plant Protection, Quarantine, and Storage (*www.ppqs.gov.in*), under the Union Ministry of Agriculture, indicates that India saw a 1.75% rise in the overall usage of chemical pesticides from 2020-21 to 2021-22. In contrast, Kerala experienced a 9.06% decline in chemical pesticide usage during the same period. Despite Kerala's relatively lower usage of chemical fertilizers and pesticides compared to other states, it raises many questions about whether this has a positive reflection on our food and health.

According to the provisional estimates of state income for the fiscal year 2021-22, the contribution of agriculture and allied sectors to Kerala's economy is a mere 11.06%. Notably, when considering only the crops cultivated within the state, this share diminishes to less than 5%. These statistics underscore Kerala's status as a consumer driven state, heavily dependent on food imports from other regions. Consequently, majority of food consumed in Kerala is sourced from other states, where extensive pesticide application is a common agricultural practice. From planting to harvesting, the pervasive use of these chemicals results in crops that are laden with toxins, posing significant risks to our food ecosystem and public health. In the relentless pursuit of competitiveness and innovative marketing strategies, society often fails to distinguish between beneficial and harmful products, leading to indiscriminate acceptance of various food offerings. This scenario is further exacerbated by the imperative of ensuring food security, which forces reliance on potentially hazardous food supplies. Therefore, it is imperative to prioritize the attainment of food self-sufficiency at both the state and individual levels. Achieving such standards is crucial for ensuring the availability of safe, toxin-free food, thereby protecting the health and wellbeing of the population.

The success of the Indian Green Revolution was undeniably a collaborative endeavour, encompassing the contributions of governments, numerous farmers, institutions, and scientists. Central to this collective effort was Dr. M.S. Swaminathan, whose unwavering dedication and visionary perspective served as the cornerstone of the movement. However, the aftermath of the Green Revolution has been marred by the adverse effects of excessive use of chemical fertilizer use on soil health and the environment. Criticism has emerged on several fronts, including greenhouse gas emissions, depletion of fossil fuels, destruction of local biodiversity, and the emergence of pesticide-resistant pests and pathogens. Despite these critiques, it is crucial to recognize the pressing context of the time: the Green Revolution was a crucial intervention against widespread famine threatening a significant portion of the impoverished population. Dr. M.S. Swaminathan remained acutely aware of these environmental and ecological concerns, advocating for the initiation of an *Evergreen Revolution*. This new phase emphasized agricultural practices that are sustainable and non-detrimental to soil, water, and the atmosphere. He underscored the importance of preserving traditional agricultural knowledge and biodiversity, viewing every farmer as a steward of the land, capable of contributing invaluable insights to the broader agricultural community. Consequently, the preservation of traditional agricultural techniques and biodiversity became imperative. In the debate over the future of agriculture, various alternatives to conventional modern practices have been proposed, including scientific organic farming, traditional farming, zero budget natural farming, and zero budget spiritual natural farming. Among these, the global consensus has increasingly favoured scientific organic farming as the preferred path forward.

Organic farming extends beyond a mere agricultural practice, embodying a lifestyle in harmony with nature. This approach seamlessly integrates local seasonal variations, soil composition, and ecological nuances. By adhering to natural processes and avoiding chemical interventions, organic farming achieves high yield through innovative techniques. Its objectives include enhancing soil fertility, managing pests and diseases through the use of opposite insects/natural predators, safeguarding water sources from being contaminated, promoting self-sufficiency in inputs such as seeds and fertilizers, producing high quality crops, and advocating for fair pricing of agricultural products.

In the transitional phase from conventional to organic agriculture, farmers understanding of the buffer zone surrounding their agricultural land are a crucial initial step in understanding the difference between conventional modern practices and scientific organic farming. This buffer zone is essential for preventing the infiltration of chemical fertilizers and pesticides from adjacent agricultural plots through soil, water, and wind. Given the small size of landholdings among farmers in Kerala, the importance of the buffer zone is further accentuated. It is important to note that while all forms of organic farming require a buffer zone, the necessity for such a zone may eventually dissipate as neighbouring farm fields convert to organic practices. However, a detailed analysis of survey results reveals that the farmers are currently far away in understanding and implementing buffer zones.

The fundamental components of scientific organic farming include the meticulous maintenance of comprehensive records pertaining to soil test results, as well as the documentation of agricultural crop types, their yields, and associated income within specified registers. While some farmers partially record their crop cultivation activities, a significant number fail to maintain year-by-year production data. Presently, only a minority of farmers conduct soil testing in a manner that is fully aligned with organic principles. This indicates a widespread lack of familiarity among farmers with farming methods that are responsive to variations in soil elements and the selection of suitable and profitable crops. Emphasizing scientific soil testing is crucial for enhancing agricultural productivity in specific regions and for identifying superior crop varieties. There is a pressing need to raise awareness among farmers about the importance of soil testing to promote the adoption of organic farming practices and to enhance agricultural output by preserving soil health. Despite the fact that most farmers do not engage in scientific soil testing, the trend of farmers transitioning from conventional to organic practices, as well as the entry of new farmers, reflects a positive movement towards sustainable agriculture.

Despite a significant number of farmers reporting that they have not experienced financial improvement after transitioning to organic farming, they persist in this practice to maintain soil fertility and to mitigate health and environmental issues associated with the use of chemical fertilizers and pesticides. However, many farmers who have seen financial benefits from adopting organic farming practices are those who have implemented integrated cropping and allied farming activities. There is a need for a paradigm shift in the business mindset, to recognize that profitability in organic farming extends beyond the sale of organic products. It also encompasses the positive impacts on ecosystems, soil health, water and air quality, atmospheric conditions, and the health of various organisms.

A primary factor contributing to the lack of profitability in organic farming is the substantial capital expenditure required. The procurement of seeds, fertilizers, and pesticides from external sources incurs significant costs. As labour charges increase, financial burden similarly escalate, rendering agriculture unprofitable. However, organic farming mitigates this issue by minimizing reliance on external inputs, and employing integrated farming practices. In this approach, the byproducts of one process are transformed into fertilizer for another, facilitating on-farm biomass recycling. Farms adopting this methodology cultivate a diverse range of crops, effectively eliminating the issue of waste accumulation. This strategic focus on food crops not only reduces dependency on external markets but also ensures the production of safe food. Additionally, by prioritizing the cultivation of traditional indigenous crops suitable for local conditions, organic farming contributes to the conservation of biodiversity.

There is an urgent need for the establishment of a marketplace enabling farmers to directly sell and purchase their produce, thereby eliminating intermediaries. Additionally, the provision of storage facilities is essential, allowing farmers to store their produce and await optimal market conditions, which can ensure higher prices. It is also imperative to develop a centralized system for the procurement and marketing of organic agricultural products directly from the farmers. Online platforms can significantly contribute to connect organic farmers with consumers seeking high quality products, resulting in better pricing for the farmers. Moreover, the potential of new media should be effectively utilized to disseminate knowledge and share experiences in organic agriculture.

Ensuring food security amidst diminishing agricultural land presents a substantial challenge. To mitigate our reliance on food imports, it is imperative to restore lost agricultural land and ecosystems. Achieving this objective necessitates robust policies, meticulous planning, and unwavering commitment. The success of the Green Revolution in our nation can be primarily attributed to the vigilant and proactive stance of the governmental apparatus. The introduction of irrigation systems enabled regions previously dependent on rainwater to cultivate crops multiple times a year. Consequently, farmers responded by increasing production, particularly when government operated storage facilities provided subsidized prices for stored food grains. Additionally, the provision of fertilizers, pesticides, and hybrid seeds at no cost, alongside the establishment of public distribution systems, significantly bolstered agricultural output. Numerous research centres were established to develop innovative seeds and technologies, supported by various subsidies tailored to different crops. In regions like Kerala, where policies favoured cash and plantation crops, there was a marked increase in production and expansion, prompting some farmers to transit away from food cultivation. While this shift bolstered the economy, it underscored the need to sustainably maintain food production and enhance productivity. The Green Revolution has played a pivotal role in mitigating hunger, the most acute form of poverty. Moving forward, it is imperative to pursue safe and sustainable food production through enduring measures aimed at preserving existing agricultural capacities while fostering productivity growth.

Fertilizers and pesticides are predominantly derived from non-renewable fossil fuel resources, and their eventual depletion will inevitably impact the future availability, cost, and manufacturing processes of these critical agricultural inputs. Recent global events, such as the conflict between Russia and Ukraine, have highlighted the agricultural sector's vulnerability. Consequently, there is an urgent need to adopt sustainable farming practices to meet the demands of a growing population. Organic agriculture, in particular, must be promoted to ensure the production of high quality, safe food while protecting the environment and ecosystems. Prioritizing the provision of safe and nutritious food is crucial in an evolving world, underscoring the importance of product quality. Masanobu Fukuoka, a distinguished Japanese researcher in organic farming, emphasizes these principles.

For humanity's survival, we should return to nature. It is humanity that is destroying forests, springs, and the fertility of the earth. Such environmental destruction should be stopped if all living organisms, including humanity, are to be saved. Organic manures are an elixir to the soil deadened by the use of chemical fertilizers. They

catalyze life and retain the fertility of the soil. Our aim should be to make land cultivable rather than a desert.

These words should serve as a source of inspiration for everyone.

Enhancing productivity on existing agricultural lands and reclaiming fallow regions for agricultural use are critical priorities given the increasing difficulty of expanding agricultural territories. Concurrently, ensuring food safety without compromising public health remains essential. Therefore, the introduction of an agricultural system that integrates these objectives is imperative. Emphasis must be placed on advancing scientific organic farming practices and providing comprehensive education and training for farmers to fully understand the principles of organic agriculture. The initial phase should involve implementing organic farming techniques on fallow lands to demonstrate their viability. This should be followed by promoting rigorous research and experimentation to develop practical strategies for transitioning conventional agricultural lands to organic farming practices.

To ensure the profitability and sustainability of the agricultural sector, it is imperative to transform from the traditional mindset that farming is exclusively the responsibility of farmers. Engagement in agricultural activities should be encouraged among individuals from diverse sectors, even if only on a small scale. Given the land distribution patterns in Kerala, the concept of widespread participation in agriculture, regardless of scale, is particularly pertinent. Promoting the ownership of small organic farms can contribute to the availability of safe food and the promotion of good health. This paradigm shift aims to rejuvenate a cultural reverence and conscientiousness towards the land and agricultural practices, which have become somewhat detached from contemporary daily life. The insights obtained from this survey are anticipated to be invaluable for policymakers and well wishers of organic agriculture, facilitating the development of innovative and scientifically sound policies and guidelines...

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ANNEXURES

District Level Information,

Survey Questionnaire,

Field Snapshots

Appendix Table 1.1: Details of organic farmers selected for the survey at Krishi Bhavan level

Serial No.	District	No. of Krishi Bhavans	Number of Krishi Bhavans forwarded the list of organic farmers	Number of farmers in organic farmer list	Number of organic farmers selected for the survey as per methodology*
1	Thiruvananthapuram	89	72	539	122
2	Kollam	78	77	1357	281
3	Pathanamthitta	57	57	875	175
4	Alappuzha	78	75	588	146
5	Kottayam	79	40	293	70
6	Idukki	54	52	1179	225
7	Ernakulam	97	97	865	176
8	Thrissur	105	105	873	192
9	Palakkad	95	50	1876	340
10	Malappuram	108	94	1138	236
11	Kozhikode	81	81	711	157
12	Wayanad	26	26	787	166
13	Kannur	88	77	594	136
14	Kasaragod	41	33	631	132
Total		**1076**	**936**	**12306**	**2554**

*Selection Procedure

Circular systematic sampling method was adopted to select 20% of farmers from each Krishi Bhavan, using Column 5 of Random Sampling Number table provided by National Statistical Office (NSO).

Eg:- Suppose there are 42 (N : Population Size) organic farmers in a Krishi Bhavan.

To be selected	=	20% of 42
	=	8.4
	≈	8 (n: Sample size)(rounded to nearest integer)
Sampling interval (I)	=	Population size ÷ Sample size= 42 ÷ 8
	=	5.2
Sampling Interval (I)	=	5 (rounded to nearest integer)
Random Start (R) (Column 5) Two digit Random Number	≤	42 (Population Size)
	=	13, 20
First unit selected	=	Organic farmer with the serial number 13.
Second unit selected	=	Random start(R)+ Sampling Interval (I)
	=	13+5=18
Sampling Units	=	13,18,23,28,33,38,43(43-42=1), 6
Serial numbers of farmers who are to be selected	=	1, 6, 13, 18, 23, 28, 33, 38

The organic farmers identified by the serial numbers mentioned above were selected for the survey at the specified Krishi Bhavan. Following that, organic farmers at subsequent Krishi Bhavans were selected using subsequent random sampling numbeRs

Appendix Table 2.1: Educational qualifications of organic farmers

Serial No.	District	Farmer count	Education qualifications											
			Below 10th standard		SSLC		Pre-degree/ Plus two		Graduation		Post-Graduation		Professional degree	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	41	33.61	37	30.33	25	20.49	10	8.20	4	3.28	5	4.10
2	Kollam	281	37	13.17	115	40.93	72	25.62	39	13.88	13	4.63	5	1.78
3	Pathanamthitta	175	38	21.71	58	33.14	27	15.43	24	13.71	7	4.00	21	12.00
4	Alappuzha	146	45	30.82	43	29.45	23	15.75	19	13.01	2	1.37	14	9.59
5	Kottayam	70	12	17.14	16	22.86	16	22.86	14	20.00	5	7.14	7	10.00
6	Idukki	225	99	44.00	59	26.22	34	15.11	18	8.00	9	4.00	6	2.67
7	Ernakulam	176	51	28.98	40	22.73	31	17.61	30	17.05	7	3.98	17	9.66
8	Thrissur	192	34	17.71	57	29.69	31	16.15	37	19.27	9	4.69	24	12.50
9	Palakkad	340	233	68.53	53	15.59	15	4.41	24	7.06	2	0.59	13	3.82
10	Malappuram	236	77	32.63	72	30.51	23	9.75	25	10.59	19	8.05	20	8.47
11	Kozhikode	157	69	43.95	37	23.57	20	12.74	22	14.01	4	2.55	5	3.18
12	Wayanad	166	62	37.35	51	30.72	29	17.47	14	8.43	4	2.41	6	3.61
13	Kannur	136	36	26.47	39	28.68	30	22.06	20	14.71	4	2.94	7	5.15
14	Kasaragod	132	61	46.21	26	19.70	24	18.18	12	9.09	4	3.03	5	3.79
Total		**2554**	**895**	**35.04**	**703**	**27.53**	**400**	**15.66**	**308**	**12.06**	**93**	**3.64**	**155**	**6.07**

Appendix Table 2.2: Total agricultural land and organic agricultural land of organic farmers

Serial No.	District	Farmer count	Total agricultural land (In cents)	Average total agricultural land (In cents)	Extent of land and number of farmers						Organic agricultural land (In cents)			Percentage of organic farming land in total agricultural land	Percentage of own land in total organic land	Percentage of leased land in total organic land	Average organic agricultural land (In cents)		
					Less than 5 cents	5 to less than 50 cents	50 to less than 100 cents	100 to less than 200 cents	200 to less than 250 cents	More than 250 cents	Total	Own	Leased				Total	Own	Leased
1	Thiruvananthapuram	122	25903	212.32	0	18	20	41	15	28	20107	11001	9106	77.62	54.71	45.29	164.81	90.17	74.64
2	Kollam	281	42611	151.64	0	53	85	66	23	54	22337	17399	4938	52.42	77.89	22.11	79.49	61.92	17.57
3	Pathanamthitta	175	47180	269.60	0	6	24	54	28	63	15491	13941	1550	32.83	89.99	10.01	88.52	79.66	8.86
4	Alappuzha	146	42285	289.62	0	34	33	31	10	38	16013	11640	4373	37.87	72.69	27.31	109.68	79.73	29.95
5	Kottayam	70	23567	336.67	0	1	5	13	9	42	12504	9519	2985	53.06	76.13	23.87	178.63	135.99	42.64
6	Idukki	225	54285	241.27	0	38	22	51	24	90	36165	32945	3220	66.62	91.10	8.90	160.73	146.42	14.31
7	Ernakulam	176	40814	231.90	1	31	29	49	13	53	21585	16208	5377	52.89	75.09	24.91	122.64	92.09	30.55
8	Thrissur	192	43749	227.86	0	38	39	52	8	55	28624	19214	9410	65.43	67.13	32.87	149.08	100.07	49.01
9	Palakkad	340	114612	337.09	0	9	27	81	61	162	78912	74814	4098	68.85	94.81	5.19	232.09	220.04	12.05
10	Malappuram	236	75869	321.48	0	52	29	51	14	90	45010	34963	10047	59.33	77.68	22.32	190.72	148.15	42.57
11	Kozhikode	157	37339	237.83	0	14	35	45	5	58	27662	20988	6674	74.08	75.87	24.13	176.19	133.68	42.51
12	Wayanad	166	51328	309.20	0	6	24	33	27	76	35970	34819	1151	70.08	96.80	3.20	216.69	209.75	6.93
13	Kannur	136	28073	206.42	0	18	26	34	15	43	24449	18068	6381	87.09	73.90	26.10	179.77	132.85	46.92
14	Kasaragod	132	39922	302.44	0	6	17	35	17	57	35465	27791	7674	88.84	78.36	21.64	268.67	210.54	58.14
Total count/Land/Average/ Percentage		**2554**	**667537**	**261.37***	**1**	**324**	**415**	**636**	**269**	**909**	**420294**	**343310**	**76984**	**62.96**	**81.68**	**18.32**	**164.56***	**134.42***	**30.14***
Total percentage		**100**			**0.04**	**12.69**	**16.25**	**24.90**	**10.53**	**35.59**									

* The calculation is based on the total agricultural land and the total land extent under organic farming of 2554 organic farmeRs A comparison with the average of the district averages shows a slight difference.

Appendix Table 2.3: Tenancy status of organic farming land by extent of land

Serial No.	District	Farmer count	Ownership (Mutually exclusive events)			Tenancy status and farmers in terms of extent of land																				
			Farmer count			Less than 5 cents			5 to less than 50 cents			50 to less than 100 cents			100 to less than 200 cents			200 to less than 250 cents			More than 250 cents			Total		
			Own	Leased	Own & Leased	Own	Leased	Total*	Own	Leased	Total*	Own	Leased	Total*	Own	Leased	Total*	Own	Leased	Total*	Own	Leased	Total*	Own	Leased	Total*
1	Thiruvananthapuram	122	76	15	31	0	0	0	39	8	27	25	13	30	29	12	34	7	7	14	7	6	17	107	46	122
2	Kollam	281	218	17	46	0	0	0	137	24	117	74	20	88	35	12	49	10	5	13	8	2	14	264	63	281
3	Pathanamthitta	175	151	9	15	0	0	0	69	10	67	53	8	56	28	5	34	8	1	9	8	0	9	166	24	175
4	Alappuzha	146	107	14	25	0	0	0	57	12	50	38	10	44	19	11	28	6	2	7	12	4	17	132	39	146
5	Kottayam	70	55	8	7	0	0	0	12	0	11	12	3	12	17	8	21	11	1	12	10	3	14	62	15	70
6	Idukki	225	181	37	7	0	0	0	28	28	54	48	5	53	61	6	59	16	1	19	35	4	40	188	44	225
7	Ernakulam	176	140	15	21	1	0	1	50	10	48	47	8	50	41	9	45	8	3	10	14	6	22	161	36	176
8	Thrissur	192	138	14	40	1	0	0	63	19	57	48	11	47	34	13	45	8	2	8	24	9	35	178	54	192
9	Palakkad	340	324	4	12	0	0	0	22	2	22	52	2	48	110	9	110	64	1	65	88	2	95	336	16	340
10	Malappuram	236	201	7	28	2	1	0	84	6	75	53	3	49	45	11	52	11	4	14	34	10	46	229	35	236
11	Kozhikode	157	117	12	28	1	0	0	28	11	24	43	10	37	37	10	48	9	1	11	27	8	37	145	40	157
12	Wayanad	166	157	1	8	1	0	1	17	3	17	30	2	30	46	2	44	25		25	46	2	49	165	9	166
13	Kannur	136	91	8	37	0	0	0	37	12	26	26	8	24	38	13	38	7	6	13	20	6	35	128	45	136
14	Kasaragod	132	111	1	20	0	0	0	11	0	7	24	4	22	40	4	39	12	6	14	44	7	50	131	21	132
Total count		**2554**	**2067**	**162**	**325**	**6**	**1**	**2**	**654**	**145**	**602**	**573**	**107**	**590**	**580**	**125**	**646**	**202**	**40**	**234**	**377**	**69**	**480**	**2392**	**487**	**2554**
Total percentage		**100**	**80.93**	**6.34**	**12.73**	**0.25**	**0.21**	**0.08**	**27.34**	**29.77**	**23.57**	**23.96**	**21.97**	**23.10**	**24.25**	**25.67**	**25.29**	**8.44**	**8.21**	**9.16**	**15.76**	**14.17**	**18.80**	**100**	**100**	**100**

* Total includes own land and leased land

Appendix Table 2.4: Information on organic farming land based on terrain

Serial No.	District	Farmer count	Midland		Lowland		Highland		Midland & Lowland		Midland & Highland		Lowland & Highland		Midland, Lowland & Highland	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	82	67.21	28	22.95	18	14.75	2	1.64	2	1.64	3	2.46	1	0.82
2	Kollam	281	154	54.80	109	38.79	37	13.17	16	5.69	0	0.00	3	1.07	0	0.00
3	Pathanamthitta	175	127	72.57	57	32.57	24	13.71	32	18.29	1	0.57	0	0.00	0	0.00
4	Alappuzha	146	108	73.97	65	44.52	0	0.00	27	18.49	0	0.00	0	0.00	0	0.00
5	Kottayam	70	27	38.57	18	25.71	36	51.43	3	4.29	6	8.57	2	2.86	0	0.00
6	Idukki	225	38	16.89	25	11.11	164	72.89	0	0.00	2	0.89	0	0.00	0	0.00
7	Ernakulam	176	118	67.05	66	37.50	8	4.55	13	7.39	2	1.14	2	1.14	1	0.57
8	Thrissur	192	166	86.46	35	18.23	10	5.21	14	7.29	3	1.56	3	1.56	1	0.52
9	Palakkad	340	181	53.24	37	10.88	136	40.00	1	0.29	9	2.65	4	1.18	0	0.00
10	Malappuram	236	208	88.14	18	7.63	33	13.98	9	3.81	9	3.81	8	3.39	3	1.27
11	Kozhikode	157	131	83.44	2	1.27	32	20.38	2	1.27	6	3.82	0	0.00	0	0.00
12	Wayanad	166	30	18.07	34	20.48	132	79.52	1	0.60	9	5.42	20	12.05	0	0.00
13	Kannur	136	92	67.65	3	2.21	41	30.15	0	0.00	0	0.00	0	0.00	0	0.00
14	Kasaragod	132	87	65.91	19	14.39	31	23.48	4	3.03	0	0.00	1	0.76	0	0.00
Total		**2554**	**1549**	**60.65**	**516**	**20.20**	**702**	**27.49**	**124**	**4.86**	**49**	**1.92**	**46**	**1.80**	**6**	**0.23**

Appendix Table 2.5: Information on organic farming land based on terrain- Mutually exclusive events

Serial No.	District	Farmer count	Midland		Lowland		Highland		Midland & Lowland		Midland & Highland		Lowland & Highland		Midland, Lowland & Highland	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	79	64.75	24	19.67	14	11.48	1	0.82	1	0.82	2	1.64	1	0.82
2	Kollam	281	138	49.11	90	32.03	34	12.10	16	5.69	0	0.00	3	1.07	0	0.00
3	Pathanamthitta	175	94	53.71	25	14.29	23	13.14	32	18.29	1	0.57	0	0.00	0	0.00
4	Alappuzha	146	81	55.48	38	26.03	0	0.00	27	18.49	0	0.00	0	0.00	0	0.00
5	Kottayam	70	18	25.71	13	18.57	28	40.00	3	4.29	6	8.57	2	2.86	0	0.00
6	Idukki	225	36	16.00	25	11.11	162	72.00	0	0.00	2	0.89	0	0.00	0	0.00
7	Ernakulam	176	104	59.09	52	29.55	5	2.84	12	6.82	1	0.57	1	0.57	1	0.57
8	Thrissur	192	150	78.13	19	9.90	5	2.60	13	6.77	2	1.04	2	1.04	1	0.52
9	Palakkad	340	171	50.29	32	9.41	123	36.18	1	0.29	9	2.65	4	1.18	0	0.00
10	Malappuram	236	193	81.78	4	1.69	19	8.05	6	2.54	6	2.54	5	2.12	3	1.27
11	Kozhikode	157	123	78.34	0	0.00	26	16.56	2	1.27	6	3.82	0	0.00	0	0.00
12	Wayanad	166	20	12.05	13	7.83	103	62.05	1	0.60	9	5.42	20	12.05	0	0.00
13	Kannur	136	92	67.65	3	2.21	41	30.15	0	0.00	0	0.00	0	0.00	0	0.00
14	Kasaragod	132	83	62.88	14	10.61	30	22.73	4	3.03	0	0.00	1	0.76	0	0.00
Total		**2554**	**1382**	**54.11**	**352**	**13.78**	**613**	**24.00**	**118**	**4.62**	**43**	**1.68**	**40**	**1.57**	**6**	**0.24**

Appendix Table 3.1: Duration of experience in modern agriculture and keeping of basic records in organic farming

Serial No.	District	Farmer count	Farmers and Duration for which modern agriculture is followed						Farmers and Keeping of records													
									Production				Soil test						Crop information			
			Less than 3 years		More than 3 years		Organic farming from scratch		Available		Not available		Available		Not available		Partially available		Available		Not available	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	4	3.28	88	72.13	30	24.59	17	13.93	105	86.07	7	5.74	110	90.16	5	4.10	16	13.11	106	86.89
2	Kollam	281	25	8.90	227	80.78	29	10.32	101	35.94	180	64.06	8	2.85	267	95.02	6	2.14	138	49.11	143	50.89
3	Pathanamthitta	175	15	8.57	154	88.00	6	3.43	141	80.57	34	19.43	6	3.43	168	96.00	1	0.57	158	90.29	17	9.71
4	Alappuzha	146	7	4.79	84	57.53	55	37.67	3	2.05	143	97.95	3	2.05	141	96.58	2	1.37	5	3.42	141	96.58
5	Kottayam	70	6	8.57	58	82.86	6	8.57	11	15.71	59	84.29	3	4.29	65	92.86	2	2.86	13	18.57	57	81.43
6	Idukki	225	6	2.67	80	35.56	139	61.78	71	31.56	154	68.44	4	1.78	209	92.89	12	5.33	165	73.33	60	26.67
7	Ernakulam	176	2	1.14	105	59.66	69	39.20	2	1.14	174	98.86	0	0.00	175	99.43	1	0.57	11	6.25	165	93.75
8	Thrissur	192	6	3.13	113	58.85	73	38.02	31	16.15	161	83.85	4	2.08	182	94.79	6	3.13	79	41.15	113	58.85
9	Palakkad	340	12	3.53	160	47.06	168	49.41	45	13.24	295	86.76	5	1.47	331	97.35	4	1.18	236	69.41	104	30.59
10	Malappuram	236	13	5.51	139	58.90	84	35.59	23	9.75	213	90.25	6	2.54	229	97.03	1	0.42	42	17.80	194	82.20
11	Kozhikode	157	3	1.91	111	70.70	43	27.39	9	5.73	148	94.27	7	4.46	150	95.54	0	0.00	156	99.36	1	0.64
12	Wayanad	166	8	4.82	142	85.54	16	9.64	61	36.75	105	63.25	9	5.42	149	89.76	8	4.82	148	89.16	18	10.84
13	Kannur	136	5	3.68	75	55.15	56	41.18	9	6.62	127	93.38	2	1.47	132	97.06	2	1.47	12	8.82	124	91.18
14	Kasaragod	132	5	3.79	111	84.09	16	12.12	88	66.67	44	33.33	6	4.55	123	93.18	3	2.27	116	87.88	16	12.12
Total		**2554**	**117**	**4.58**	**1647**	**64.49**	**790**	**30.93**	**612**	**23.96**	**1942**	**76.04**	**70**	**2.74**	**2431**	**95.18**	**53**	**2.08**	**1295**	**50.70**	**1259**	**49.30**

Appendix Table 3.2: Buffer zone in organic agricultural land and duration of organic farming

Serial No.	District	Farmer count	Buffer zone and Farmers																Organic farming period and Farmers					
			Availibility				If available- Type				If Man made- Width (In meters)													
			Available		Not available		Man made		Natural		Less than 2		2 to less than 4		4 to less than 6		More than 6		Less than 3 years		3 to 5 years		More than 5 years	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	1	0.82	121	99.18	0	0.00	1	100.00	0	#	0	#	0	#	0	#	11	9.02	35	28.69	76	62.3
2	Kollam	281	0	0	281	100	0	#	0	#	0	#	0	#	0	#	0	#	40	14.23	75	26.69	166	59.07
3	Pathanamthitta	175	0	0	175	100	0	#	0	#	0	#	0	#	0	#	0	#	14	8	53	30.29	108	61.71
4	Alappuzha	146	1	0.68	145	99.32	1	100.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	30	20.55	15	10.27	101	69.18
5	Kottayam	70	3	4.29	67	95.71	2	66.67	1	33.33	0	0.00	1	50.00	1	50.00	1	50.00	7	10	26	37.14	37	52.86
6	Idukki	225	1	0.44	224	99.56	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	70	31.11	39	17.33	116	51.56
7	Ernakulam	176	0	0	176	100	0	#	0	#	0	#	0	#	0	#	0	#	22	12.5	45	25.57	109	61.93
8	Thrissur	192	6	3.13	186	96.88	1	16.67	5	83.33	0	0.00	1	100.00	1	100.00	0	0.00	16	8.33	40	20.83	136	70.83
9	Palakkad	340	7	2.06	333	97.94	2	28.57	5	71.43	1	50.00	0	0.00	0	0.00	1	50.00	53	15.59	39	11.47	248	72.94
10	Malappuram	236	1	0.42	235	99.58	1	100.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	28	11.86	45	19.07	163	69.07
11	Kozhikode	157	11	7.01	146	92.99	0	0.00	11	100.00	0	#	0	#	0	#	0	#	17	10.83	27	17.2	113	71.97
12	Wayanad	166	4	2.41	162	97.59	2	50.00	2	50.00	2	100.00	0	0.00	0	0.00	0	0.00	20	12.05	30	18.07	116	69.88
13	Kannur	136	30	22.1	106	77.94	0	0.00	30	100.00	0	#	0	#	0	#	0	#	16	11.76	23	16.91	97	71.32
14	Kasaragod	132	14	10.6	118	89.39	0	0.00	14	100.00	0	#	0	#	0	#	0	#	12	9.09	50	37.88	70	53.03
Total		**2554**	**79**	**3.09**	**2475**	**96.91**	**10**	**12.66**	**69**	**87.34**	**4**	**40.00**	**1**	**10.00**	**3**	**30.00**	**2**	**20.00**	**356**	**13.94**	**542**	**21.22**	**1656**	**64.84**

It is not defined, so it is not applicable.

Appendix Table 4.1: Extent of plots where long term crops were cultivated as single crop and No. of years being farmed

Serial No.	District	Farmer count	No. of Plots	Extent of plots (In cents)																							
				< 5				5 - 50				50 - 100				100 - 200				200 - 250				> 250			
				No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total
				Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5	
1	Thiruvananthapuram	85	227	3	9	25	37	10	30	113	153	3	2	17	22	0	3	7	10	0	0	3	3	2	0	0	2
2	Kollam	81	151	8	0	10	18	35	36	47	118	4	3	2	9	1	2	2	5	1	0	0	1	0	0	0	0
3	Pathanamthitta	10	16	0	1	0	1	2	4	8	14	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Alappuzha	3	3	0	0	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Kottayam	15	21	1	0	0	1	4	2	4	10	2	1	1	4	1	0	3	4	0	1	0	1	1	0	0	1
6	Idukki	25	29	1	4	3	8	5	4	8	17	0	1	1	2	1	0	0	1	0	0	0	0	0	0	1	1
7	Ernakulam	35	80	2	7	6	15	17	8	25	50	0	0	9	9	0	0	4	4	0	0	0	0	0	1	1	2
8	Thrissur	3	4	0	2	0	2	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
9	Palakkad	81	203	1	0	17	18	5	16	94	115	2	4	32	38	1	2	19	22	1	0	1	2	0	0	8	8
10	Malappuram	39	62	0	3	2	5	4	6	27	37	2	4	8	14	1	1	2	4	0	0	1	1	0	0	1	1
11	Kozhikode	11	12	0	0	0	0	2	1	2	5	1	0	3	4	0	1	2	3	0	0	0	0	0	0	0	0
12	Wayanad	3	3	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0
13	Kannur	47	64	0	1	0	1	1	7	24	32	1	0	11	12	0	0	14	14	0	0	4	4	0	0	1	1
14	Kasaragod	24	31	0	0	0	0	7	0	4	11	2	2	2	6	2	5	3	10	0	1	0	1	0	0	3	3
Total count		462	906	17	27	64	108	92	114	358	564	19	18	86	123	7	15	57	79	2	2	9	13	3	1	15	19
Total percentage			100	1.88	2.98	7.06	11.92	10.15	12.58	39.51	62.25	2.10	1.99	9.49	13.58	0.77	1.66	6.29	8.72	0.22	0.22	0.99	1.43	0.33	0.11	1.66	2.10

Appendix Table 4.2: Crop wise extent of plots where long term crops were cultivated as single crop and No. of years being farmed

Kerala																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Sugarcane	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2	Black Pepper	23	0	0	3	0	1	13	1	0	2	0	1	0	0	1	0	0	0	1
3	Ginger	32	2	4	7	5	2	12	0	0	0	0	0	0	0	0	0	0	0	0
4	Turmeric	29	3	3	1	3	3	14	0	0	2	0	0	0	0	0	0	0	0	0
5	Cardamom	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
6	Arecanut	44	0	0	3	0	4	19	1	3	10	0	0	2	1	0	1	0	0	0
7	Tamarind	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Malabar Tamarind/ Brindle Berry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Vanilla	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Nutmeg Fruit	9	0	0	0	1	2	3	0	1	1	0	0	1	0	0	0	0	0	0
11	Cinnamon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other spices	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Cashew	19	0	0	0	1	1	8	0	0	4	1	0	4	0	0	0	0	0	0
14	Jack Fruit	9	0	0	1	0	1	5	1	0	0	1	0	0	0	0	0	0	0	0
15	Pomegranate	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Guava	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
18	Passion Fruit	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Mangosteen	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Strawberry	7	0	0	3	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
21	Rambutan	15	0	4	0	3	3	2	0	2	0	1	0	0	0	0	0	0	0	0
22	Mango	15	0	1	3	0	1	9	0	0	1	0	0	0	0	0	0	0	0	0
23	Banana	175	1	3	5	21	39	68	7	4	13	0	4	7	0	0	1	1	1	0
24	Other plantain	156	1	2	7	19	29	73	4	3	9	0	0	7	0	0	0	1	0	1
25	Pineapple	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

26	Pappaya	9	1	0	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0
27	Lemon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Dragon Fruit	4	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
29	Other fruits	3	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
30	Tapioca	56	0	2	3	9	10	23	1	0	5	0	0	1	0	0	1	1	0	0
31	Elephant Yam	30	1	4	5	6	3	10	0	0	1	0	0	0	0	0	0	0	0	0
32	Colocasia	20	1	2	3	3	1	10	0	0	0	0	0	0	0	0	0	0	0	0
33	Purple Yam/Kachil	7	3	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
34	Lesser Yam	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
35	Other tuber crops	5	1	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0
36	Drumstick	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Coconut	121	0	0	4	5	7	53	0	5	24	0	4	15	0	0	0	0	0	4
38	Betel Leaves	12	1	1	1	2	3	4	0	0	0	0	0	0	0	0	0	0	0	0
39	Coffee	5	0	0	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0	0
40	Cocoa	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
41	Rubber	73	0	0	1	1	1	13	3	0	13	1	5	19	0	1	6	0	0	9
42	Other medicinal plants	5	0	0	2	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Total		**906**	**17**	**27**	**64**	**92**	**114**	**358**	**19**	**18**	**86**	**7**	**15**	**57**	**2**	**2**	**9**	**3**	**1**	**15**

Appendix Table 4.2.1: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Thiruvananthapuram

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Ginger	18	0	2	3	1	2	10	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	16	0	1	1	0	3	9	0	0	2	0	0	0	0	0	0	0	0	0
4	Malabar Tamarind/ Brindle Berry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Jack Fruit	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	Guava	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

7	Rambutan	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Mango	3	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9	Banana	52	1	1	2	1	8	24	1	1	6	0	3	3	0	0	1	0	0	0
10	Other plantain	38	0	0	3	1	7	18	2	1	2	0	0	3	0	0	0	1	0	0
11	Pineapple	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12	Pappaya	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Lemon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Dragon Fruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Other fruits	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Tapioca	36	0	1	1	3	7	17	0	0	4	0	0	1	0	0	1	1	0	0
17	Elephant Yam	11	0	1	2	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0
18	Colocasia	12	0	1	2	1	1	7	0	0	0	0	0	0	0	0	0	0	0	0
19	Purple Yam/Kachil	3	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20	Lesser Yam	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	Other tuber crops	4	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
22	Coconut	15	0	0	3	1	0	10	0	0	1	0	0	0	0	0	0	0	0	0
23	Rubber	5	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	0	0
Total		**227**	**3**	**9**	**25**	**10**	**30**	**113**	**3**	**2**	**17**	**0**	**3**	**7**	**0**	**0**	**3**	**2**	**0**	**0**

Appendix Table 4.2.2: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Kollam

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Sugarcane	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2	Black Pepper	4	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0
3	Ginger	5	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Turmeric	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5	Jack Fruit	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Mango	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Banana	53	0	0	0	12	18	19	1	2	0	0	0	1	0	0	0	0	0	0
8	Other plantain	54	0	0	1	14	15	21	0	1	2	0	0	0	0	0	0	0	0	0
9	Pappaya	3	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
10	Tapioca	8	0	0	2	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0
11	Elephant Yam	4	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Colocasia	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Purple Yam/Kachil	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Other tuber crops	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
15	Coconut	4	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0
16	Betel Leaves	5	1	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Total		**151**	**8**	**0**	**10**	**35**	**36**	**47**	**4**	**3**	**2**	**1**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.3: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Pathanamthitta																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Nutmeg Fruit	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
3	Banana	7	0	0	0	1	1	5	0	0	0	0	0	0	0	0	0	0	0	0
4	Other plantain	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Betel Leaves	5	0	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**16**	**0**	**1**	**0**	**2**	**4**	**8**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.4: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Alappuzha

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Sugarcane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Banana	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Betel Leaves	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**3**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.5: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Kottayam

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
2	Nutmeg Fruit	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
3	Rambutan	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4	Banana	4	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0
5	Other plantain	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
6	Pappaya	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Dragon Fruit	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Rubber	7	0	0	0	0	1	4	0	0	1	0	0	1	0	0	0	0	0	0
9	Other medicinal plants	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Total		**21**	**1**	**0**	**0**	**4**	**2**	**4**	**2**	**1**	**1**	**1**	**0**	**3**	**0**	**1**	**0**	**1**	**0**	**0**

Appendix Table 4.2.6: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Idukki

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	3	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
2	Cardamom	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Vanilla	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Passion Fruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Mangosteen	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Strawberry	7	0	0	3	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
7	Rambutan	12	0	4	0	2	3	1	0	1	0	1	0	0	0	0	0	0	0	0
8	Pappaya	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**29**	**1**	**4**	**3**	**5**	**4**	**8**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

Appendix Table 4.2.7: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Ernakulam

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Ginger	6	0	1	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Turmeric	6	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4	Nutmeg Fruit	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Other spices	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6	Passion Fruit	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Mango	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Banana	17	0	1	2	2	3	5	0	0	2	0	0	1	0	0	0	0	1	0
9	Other plantain	16	1	1	0	2	2	7	0	0	3	0	0	0	0	0	0	0	0	0
10	Tapioca	5	0	0	0	2	1	1	0	0	1	0	0	0	0	0	0	0	0	0
11	Elephant Yam	11	0	2	1	3	2	2	0	0	1	0	0	0	0	0	0	0	0	0
12	Colocasia	3	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Purple Yam/Kachil	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Coconut	7	0	0	0	0	0	4	0	0	1	0	0	1	0	0	0	0	0	1
15	Cocoa	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
16	Rubber	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Total		**80**	**2**	**7**	**6**	**17**	**8**	**25**	**0**	**0**	**9**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**1**

Appendix Table 4.2.8: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Thrissur

Serial No.	**Crop Name**	**No. of Plots**	**Extent of plots (In cents)**																	
			< 5			**5 - 50**			**50 - 100**			**100 - 200**			**200 - 250**			**> 250**		
			Year			**Year**			**Year**			**Year**			**Year**			**Year**		
			< 3	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**
1	Sugarcane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Ginger	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Rubber	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Total		**4**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.9: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Palakkad																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	12	0	0	3	0	1	7	0	0	1	0	0	0	0	0	0	0	0	0
2	Turmeric	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Cardamom	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	33	0	0	2	0	3	16	0	2	7	0	0	2	1	0	0	0	0	0
5	Tamarind	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Nutmeg Fruit	5	0	0	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0
7	Cinnamon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cashew	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
9	Jack Fruit	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
10	Pomegranate	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Guava	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	Mango	8	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	0	0	0
14	Banana	16	0	0	1	2	3	4	1	1	2	0	1	1	0	0	0	0	0	0
15	Other plantain	36	0	0	3	0	2	23	1	1	1	0	0	4	0	0	0	0	0	1
16	Pappaya	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Other fruits	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Tapioca	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19	Drumstick	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Coconut	61	0	0	0	2	5	23	0	0	16	0	1	11	0	0	0	0	0	3
21	Betel Leaves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Coffee	4	0	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0
23	Cocoa	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
24	Rubber	8	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	4
25	Other medicinal plants	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**203**	**1**	**0**	**17**	**5**	**16**	**94**	**2**	**4**	**32**	**1**	**2**	**19**	**1**	**0**	**1**	**0**	**0**	**8**

Appendix Table 4.2.10: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Malappuram

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Ginger	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Turmeric	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	5	0	0	0	0	1	1	0	1	1	0	0	0	0	0	1	0	0	0
4	Jack Fruit	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
5	Banana	10	0	0	0	1	2	5	1	0	1	0	0	0	0	0	0	0	0	0
6	Other plantain	7	0	1	0	0	3	2	0	0	1	0	0	0	0	0	0	0	0	0
7	Pappaya	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Dragon Fruit	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9	Tapioca	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	Elephant Yam	3	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
11	Colocasia	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
12	Coconut	15	0	0	0	0	0	8	0	3	3	0	1	0	0	0	0	0	0	0
13	Rubber	8	0	0	1	0	0	2	0	0	2	0	0	2	0	0	0	0	0	1
14	Other medicinal plants	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**62**	**0**	**3**	**2**	**4**	**6**	**27**	**2**	**4**	**8**	**1**	**1**	**2**	**0**	**0**	**1**	**0**	**0**	**1**

Appendix Table 4.2.11: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Kozhikode

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Mango	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Banana	3	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
3	Other plantain	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Coconut	6	0	0	0	1	0	2	0	0	1	0	1	1	0	0	0	0	0	0
5	Rubber	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Total		**12**	**0**	**0**	**0**	**2**	**1**	**2**	**1**	**0**	**3**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.12: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Wayanad

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Purple Yam/Kachil	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Coffee	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
3	Rubber	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Total		**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.2.13: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Kannur

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Cashew	13	0	0	0	0	0	5	0	0	4	0	0	4	0	0	0	0	0	0
4	Mango	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5	Banana	12	0	1	0	0	4	5	1	0	1	0	0	0	0	0	0	0	0	0
6	Tapioca	4	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Coconut	8	0	0	0	0	1	4	0	0	2	0	0	1	0	0	0	0	0	0
8	Rubber	23	0	0	0	0	0	5	0	0	4	0	0	9	0	0	4	0	0	1
Total		**64**	**0**	**1**	**0**	**1**	**7**	**24**	**1**	**0**	**11**	**0**	**0**	**14**	**0**	**0**	**4**	**0**	**0**	**1**

Appendix Table 4.2.14: Crop wise extent of plots in which long term crops were cultivated as single crop and No. of years being farmed- District wise details

District: Kasaragod

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Arecanut	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
2	Cashew	4	0	0	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0
3	Rambutan	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Other fruits	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Elephant Yam	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Colocasia	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Coconut	5	0	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0
8	Rubber	16	0	0	0	1	0	0	1	0	1	1	5	3	0	1	0	0	0	3
Total		**31**	**0**	**0**	**0**	**7**	**0**	**4**	**2**	**2**	**2**	**2**	**5**	**3**	**0**	**1**	**0**	**0**	**0**	**3**

Appendix Table 4.3: Extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed

Serial No.	District	Farmer count	No. of Plots	Extent of plots (In cents)																							
				< 5				5 - 50				50 - 100				100 - 200				200 - 250				> 250			
				No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total
				Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5	
1	Thiruvananthapuram	87	110	0	0	4	4	8	15	59	82	1	3	17	21	1	1	1	3	0	0	0	0	0	0	0	0
2	Kollam	156	346	33	5	42	80	91	8	146	245	10	0	8	18	0	1	1	2	0	1	0	1	0	0	0	0
3	Pathanamthitta	146	156	1	1	19	21	7	8	94	109	0	4	13	17	1	0	7	8	0	0	0	0	0	0	1	1
4	Alappuzha	123	237	2	6	71	79	4	9	128	141	0	2	12	14	0	0	2	2	0	0	0	0	0	0	1	1
5	Kottayam	60	61	0	0	6	6	7	7	20	34	3	3	5	11	2	1	6	9	0	1	0	1	0	0	0	0
6	Idukki	184	397	4	3	6	13	19	87	155	261	3	14	44	61	6	4	35	45	1	2	4	7	1	0	9	10
7	Ernakulam	98	185	9	9	23	41	12	22	74	108	3	7	19	29	0	3	4	7	0	0	0	0	0	0	0	0
8	Thrissur	170	422	9	41	65	115	26	43	169	238	1	5	38	44	0	3	17	20	0	0	3	3	0	0	2	2
9	Palakkad	54	75	0	0	0	0	7	2	18	27	1	0	22	23	1	2	8	11	0	1	4	5	0	0	9	9
10	Malappuram	204	233	0	2	10	12	4	24	104	132	2	12	35	49	1	5	16	22	1	3	6	10	0	0	8	8
11	Kozhikode	135	182	0	0	6	6	8	14	85	107	2	3	22	27	3	0	28	31	0	0	4	4	0	1	6	7
12	Wayanad	154	159	0	1	1	2	1	7	50	58	5	5	43	53	1	1	27	29	1	1	4	6	0	0	11	11
13	Kannur	110	315	1	2	18	21	2	4	229	235	2	1	35	38	0	0	17	17	0	0	1	1	0	0	3	3
14	Kasaragod	124	234	0	2	7	9	14	11	87	112	2	11	51	64	0	5	30	35	0	1	5	6	0	0	8	8
Total count		1805	3112	59	72	278	409	210	261	1418	1889	35	70	364	469	16	26	199	241	3	10	31	44	1	1	58	60
Total percentage			100	1.90	2.31	8.93	13.14	6.75	8.39	45.57	60.70	1.12	2.25	11.70	15.07	0.51	0.84	6.40	7.75	0.10	0.32	1.00	1.41	0.03	0.03	1.86	1.93

Appendix Table 4.4: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed

Kerala																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	220	2	2	16	7	16	85	3	4	42	3	2	27	1	1	3	0	0	6
2	Ginger	5	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	9	0	0	2	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0
4	Cardamom	18	2	0	0	3	0	7	0	0	0	1	0	2	0	1	0	1	0	1
5	Arecanut	337	7	7	32	21	33	162	2	5	34	0	3	16	0	1	4	0	0	10
6	Tamarind	5	0	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Malabar Tamarind/Brindle	6	1	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8	Cloves	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
9	Nutmeg Fruit	136	1	2	13	11	23	63	1	3	17	0	0	1	0	0	1	0	0	0
10	Cashew	22	1	0	2	2	0	12	0	0	3	0	0	2	0	0	0	0	0	0
11	Jack Fruit	80	4	7	18	2	3	45	0	0	0	0	1	0	0	0	0	0	0	0
12	Pomegranate	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Gooseberry	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Indian Blackberry/Java Plum	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Custard apple/Soursop	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Guava	15	3	2	8	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
17	Water Apple/Bell Fruit	6	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Passion Fruit	7	3	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Mangosteen	9	1	1	1	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0
20	Strawberry	4	0	0	1	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0
21	Rambutan	26	3	2	8	1	4	6	0	0	1	0	0	1	0	0	0	0	0	0
22	Mango	89	4	8	21	1	4	48	0	1	1	0	0	0	0	0	0	0	0	1
23	Banana	235	4	6	15	38	28	106	5	6	13	3	3	7	0	0	1	0	0	0
24	Other plantain	228	5	10	21	33	36	102	5	5	5	0	0	4	0	1	0	0	0	1
25	Pineapple	6	0	2	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0

26	Pappaya	20	1	3	5	0	1	8	1	0	1	0	0	0	0	0	0	0	0	0
27	Orange	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
28	Ponderosa Lemon/Wild	4	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Lemon	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Dragon Fruit	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
31	Other fruits	15	2	4	6	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
32	Tapioca	39	1	1	3	8	4	15	4	1	2	0	0	0	0	0	0	0	0	0
33	Elephant Yam	16	2	0	2	8	1	2	0	0	0	0	0	1	0	0	0	0	0	0
34	Colocasia	9	1	1	1	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0
35	Purple Yam/Kachil	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
36	Lesser Yam	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Other tuber crops	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Drumstick	3	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
39	Breadfruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Coconut	1224	8	2	75	58	81	622	8	34	194	5	12	82	1	4	14	0	1	23
41	Betel Leaves	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
42	Tea	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Coffee	154	0	0	1	4	8	60	4	4	32	1	1	25	0	1	4	0	0	9
44	Cocoa	68	0	0	2	3	8	39	0	3	4	1	0	5	1	0	1	0	0	1
45	Rubber	71	0	0	0	1	5	14	2	2	10	1	2	24	0	1	3	0	0	6
46	Other medicinal plants	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total		**3112**	**59**	**72**	**278**	**210**	**261**	**1418**	**35**	**70**	**364**	**16**	**26**	**199**	**3**	**10**	**31**	**1**	**1**	**58**

Appendix Table 4.4.1: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Thiruvananthapuram																				
Serial No.	**Crop Name**	**No. of Plots**	**Extent of plots (In cents)**																	
			< 5			**5 - 50**			**50 - 100**			**100 - 200**			**200 - 250**			**> 250**		
			Year			**Year**			**Year**			**Year**			**Year**			**Year**		
			< 3	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**	**< 3**	**3-5**	**> 5**
1	Turmeric	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

3	Jack Fruit	5	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
4	Rambutan	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5	Mango	4	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0
6	Banana	3	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
7	Other plantain	15	0	0	1	0	6	5	1	1	1	0	0	0	0	0	0	0	0	0
8	Pineapple	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9	Pappaya	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	Tapioca	4	0	0	0	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0
11	Purple Yam/Kachil	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
12	Coconut	73	0	0	1	7	7	43	0	1	12	1	0	1	0	0	0	0	0	0
Total		**110**	**0**	**0**	**4**	**8**	**15**	**59**	**1**	**3**	**17**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.4.2: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Kollam

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	18	2	1	3	5	0	7	0	0	0	0	0	0	0	0	0	0	0	0
2	Ginger	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	18	6	0	1	7	0	4	0	0	0	0	0	0	0	0	0	0	0	0
5	Tamarind	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Malabar Tamarind/ Brindle	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Nutmeg Fruit	3	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Cashew	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
9	Jack Fruit	21	3	0	6	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
10	Pomegranate	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Passion Fruit	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Mangosteen	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Rambutan	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

14	Mango	24	4	0	5	1	0	14	0	0	0	0	0	0	0	0	0	0	0	0
15	Banana	41	2	1	2	16	2	15	2	0	1	0	0	0	0	0	0	0	0	0
16	Other plantain	60	2	3	3	23	4	21	3	0	0	0	0	0	0	1	0	0	0	0
17	Pineapple	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Pappaya	5	1	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
19	Lemon	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Other fruits	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Tapioca	20	1	0	1	7	1	6	4	0	0	0	0	0	0	0	0	0	0	0
22	Elephant Yam	11	1	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Colocasia	5	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Other tuber crops	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Drumstick	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
26	Coconut	100	7	0	10	15	1	57	1	0	7	0	1	1	0	0	0	0	0	0
27	Betel Leaves	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**346**	**33**	**5**	**42**	**91**	**8**	**146**	**10**	**0**	**8**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**

Appendix Table 4.4.3: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Pathanamthitta

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	3	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
2	Turmeric	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Nutmeg Fruit	8	0	0	0	0	0	6	0	0	2	0	0	0	0	0	0	0	0	0
5	Mangosteen	5	0	0	1	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0
6	Rambutan	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Banana	39	1	1	1	5	4	21	0	1	3	1	0	1	0	0	0	0	0	0
8	Other plantain	14	0	0	1	1	1	9	0	1	1	0	0	0	0	0	0	0	0	0
9	Elephant Yam	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

10	Coconut	73	0	0	15	1	1	49	0	0	4	0	0	3	0	0	0	0	0	0
11	Cocoa	6	0	0	0	0	0	3	0	1	2	0	0	0	0	0	0	0	0	0
12	Rubber	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0
13	Other medicinal plants	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**156**	**1**	**1**	**19**	**7**	**8**	**94**	**0**	**4**	**13**	**1**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**1**

Appendix Table 4.4.4: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Alappuzha																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Turmeric	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	21	0	0	12	0	0	8	0	0	1	0	0	0	0	0	0	0	0	0
4	Tamarind	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Malabar Tamarind/ Brindle	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Nutmeg Fruit	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Jack Fruit	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Indian Blackberry/Java Plum	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Guava	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Mango	4	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12	Banana	28	0	2	6	1	2	12	0	2	3	0	0	0	0	0	0	0	0	0
13	Other plantain	40	1	3	4	1	5	24	0	0	1	0	0	1	0	0	0	0	0	0
14	Pappaya	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Ponderosa Lemon/Wild	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Tapioca	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
17	Elephant Yam	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Lesser Yam	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Coconut	110	0	1	20	1	1	78	0	0	7	0	0	1	0	0	0	0	0	1
20	Betel Leaves	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**237**	**2**	**6**	**71**	**4**	**9**	**128**	**0**	**2**	**12**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**

Appendix Table 4.4.5: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Kottayam

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Nutmeg Fruit	8	0	0	2	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0
3	Jack Fruit	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Banana	6	0	0	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5	Other plantain	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
6	Coconut	25	0	0	3	0	4	13	0	2	2	0	0	1	0	0	0	0	0	0
7	Cocoa	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8	Rubber	17	0	0	0	1	0	3	1	1	3	1	1	5	0	1	0	0	0	0
Total		**61**	**0**	**0**	**6**	**7**	**7**	**20**	**3**	**3**	**5**	**2**	**1**	**6**	**0**	**1**	**0**	**0**	**0**	**0**

Appendix Table 4.4.6: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Idukki

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	130	0	0	2	1	10	43	2	3	31	3	2	24	1	1	3	0	0	4
2	Cardamom	16	2	0	0	3	0	5	0	0	0	1	0	2	0	1	0	1	0	1
3	Arecanut	26	0	0	0	3	11	11	0	0	0	0	0	0	0	0	0	0	0	1
4	Cloves	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Nutmeg Fruit	34	1	1	0	1	14	13	0	2	2	0	0	0	0	0	0	0	0	0
6	Cashew	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7	Jack Fruit	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Passion Fruit	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Strawberry	4	0	0	1	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0

10	Rambutan	11	0	0	1	1	4	5	0	0	0	0	0	0	0	0	0	0	0	0
11	Mango	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Banana	17	0	0	0	0	6	8	0	1	0	2	0	0	0	0	0	0	0	0
13	Other plantain	16	0	0	0	2	7	7	0	0	0	0	0	0	0	0	0	0	0	0
14	Pineapple	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Pappaya	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
16	Orange	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
17	Other fruits	3	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
18	Coconut	43	0	1	0	4	12	17	0	5	2	0	1	0	0	0	0	0	0	1
19	Tea	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Coffee	26	0	0	1	2	5	14	0	1	2	0	0	1	0	0	0	0	0	0
21	Cocoa	38	0	0	0	1	8	23	0	2	2	0	0	2	0	0	0	0	0	0
22	Rubber	19	0	0	0	0	3	4	1	0	3	0	0	5	0	0	1	0	0	2
Total		397	4	3	6	19	87	155	3	14	44	6	4	35	1	2	4	1	0	9

Appendix Table 4.4.7: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Ernakulam																				
Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
2	Ginger	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	13	0	1	1	1	0	9	0	0	1	0	0	0	0	0	0	0	0	0
4	Nutmeg Fruit	20	0	1	1	2	0	11	1	0	4	0	0	0	0	0	0	0	0	0
5	Cashew	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Jack Fruit	5	1	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
7	Indian Blackberry/Java Plum	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Guava	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Water Apple/Bell Fruit	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Passion Fruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

11	Mangosteen	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12	Rambutan	4	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Mango	8	0	2	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
14	Banana	32	1	0	2	3	8	12	2	1	1	0	2	0	0	0	0	0	0	0
15	Other plantain	26	0	0	5	2	7	8	0	3	1	0	0	0	0	0	0	0	0	0
16	Pineapple	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
17	Pappaya	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
18	Dragon Fruit	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
19	Other fruits	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
20	Tapioca	5	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
21	Colocasia	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Coconut	52	0	0	6	2	7	27	0	1	8	0	0	1	0	0	0	0	0	0
23	Cocoa	4	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	0	0	0
Total		**185**	**9**	**9**	**23**	**12**	**22**	**74**	**3**	**7**	**19**	**0**	**3**	**4**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.4.8: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Thrissur

Serial No.	Crop Name	No. of Plots	Extent of land (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	9	0	0	2	1	1	3	0	0	0	0	0	2	0	0	0	0	0	0
2	Ginger	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	57	1	5	11	3	5	28	0	1	2	0	0	1	0	0	0	0	0	0
5	Tamarind	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Malabar Tamarind/ Brindle	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Nutmeg Fruit	53	0	0	5	5	8	25	0	1	7	0	0	1	0	0	1	0	0	0
8	Cashew	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9	Jack Fruit	18	0	5	5	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0

10	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Custard apple/Soursop	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Guava	9	2	2	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Water Apple/Bell Fruit	5	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Passion Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Mangosteen	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Rambutan	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Mango	23	0	6	7	0	1	8	0	0	0	0	0	0	0	0	0	0	0	1
18	Banana	17	0	0	1	5	3	5	0	0	1	0	0	2	0	0	0	0	0	0
19	Other plantain	26	2	4	4	3	5	8	0	0	0	0	0	0	0	0	0	0	0	0
20	Pineapple	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Pappaya	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Ponderosa Lemon/Wild	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Lemon	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Other fruits	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Tapioca	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Other tuber crops	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Drumstick	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Breadfruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Coconut	155	1	0	8	6	15	78	1	3	28	0	3	9	0	0	2	0	0	1
30	Coffee	5	0	0	0	1	0	2	0	0	0	0	0	2	0	0	0	0	0	0
31	Cocoa	4	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
32	Rubber	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
33	Other medicinal plants	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**422**	**9**	**41**	**65**	**26**	**43**	**169**	**1**	**5**	**38**	**0**	**3**	**17**	**0**	**0**	**3**	**0**	**0**	**2**

Appendix Table 4.4.9: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Palakkad

Serial No.	Crop Name	No. of Plots	Extent of land (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	13	0	0	0	0	0	2	0	0	4	0	1	1	0	1	0	0	0	4
3	Nutmeg Fruit	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4	Guava	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5	Mango	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
6	Banana	3	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0
7	Other plantain	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
8	Coconut	45	0	0	0	6	0	11	1	0	15	0	0	5	0	0	3	0	0	4
9	Coffee	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	Cocoa	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11	Rubber	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
	Total	**75**	**0**	**0**	**0**	**7**	**2**	**18**	**1**	**0**	**22**	**1**	**2**	**8**	**0**	**1**	**4**	**0**	**0**	**9**

Appendix Table 4.4.10: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Malappuram

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	27	0	1	0	0	8	8	0	2	5	0	1	1	0	0	0	0	0	1
3	Tamarind	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Rambutan	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5	Banana	6	0	0	0	0	1	3	0	1	0	0	0	1	0	0	0	0	0	0
6	Other plantain	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7	Coconut	192	0	0	8	4	15	91	2	9	30	1	3	12	1	3	6	0	0	7
8	Rubber	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
	Total	**233**	**0**	**2**	**10**	**4**	**24**	**104**	**2**	**12**	**35**	**1**	**5**	**16**	**1**	**3**	**6**	**0**	**0**	**8**

Appendix Table 4.4.11: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Kozhikode

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	35	0	0	4	2	2	27	0	0	0	0	0	0	0	0	0	0	0	0
3	Jack Fruit	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Mango	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5	Banana	3	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	Coconut	131	0	0	2	5	12	51	2	3	22	3	0	22	0	0	3	0	1	5
7	Coffee	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Cocoa	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9	Rubber	9	0	0	0	0	0	2	0	0	0	0	0	5	0	0	1	0	0	1
Total		**182**	**0**	**0**	**6**	**8**	**14**	**85**	**2**	**3**	**22**	**3**	**0**	**28**	**0**	**0**	**4**	**0**	**1**	**6**

Appendix Table 4.4.12: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Wayanad

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	21	0	0	0	0	2	7	1	1	8	0	0	1	0	0	0	0	0	1
2	Arecanut	4	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
3	Passion Fruit	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Other fruits	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Coconut	5	0	0	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0
6	Coffee	117	0	0	0	1	3	38	4	3	30	1	1	22	0	1	4	0	0	9
7	Cocoa	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8	Rubber	7	0	0	0	0	0	1	0	1	3	0	0	2	0	0	0	0	0	0
Total		**159**	**0**	**1**	**1**	**1**	**7**	**50**	**5**	**5**	**43**	**1**	**1**	**27**	**1**	**1**	**4**	**0**	**0**	**11**

Appendix Table 4.4.13: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Kannur

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	24	0	0	2	0	0	21	0	0	1	0	0	0	0	0	0	0	0	0
2	Ginger	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Cardamom	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Arecanut	40	0	0	2	0	1	32	1	0	3	0	0	1	0	0	0	0	0	0
6	Malabar Tamarind/ Brindle	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Nutmeg Fruit	4	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0
8	Cashew	8	0	0	0	0	0	6	0	0	1	0	0	1	0	0	0	0	0	0
9	Jack Fruit	20	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0
10	Guava	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Rambutan	4	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Mango	20	0	0	1	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0
13	Banana	31	0	1	0	0	1	24	0	0	2	0	0	3	0	0	0	0	0	0
14	Other plantain	24	0	0	2	1	0	17	0	0	1	0	0	2	0	0	0	0	0	1
15	Pappaya	4	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0
16	Other fruits	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Tapioca	5	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0
18	Elephant Yam	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
19	Colocasia	3	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
20	Coconut	100	0	0	2	1	1	60	0	1	24	0	0	10	0	0	0	0	0	1
21	Coffee	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
22	Cocoa	10	0	0	0	0	0	9	0	0	0	0	0	0	0	0	1	0	0	0
23	Rubber	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
24	Other medicinal plants	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**315**	**1**	**2**	**18**	**2**	**4**	**229**	**2**	**1**	**35**	**0**	**0**	**17**	**0**	**0**	**1**	**0**	**0**	**3**

Appendix Table 4.4.14: Crop wise extent of main crop plots in farm fields where long term crops were cultivated as mixed crop and No. of years being farmed- District wise details

District: Kasaragod

Serial No.	Crop Name	No. of Plots	Extent of plots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	3	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	81	0	0	1	5	4	29	1	2	18	0	1	12	0	0	4	0	0	4
3	Cashew	8	0	0	2	1	0	3	0	0	1	0	0	1	0	0	0	0	0	0
4	Jack Fruit	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Mango	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Banana	9	0	1	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0
7	Other plantain	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Coconut	120	0	0	0	6	5	46	1	9	31	0	4	14	0	1	0	0	0	3
9	Cocoa	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	Rubber	8	0	0	0	0	0	2	0	0	1	0	0	3	0	0	1	0	0	1
Total		**234**	**0**	**2**	**7**	**14**	**11**	**87**	**2**	**11**	**51**	**0**	**5**	**30**	**0**	**1**	**5**	**0**	**0**	**8**

Appendix Table 4.5: Extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed

Serial No.	District	Farmer count	No. of Subplots	Extent of subplots (In cents)																							
				< 5				5 - 50				50 - 100				100 - 200				200 - 250				> 250			
				No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total	No. of years being farmed			Total
				Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5		Less than 3	3 to 5	More than 5	
1	Thiruvananthapuram	87	478	8	57	177	242	12	50	166	228	0	1	3	4	0	1	1	2	0	0	0	0	0	1	1	2
2	Kollam	156	593	130	27	215	372	100	21	97	218	0	0	0	0	1	0	1	2	0	0	0	0	0	0	1	1
3	Pathanamthitta	146	534	6	8	262	276	8	27	210	245	0	2	9	11	0	0	2	2	0	0	0	0	0	0	0	0
4	Alappuzha	123	286	14	10	172	196	12	9	68	89	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
5	Kottayam	60	372	70	41	77	188	75	27	71	173	5	1	3	9	2	0	0	2	0	0	0	0	0	0	0	0
6	Idukki	184	661	20	50	147	217	37	58	305	400	2	6	22	30	1	1	9	11	0	0	0	0	1	0	2	3
7	Ernakulam	98	299	31	38	106	175	13	27	69	109	0	6	6	12	0	1	1	2	0	0	0	0	1	0	0	1
8	Thrissur	170	934	107	185	432	724	16	32	154	202	2	0	4	6	0	0	0	0	1	0	0	1	0	1	0	1
9	Palakkad	54	133	16	1	9	26	25	9	51	85	0	2	15	17	0	0	3	3	1	0	0	1	0	0	1	1
10	Malappuram	204	956	89	132	353	574	30	55	268	353	1	1	16	18	0	0	7	7	0	0	1	1	0	0	3	3
11	Kozhikode	135	457	18	22	140	180	16	41	212	269	0	0	5	5	0	0	2	2	0	0	1	1	0	0	0	0
12	Wayanad	154	560	8	10	77	95	17	46	348	411	0	5	38	43	0	0	9	9	0	0	0	0	0	0	2	2
13	Kannur	110	510	33	114	216	363	3	16	126	145	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0
14	Kasaragod	124	278	5	9	71	85	13	27	131	171	0	2	16	18	0	0	3	3	0	0	1	1	0	0	0	0
	Total count	**1805**	**7051**	**555**	**704**	**2454**	**3713**	**377**	**445**	**2276**	**3098**	**10**	**26**	**139**	**175**	**4**	**3**	**38**	**45**	**3**	**0**	**3**	**6**	**2**	**2**	**10**	**14**
	Total percentage		**100**	**7.87**	**9.98**	**34.80**	**52.66**	**5.35**	**6.31**	**32.28**	**43.94**	**0.14**	**0.37**	**1.97**	**2.48**	**0.06**	**0.04**	**0.54**	**0.64**	**0.04**	**0.00**	**0.04**	**0.08**	**0.03**	**0.03**	**0.14**	**0.20**

Appendix Table 4.6: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed

Kerala																				
Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Paddy	5	0	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0
2	Ragi	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Maize/Corn	5	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Kidney Beans	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5	Other millets	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Horse Gram	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Sugarcane	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Black Pepper	664	14	32	226	16	55	282	0	5	27	2	0	3	0	0	0	0	0	2
9	Ginger	108	11	15	43	9	9	21	0	0	0	0	0	0	0	0	0	0	0	0
10	Turmeric	125	9	19	46	10	9	32	0	0	0	0	0	0	0	0	0	0	0	0
11	Cardamom	38	3	0	10	9	4	8	0	1	1	1	0	0	0	0	0	1	0	0
12	Arecanut	599	15	19	155	17	47	298	3	1	31	0	0	9	1	0	2	0	0	1
13	Tamarind	51	4	8	34	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
14	Malabar Tamarind/ Brindle Berry	67	4	9	44	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
15	Vanilla	14	4	0	2	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0
16	Cloves	49	3	3	29	0	3	11	0	0	0	0	0	0	0	0	0	0	0	0
17	Nutmeg Fruit	264	8	15	79	17	22	112	0	1	8	0	0	1	0	0	0	0	0	1
18	Cinnamon	7	1	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Other spices	8	1	1	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
20	Nutmeg Mace	4	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
21	Cashew	44	2	1	13	2	8	15	0	0	3	0	0	0	0	0	0	0	0	0
22	Jack Fruit	422	12	27	225	11	19	126	0	0	1	0	0	1	0	0	0	0	0	0
23	Pomegranate	13	1	3	5	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
24	Gooseberry	14	3	2	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Indian Blackberry/Java Plum	13	2	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

26	Custard apple/Soursop	23	1	4	15	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
27	Guava	75	4	18	45	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0
28	Water Apple/Bell Fruit	30	3	8	15	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
29	Passion Fruit	86	27	19	24	6	3	5	0	1	0	0	0	0	0	0	0	0	1	0
30	Mangosteen	68	9	13	25	5	2	12	0	0	2	0	0	0	0	0	0	0	0	0
31	Watermelon	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
32	Strawberry	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
33	Rambutan	147	16	35	62	4	12	17	0	1	0	0	0	0	0	0	0	0	0	0
34	Mango	416	17	34	222	8	16	115	0	0	3	0	0	1	0	0	0	0	0	0
35	Banana	383	24	21	91	50	35	150	0	6	3	1	0	1	0	0	1	0	0	0
36	Other plantain	938	42	44	241	80	75	425	3	4	14	0	0	7	0	0	0	0	0	3
37	Pineapple	38	2	4	24	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0
38	Pappaya	193	40	27	93	6	7	17	0	0	1	0	0	1	0	0	0	0	1	0
39	Orange	8	0	2	3	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
40	Apple	4	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
41	Ponderosa Lemon/Wild Lemon	25	3	2	16	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
42	Lemon	31	2	4	21	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
43	Dragon Fruit	9	1	2	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
44	Other fruits	141	12	30	67	5	9	17	0	0	1	0	0	0	0	0	0	0	0	0
45	Tapioca	81	3	11	22	6	9	27	0	0	1	0	1	0	0	0	0	1	0	0
46	Elephant Yam	133	8	21	50	8	9	36	0	1	0	0	0	0	0	0	0	0	0	0
47	Colocasia	131	12	15	53	8	6	37	0	0	0	0	0	0	0	0	0	0	0	0
48	Purple Yam/Kachil	48	2	5	23	2	2	14	0	0	0	0	0	0	0	0	0	0	0	0
49	Sweet Potato	8	0	3	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
50	Chinese Potato/Coleus	10	0	5	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
51	Lesser Yam	7	2	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
52	Other tuber crops	26	2	4	14	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0
53	Drumstick	96	4	17	68	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0
54	Spinach	55	13	10	18	6	0	7	0	0	0	0	0	0	1	0	0	0	0	0
55	Bitter Gourd	50	12	16	12	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0
56	Snake Gourd	24	9	6	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0

57	Lady Finger/Okra	77	20	21	23	8	1	4	0	0	0	0	0	0	0	0	0	0	0	0
58	Brinjal Green Long	67	15	21	16	7	1	7	0	0	0	0	0	0	0	0	0	0	0	0
59	Brinjal	7	3	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
60	Green Chilli	64	23	9	22	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
61	Bottle Gourd	12	0	7	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Ivy Gourd/Coccinia grandis	40	9	12	10	7	1	1	0	0	0	0	0	0	0	0	0	0	0	0
63	Ash Gourd	26	9	6	8	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
64	Pumpkin	23	6	6	9	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
65	Cucumber	25	3	8	7	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0
66	Cowpea(Trailing)	94	22	18	26	12	5	10	0	0	1	0	0	0	0	0	0	0	0	0
67	Indian bean/Broad bean	7	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	Carrot	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	Beetroot	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Cabbage	14	9	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Tomato	39	21	9	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Cauliflower	19	12	3	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
73	Beans	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Other vegetables	30	12	10	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
75	Cow Pea/Bush Snake Bean	10	0	0	5	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0
76	Breadfruit	16	2	2	11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
77	Sesamum	3	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
78	Coconut	264	2	5	49	9	14	167	0	1	14	0	0	3	0	0	0	0	0	0
79	Betel Leaves	24	2	1	7	3	1	10	0	0	0	0	0	0	0	0	0	0	0	0
80	Fresh lemongrass	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	Tea	4	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
82	Coffee	177	3	3	28	5	8	104	1	2	14	0	1	6	0	0	0	0	0	2
83	Cocoa	137	3	3	14	3	18	79	3	0	11	0	0	2	0	0	0	0	0	1
84	Rubber	20	0	0	0	2	1	14	0	1	1	0	0	1	0	0	0	0	0	0
85	Aloe vera	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	Vetiver	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Other medicinal plants	31	0	7	15	1	4	3	0	0	1	0	0	0	0	0	0	0	0	0
Total		**7051**	**555**	**704**	**2454**	**377**	**445**	**2276**	**10**	**26**	**139**	**4**	**3**	**38**	**3**	**0**	**3**	**2**	**2**	**10**

Appendix Table 4.6.1: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Thiruvananthapuram

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	42	1	0	11	1	7	20	0	0	2	0	0	0	0	0	0	0	0	0
2	Ginger	46	1	4	21	1	6	13	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	47	1	5	22	1	5	13	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	10	0	1	3	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0
5	Tamarind	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Vanilla	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Cloves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Nutmeg Fruit	8	0	0	3	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0
9	Other spices	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cashew	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11	Jack Fruit	25	1	2	6	1	4	11	0	0	0	0	0	0	0	0	0	0	0	0
12	Pomegranate	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Gooseberry	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Indian Blackberry/Java Plum	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Custard apple/Soursop	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
16	Guava	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Water Apple/Bell Fruit	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Passion Fruit	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19	Mangosteen	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20	Rambutan	4	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Mango	23	1	3	6	1	2	10	0	0	0	0	0	0	0	0	0	0	0	0
22	Banana	11	0	1	3	1	1	5	0	0	0	0	0	0	0	0	0	0	0	0
23	Other plantain	33	0	1	6	1	3	20	0	0	0	0	0	1	0	0	0	0	0	1
24	Pappaya	9	0	2	4	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
25	Ponderosa Lemon/Wild Lemon	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

26	Lemon	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Dragon Fruit	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Other fruits	11	0	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Tapioca	16	0	0	4	0	3	7	0	0	1	0	1	0	0	0	0	0	0	0
30	Elephant Yam	54	2	9	18	1	5	18	0	1	0	0	0	0	0	0	0	0	0	0
31	Colocasia	50	1	5	21	2	5	16	0	0	0	0	0	0	0	0	0	0	0	0
32	Purple Yam/Kachil	29	0	2	17	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0
33	Sweet Potato	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
34	Lesser Yam	5	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
35	Other tuber crops	15	0	1	10	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
36	Drumstick	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Coconut	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
38	Betel Leaves	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Coffee	3	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Cocoa	4	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
41	Other medicinal plants	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**478**	**8**	**57**	**177**	**12**	**50**	**166**	**0**	**1**	**3**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**1**

Appendix Table 4.6.2: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Kollam

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Kidney Beans	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
2	Other millets	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Black Pepper	25	0	1	17	0	3	3	0	0	0	1	0	0	0	0	0	0	0	0
4	Ginger	17	5	0	4	6	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Turmeric	14	3	0	3	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0
6	Arecanut	26	1	0	17	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0
7	Tamarind	12	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8	Malabar Tamarind/ Brindle Berry	6	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Cloves	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Nutmeg Fruit	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cashew	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
12	Jack Fruit	34	0	1	19	2	3	9	0	0	0	0	0	0	0	0	0	0	0	0
13	Pomegranate	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Indian Blackberry/Java Plum	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Custard apple/Soursop	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Guava	6	0	1	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Water Apple/Bell Fruit	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Passion Fruit	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Mangosteen	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Rambutan	9	1	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Mango	38	0	2	22	1	3	10	0	0	0	0	0	0	0	0	0	0	0	0
23	Banana	22	0	3	3	4	0	11	0	0	0	0	0	1	0	0	0	0	0	0
24	Other plantain	36	0	1	8	7	2	17	0	0	0	0	0	0	0	0	0	0	0	1
25	Pineapple	3	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Pappaya	16	2	2	4	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0
27	Apple	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Ponderosa Lemon/Wild Lemon	3	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Lemon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Dragon Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Other fruits	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Tapioca	11	1	1	3	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0
33	Elephant Yam	29	4	1	12	4	1	7	0	0	0	0	0	0	0	0	0	0	0	0
34	Colocasia	27	5	1	12	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0
35	Purple Yam/Kachil	6	2	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
36	Lesser Yam	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Drumstick	17	0	1	12	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0
38	Spinach	9	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

39	Bitter Gourd	14	9	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Snake Gourd	11	8	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Lady Finger/Okra	18	10	0	1	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0
42	Brinjal Green Long	19	10	0	2	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43	Green Chilli	18	13	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Bottle Gourd	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Ivy Gourd/Coccinia grandis	13	7	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Ash Gourd	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Pumpkin	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Cucumber	4	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Cowpea(Trailing)	31	13	1	7	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0
50	Indian bean/Broad bean	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Tomato	13	9	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Other vegetables	8	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Sesamum	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	Coconut	15	0	3	6	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0
55	Betel Leaves	4	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Fresh lemongrass	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Coffee	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Other medicinal plants	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**593**	**130**	**27**	**215**	**100**	**21**	**97**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**

Appendix Table 4.6.3: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Pathanamthitta

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	51	0	0	28	1	2	19	0	0	1	0	0	0	0	0	0	0	0	0
2	Ginger	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Cardamom	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

4	Arecanut	26	0	0	11	0	1	11	0	0	3	0	0	0	0	0	0	0	0	0
5	Malabar Tamarind/ Brindle Berry	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Cloves	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Nutmeg Fruit	21	0	1	14	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
8	Cashew	3	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
9	Jack Fruit	51	0	0	38	0	1	11	0	0	1	0	0	0	0	0	0	0	0	0
10	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Passion Fruit	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Mangosteen	19	0	1	10	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0
13	Rambutan	32	0	0	21	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0
14	Mango	45	1	0	39	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
15	Banana	79	0	3	22	1	5	46	0	1	1	0	0	0	0	0	0	0	0	0
16	Other plantain	121	1	3	42	3	10	61	0	0	0	0	0	1	0	0	0	0	0	0
17	Pappaya	7	1	0	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Orange	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19	Ponderosa Lemon/Wild Lemon	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20	Other fruits	3	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	Colocasia	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
22	Purple Yam/Kachil	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
23	Drumstick	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Cowpea(Trailing)	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Coconut	24	0	0	9	0	2	12	0	0	1	0	0	0	0	0	0	0	0	0
26	Betel Leaves	6	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
27	Coffee	16	0	0	8	0	0	7	0	0	0	0	0	1	0	0	0	0	0	0
28	Cocoa	6	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
29	Other medicinal plants	2	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
	Total	**534**	**6**	**8**	**262**	**8**	**27**	**210**	**0**	**2**	**9**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.6.4: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Alappuzha

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Sugarcane	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Black Pepper	15	0	0	12	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
3	Arecanut	14	0	1	5	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0
4	Tamarind	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Malabar Tamarind/ Brindle Berry	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Vanilla	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cloves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Nutmeg Fruit	7	1	0	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
9	Cinnamon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Other spices	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Nutmeg Mace	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cashew	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Jack Fruit	27	0	0	25	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
14	Pomegranate	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Indian Blackberry/Java Plum	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Custard apple/Soursop	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Guava	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Water Apple/Bell Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Passion Fruit	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Mangosteen	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Rambutan	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Mango	31	0	1	25	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
24	Banana	20	4	0	8	2	1	5	0	0	0	0	0	0	0	0	0	0	0	0
25	Other plantain	62	4	2	11	4	1	39	0	0	1	0	0	0	0	0	0	0	0	0

26	Pineapple	4	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
27	Pappaya	14	3	1	8	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
28	Orange	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Ponderosa Lemon/Wild Lemon	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Lemon	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Dragon Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Other fruits	15	0	0	12	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
33	Tapioca	4	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
34	Elephant Yam	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Colocasia	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Drumstick	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Breadfruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Sesamum	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
39	Coconut	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Betel Leaves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Coffee	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Cocoa	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43	Aloe vera	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Other medicinal plants	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**286**	**14**	**10**	**172**	**12**	**9**	**68**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.6.5: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Kottayam

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Sugarcane	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Black Pepper	35	1	7	9	2	6	9	0	0	0	1	0	0	0	0	0	0	0	0
3	Cardamom	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	27	2	3	11	2	0	8	1	0	0	0	0	0	0	0	0	0	0	0

5	Malabar Tamarind/ Brindle Berry	4	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Vanilla	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Cloves	4	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Nutmeg Fruit	25	1	4	3	1	4	10	0	1	1	0	0	0	0	0	0	0	0	0
9	Cashew	3	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Jack Fruit	29	4	2	9	2	2	10	0	0	0	0	0	0	0	0	0	0	0	0
11	Custard apple/Soursop	3	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Guava	4	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Water Apple/Bell Fruit	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Passion Fruit	8	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Mangosteen	7	4	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Rambutan	20	4	9	2	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0
17	Mango	23	3	4	11	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0
18	Banana	38	13	0	0	24	0	0	0	0	0	1	0	0	0	0	0	0	0	0
19	Other plantain	52	17	0	0	33	0	0	2	0	0	0	0	0	0	0	0	0	0	0
20	Pineapple	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Pappaya	5	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Ponderosa Lemon/Wild Lemon	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Lemon	5	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Other fruits	10	3	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Drumstick	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Breadfruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Coconut	29	0	0	7	4	0	17	0	0	1	0	0	0	0	0	0	0	0	0
28	Tea	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Coffee	14	0	0	1	1	0	11	0	0	1	0	0	0	0	0	0	0	0	0
30	Cocoa	10	1	0	2	0	3	2	2	0	0	0	0	0	0	0	0	0	0	0
31	Other medicinal plants	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**372**	**70**	**41**	**77**	**75**	**27**	**71**	**5**	**1**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.6.6: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Idukki

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Paddy	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
2	Ragi	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Black Pepper	26	0	0	2	0	6	10	0	2	3	0	0	2	0	0	0	0	0	1
4	Ginger	9	1	2	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
5	Turmeric	10	0	3	4	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	Cardamom	16	2	0	1	8	0	3	0	0	0	1	0	0	0	0	0	1	0	0
7	Arecanut	26	0	0	10	1	0	15	0	0	0	0	0	0	0	0	0	0	0	0
8	Tamarind	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Malabar Tamarind/ Brindle Berry	6	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
10	Vanilla	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cloves	25	1	3	12	0	1	8	0	0	0	0	0	0	0	0	0	0	0	0
12	Nutmeg Fruit	65	1	0	17	7	4	32	0	0	3	0	0	1	0	0	0	0	0	0
13	Cinnamon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Other spices	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
15	Nutmeg Mace	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
16	Cashew	5	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0
17	Jack Fruit	17	0	0	3	0	1	13	0	0	0	0	0	0	0	0	0	0	0	0
18	Pomegranate	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
19	Custard apple/Soursop	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
20	Guava	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	Passion Fruit	5	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
22	Mangosteen	3	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Strawberry	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
24	Rambutan	9	1	3	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
25	Mango	15	0	0	5	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0

26	Banana	35	0	2	6	3	9	13	0	2	0	0	0	0	0	0	0	0	0	0
27	Other plantain	66	3	3	21	3	14	21	0	0	0	0	0	1	0	0	0	0	0	0
28	Pappaya	5	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Orange	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
30	Apple	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
31	Lemon	3	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
32	Other fruits	9	1	2	2	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0
33	Tapioca	11	0	2	1	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0
34	Elephant Yam	3	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
35	Colocasia	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Purple Yam/Kachil	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
37	Chinese Potato/Coleus	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Other tuber crops	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Drumstick	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Spinach	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Bitter Gourd	7	0	2	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
42	Lady Finger/Okra	8	1	4	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43	Brinjal Green Long	11	0	4	3	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
44	Green Chilli	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
45	Ivy Gourd/Coccinia grandis	7	0	2	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
46	Ash Gourd	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Pumpkin	5	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
48	Cucumber	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Cowpea(Trailing)	12	1	5	2	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
50	Indian bean/Broad bean	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Cabbage	4	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Tomato	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Cauliflower	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	Beans	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Other vegetables	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Cow Pea/Bush Snake Bean	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0

57	Coconut	49	1	0	5	1	3	37	0	0	2	0	0	0	0	0	0	0	0	0
58	Coffee	83	0	0	9	2	3	58	1	1	5	0	1	2	0	0	0	0	0	1
59	Cocoa	60	0	0	2	2	4	44	1	0	7	0	0	0	0	0	0	0	0	0
60	Rubber	2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Total		**661**	**20**	**50**	**147**	**37**	**58**	**305**	**2**	**6**	**22**	**1**	**1**	**9**	**0**	**0**	**0**	**1**	**0**	**2**

Appendix Table 4.6.7: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Ernakulam

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Paddy	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
2	Black Pepper	20	1	2	9	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0
3	Ginger	8	2	1	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Turmeric	7	1	0	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Arecanut	30	0	3	14	0	1	11	0	0	0	0	0	1	0	0	0	0	0	0
6	Tamarind	3	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Malabar Tamarind/ Brindle Berry	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Cloves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Nutmeg Fruit	21	1	2	3	1	1	12	0	0	1	0	0	0	0	0	0	0	0	0
10	Other spices	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11	Nutmeg Mace	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Cashew	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Jack Fruit	16	0	2	10	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
14	Custard apple/Soursop	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Guava	6	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Water Apple/Bell Fruit	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Passion Fruit	4	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Rambutan	4	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
19	Mango	14	2	2	5	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0
20	Banana	12	0	0	7	0	1	3	0	1	0	0	0	0	0	0	0	0	0	0
21	Other plantain	42	7	1	5	4	6	16	0	3	0	0	0	0	0	0	0	0	0	0
22	Pappaya	8	3	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

23	Lemon	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
24	Other fruits	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Tapioca	6	1	1	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0
26	Elephant Yam	5	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Colocasia	4	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
28	Purple Yam/Kachil	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Chinese Potato/Coleus	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Drumstick	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Spinach	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
32	Bitter Gourd	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Snake Gourd	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Lady Finger/Okra	5	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Brinjal Green Long	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Green Chilli	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Bottle Gourd	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Ivy Gourd/Coccinia grandis	4	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Ash Gourd	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Cucumber	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Cowpea(Trailing)	5	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Indian bean/Broad bean	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Tomato	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Cauliflower	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Other vegetables	4	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Cow Pea/Bush Snake Bean	4	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Breadfruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Coconut	19	1	1	5	1	1	5	0	1	4	0	0	0	0	0	0	0	0	0
49	Coffee	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Cocoa	4	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
51	Other medicinal plants	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**299**	**31**	**38**	**106**	**13**	**27**	**69**	**0**	**6**	**6**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**

Appendix Table 4.6.8: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Thrissur

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Paddy	2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
2	Maize/Corn	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Horse Gram	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Black Pepper	61	6	9	34	1	0	11	0	0	0	0	0	0	0	0	0	0	0	0
5	Ginger	11	1	4	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Turmeric	15	1	6	2	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
7	Arecanut	40	2	1	14	1	3	17	1	0	1	0	0	0	0	0	0	0	0	0
8	Tamarind	16	3	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Malabar Tamarind/ Brindle Berry	20	2	5	10	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
10	Cloves	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Nutmeg Fruit	14	0	1	5	0	0	7	0	0	1	0	0	0	0	0	0	0	0	0
12	Cashew	9	2	0	3	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0
13	Jack Fruit	71	5	9	41	0	3	13	0	0	0	0	0	0	0	0	0	0	0	0
14	Pomegranate	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Gooseberry	5	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Indian Blackberry/Java Plum	6	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Custard apple/Soursop	10	1	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Guava	22	3	4	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Water Apple/Bell Fruit	9	2	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Passion Fruit	16	3	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Mangosteen	17	3	4	9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
22	Strawberry	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Rambutan	25	5	6	10	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
24	Mango	72	6	9	42	0	3	12	0	0	0	0	0	0	0	0	0	0	0	0
25	Banana	32	4	3	8	5	4	8	0	0	0	0	0	0	0	0	0	0	0	0

26	Other plantain	117	4	10	40	6	8	47	1	0	1	0	0	0	0	0	0	0	0	0
27	Pineapple	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Pappaya	51	7	8	32	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0
29	Orange	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Ponderosa Lemon/Wild Lemon	7	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Lemon	10	1	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Other fruits	20	3	4	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Tapioca	10	1	4	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
34	Elephant Yam	8	0	2	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
35	Colocasia	12	0	4	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
36	Purple Yam/Kachil	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Sweet Potato	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
38	Chinese Potato/Coleus	4	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
39	Other tuber crops	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Drumstick	23	2	6	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Spinach	13	1	6	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
42	Bitter Gourd	11	0	6	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
43	Snake Gourd	7	0	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
44	Lady Finger/Okra	17	1	10	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
45	Brinjal Green Long	14	1	8	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
46	Brinjal	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Green Chilli	15	2	3	9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
48	Bottle Gourd	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Ivy Gourd/Coccinia grandis	7	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Ash Gourd	7	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Pumpkin	7	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Cucumber	6	0	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Cowpea(Trailing)	12	1	4	3	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
54	Indian bean/Broad bean	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Carrot	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Beetroot	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

57	Cabbage	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Tomato	9	3	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Cauliflower	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Other vegetables	5	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	Cow Pea/Bush Snake Bean	4	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Breadfruit	11	1	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	Sesamum	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Coconut	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Betel Leaves	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Coffee	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	Cocoa	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	Aloe vera	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**934**	**107**	**185**	**432**	**16**	**32**	**154**	**2**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**

Appendix Table 4.6.9: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Palakkad

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	30	3	0	2	2	1	17	0	0	5	0	0	0	0	0	0	0	0	0
2	Ginger	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	26	5	0	2	2	1	9	0	0	4	0	0	2	1	0	0	0	0	0
5	Cloves	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Nutmeg Fruit	6	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0
7	Cashew	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Jack Fruit	4	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
9	Passion Fruit	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

10	Rambutan	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Mango	8	0	0	0	3	1	2	0	0	2	0	0	0	0	0	0	0	0	0
12	Banana	7	0	0	0	1	1	4	0	1	0	0	0	0	0	0	0	0	0	0
13	Other plantain	21	1	0	0	3	2	9	0	1	3	0	0	1	0	0	0	0	0	1
14	Pappaya	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Dragon Fruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Elephant Yam	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Drumstick	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
18	Spinach	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Lady Finger/Okra	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Brinjal Green Long	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Ivy Gourd/Coccinia grandis	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Cowpea(Trailing)	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Coconut	4	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
24	Betel Leaves	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
25	Coffee	6	3	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
26	Cocoa	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
27	Other medicinal plants	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**133**	**16**	**1**	**9**	**25**	**9**	**51**	**0**	**2**	**15**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**1**

Appendix Table 4.6.10: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Malappuram

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	86	1	8	37	2	8	28	0	0	2	0	0	0	0	0	0	0	0	0
2	Ginger	8	1	1	3	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Turmeric	9	2	1	3	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
4	Arecanut	104	3	6	20	3	9	51	1	1	5	0	0	3	0	0	1	0	0	1
5	Tamarind	13	1	2	7	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

6	Malabar Tamarind/ Brindle Berry	7	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Vanilla	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Nutmeg Fruit	36	1	3	11	3	7	9	0	0	1	0	0	0	0	0	0	0	0	1
9	Cinnamon	3	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Cashew	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
11	Jack Fruit	92	2	8	52	3	2	24	0	0	0	0	0	1	0	0	0	0	0	0
12	Pomegranate	4	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Gooseberry	4	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Indian Blackberry/Java Plum	4	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Custard apple/Soursop	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Guava	18	1	5	9	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
17	Water Apple/Bell Fruit	9	1	3	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
18	Passion Fruit	15	2	8	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Mangosteen	10	2	3	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0
20	Watermelon	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
21	Rambutan	23	3	8	7	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0
22	Mango	87	2	10	46	2	2	23	0	0	1	0	0	1	0	0	0	0	0	0
23	Banana	23	2	1	6	3	4	6	0	0	1	0	0	0	0	0	0	0	0	0
24	Other plantain	147	2	13	42	6	11	68	0	0	4	0	0	1	0	0	0	0	0	0
25	Pineapple	12	0	2	9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
26	Pappaya	40	1	10	24	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0
27	Orange	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Ponderosa Lemon/Wild Lemon	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Lemon	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Dragon Fruit	3	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
31	Other fruits	24	5	6	9	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
32	Tapioca	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
33	Elephant Yam	11	2	1	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
34	Colocasia	13	5	0	2	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0
35	Sweet Potato	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
36	Chinese Potato/Coleus	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

37	Other tuber crops	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Drumstick	27	0	3	22	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
39	Spinach	6	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
40	Bitter Gourd	4	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
41	Snake Gourd	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Lady Finger/Okra	9	5	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
43	Brinjal Green Long	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Brinjal	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Green Chilli	8	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
46	Bottle Gourd	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Ivy Gourd/Coccinia grandis	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Ash Gourd	4	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Pumpkin	8	4	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Cucumber	6	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Cowpea(Trailing)	8	2	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
52	Carrot	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Beetroot	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	Cabbage	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Tomato	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Cauliflower	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Other vegetables	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Coconut	6	0	0	0	0	1	4	0	0	1	0	0	0	0	0	0	0	0	0
59	Betel Leaves	5	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
60	Coffee	3	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
61	Cocoa	5	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
62	Aloe vera	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	Vetiver	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Other medicinal plants	6	0	4	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**956**	**89**	**132**	**353**	**30**	**55**	**268**	**1**	**1**	**16**	**0**	**0**	**7**	**0**	**0**	**1**	**0**	**0**	**3**

Appendix Table 4.6.11: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Kozhikode

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	53	1	2	24	1	3	22	0	0	0	0	0	0	0	0	0	0	0	0
2	Arecanut	78	0	2	27	4	7	37	0	0	1	0	0	0	0	0	0	0	0	0
3	Malabar Tamarind/ Brindle Berry	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Vanilla	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5	Cloves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Nutmeg Fruit	20	1	2	7	1	0	9	0	0	0	0	0	0	0	0	0	0	0	0
7	Cashew	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Jack Fruit	18	0	0	4	0	2	12	0	0	0	0	0	0	0	0	0	0	0	0
9	Gooseberry	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Guava	6	0	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
11	Passion Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Mangosteen	4	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Rambutan	8	0	3	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Mango	22	1	1	4	0	1	15	0	0	0	0	0	0	0	0	0	0	0	0
15	Banana	63	1	2	21	1	6	30	0	0	1	0	0	0	0	0	1	0	0	0
16	Other plantain	116	2	4	30	3	12	63	0	0	1	0	0	1	0	0	0	0	0	0
17	Pineapple	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Pappaya	20	12	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
19	Other fruits	7	0	1	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Drumstick	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Breadfruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Tea	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
23	Coffee	8	0	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
24	Cocoa	17	0	0	2	0	3	9	0	0	2	0	0	1	0	0	0	0	0	0
25	Rubber	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
26	Other medicinal plants	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**457**	**18**	**22**	**140**	**16**	**41**	**212**	**0**	**0**	**5**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**

Appendix Table 4.6.12: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Wayanad

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	118	0	1	11	3	10	78	0	2	11	0	0	1	0	0	0	0	0	1
2	Cardamom	18	0	0	8	0	4	5	0	0	1	0	0	0	0	0	0	0	0	0
3	Arecanut	132	1	0	6	1	11	96	0	0	14	0	0	3	0	0	0	0	0	0
4	Malabar Tamarind/ Brindle Berry	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5	Vanilla	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Cloves	9	0	0	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
7	Nutmeg Fruit	19	0	0	3	1	1	14	0	0	0	0	0	0	0	0	0	0	0	0
8	Cinnamon	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Other spices	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Nutmeg Mace	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Cashew	7	0	0	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
12	Jack Fruit	8	0	0	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
13	Custard apple/Soursop	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Guava	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Passion Fruit	15	3	3	3	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0
16	Mangosteen	3	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
17	Rambutan	5	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
18	Mango	8	1	0	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
19	Banana	3	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
20	Other plantain	4	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
21	Pappaya	3	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Orange	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

23	Lemon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Dragon Fruit	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
25	Other fruits	18	0	2	7	1	4	4	0	0	0	0	0	0	0	0	0	0	0	0
26	Drumstick	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Spinach	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
28	Green Chilli	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
29	Cabbage	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Cauliflower	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
31	Other vegetables	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
32	Coconut	106	0	1	10	2	5	81	0	0	4	0	0	3	0	0	0	0	0	0
33	Tea	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
34	Coffee	29	0	0	0	0	3	17	0	1	5	0	0	2	0	0	0	0	0	1
35	Cocoa	15	0	0	2	1	3	8	0	0	1	0	0	0	0	0	0	0	0	0
36	Rubber	17	0	0	0	2	1	12	0	1	1	0	0	0	0	0	0	0	0	0
37	Other medicinal plants	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total		**560**	**8**	**10**	**77**	**17**	**46**	**348**	**0**	**5**	**38**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**2**

Appendix Table 4.6.13: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Kannur

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Maize/Corn	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Black Pepper	36	0	1	14	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0
3	Ginger	7	0	2	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
4	Turmeric	21	1	4	9	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0
5	Arecanut	28	0	1	14	0	2	11	0	0	0	0	0	0	0	0	0	0	0	0

6	Malabar Tamarind/ Brindle Berry	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	Vanilla	3	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	Cloves	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Nutmeg Fruit	8	2	2	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10	Cinnamon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Other spices	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12	Cashew	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Jack Fruit	20	0	3	8	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0
14	Guava	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Water Apple/Bell Fruit	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Passion Fruit	8	2	2	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
17	Rambutan	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Mango	21	0	2	9	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
19	Banana	20	0	5	4	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0
20	Other plantain	43	1	4	17	0	1	20	0	0	0	0	0	0	0	0	0	0	0	0
21	Pineapple	3	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
22	Pappaya	6	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Apple	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Other fruits	13	0	4	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	Tapioca	20	0	3	13	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
26	Elephant Yam	21	0	6	10	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0
27	Colocasia	21	1	4	9	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
28	Purple Yam/Kachil	7	0	2	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
29	Sweet Potato	3	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Lesser Yam	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Other tuber crops	5	0	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Drumstick	5	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Spinach	22	3	3	14	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0

34	Bitter Gourd	11	1	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Snake Gourd	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Lady Finger/Okra	18	2	4	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Brinjal Green Long	17	1	8	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
38	Brinjal	4	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
39	Green Chilli	19	2	5	11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
40	Bottle Gourd	5	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Ivy Gourd/Coccinia grandis	7	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Ash Gourd	6	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
43	Pumpkin	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Cucumber	6	0	2	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
45	Cowpea(Trailing)	23	3	5	11	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0
46	Indian bean/Broad bean	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Cabbage	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	Tomato	7	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	Cauliflower	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Beans	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	Other vegetables	8	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Coconut	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
53	Coffee	4	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
54	Cocoa	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
55	Other medicinal plants	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		**510**	**33**	**114**	**216**	**3**	**16**	**126**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**

Appendix Table 4.6.14: Crop wise extent of intercrop subplots in farm fields where long term crops were cultivated as intercrops and No. of years being farmed- District wise details

District: Kasaragod

Serial No.	Crop Name	No. of Subplots	Extent of subplots (In cents)																	
			< 5			5 - 50			50 - 100			100 - 200			200 - 250			> 250		
			Year			Year			Year			Year			Year			Year		
			< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5	< 3	3-5	> 5
1	Black Pepper	66	0	1	16	1	5	39	0	1	3	0	0	0	0	0	0	0	0	0
2	Arecanut	32	1	1	1	1	9	15	0	0	3	0	0	0	0	0	1	0	0	0
3	Nutmeg Fruit	11	0	0	3	1	2	4	0	0	1	0	0	0	0	0	0	0	0	0
4	Cashew	3	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
5	Jack Fruit	10	0	0	7	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
6	Guava	4	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Passion Fruit	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Rambutan	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Mango	9	0	0	5	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
10	Banana	18	0	1	3	3	3	7	0	1	0	0	0	0	0	0	0	0	0	0
11	Other plantain	78	0	2	19	7	4	41	0	0	4	0	0	1	0	0	0	0	0	0
12	Pineapple	5	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
13	Pappaya	8	2	0	4	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
14	Other fruits	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
15	Tapioca	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Drumstick	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Other vegetables	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Breadfruit	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19	Coconut	4	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0
20	Betel Leaves	5	0	0	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
21	Coffee	6	0	0	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0
22	Cocoa	10	0	1	1	0	0	7	0	0	0	0	0	1	0	0	0	0	0	0
Total		**278**	**5**	**9**	**71**	**13**	**27**	**131**	**0**	**2**	**16**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**

Appendix Table 4.7: Information on organic agricultural land extent where only short term crops were cultivated

Serial No.	District	No. of farmers being cultivated	Extent of land cultivated with short term crops only (In cents)	Average cultivated extent of land per farmer (In cents)	Extent of land and farmers					
					Less than 5 cents	5 to less than 50 cents	50 to less than 100 cents	100 to less than 200 cents	200 to less than 250 cents	More than 250 cents
1	Thiruvananthapuram	98	6086	62.10	11	54	22	6	1	4
2	Kollam	270	12384	45.87	5	178	53	24	6	4
3	Pathanamthitta	174	5682	32.66	9	123	29	13	0	0
4	Alappuzha	157	9900.80	63.06	9	86	32	19	3	8
5	Kottayam	126	4264.50	33.85	50	43	12	17	2	2
6	Idukki	204	5501.50	26.97	8	75	22	95	1	3
7	Ernakulam	170	11787.10	69.34	19	85	37	18	4	7
8	Thrissur	187	15394.25	82.32	9	103	31	28	7	9
9	Palakkad	239	60706	254.00	26	36	55	11	53	58
10	Malappuram	108	13636.03	126.26	2	69	16	8	2	11
11	Kozhikode	139	10572	76.06	3	87	27	12	2	8
12	Wayanad	94	5377	57.20	8	58	13	10	2	3
13	Kannur	130	9278.50	71.37	7	70	20	23	3	7
14	Kasaragod	97	9784	100.87	10	52	15	7	3	10
Total count/land/ Average land		**2193**	**180353.68**	**82.24***	**176**	**1119**	**384**	**291**	**89**	**134**
Total percentage		**100.00**			**8.02**	**51.03**	**17.51**	**13.27**	**4.06**	**6.11**

*The computation was deduced from the total extent of organic land cultivated solely for short term crops by 2193 organic farmers. Upon comparison with the average of district averages, there appears to be a slight difference.

Appendix Table 4.8: Total number of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles

Serial No.	District	Farmer count	Total crop wise subplots		Cultivation cycles in 2020-21							
					1 time		2 times		3 times		4 times	
			Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	98	605	4.13	331	2.26	194	1.33	69	0.47	11	0.08
2	Kollam	270	1993	13.62	1353	9.25	560	3.83	76	0.52	4	0.03
3	Pathanamthitta	174	1189	8.12	1078	7.37	100	0.68	11	0.08	0	0
4	Alappuzha	157	1457	9.96	1148	7.84	229	1.56	62	0.42	18	0.12
5	Kottayam	126	579	3.96	542	3.7	36	0.25	1	0.01	0	0
6	Idukki	204	571	3.9	423	2.89	124	0.85	24	0.16	0	0
7	Ernakulam	170	1036	7.08	735	5.02	230	1.57	71	0.49	0	0
8	Thrissur	187	1631	11.15	1437	9.82	171	1.17	23	0.16	0	0
9	Palakkad	239	1423	9.72	1269	8.67	135	0.92	19	0.13	0	0
10	Malappuram	108	938	6.41	887	6.06	46	0.31	5	0.03	0	0
11	Kozhikode	139	1274	8.71	1160	7.93	100	0.68	12	0.08	2	0.01
12	Wayanad	94	471	3.22	409	2.79	56	0.38	6	0.04	0	0
13	Kannur	130	905	6.18	856	5.85	43	0.29	5	0.03	1	0.01
14	Kasaragod	97	562	3.84	522	3.57	32	0.22	8	0.05	0	0
Total		**2193**	**14634**	**100**	**12150**	**83.02**	**2056**	**14.05**	**392**	**2.68**	**36**	**0.25**

Appendix Table 4.9: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles

Kerala						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	440	343	94	3	0
2	Jowar	7	7	0	0	0
3	Ragi	155	136	19	0	0
4	Maize/Corn	66	63	3	0	0
5	Foxtail Millet/Thina	13	12	1	0	0
6	Kidney Beans	78	77	1	0	0
7	Other millets	86	81	4	1	0
8	Pigeon Pea/Thuvara	147	147	0	0	0
9	Horse Gram	28	28	0	0	0
10	Little Millet/Chama	80	76	4	0	0
11	Ginger	713	702	11	0	0
12	Turmeric	812	803	9	0	0
13	Garlic	13	12	1	0	0
14	Other spices	7	7	0	0	0
15	Watermelon	23	23	0	0	0
16	Banana	74	74	0	0	0
17	Other plantain	83	82	1	0	0
18	Pineapple	11	11	0	0	0
19	Other fruits	8	5	3	0	0
20	Tapioca	628	604	24	0	0
21	Elephant Yam	858	855	3	0	0
22	Colocasia	771	767	4	0	0
23	Purple Yam/Kachil	320	319	1	0	0
24	Sweet Potato	61	60	1	0	0
25	Chinese Potato/Coleus	142	136	5	1	0
26	Lesser Yam	64	64	0	0	0
27	Other tuber crops	85	82	3	0	0
28	Spinach	724	414	181	102	27
29	Bitter Gourd	729	464	230	35	0
30	Snake Gourd	396	277	111	8	0
31	Lady Finger/Okra	949	667	242	39	1
32	Brinjal Green Long	804	657	131	16	0
33	Brinjal	113	103	7	2	1
34	Green Chilli	861	662	163	34	2
35	Bottle Gourd	114	104	9	1	0
36	Ivy Gourd/Coccinia grandis	372	319	48	5	0
37	Ash Gourd	359	325	33	1	0
38	Pumpkin	343	300	40	3	0
39	Cucumber	430	360	59	10	1
40	Cowpea(Trailing)	1092	673	341	76	2
41	Indian bean/Broad bean	106	101	4	1	0
42	Guar/Cluster Bean	10	10	0	0	0
43	Potato	9	5	4	0	0
44	Carrot	32	27	4	1	0

45	Beetroot	23	21	1	1	0
46	Cabbage	167	145	21	1	0
47	Tomato	445	316	115	13	1
48	Cauliflower	162	148	14	0	0
49	Beans	89	58	28	3	0
50	Small Onion/Shallot	13	10	3	0	0
51	Big Onion/Savala	1	1	0	0	0
52	Other vegetables	331	261	51	18	1
53	Cow Pea/Bush Snake Bean	89	50	23	16	0
54	Ground Nut	61	61	0	0	0
55	Sesamum	23	23	0	0	0
56	Aloe vera	4	3	0	1	0
57	Other medicinal plants	10	9	1	0	0
Total		**14634**	**12150**	**2056**	**392**	**36**

Appendix Table 4.9.1: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Thiruvananthapuram						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	13	3	9	1	0
2	Maize/Corn	1	1	0	0	0
3	Kidney Beans	1	1	0	0	0
4	Other millets	2	2	0	0	0
5	Banana	1	1	0	0	0
6	Other plantain	1	1	0	0	0
7	Tapioca	1	0	1	0	0
8	Chinese Potato/Coleus	1	1	0	0	0
9	Spinach	55	10	17	20	8
10	Bitter Gourd	45	9	30	6	0
11	Snake Gourd	34	11	19	4	0
12	Lady Finger/Okra	69	41	27	1	0
13	Brinjal Green Long	38	36	2	0	0
14	Brinjal	43	42	1	0	0
15	Green Chilli	57	51	5	0	1
16	Bottle Gourd	1	1	0	0	0
17	Ivy Gourd/Coccinia grandis	23	22	1	0	0
18	Ash Gourd	8	7	1	0	0
19	Pumpkin	10	8	1	1	0
20	Cucumber	39	18	15	5	1
21	Cowpea(Trailing)	71	10	34	26	1
22	Indian bean/Broad bean	8	5	2	1	0
23	Guar/Cluster Bean	1	1	0	0	0
24	Carrot	1	1	0	0	0
25	Cabbage	7	5	2	0	0
26	Tomato	32	11	19	2	0
27	Cauliflower	7	7	0	0	0
28	Beans	2	2	0	0	0
29	Other vegetables	30	20	8	2	0
30	Cow Pea/Bush Snake Bean	2	2	0	0	0
31	Ground Nut	1	1	0	0	0
Total		**605**	**331**	**194**	**69**	**11**

Appendix Table 4.9.2: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Kollam						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	27	20	7	0	0
2	Ragi	1	1	0	0	0
3	Maize/Corn	2	2	0	0	0
4	Kidney Beans	2	2	0	0	0
5	Other millets	1	1	0	0	0
6	Ginger	120	113	7	0	0
7	Turmeric	117	112	5	0	0
8	Watermelon	1	1	0	0	0
9	Banana	22	22	0	0	0
10	Other plantain	17	16	1	0	0
11	Pineapple	2	2	0	0	0
12	Tapioca	79	76	3	0	0
13	Elephant Yam	152	152	0	0	0
14	Colocasia	135	135	0	0	0
15	Purple Yam/Kachil	73	72	1	0	0
16	Sweet Potato	9	9	0	0	0
17	Chinese Potato/Coleus	3	3	0	0	0
18	Lesser Yam	16	16	0	0	0
19	Other tuber crops	9	8	1	0	0
20	Spinach	95	48	32	13	2
21	Bitter Gourd	158	63	81	14	0
22	Snake Gourd	62	33	29	0	0
23	Lady Finger/Okra	134	52	73	9	0
24	Brinjal Green Long	138	69	63	6	0
25	Green Chilli	124	56	57	11	0
26	Bottle Gourd	10	7	3	0	0
27	Ivy Gourd/Coccinia grandis	69	45	23	1	0
28	Ash Gourd	29	22	7	0	0
29	Pumpkin	19	11	8	0	0
30	Cucumber	28	18	8	2	0
31	Cowpea(Trailing)	180	62	101	16	1
32	Indian bean/Broad bean	4	4	0	0	0
33	Beetroot	1	0	1	0	0
34	Cabbage	27	25	2	0	0
35	Tomato	72	25	42	4	1
36	Cauliflower	33	32	1	0	0
37	Beans	2	2	0	0	0
38	Other vegetables	14	10	4	0	0
39	Sesamum	6	6	0	0	0
Total		1993	1353	560	76	4

Appendix Table 4.9.3: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Pathanamthitta						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	1	1	0	0	0
2	Maize/Corn	2	2	0	0	0
3	Kidney Beans	2	2	0	0	0
4	Ginger	95	95	0	0	0
5	Turmeric	85	85	0	0	0
6	Banana	4	4	0	0	0
7	Other plantain	3	3	0	0	0
8	Tapioca	84	84	0	0	0
9	Elephant Yam	121	121	0	0	0
10	Colocasia	112	112	0	0	0
11	Purple Yam/Kachil	87	87	0	0	0
12	Sweet Potato	2	2	0	0	0
13	Chinese Potato/Coleus	3	3	0	0	0
14	Lesser Yam	12	12	0	0	0
15	Other tuber crops	1	1	0	0	0
16	Spinach	34	25	2	7	0
17	Bitter Gourd	70	42	27	1	0
18	Snake Gourd	38	27	11	0	0
19	Lady Finger/Okra	62	60	2	0	0
20	Brinjal Green Long	78	77	1	0	0
21	Brinjal	1	1	0	0	0
22	Green Chilli	77	74	3	0	0
23	Bottle Gourd	1	1	0	0	0
24	Ivy Gourd/Coccinia grandis	37	35	2	0	0
25	Ash Gourd	5	5	0	0	0
26	Pumpkin	5	5	0	0	0
27	Cucumber	14	13	1	0	0
28	Cowpea(Trailing)	109	56	50	3	0
29	Indian bean/Broad bean	1	1	0	0	0
30	Carrot	1	1	0	0	0
31	Cabbage	11	11	0	0	0
32	Tomato	14	13	1	0	0
33	Cauliflower	11	11	0	0	0
34	Beans	1	1	0	0	0
35	Other vegetables	5	5	0	0	0
Total		1189	1078	100	11	0

Appendix Table 4.9.4: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Alappuzha						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	25	23	2	0	0
2	Maize/Corn	1	1	0	0	0
3	Kidney Beans	1	1	0	0	0
4	Other millets	2	2	0	0	0
5	Ginger	64	64	0	0	0
6	Turmeric	61	61	0	0	0
7	Watermelon	5	5	0	0	0
8	Other plantain	1	1	0	0	0
9	Other fruits	1	1	0	0	0
10	Tapioca	69	69	0	0	0
11	Elephant Yam	107	107	0	0	0
12	Colocasia	106	106	0	0	0
13	Purple Yam/Kachil	62	62	0	0	0
14	Sweet Potato	4	3	1	0	0
15	Chinese Potato/Coleus	6	6	0	0	0
16	Lesser Yam	16	16	0	0	0
17	Other tuber crops	3	3	0	0	0
18	Spinach	105	29	33	27	16
19	Bitter Gourd	101	64	32	5	0
20	Snake Gourd	71	47	22	2	0
21	Lady Finger/Okra	87	60	23	3	1
22	Brinjal Green Long	76	66	10	0	0
23	Brinjal	3	3	0	0	0
24	Green Chilli	83	68	12	3	0
25	Bottle Gourd	3	3	0	0	0
26	Ivy Gourd/Coccinia grandis	55	50	5	0	0
27	Ash Gourd	22	18	4	0	0
28	Pumpkin	28	24	4	0	0
29	Cucumber	32	25	7	0	0
30	Cowpea(Trailing)	116	64	40	12	0
31	Indian bean/Broad bean	4	3	1	0	0
32	Guar/Cluster Bean	1	1	0	0	0
33	Beetroot	1	1	0	0	0
34	Cabbage	5	4	1	0	0
35	Tomato	52	34	15	3	0
36	Cauliflower	7	5	2	0	0
37	Beans	1	1	0	0	0
38	Other vegetables	68	45	15	7	1
39	Sesamum	2	2	0	0	0
Total		1457	1148	229	62	18

Appendix Table 4.9.5: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Kottayam						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	5	5	0	0	0
2	Other millets	1	1	0	0	0
3	Ginger	44	44	0	0	0
4	Turmeric	44	44	0	0	0
5	Watermelon	3	3	0	0	0
6	Tapioca	38	38	0	0	0
7	Elephant Yam	52	52	0	0	0
8	Colocasia	44	44	0	0	0
9	Purple Yam/Kachil	28	28	0	0	0
10	Sweet Potato	2	2	0	0	0
11	Chinese Potato/Coleus	3	3	0	0	0
12	Lesser Yam	10	10	0	0	0
13	Other tuber crops	3	3	0	0	0
14	Spinach	14	10	4	0	0
15	Bitter Gourd	31	22	9	0	0
16	Snake Gourd	12	9	3	0	0
17	Lady Finger/Okra	33	27	6	0	0
18	Brinjal Green Long	31	30	1	0	0
19	Brinjal	1	1	0	0	0
20	Green Chilli	31	29	2	0	0
21	Bottle Gourd	1	1	0	0	0
22	Ivy Gourd/Coccinia grandis	33	33	0	0	0
23	Ash Gourd	5	4	1	0	0
24	Pumpkin	4	3	1	0	0
25	Cucumber	8	7	1	0	0
26	Cowpea(Trailing)	46	38	8	0	0
27	Cabbage	8	8	0	0	0
28	Tomato	13	13	0	0	0
29	Cauliflower	8	8	0	0	0
30	Beans	1	1	0	0	0
31	Other vegetables	20	19	0	1	0
32	Other medicinal plants	2	2	0	0	0
Total		579	542	36	1	0

Appendix Table 4.9.6: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Idukki						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	6	4	2	0	0
2	Maize/Corn	1	1	0	0	0
3	Other millets	6	1	4	1	0
4	Ginger	43	43	0	0	0
5	Turmeric	34	34	0	0	0
6	Garlic	12	11	1	0	0
7	Banana	3	3	0	0	0
8	Other plantain	4	4	0	0	0
9	Other fruits	1	1	0	0	0
10	Tapioca	40	40	0	0	0
11	Elephant Yam	36	36	0	0	0
12	Colocasia	18	17	1	0	0
13	Purple Yam/Kachil	9	9	0	0	0
14	Chinese Potato/Coleus	5	5	0	0	0
15	Lesser Yam	1	1	0	0	0
16	Other tuber crops	6	5	1	0	0
17	Spinach	12	5	3	4	0
18	Bitter Gourd	20	11	8	1	0
19	Snake Gourd	2	2	0	0	0
20	Lady Finger/Okra	22	12	9	1	0
21	Brinjal Green Long	29	17	12	0	0
22	Brinjal	11	10	0	1	0
23	Green Chilli	14	9	2	3	0
24	Bottle Gourd	1	1	0	0	0
25	Ivy Gourd/Coccinia grandis	20	14	6	0	0
26	Ash Gourd	7	7	0	0	0
27	Pumpkin	8	3	5	0	0
28	Cucumber	9	6	3	0	0
29	Cowpea(Trailing)	47	31	14	2	0
30	Indian bean/Broad bean	1	0	1	0	0
31	Potato	9	5	4	0	0
32	Carrot	13	9	3	1	0
33	Beetroot	11	10	0	1	0
34	Cabbage	20	11	8	1	0
35	Tomato	8	4	3	1	0
36	Cauliflower	7	3	4	0	0
37	Beans	50	20	27	3	0
38	Small Onion/Shallot	4	3	1	0	0
39	Other vegetables	19	14	1	4	0
40	Cow Pea/Bush Snake Bean	2	1	1	0	0
	Total	**571**	**423**	**124**	**24**	**0**

Appendix Table 4.9.7: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Ernakulam						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	49	44	5	0	0
2	Maize/Corn	1	1	0	0	0
3	Ginger	45	44	1	0	0
4	Turmeric	48	47	1	0	0
5	Other spices	4	4	0	0	0
6	Watermelon	1	1	0	0	0
7	Banana	8	8	0	0	0
8	Other plantain	8	8	0	0	0
9	Other fruits	2	0	2	0	0
10	Tapioca	41	31	10	0	0
11	Elephant Yam	76	73	3	0	0
12	Colocasia	51	49	2	0	0
13	Purple Yam/Kachil	8	8	0	0	0
14	Sweet Potato	6	6	0	0	0
15	Chinese Potato/Coleus	27	21	5	1	0
16	Other tuber crops	6	6	0	0	0
17	Spinach	50	13	19	18	0
18	Bitter Gourd	48	27	18	3	0
19	Snake Gourd	33	20	11	2	0
20	Lady Finger/Okra	85	33	40	12	0
21	Brinjal Green Long	63	48	13	2	0
22	Green Chilli	44	14	25	5	0
23	Bottle Gourd	15	13	1	1	0
24	Ivy Gourd/Coccinia grandis	21	15	5	1	0
25	Ash Gourd	24	24	0	0	0
26	Pumpkin	16	16	0	0	0
27	Cucumber	30	25	4	1	0
28	Cowpea(Trailing)	46	18	20	8	0
29	Indian bean/Broad bean	2	2	0	0	0
30	Guar/Cluster Bean	1	1	0	0	0
31	Carrot	2	2	0	0	0
32	Beetroot	2	2	0	0	0
33	Cabbage	17	13	4	0	0
34	Tomato	35	22	13	0	0
35	Cauliflower	19	17	2	0	0
36	Other vegetables	40	29	8	3	0
37	Cow Pea/Bush Snake Bean	60	29	17	14	0
38	Sesamum	1	1	0	0	0
39	Other medicinal plants	1	0	1	0	0
Total		**1036**	**735**	**230**	**71**	**0**

Appendix Table 4.9.8: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Thrissur						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	27	23	4	0	0
2	Maize/Corn	6	6	0	0	0
3	Horse Gram	1	1	0	0	0
4	Ginger	103	102	1	0	0
5	Turmeric	120	118	2	0	0
6	Other spices	1	1	0	0	0
7	Watermelon	3	3	0	0	0
8	Pineapple	3	3	0	0	0
9	Tapioca	76	67	9	0	0
10	Elephant Yam	78	78	0	0	0
11	Colocasia	87	87	0	0	0
12	Purple Yam/Kachil	16	16	0	0	0
13	Sweet Potato	9	9	0	0	0
14	Chinese Potato/Coleus	51	51	0	0	0
15	Lesser Yam	1	1	0	0	0
16	Other tuber crops	20	20	0	0	0
17	Spinach	87	54	31	2	0
18	Bitter Gourd	56	43	11	2	0
19	Snake Gourd	43	36	7	0	0
20	Lady Finger/Okra	112	84	24	4	0
21	Brinjal Green Long	100	85	13	2	0
22	Brinjal	4	3	1	0	0
23	Green Chilli	110	93	12	5	0
24	Bottle Gourd	20	18	2	0	0
25	Ivy Gourd/Coccinia grandis	36	30	5	1	0
26	Ash Gourd	77	70	7	0	0
27	Pumpkin	65	59	5	1	0
28	Cucumber	46	39	6	1	0
29	Cowpea(Trailing)	84	62	20	2	0
30	Indian bean/Broad bean	14	14	0	0	0
31	Guar/Cluster Bean	3	3	0	0	0
32	Carrot	5	5	0	0	0
33	Beetroot	3	3	0	0	0
34	Cabbage	28	27	1	0	0
35	Tomato	67	64	3	0	0
36	Cauliflower	31	30	1	0	0
37	Beans	1	1	0	0	0
38	Other vegetables	14	11	3	0	0
39	Cow Pea/Bush Snake Bean	9	4	3	2	0
40	Ground Nut	1	1	0	0	0
41	Sesamum	5	5	0	0	0
42	Aloe vera	4	3	0	1	0
43	Other medicinal plants	4	4	0	0	0
Total		1631	1437	171	23	0

Appendix Table 4.9.9: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Palakkad						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	113	66	47	0	0
2	Jowar	7	7	0	0	0
3	Ragi	154	135	19	0	0
4	Maize/Corn	49	46	3	0	0
5	Foxtail Millet/Thina	13	12	1	0	0
6	Kidney Beans	61	60	1	0	0
7	Other millets	56	56	0	0	0
8	Pigeon Pea/Thuvara	147	147	0	0	0
9	Horse Gram	24	24	0	0	0
10	Little Millet/Chama	80	76	4	0	0
11	Ginger	34	34	0	0	0
12	Turmeric	32	32	0	0	0
13	Other spices	1	1	0	0	0
14	Banana	5	5	0	0	0
15	Other plantain	2	2	0	0	0
16	Tapioca	20	20	0	0	0
17	Elephant Yam	15	15	0	0	0
18	Colocasia	9	9	0	0	0
19	Purple Yam/Kachil	3	3	0	0	0
20	Chinese Potato/Coleus	8	8	0	0	0
21	Lesser Yam	1	1	0	0	0
22	Other tuber crops	8	8	0	0	0
23	Spinach	22	18	2	2	0
24	Bitter Gourd	27	22	3	2	0
25	Snake Gourd	13	9	4	0	0
26	Lady Finger/Okra	52	42	6	4	0
27	Brinjal Green Long	55	48	5	2	0
28	Brinjal	1	0	1	0	0
29	Green Chilli	58	51	5	2	0
30	Bottle Gourd	2	1	1	0	0
31	Ivy Gourd/Coccinia grandis	8	6	1	1	0
32	Ash Gourd	29	21	7	1	0
33	Pumpkin	33	26	6	1	0
34	Cucumber	16	15	1	0	0
35	Cowpea(Trailing)	55	39	12	4	0
36	Indian bean/Broad bean	62	62	0	0	0
37	Guar/Cluster Bean	2	2	0	0	0
38	Carrot	1	1	0	0	0
39	Cabbage	3	3	0	0	0
40	Tomato	44	42	2	0	0
41	Cauliflower	3	3	0	0	0
42	Beans	26	25	1	0	0
43	Small Onion/Shallot	7	5	2	0	0
44	Other vegetables	4	3	1	0	0
45	Cow Pea/Bush Snake Bean	1	1	0	0	0
46	Ground Nut	54	54	0	0	0
47	Sesamum	1	1	0	0	0
48	Other medicinal plants	2	2	0	0	0
Total		**1423**	**1269**	**135**	**19**	**0**

Appendix Table 4.9.10: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Malappuram

Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	33	31	2	0	0
2	Kidney Beans	3	3	0	0	0
3	Other millets	2	2	0	0	0
4	Horse Gram	1	1	0	0	0
5	Ginger	57	57	0	0	0
6	Turmeric	93	93	0	0	0
7	Other spices	1	1	0	0	0
8	Watermelon	3	3	0	0	0
9	Banana	2	2	0	0	0
10	Other plantain	1	1	0	0	0
11	Pineapple	2	2	0	0	0
12	Tapioca	48	48	0	0	0
13	Elephant Yam	77	77	0	0	0
14	Colocasia	83	83	0	0	0
15	Purple Yam/Kachil	10	10	0	0	0
16	Sweet Potato	9	9	0	0	0
17	Chinese Potato/Coleus	13	13	0	0	0
18	Lesser Yam	3	3	0	0	0
19	Other tuber crops	15	14	1	0	0
20	Spinach	29	18	8	3	0
21	Bitter Gourd	22	19	3	0	0
22	Snake Gourd	18	17	1	0	0
23	Lady Finger/Okra	63	53	9	1	0
24	Brinjal Green Long	34	34	0	0	0
25	Brinjal	4	4	0	0	0
26	Green Chilli	41	40	1	0	0
27	Bottle Gourd	26	25	1	0	0
28	Ivy Gourd/Coccinia grandis	13	13	0	0	0
29	Ash Gourd	34	32	2	0	0
30	Pumpkin	49	46	3	0	0
31	Cucumber	28	27	1	0	0
32	Cowpea(Trailing)	63	51	11	1	0
33	Indian bean/Broad bean	4	4	0	0	0
34	Carrot	3	3	0	0	0
35	Beetroot	2	2	0	0	0
36	Cabbage	4	4	0	0	0
37	Tomato	12	11	1	0	0
38	Cauliflower	6	6	0	0	0
39	Other vegetables	12	12	0	0	0
40	Cow Pea/Bush Snake Bean	7	5	2	0	0
41	Ground Nut	2	2	0	0	0
42	Sesamum	5	5	0	0	0
43	Other medicinal plants	1	1	0	0	0
Total		**938**	**887**	**46**	**5**	**0**

Appendix Table 4.9.11: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Kozhikode						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	41	33	6	2	0
2	Kidney Beans	1	1	0	0	0
3	Other millets	1	1	0	0	0
4	Ginger	48	48	0	0	0
5	Turmeric	92	92	0	0	0
6	Watermelon	5	5	0	0	0
7	Banana	3	3	0	0	0
8	Pineapple	3	3	0	0	0
9	Other fruits	1	0	1	0	0
10	Tapioca	62	61	1	0	0
11	Elephant Yam	89	89	0	0	0
12	Colocasia	77	76	1	0	0
13	Purple Yam/Kachil	12	12	0	0	0
14	Sweet Potato	2	2	0	0	0
15	Chinese Potato/Coleus	17	17	0	0	0
16	Lesser Yam	2	2	0	0	0
17	Other tuber crops	10	10	0	0	0
18	Spinach	76	61	13	2	0
19	Bitter Gourd	68	64	4	0	0
20	Snake Gourd	32	31	1	0	0
21	Lady Finger/Okra	86	72	12	2	0
22	Brinjal Green Long	43	38	4	1	0
23	Brinjal	29	26	2	0	1
24	Green Chilli	81	54	23	3	1
25	Bottle Gourd	15	15	0	0	0
26	Ivy Gourd/Coccinia grandis	16	16	0	0	0
27	Ash Gourd	65	63	2	0	0
28	Pumpkin	62	59	3	0	0
29	Cucumber	76	72	4	0	0
30	Cowpea(Trailing)	75	63	11	1	0
31	Indian bean/Broad bean	2	2	0	0	0
32	Guar/Cluster Bean	2	2	0	0	0
33	Carrot	1	1	0	0	0
34	Beetroot	1	1	0	0	0
35	Cabbage	4	4	0	0	0
36	Tomato	31	25	5	1	0
37	Cauliflower	3	3	0	0	0
38	Other vegetables	34	27	7	0	0
39	Cow Pea/Bush Snake Bean	3	3	0	0	0
40	Ground Nut	2	2	0	0	0
41	Sesamum	1	1	0	0	0
Total		1274	1160	100	12	2

Appendix Table 4.9.12: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Wayanad						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	20	17	3	0	0
2	Maize/Corn	1	1	0	0	0
3	Kidney Beans	1	1	0	0	0
4	Other millets	3	3	0	0	0
5	Ginger	34	33	1	0	0
6	Turmeric	32	31	1	0	0
7	Garlic	1	1	0	0	0
8	Banana	20	20	0	0	0
9	Other plantain	32	32	0	0	0
10	Tapioca	8	8	0	0	0
11	Elephant Yam	15	15	0	0	0
12	Colocasia	11	11	0	0	0
13	Purple Yam/Kachil	6	6	0	0	0
14	Chinese Potato/Coleus	2	2	0	0	0
15	Other tuber crops	1	1	0	0	0
16	Spinach	16	11	4	1	0
17	Bitter Gourd	11	11	0	0	0
18	Snake Gourd	3	2	1	0	0
19	Lady Finger/Okra	13	11	2	0	0
20	Brinjal Green Long	26	21	3	2	0
21	Green Chilli	38	25	12	1	0
22	Bottle Gourd	1	1	0	0	0
23	Ivy Gourd/Coccinia grandis	5	5	0	0	0
24	Ash Gourd	7	7	0	0	0
25	Pumpkin	9	8	1	0	0
26	Cucumber	9	9	0	0	0
27	Cowpea(Trailing)	42	34	8	0	0
28	Carrot	5	4	1	0	0
29	Beetroot	1	1	0	0	0
30	Cabbage	24	21	3	0	0
31	Tomato	32	19	11	2	0
32	Cauliflower	16	12	4	0	0
33	Beans	4	4	0	0	0
34	Small Onion/Shallot	1	1	0	0	0
35	Big Onion/Savala	1	1	0	0	0
36	Other vegetables	15	14	1	0	0
37	Cow Pea/Bush Snake Bean	4	4	0	0	0
38	Ground Nut	1	1	0	0	0
Total		471	409	56	6	0

Appendix Table 4.9.13: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Kannur						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	51	45	6	0	0
2	Maize/Corn	1	1	0	0	0
3	Kidney Beans	3	3	0	0	0
4	Other millets	10	10	0	0	0
5	Horse Gram	1	1	0	0	0
6	Ginger	18	17	1	0	0
7	Turmeric	35	35	0	0	0
8	Watermelon	2	2	0	0	0
9	Banana	6	6	0	0	0
10	Other plantain	13	13	0	0	0
11	Pineapple	1	1	0	0	0
12	Other fruits	2	2	0	0	0
13	Tapioca	38	38	0	0	0
14	Elephant Yam	30	30	0	0	0
15	Colocasia	28	28	0	0	0
16	Purple Yam/Kachil	5	5	0	0	0
17	Sweet Potato	4	4	0	0	0
18	Chinese Potato/Coleus	1	1	0	0	0
19	Lesser Yam	2	2	0	0	0
20	Other tuber crops	3	3	0	0	0
21	Spinach	86	74	8	3	1
22	Bitter Gourd	50	47	3	0	0
23	Snake Gourd	19	17	2	0	0
24	Lady Finger/Okra	76	69	6	1	0
25	Brinjal Green Long	50	49	1	0	0
26	Brinjal	16	13	2	1	0
27	Green Chilli	63	61	2	0	0
28	Bottle Gourd	13	13	0	0	0
29	Ivy Gourd/Coccinia grandis	12	12	0	0	0
30	Ash Gourd	35	33	2	0	0
31	Pumpkin	24	23	1	0	0
32	Cucumber	54	50	4	0	0
33	Cowpea(Trailing)	84	80	4	0	0
34	Indian bean/Broad bean	2	2	0	0	0
35	Beetroot	1	1	0	0	0
36	Cabbage	5	5	0	0	0
37	Tomato	22	22	0	0	0
38	Cauliflower	9	9	0	0	0
39	Beans	1	1	0	0	0
40	Small Onion/Shallot	1	1	0	0	0
41	Other vegetables	27	26	1	0	0
42	Sesamum	1	1	0	0	0
Total		**905**	**856**	**43**	**5**	**1**

Appendix Table 4.9.14: Details of crop wise subplots in farm fields where short term crops were cultivated and cultivation cycles- District wise details

District: Kasaragod						
Serial No.	Crop Name	No. of Subplots	Cultivation cycles in 2020-21			
			1 time	2 times	3 times	4 times
1	Paddy	29	28	1	0	0
2	Maize/Corn	1	1	0	0	0
3	Kidney Beans	3	3	0	0	0
4	Other millets	2	2	0	0	0
5	Horse Gram	1	1	0	0	0
6	Ginger	8	8	0	0	0
7	Turmeric	19	19	0	0	0
8	Other plantain	1	1	0	0	0
9	Other fruits	1	1	0	0	0
10	Tapioca	24	24	0	0	0
11	Elephant Yam	10	10	0	0	0
12	Colocasia	10	10	0	0	0
13	Purple Yam/Kachil	1	1	0	0	0
14	Sweet Potato	14	14	0	0	0
15	Chinese Potato/Coleus	2	2	0	0	0
16	Spinach	43	38	5	0	0
17	Bitter Gourd	22	20	1	1	0
18	Snake Gourd	16	16	0	0	0
19	Lady Finger/Okra	55	51	3	1	0
20	Brinjal Green Long	43	39	3	1	0
21	Green Chilli	40	37	2	1	0
22	Bottle Gourd	5	4	1	0	0
23	Ivy Gourd/Coccinia grandis	24	23	0	1	0
24	Ash Gourd	12	12	0	0	0
25	Pumpkin	11	9	2	0	0
26	Cucumber	41	36	4	1	0
27	Cowpea(Trailing)	74	65	8	1	0
28	Indian bean/Broad bean	2	2	0	0	0
29	Cabbage	4	4	0	0	0
30	Tomato	11	11	0	0	0
31	Cauliflower	2	2	0	0	0
32	Other vegetables	29	26	2	1	0
33	Cow Pea/Bush Snake Bean	1	1	0	0	0
34	Sesamum	1	1	0	0	0
Total		562	522	32	8	0

Appendix Table 5.1: Information on soil testing conducted before the commencement of organic farming

Serial No.	District	Farmer count	Farmers who have conducted soil tests		Farmers who have not conducted soil tests		Farmers and Soil testing institutions								No. of farmers who have provided soil test reports	
							State soil testing laboratory		Central government research centres		Kerala agricultural university		Other institutions			
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	13	10.66	109	89.34	12	92.31	0	0.00	1	7.69	0	0.00	9	69.23
2	Kollam	281	4	1.42	277	98.58	1	25.00	0	0.00	0	0.00	3	75.00	4	100.00
3	Pathanamthitta	175	12	6.86	163	93.14	12	100.00	0	0.00	0	0.00	0	0.00	4	33.33
4	Alappuzha	146	1	0.68	145	99.32	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
5	Kottayam	70	0	0	70	100	0	#	0	#	0	#	0	#	0	#
6	Idukki	225	20	8.89	205	91.11	1	5.00	3	15.00	0	0.00	16	80.00	3	15.00
7	Ernakulam	176	0	0	176	100	0	#	0	#	0	#	0	#	0	#
8	Thrissur	192	6	3.13	186	96.88	1	16.67	0	0.00	5	83.33	0	0.00	1	16.67
9	Palakkad	340	17	5	323	95	5	29.41	0	0.00	3	17.65	9	52.94	5	29.41
10	Malappuram	236	9	3.81	227	96.19	4	44.44	0	0.00	1	11.11	4	44.44	3	33.33
11	Kozhikode	157	1	0.64	156	99.36	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
12	Wayanad	166	3	1.81	163	98.19	2	66.67	0	0.00	1	33.33	0	0.00	3	100.00
13	Kannur	136	3	2.21	133	97.79	2	66.67	0	0.00	1	33.33	0	0.00	3	100.00
14	Kasaragod	132	3	2.27	129	97.73	2	66.67	0	0.00	1	33.33	0	0.00	3	100.00
Total		**2554**	**92**	**3.60**	**2462**	**96.40**	**42**	**45.65**	**5**	**5.44**	**13**	**14.13**	**32**	**34.78**	**40**	**43.48**

It is not defined, so it is not applicable.

Appendix Table 5.2: Information on chemical properties in soil test reports conducted before the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Carbon-Nitrogen ratio (C-N Ratio)					Cation exchange capacity (CEC)					Soil pH						
			Tested	Not tested	Narrow	Optimum	Wide	Tested	Not tested	Low	Moderate	Adequate	Tested	Not tested	Extremely acidic	Moderately acidic	Slightly acidic	Neutral	Alkaline
1	Thiruvananthapuram	9	0	9	0	0	0	0	9	0	0	0	4	5	1	0	3	0	0
2	Kollam	4	4	0	0	4	0	1	3	0	1	0	4	0	0	4	0	0	0
3	Pathanamthitta	4	4	0	1	2	1	1	3	0	1	0	4	0	1	3	0	0	0
4	Alappuzha	1	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0
5	Kottayam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Idukki	3	3	0	0	2	1	1	2	0	0	1	3	0	0	2	0	1	0
7	Ernakulam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Thrissur	1	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0
9	Palakkad	5	2	3	0	2	0	1	4	0	1	0	5	0	1	3	0	0	1
10	Malappuram	3	0	3	0	0	0	0	3	0	0	0	3	0	0	1	2	0	0
11	Kozhikode	1	1	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0
12	Wayanad	3	1	2	0	1	0	0	3	0	0	0	3	0	1	1	0	0	1
13	Kannur	3	1	2	0	1	0	1	2	0	1	0	3	0	0	1	2	0	0
14	Kasaragod	3	1	2	0	1	0	1	2	0	1	0	3	0	0	1	2	0	0
Total count		**40**	17	23	2	13	2	6	34	0	5	1	35	5	4	19	9	1	2
Total percentage		**100.00**	**42.50**	**57.50**	**11.77**	**76.47**	**11.76**	**15.00**	**85.00**	**0.00**	**83.33**	**16.67**	**87.50**	**12.50**	**11.43**	**54.29**	**25.71**	**2.86**	**5.71**

Appendix Table 5.3: Information on primary and secondary nutrients in soil test reports conducted before the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Primary nutrients												Secondary nutrients											
			Nitrogen				Phosphorus				Potassium				Calcium				Magnesium				Sulphur			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	9	2	7	0	0	5	4	0	1	4	4	0	0	4	4	0	0	1	1	0	0	0	0	0	0
2	Kollam	4	4	3	1	0	4	1	3	0	4	0	4	0	4	2	2	0	4	3	1	0	4	2	1	1
3	Pathanamthitta	4	4	4	0	0	4	0	0	4	4	0	4	0	1	0	0	1	1	0	1	0	2	2	0	0
4	Alappuzha	1	0	0	0	0	1	0	0	1	1	0	1	0	1	1	0	0	1	1	0	0	1	1	0	0
5	Kottayam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Idukki	3	3	1	2	0	3	1	2	0	3	0	1	2	1	0	1	0	1	0	1	0	1	0	1	0
7	Ernakulam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Thrissur	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	1	0	1	0
9	Palakkad	5	5	2	3	0	5	0	2	3	5	1	3	1	3	2	1	0	4	1	2	1	4	1	2	1
10	Malappuram	3	1	1	0	0	2	0	1	1	2	0	2	0	1	0	1	0	2	2	0	0	2	1	1	0
11	Kozhikode	1	1	1	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	0	1	0
12	Wayanad	3	2	1	1	0	3	0	2	1	3	1	2	0	0	0	0	0	0	0	0	0	1	1	0	0
13	Kannur	3	1	0	1	0	2	0	1	1	3	1	0	2	2	0	1	1	2	1	1	0	2	2	0	0
14	Kasaragod	3	2	0	1	1	2	1	1	0	2	0	1	1	2	1	0	1	2	2	0	0	2	2	0	0
Total count		40	25	15	9	1	31	7	12	12	32	8	18	6	21	11	7	3	20	13	6	1	21	12	7	2
Total percentage		100.00	62.50	60.00	36.00	4.00	77.50	22.58	38.71	38.71	80.00	25.00	56.25	18.75	52.50	52.38	33.33	14.29	50.00	65.00	30.00	5.00	52.50	57.14	33.33	9.53

Appendix Table 5.4: Information on micro nutrients in soil test reports conducted before the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Micro nutrients															
			Zinc				Boron				Molybdenum				Manganese			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	9	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0
2	Kollam	4	4	3	1	0	4	4	0	0	1	0	1	0	1	0	0	1
3	Pathanamthitta	4	2	1	1	0	2	1	1	0	1	1	0	0	2	2	0	0
4	Alappuzha	1	1	0	1	0	1	1	0	0	0	0	0	0	1	0	1	0
5	Kottayam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Idukki	3	1	0	1	0	1	1	0	0	1	0	1	0	1	0	1	0
7	Ernakulam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Thrissur	1	1	0	1	0	1	1	0	0	0	0	0	0	1	0	0	1
9	Palakkad	5	4	0	4	0	4	3	1	0	3	0	3	0	4	0	4	0
10	Malappuram	3	1	0	1	0	2	1	0	1	0	0	0	0	1	0	0	1
11	Kozhikode	1	1	1	0	0	1	1	0	0	1	0	1	0	1	0	1	0
12	Wayanad	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
13	Kannur	3	2	0	1	1	2	2	0	0	1	0	1	0	2	0	1	1
14	Kasaragod	3	2	1	0	1	2	2	0	0	1	1	0	0	2	2	0	0
Total count		40	19	6	11	2	22	19	2	1	9	2	7	0	17	5	8	4
Total percentage		100.00	47.50	31.58	57.89	10.53	55.00	86.36	9.09	4.55	22.50	22.22	77.78	0.00	42.50	29.41	47.06	23.53

(Contd ...)

Appendix Table 5.4: Information on micro nutrients in soil test reports conducted before the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Micro nutrients																			
			Silica				Copper				Nickel				Chlorine				Iron			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Kollam	4	1	0	1	0	4	3	0	1	1	0	1	0	1	0	1	0	4	3	1	0
3	Pathanamthitta	4	1	1	0	0	2	1	1	0	1	1	0	0	1	1	0	0	2	1	1	0
4	Alappuzha	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
5	Kottayam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Idukki	3	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
7	Ernakulam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Thrissur	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
9	Palakkad	5	3	0	3	0	4	0	4	0	3	0	3	0	3	0	3	0	4	0	4	0
10	Malappuram	3	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
11	Kozhikode	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0
12	Wayanad	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Kannur	3	1	0	1	0	2	0	1	1	1	0	1	0	1	0	1	0	2	0	1	1
14	Kasaragod	3	1	1	0	0	2	1	0	1	1	1	0	0	1	1	0	0	2	1	0	1
Total count		40	9	2	6	1	18	5	9	4	8	2	6	0	8	2	6	0	19	5	9	5
Total percentage		100.00	22.50	22.22	66.67	11.11	45.00	27.78	50.00	22.22	20.00	25.00	75.00	0.00	20.00	25.00	75.00	0.00	47.50	26.32	47.37	26.31

Appendix Table 5.5: Information on soil testing conducted after the commencement of organic farming

Serial No.	District	Farmer count	Farmers who have conducted soil tests		Farmers who have not conducted soil tests		Farmers and Soil testing institutions								No. of farmers who have provided soil test reports	
							State soil testing laboratory		Central government research centres		Kerala agricultural university		Other institutions			
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	27	22.13	95	77.87	24	88.89	1	3.70	1	3.70	1	3.70	12	44.44
2	Kollam	281	14	4.98	267	95.02	9	64.29	0	0.00	1	7.14	4	28.57	13	92.86
3	Pathanamthitta	175	7	4	168	96	6	85.71	0	0.00	0	0.00	1	14.29	1	14.29
4	Alappuzha	146	7	4.79	139	95.21	5	71.43	1	14.29	0	0.00	1	14.29	5	71.43
5	Kottayam	70	5	7.14	65	92.86	4	80.00	0	0.00	0	0.00	1	20.00	5	100.00
6	Idukki	225	44	19.56	181	80.44	9	20.45	8	18.18	0	0.00	27	61.36	16	36.36
7	Ernakulam	176	1	0.57	175	99.43	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
8	Thrissur	192	15	7.81	177	92.19	8	53.33	2	13.33	3	20.00	2	13.33	10	66.67
9	Palakkad	340	20	5.88	320	94.12	5	25.00	0	0.00	4	20.00	11	55.00	9	45.00
10	Malappuram	236	15	6.36	221	93.64	2	13.33	2	13.33	1	6.67	10	66.67	7	46.67
11	Kozhikode	157	7	4.46	150	95.54	2	28.57	1	14.29	0	0.00	4	57.14	4	57.14
12	Wayanad	166	21	12.65	145	87.35	12	57.14	4	19.05	4	19.05	1	4.76	17	80.95
13	Kannur	136	16	11.76	120	88.24	1	6.25	0	0.00	1	6.25	14	87.50	2	12.50
14	Kasaragod	132	22	16.67	110	83.33	0	0.00	1	4.55	17	77.27	4	18.18	8	36.36
Total		**2554**	**221**	**8.65**	**2333**	**91.35**	**87**	**39.37**	**20**	**9.05**	**32**	**14.48**	**82**	**37.10**	**110**	**49.77**

Appendix Table 5.6: Information on chemical properties in soil test reports conducted after the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Carbon-Nitrogen ratio (C-N Ratio)					Cation exchange capacity (CEC)					Soil pH						
			Tested	Not tested	Narrow	Optimum	Wide	Tested	Not tested	Low	Moderate	Adequate	Tested	Not tested	Extremely acidic	Moderately acidic	Slightly acidic	Neutral	Alkaline
1	Thiruvananthapuram	12	0	12	0	0	0	1	11	0	1	0	8	4	0	4	3	0	1
2	Kollam	13	2	11	0	1	1	8	5	0	8	0	10	3	3	5	1	0	1
3	Pathanamthitta	1	0	1	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0
4	Alappuzha	5	2	3	0	1	1	0	5	0	0	0	5	0	0	5	0	0	0
5	Kottayam	5	0	5	0	0	0	3	2	0	1	2	5	0	2	2	1	0	0
6	Idukki	16	7	9	0	2	5	4	12	1	1	2	16	0	3	9	3	1	0
7	Ernakulam	1	1	0	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0
8	Thrissur	10	2	8	0	2	0	2	8	1	0	1	9	1	0	5	3	1	0
9	Palakkad	9	1	8	0	1	0	0	9	0	0	0	8	1	1	4	2	0	1
10	Malappuram	7	1	6	0	1	0	0	7	0	0	0	6	1	0	3	3	0	0
11	Kozhikode	4	3	1	2	0	1	1	3	0	1	0	4	0	0	3	1	0	0
12	Wayanad	17	2	15	0	2	0	0	17	0	0	0	17	0	6	8	2	1	0
13	Kannur	2	1	1	0	1	0	0	2	0	0	0	2	0	0	2	0	0	0
14	Kasaragod	8	0	8	0	0	0	0	8	0	0	0	7	1	1	2	4	0	0
Total count		**110**	**22**	**88**	**2**	**12**	**8**	**20**	**90**	**3**	**12**	**5**	**99**	**11**	**16**	**53**	**23**	**4**	**3**
Total percentage		**100.00**	**20.00**	**80.00**	**9.09**	**54.55**	**36.36**	**18.18**	**81.82**	**15.00**	**60.00**	**25.00**	**90.00**	**10.00**	**16.16**	**53.54**	**23.23**	**4.04**	**3.03**

Appendix Table 5.7: Information on primary and secondary nutrients in soil test reports conducted after the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Primary nutrients												Secondary nutrients											
			Nitrogen				Phosphorus				Potassium				Calcium				Magnesium				Sulphur			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	12	3	2	1	0	7	3	0	4	6	2	3	1	7	6	1	0	3	3	0	0	3	2	1	0
2	Kollam	13	12	3	9	0	13	2	6	5	13	4	5	4	5	1	4	0	5	1	4	0	5	1	4	0
3	Pathanamthitta	1	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	1	0	0	1	1	1	0	0
4	Alappuzha	5	5	0	5	0	5	2	1	2	5	2	2	1	5	1	4	0	5	1	4	0	5	1	4	0
5	Kottayam	5	4	0	3	1	5	1	1	3	5	1	3	1	0	0	0	0	0	0	0	0	1	0	0	1
6	Idukki	16	8	1	3	4	11	4	4	3	12	2	7	3	6	1	5	0	6	3	3	0	9	2	7	0
7	Ernakulam	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1	0	1	0
8	Thrissur	10	5	3	2	0	9	0	2	7	9	0	4	5	4	0	4	0	4	2	2	0	7	0	6	1
9	Palakkad	9	5	1	1	3	5	1	2	2	6	1	3	2	4	2	2	0	4	3	1	0	4	0	4	0
10	Malappuram	7	4	1	3	0	5	1	1	3	5	1	4	0	4	2	2	0	4	2	2	0	4	2	2	0
11	Kozhikode	4	4	2	1	1	3	1	0	2	3	2	1	0	2	1	1	0	2	1	1	0	2	0	2	0
12	Wayanad	17	14	0	11	3	14	0	7	7	16	4	10	2	7	2	5	0	7	4	3	0	11	3	8	0
13	Kannur	2	1	0	1	0	2	0	1	1	2	1	1	0	1	0	0	1	1	0	0	1	1	1	0	0
14	Kasaragod	8	1	1	0	0	4	1	2	1	5	2	2	1	3	2	1	0	4	2	2	0	4	2	2	0
Total count		110	66	14	40	12	84	16	27	41	88	22	45	21	49	19	29	1	47	23	22	2	58	15	41	2
Total percentage		100.00	60.00	21.21	60.61	18.18	76.36	19.05	32.14	48.81	80.00	25.00	51.14	23.86	44.55	38.78	59.18	2.04	42.73	48.94	46.81	4.25	52.73	25.86	70.69	3.45

Appendix Table 5.8: Information on micro nutrients in soil test reports conducted after the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Micro nutrients															
			Zinc				Boron				Molybdenum				Manganese			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	12	3	1	2	0	5	4	1	0	0	0	0	0	4	1	3	0
2	Kollam	13	5	0	5	0	5	2	3	0	3	0	3	0	5	0	5	0
3	Pathanamthitta	1	1	0	0	1	1	0	0	1	0	0	0	0	1	0	0	1
4	Alappuzha	5	5	1	4	0	5	4	1	0	4	1	3	0	5	0	5	0
5	Kottayam	5	1	0	0	1	1	0	0	1	0	0	0	0	1	0	0	1
6	Idukki	16	8	3	5	0	5	4	1	0	1	0	1	0	8	1	6	1
7	Ernakulam	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
8	Thrissur	10	7	0	6	1	7	4	2	1	0	0	0	0	7	0	4	3
9	Palakkad	9	4	1	3	0	5	5	0	0	2	0	1	1	3	0	1	2
10	Malappuram	7	4	1	3	0	4	3	1	0	0	0	0	0	4	1	1	2
11	Kozhikode	4	2	0	2	0	2	1	1	0	0	0	0	0	2	0	2	0
12	Wayanad	17	6	1	5	0	10	3	6	1	4	1	3	0	8	1	5	2
13	Kannur	2	1	0	0	1	1	0	1	0	0	0	0	0	1	0	0	1
14	Kasaragod	8	4	1	3	0	4	2	2	0	1	1	0	0	5	0	3	2
Total count		110	52	9	39	4	55	32	19	4	15	3	11	1	55	4	35	16
Total percentage		100	47.27	17.31	75.00	7.69	50.00	58.18	34.55	7.27	13.64	20.00	73.33	6.67	50.00	7.27	63.64	29.09

(Contd...)

Appendix Table 5.8: Information on micro nutrients in soil test reports conducted after the commencement of organic farming

Serial No.	District	No. of farmers who have provided soil test reports	Micro nutrients																			
			Silica				Copper				Nickel				Chlorine				Iron			
			Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High	Tested	Low	Medium	High
1	Thiruvananthapuram	12	0	0	0	0	4	1	3	0	1	1	0	0	0	0	0	0	3	0	3	0
2	Kollam	13	3	0	3	0	5	1	4	0	3	0	3	0	3	0	3	0	5	0	5	0
3	Pathanamthitta	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
4	Alappuzha	5	4	2	2	0	5	0	5	0	4	1	3	0	4	2	2	0	4	0	4	0
5	Kottayam	5	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
6	Idukki	16	1	0	1	0	7	3	4	0	1	0	1	0	1	0	1	0	8	2	5	1
7	Ernakulam	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0
8	Thrissur	10	0	0	0	0	6	1	2	3	0	0	0	0	0	0	0	0	7	0	4	3
9	Palakkad	9	2	0	2	0	3	0	1	2	2	0	2	0	2	0	2	0	4	0	1	3
10	Malappuram	7	0	0	0	0	4	2	1	1	1	1	0	0	1	1	0	0	4	1	1	2
11	Kozhikode	4	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2	0
12	Wayanad	17	4	0	4	0	8	2	5	1	4	0	4	0	4	0	4	0	8	1	5	2
13	Kannur	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
14	Kasaragod	8	1	1	0	0	5	0	3	2	1	0	1	0	1	0	1	0	5	1	3	1
Total count		**110**	**15**	**3**	**12**	**0**	**53**	**10**	**31**	**12**	**17**	**3**	**14**	**0**	**16**	**3**	**13**	**0**	**54**	**5**	**34**	**15**
Total percentage		**100**	**13.64**	**20.00**	**80.00**	**0.00**	**48.18**	**18.87**	**58.49**	**22.64**	**15.45**	**17.65**	**82.35**	**0.00**	**14.55**	**18.75**	**81.25**	**0.00**	**49.09**	**9.26**	**62.96**	**27.78**

Appendix Table 6.1: Details of seeds used for organic farming and their associated seed care procedures

Serial No.	District	Farmer count	Seeds used for cultivation and No. of farmers						Seed care procedures				Method adopted for seed treatment procedures and No. of farmers					
			Indigenous		Hybrid		Both Indigenous and Hybrid		Adopted		Not adopted		Organic		Chemical		Both organic and chemical	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	53	43.44	13	10.66	56	45.9	100	81.97	22	18.03	98	98.00	2	2.00	0	0.00
2	Kollam	281	40	14.23	75	26.69	166	59.07	258	91.81	23	8.19	223	86.43	0	0.00	35	13.57
3	Pathanamthitta	175	31	17.71	9	5.14	135	77.14	140	80	35	20	136	97.14	0	0.00	4	2.86
4	Alappuzha	146	22	15.07	18	12.33	106	72.6	132	90.41	14	9.59	121	91.67	1	0.76	10	7.58
5	Kottayam	70	20	28.57	7	10	43	61.43	56	80	14	20	48	85.71	4	7.14	4	7.14
6	Idukki	225	155	68.89	18	8	52	23.11	157	69.78	68	30.22	155	98.73	0	0.00	2	1.27
7	Ernakulam	176	67	38.07	25	14.2	84	47.73	102	57.95	74	42.05	100	98.04	0	0.00	2	1.96
8	Thrissur	192	55	28.65	24	12.5	113	58.85	145	75.52	47	24.48	133	91.72	6	4.14	6	4.14
9	Palakkad	340	195	57.35	66	19.41	79	23.24	235	69.12	105	30.88	223	94.89	4	1.70	8	3.40
10	Malappuram	236	88	37.29	16	6.78	132	55.93	106	44.92	130	55.08	100	94.34	0	0.00	6	5.66
11	Kozhikode	157	38	24.2	15	9.55	104	66.24	136	86.62	21	13.38	134	98.53	1	0.74	1	0.74
12	Wayanad	166	74	44.58	36	21.69	56	33.73	36	21.69	130	78.31	33	91.67	0	0.00	3	8.33
13	Kannur	136	23	16.91	19	13.97	94	69.12	108	79.41	28	20.59	101	93.52	0	0.00	7	6.48
14	Kasaragod	132	44	33.33	5	3.79	83	62.88	65	49.24	67	50.76	62	95.38	0	0.00	3	4.62
Total count/percentage		2554	**905**	**35.43**	**346**	**13.55**	**1303**	**51.02**	**1776**	**69.54**	**778**	**30.46**	**1667**	**93.86**	**18**	**1.01**	**91**	**5.13**

Appendix Table 6.2: Details of farming practices applied on the farm field generally and in crop cultivation specifically

Serial No.	District	Farmer count	Organic farming practices adopted on farms and No. of farmers								Whether all crops are cultivated organically?				Reasons for non compliance with organic farming practices across all crops and No. of farmers							
			Traditional farming method		Cultivation method required for international certification		Natural farming method		Integrated method of traditional farming and natural farming		Yes		No		Decrease in productivity	Need based technology required for farming is not reliable	Absence of documented monitor records in Kerala	Increase in cost	Subsidy is not available for all crops	Scarcity of organic manures	Non availability of marketing facilities	Widespread pest Infestation/crop damage due to disease
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%								
1	Thiruvananthapuram	122	117	95.90	0	0.00	1	0.82	4	3.28	96	78.69	26	21.31	22	1	1	7	5	2	2	16
2	Kollam	281	225	80.07	0	0.00	1	0.36	55	19.57	149	53.02	132	46.98	99	4	0	16	5	16	17	61
3	Pathanamthitta	175	169	96.57	0	0.00	0	0.00	6	3.43	25	14.29	150	85.71	117	98	88	75	71	8	28	21
4	Alappuzha	146	146	100.00	0	0.00	0	0.00	0	0.00	88	60.27	58	39.73	51	4	0	24	2	23	18	54
5	Kottayam	70	55	78.57	0	0.00	7	10.00	8	11.43	21	30.00	49	70.00	40	1	0	2	0	1	1	35
6	Idukki	225	221	98.22	0	0.00	0	0.00	4	1.78	211	93.78	14	6.22	4	0	0	0	7	0	1	6
7	Ernakulam	176	172	97.73	1	0.57	2	1.14	1	0.57	158	89.77	18	10.23	14	0	0	1	1	2	6	13
8	Thrissur	192	166	86.46	1	0.52	4	2.08	21	10.94	153	79.69	39	20.31	34	1	0	20	2	12	16	26
9	Palakkad	340	326	95.88	1	0.29	3	0.88	10	2.94	291	85.59	49	14.41	38	2	0	3	0	6	7	6
10	Malappuram	236	215	91.10	2	0.85	3	1.27	16	6.78	196	83.05	40	16.95	25	0	1	9	4	6	16	15
11	Kozhikode	157	149	94.90	0	0.00	1	0.64	7	4.46	115	73.25	42	26.75	38	2	1	16	13	9	12	18
12	Wayanad	166	108	65.06	2	1.20	6	3.61	50	30.12	94	56.63	72	43.37	48	12	4	29	6	12	13	16
13	Kannur	136	103	75.74	6	4.41	2	1.47	25	18.38	94	69.12	42	30.88	40	0	1	8	1	9	3	18
14	Kasaragod	132	115	87.12	0	0.00	0	0.00	17	12.88	117	88.64	15	11.36	9	1	1	2	1	8	5	9
Total count		2554	2287	89.55	13	0.51	30	1.17	224	8.77	1808	70.79	746	29.21	579	126	97	212	118	114	145	314
Total percentage													100		77.61	16.89	13.00	28.42	15.82	15.28	19.44	42.09

Appendix Table 7.1: Details regarding the methods adopted for soil enrichment and the manner in which the products are acquired

Serial No.	District	Farmer count	Soil enrichment practices adopted and Number of farmers							Methods of getting soil enrichment products and No. of farmers						
			Compost	Vermicompost	Green leaves manure	Decoction of leaves	Jeevamrutham	Others	Not adopted any methods	Self-preparation	Purchase	Getting Free	Self-preparation & Purchase	Self-preparation & Getting Free	Purchase & Getting Free	Self-preparation, Purchase & Getting Free
1	Thiruvananthapuram	122	36	40	82	43	44	32	0	95	62	3	35	2	2	1
2	Kollam	281	82	67	205	63	42	89	0	252	98	31	71	28	9	8
3	Pathanamthitta	175	73	57	145	7	18	93	0	163	97	14	85	13	4	3
4	Alappuzha	146	70	59	139	48	47	64	0	135	95	3	84	3	1	1
5	Kottayam	70	16	21	52	12	25	40	0	62	23	1	16	0	0	0
6	Idukki	225	64	77	162	34	53	59	1	209	54	31	42	28	5	5
7	Ernakulam	176	63	42	116	20	32	28	32	137	34	3	27	3	1	1
8	Thrissur	192	117	68	174	45	65	22	0	182	82	5	73	4	3	3
9	Palakkad	340	18	30	137	12	28	256	14	292	78	5	47	2	1	1
10	Malappuram	236	53	44	218	26	42	118	0	220	106	7	90	6	5	4
11	Kozhikode	157	73	41	151	34	73	54	1	154	79	4	78	3	3	3
12	Wayanad	166	18	9	156	15	27	82	2	159	51	0	46	0	0	0
13	Kannur	136	33	27	119	52	46	48	0	122	70	10	57	9	9	9
14	Kasaragod	132	78	30	121	14	21	10	0	110	29	17	20	3	2	1
Total count		2554	794	612	1977	425	563	995	50	2292	958	134	771	104	45	40
Total percentage		100.00	31.09	23.96	77.41	16.64	22.04	38.96	1.96	89.74	37.51	5.25	30.19	4.07	1.76	1.57

Appendix Table 7.2: Information on raw materials used in the preparation of other fertilizers and tinctures employed for soil enrichment

Serial No.	District	Farmer count	Raw materials
1	Thiruvananthapuram	32	Goat dung, Bone meal, Ground nut cake, Kadalamrutham, Compost, Chicken manure, Cow urine, Cow dung, Cow dung powder, Wood ash, Organic manure, Neem cake, Jaggery
2	Kollam	89	Goat dung, Bone meal, Ground nut cake, Lime powder, Chicken manure, Cow urine, Cocopeat, Cow dung, Cow dung powder, Wood ash, Organic slurry, Tea powder, Vegetable peel, Marotti cake, Neem cake
3	Pathanamthitta	93	Aquaponics farming, Bone meal, Ground nut cake, Other self-prepared manures, Chicken manure, Cow dung, Cow dung powder, Wood ash, Biogas slurry, Neem cake
4	Alappuzha	64	Kitchem waste, Goat dung, Elephant dung, Bone meal, Ground nut cake, Dry leaf, Lime powder, Chicken manure, Cow urine, Cocopeat, Cow dung, Cow dung powder, Wood ash, Jeevamrutham, Organic mixture, Organic manure, Dolomite, Duck dropping, Haritha kashayam, Tea waste, Green manure, Panchagavyam, Algae, Potash, Magnesium, Other domestic animal dung, Egg shells, Urea, Rajphos, Chemical fertilizer, Vriksha ayurvedham, Neem cake, Haritha kashayam
5	Kottayam	40	Goat dung, Bone meal, Ground nut cake, Lime powder, Chicken manure, Cow urine, Cow dung, Cow dung powder, Potash, Factamfos, Chemical fertilizer, Neem cake
6	Idukki	59	Kitchem waste, Anjilikashayam, Goat dung, Goat urine, Lime powder, Chicken manure, Cow urine, Cow dung, Cow dung powder, Green manure, Neem cake
7	Ernakulam	28	Goat dung, Bone meal, Ground nut cake, Lime powder, Chicken manure, Cow urine, Cocopeat, Cow dung, Cow dung powder, Wood ash, Organic manure, Vegetable waste, Biogas slurry, Neem cake, Pseudomonas
8	Thrissur	22	Ground nut cake, Chicken manure, Neem cake, Organic fertilizers, Goat dung, Bone meal, Chicken manure, Cow dung powder, Wood ash, Organic slurry, Rice husk, Panchagavyam, Chemical fertilizer
9	Palakkad	256	Goat dung, Organic fertilizers, Lime powder, Chicken manure, Cow dung, Cow dung powder, Wood ash, Dolomite, Copper sulphate, Neem cake
10	Malappuram	118	Rock phosphate, Goat dung, Bone meal, Ground nut cake, Livestock manure, Lime powder, Infirmary sediment tincture, Chicken manure, Homeo medicine, Cocopeat, Cow dung, Cow dung powder, Cow dung slurry, Wood ash/Venneer, Bio fertilizers, Organic manure, Trichoderma, Green manure, Panchagavyam, Beejamrutham, Fish amino acid, Neem cake, Waste de composer, Homeo medicine
11	Kozhikode	54	Goat dung, Bone meal, Ground nut cake, Lime powder, Chicken manure, Cocopeat, Cow dung, Cow dung powder, Wood ash, Organic manure, Biogas slurry, Biomix, Ring compost, Neem cake
12	Wayanad	82	Goat dung, Bone meal, Chicken manure, Cow urine, Cow dung, Cow dung powder, Wood ash, Nabadhanya mix, Mulching, Neem cake
13	Kannur	48	Ground nut cake, Livestock manure, Lime powder, Chicken manure, Cow urine, Cow dung, Cow dung powder, Dolomite, Wood ash/Venneer, Neem cake
14	Kasaragod	10	Goat dung, Bone meal, Lime powder, Chicken manure, Cow urine, Cow dung, Neem cake
Total		995	

Appendix Table 7.3: Information regarding the methods of obtaining raw materials for the self-preparation of soil enrichment products and the mode of purchasing pre-made products for soil enrichment

Serial No.	District	Farmer count	Method of procuring raw materials for self-preparation of products and No. of Farmers						Establishments relied upon for purchase of soil enrichment products and No. of farmers				
			Farmers fraternity	Ecoshop	Prominent shops selling quality products like organic produce/ safe products	General stores	Available on its own	Others	Research centres	Ecoshop	Farmers fraternity	Producers with brand names and fame	Others
1	Thiruvananthapuram	122	14	1	5	24	77	0	1	12	37	10	8
2	Kollam	281	38	38	22	72	165	9	5	60	22	19	11
3	Pathanamthitta	175	15	1	53	17	161	0	0	2	5	91	1
4	Alappuzha	146	16	9	28	73	121	1	1	42	16	37	23
5	Kottayam	70	2	0	0	34	61	1	0	0	3	8	12
6	Idukki	225	20	22	32	59	173	5	1	24	25	2	13
7	Ernakulam	176	5	19	16	51	97	1	2	19	5	9	2
8	Thrissur	192	22	24	13	97	163	0	37	34	12	13	19
9	Palakkad	340	12	5	9	24	272	5	2	13	38	21	17
10	Malappuram	236	13	13	8	66	195	2	2	12	11	17	76
11	Kozhikode	157	6	2	6	71	122	3	1	8	5	37	35
12	Wayanad	166	10	2	6	18	150	0	3	1	24	31	0
13	Kannur	136	38	31	10	45	89	0	9	46	47	7	2
14	Kasaragod	132	4	8	9	29	99	0	0	3	7	16	11
Total count		2554	215	175	217	680	1945	27	64	276	257	318	230
Total percentage		100.00	8.42	6.85	8.50	26.62	76.16	1.06	2.51	10.81	10.06	12.45	9.01

Appendix Table 8.1: Information on methods adopted for plant nutrition and the products used for plant nutrition

Serial No.	District	Farmer count	Plant nutrition applications and Farmer count								Inputs used for plant nutrition and No. of farmers								
			Organic manures		Integrated manures		Both of these		Not adopted any methods		Microbial inoculants/ Bio fertilizers	Fish amino acid	Egg amino acid	Other Tinctures	Jeevamrutham	Panchagavyam	Vermicompost	Leaves extracts in Viksha Ayurvedham	Others
			Count	%	Count	%	Count	%	Count	%									
1	Thiruvananthapuram	122	108	88.52	11	9.02	3	2.46	0	0.00	49	31	20	38	41	19	36	24	49
2	Kollam	281	216	76.87	17	6.05	48	17.08	0	0.00	137	99	16	88	60	32	69	23	118
3	Pathanamthitta	175	122	69.71	27	15.43	26	14.86	0	0.00	77	66	17	18	34	2	85	4	110
4	Alappuzha	146	100	68.49	28	19.18	18	12.33	0	0.00	75	70	20	25	47	44	62	34	60
5	Kottayam	70	30	42.86	37	52.86	3	4.29	0	0.00	28	27	17	14	29	10	19	13	50
6	Idukki	225	213	94.67	3	1.33	9	4.00	0	0.00	58	29	26	18	62	25	78	24	126
7	Ernakulam	176	120	68.18	16	9.09	10	5.68	30*	17.05	56	64	17	18	54	27	40	20	55
8	Thrissur	192	158	82.29	14	7.29	16	8.33	4*	2.08	59	65	25	50	69	42	81	32	69
9	Palakkad	340	287	84.41	6	1.76	47	13.82	0	0.00	42	18	10	17	46	26	32	10	293
10	Malappuram	236	216	91.53	12	5.08	8	3.39	0	0.00	41	64	21	22	51	31	53	16	168
11	Kozhikode	157	128	81.53	16	10.19	13	8.28	0	0.00	49	62	23	23	78	38	45	41	128
12	Wayanad	166	120	72.29	28	16.87	18	10.84	0	0.00	19	22	7	13	43	12	14	13	143
13	Kannur	136	82	60.29	27	19.85	27	19.85	0	0.00	40	46	22	64	54	29	19	22	45
14	Kasaragod	132	112	84.85	16	12.12	4	3.03	0	0.00	29	5	2	6	20	9	34	19	79
Total count/Percentage		**2554**	**2012**	**78.78**	**258**	**10.10**	**250**	**9.79**	**34***	1.33	**759**	**668**	**243**	**414**	**688**	**346**	**667**	**295**	**1493**
Total percentage		**100.00**									**29.72**	**26.16**	**9.51**	**16.21**	**26.94**	**13.55**	**26.12**	**11.55**	**58.46**

* 30 organic farmers in the Ernakulam district are cultivating Pokkali in the Varapuzha area. None of them utilize any methods of plant nutrition.

** 4 organic farmers residing in the Adichill Thotti Tribal Colony of Thrissur District practice farming without the use of chemical or organic manures in their fields.

Appendix Table 8.2: Information on raw materials utilized for formulating additional fertilizers and infusions employed as plant nutrition products

Sl No.	District	Farmer count	Raw Materials
1	Thiruvananthapuram	49	Azolla, Goat dung, Bone meal, Rice water, Ground nut cake, Kadalamrutham, Cow dung, Compost, Lime powder, Chicken manure, Biogas slurry, Cow dung powder, Wood ash, Trichoderma, Green manure, Sour curd, Neem cake, Haritha kashayam
2	Kollam	118	Goat dung, Bone meal, Ground nut cake, Lime powder, Chicken manure, Cow urine, Cow dung, Wood ash, Cow dung powder, Organic slurry, Organic manure, Tea waste, Biogas slurry, Vegetable peel, Potash, Beejamrutham, Marotti cake, Fish manure, Urea, Neem cake
3	Pathanamthitta	110	Aquaculture waste, Kitchem waste, Goat dung, Bone meal, Ground nut cake, Wood ash, Chicken manure, Cow dung, Cow dung powder, Green manure, Biogas slurry, Neem cake
4	Alappuzha	60	Kitchen waste, Salt, Black gram, Bone meal, Hill glory bower, Ground nut cake, Compost, Lime powder, Chicken manure, Cow urine, Cocopeat, Cow dung, Organic manure, Green manure, Jaggery Trichoderma, Tea waste, Algae, Milk, Palayankodan banana, Tobacco emulsion, Fish amino acid, Biogas slurry, Chemical fertilizer, Acrous calamus/Sweet Flag, Neem cake, Neem oil, Wood ash
5	Kottayam	50	Goat dung, Bone meal, Calm shell powder, Ground nut cake, Chicken manure, Cow urine, Cow dung, Cow dung powder, Wood ash, Jeevamrutham, Green manure, Factamfos, Beejamrutham, Vermi wash, Neem cake, Sterameal
6	Idukki	126	Agniyasthram, Kitchen waste, Goat dung, Urad powder, Bone meal, Ground nut cake, Lime powder, Gliricidia leaves, Chicken manure, Cow urine, Cow dung, Cow dung powder, Wood ash, Tobacco leaves, Trichoderma, Deshabharani, Fresh cow dung, Green manure, Pathila kashayam, Tobacco emulsion, Compost, Bordeaux mixture, Vinegar, Salt, Common sunflower leaves, Vermicompost, Garlic, Neem cake, Neem oil, Waste de Compost, Soap, Slurry
7	Ernakulam	55	Aloevera, Goat dung, Leaves, Salt, Bone meal, Ground nut cake, Compost, Lime powder, Gliricidia leaves, Chicken manure, Cow dung slurry, Cow dung, Cow dung powder, Wood ash, Tea waste, Creat or green chiretta, Vegetable peel, Green manure, Biogas slurry, Beejamrutham, Turmeric powder, Curd, Urea, Garlic, Neem cake, Neem oil
8	Thrissur	69	Goat dung, Rice water, Ground nut cake, Compost, Chicken manure, Cow urine, Cow dung, Cow dung powder, Wood ash, Organic slurry, Tobacco emulsion, Fish tank waste water, Biogas slurry, Fish wastes, Chilly, Chemical fertilizer, Garlic, Neem cake, Neem oil, Waste de compost, Haritha kashayam, Homeo medicine
9	Palakkad	293	Goat dung, Dried elephant dung, Bone meal, Compost, Lime powder, Jaggery Chicken manure, Cow urine, Cow dung, Wood ash, Trichoderma, Green manure, Chemical fertilizer, Tobacco emulsion, Potash, Bio fertilizer, Brahmasthram, Urea, Neem cake
10	Malappuram	168	Rock phosphate, Goat dung, Compost, Onion peel, Aerobic compost, Bone meal, Ground nut cake, Compost, Livestock manure, Lime powder, Chicken manure, Cow urine, Jaggery, Cocopeat, Cow dung, Cow dung powder, Green manure, pH Booster, Biogas slurry, Bio booster, Manure powder, Wood ash, Neem cake, Neem oil, Soya protein
11	Kozhikode	128	Goat dung, Bone meal, Ground nut cake, Compost, Lime powder, Chicken manure, Cow urine, Cow dung, Cow dung powder, Geoline, Green manure, Biogas slurry, Biomix, Vermi compost, Ring Compost, Wood ash, Neem cake, Dolomite
12	Wayanad	143	Anchila kashayam, Goat dung, Bone meal, Ground nut cake, Compost, Quail waste, Coffee husk, Lime powder, Chicken manure, Cow urine, Ghana Beejamrutham, Dry leaves, Cow dung, Wood ash, Trichoderma, Dolomite, Neemasthram, Green manure, PGPR, Tobacco emulsion, Bio slurry, Beejamrutham, Food waste, Lactic acid, Varanasi compost, Jaggery, Neem cake, Pseudomonas, Haritha kashayam, Hridayamrutham
13	Kannur	45	Aalavalam, Bone meal, Compost, Chicken manure, Cow urine, Cocopeat, Cow dung, Tobacco emulsion, Pseudomonas, Neem cake, Organic decoction, Biogas slurry, Vermi wash, Haritha kashayam
14	Kasaragod	79	Agromix, Goat dung, Bone meal, Compost, Kumbhajalam, Chicken manure, Cow urine, Cow dung, Green manure, Fish water, Neem decoction, Neem cake, Soap, Hridayamrutham
Total		1493	

Appendix Table 8.3: Information on availing plant nutrition products and the procurement of raw materials for self-preparation

Serial No.	District	Farmer count	Mode of getting inputs and Farmer count							Means of procuring raw materials for self-preparation of inputs and No. of Farmers					
			Self-preparation	Purchase	Getting free	Self-preparation & Purchase	Self-preparation & Getting free	Purchase & Getting free	Self-preparation, Purchase & Getting free	Farmers fraternity	Ecoshop	Prominent shops selling quality products like organic produce/ safe products	General stores	Available on its own	Others
1	Thiruvananthapuram	122	74	79	27	35	11	17	5	13	4	3	21	56	1
2	Kollam	281	209	158	43	91	37	20	19	29	46	17	113	110	6
3	Pathanamthitta	175	135	120	92	81	68	63	40	13	3	61	41	115	0
4	Alappuzha	146	118	107	22	81	18	18	16	16	16	24	79	101	1
5	Kottayam	70	59	38	6	27	5	2	1	2	0	0	49	55	4
6	Idukki	225	182	76	77	44	57	23	14	27	23	17	99	126	7
7	Ernakulam	176	111	62	31	31	15	19	7	9	11	16	67	66	4
8	Thrissur	192	156	97	31	67	26	25	22	19	22	11	107	112	5
9	Palakkad	340	260	112	63	36	37	42	20	10	4	10	31	212	23
10	Malappuram	236	189	141	24	97	18	16	13	13	14	8	83	141	15
11	Kozhikode	157	127	111	51	84	43	41	36	7	3	6	67	100	4
12	Wayanad	166	150	63	35	49	26	18	11	26	2	4	44	126	0
13	Kannur	136	105	74	28	45	26	19	19	27	25	10	74	33	7
14	Kasaragod	132	106	56	23	33	16	15	11	5	7	14	38	77	2
Total count		**2554**	**1981**	**1294**	**553**	**801**	**403**	**338**	**234**	**216**	**180**	**201**	**913**	**1430**	**79**
Total percentage		**100.00**	**77.56**	**50.67**	**21.65**	**31.36**	**15.78**	**13.23**	**9.16**	**8.46**	**7.05**	**7.87**	**35.75**	**55.99**	**3.09**

Appendix Table 8.4: Information regarding the methods of purchasing plant nutrition products and their availability to farmers who receive the products for free

Serial No.	District	Farmer count	Mode of purchasing inputs from outside and Farmer count						Methods of getting free Inputs and No. of Farmers					
			Research centres	Ecoshop	Farmers fraternity	Producers with brand names and fame	Prominent shops selling quality products like organic produce/safe products	Others	Krishi Bhavan	Grama Panchayath	Krishi Vigyan Kendra	Farmers fraternity	Individuals	Others
1	Thiruvananthapuram	122	1	16	31	22	17	1	27	0	0	0	0	0
2	Kollam	281	12	71	18	10	67	7	32	0	1	4	30	0
3	Pathanamthitta	175	0	7	7	64	70	0	92	0	1	6	0	0
4	Alappuzha	146	8	30	15	10	74	15	15	1	2	2	5	0
5	Kottayam	70	12	4	0	13	9	11	4	0	0	1	1	0
6	Idukki	225	0	31	43	3	7	13	66	0	2	5	12	13
7	Ernakulam	176	3	25	7	7	21	2	28	0	2	0	1	0
8	Thrissur	192	34	32	17	8	23	19	27	4	0	6	1	0
9	Palakkad	340	2	13	62	17	14	29	58	0	1	0	2	2
10	Malappuram	236	2	9	12	19	19	91	19	0	0	4	2	0
11	Kozhikode	157	3	4	10	10	41	52	50	12	0	3	2	1
12	Wayanad	166	6	2	17	34	18	1	34	0	0	0	0	1
13	Kannur	136	4	40	39	18	23	3	18	1	0	14	6	0
14	Kasaragod	132	0	8	7	23	16	15	22	0	1	2	1	0
Total count		2554	87	292	285	258	419	259	492	18	10	47	63	17
Total percentage		100.00	3.41	11.43	11.16	10.10	16.41	10.14	19.26	0.70	0.39	1.84	2.47	0.67

Appendix Table 9.1: Details regarding pest infestation found in farm field

Serial No.	District	Farmer count	Pests and Farmers											
			Sap sucking insects		Leaf eating caterpillars		Leaf hoppers		Nematodes		Others		Not applicable	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	89	72.95	97	79.51	88	72.13	55	45.08	27	22.13	2	1.64
2	Kollam	281	187	66.55	211	75.09	151	53.74	32	11.39	18	6.41	7	2.49
3	Pathanamthitta	175	149	85.14	144	82.29	138	78.86	47	26.86	12	6.86	4	2.29
4	Alappuzha	146	134	91.78	139	95.21	126	86.30	39	26.71	43	29.45	0	0.00
5	Kottayam	70	66	94.29	63	90.00	58	82.86	42	60.00	1	1.43	0	0.00
6	Idukki	225	122	54.22	158	70.22	122	54.22	16	7.11	7	3.11	8	3.56
7	Ernakulam	176	82	46.59	113	64.20	103	58.52	15	8.52	37	21.02	20	11.36
8	Thrissur	192	139	72.40	147	76.56	111	57.81	38	19.79	22	11.46	4	2.08
9	Palakkad	340	88	25.88	152	44.71	144	42.35	19	5.59	25	7.35	109	32.06
10	Malappuram	236	91	38.56	98	41.53	98	41.53	29	12.29	19	8.05	55	23.31
11	Kozhikode	157	122	77.71	141	89.81	88	56.05	61	38.85	29	18.47	5	3.18
12	Wayanad	166	52	31.33	47	28.31	42	25.30	22	13.25	23	13.86	67	40.36
13	Kannur	136	80	58.82	102	75.00	80	58.82	29	21.32	18	13.24	5	3.68
14	Kasaragod	132	79	59.85	89	67.42	64	48.48	28	21.21	0	0.00	5	3.79
Total count/percentage		**2554**	**1480**	**57.95**	**1701**	**66.60**	**1413**	**55.32**	**472**	**18.48**	**281**	**11.00**	**291**	**11.39**

Appendix Table 9.2: Details regarding other pest infestation found in farm field

Serial No.	District	Farmer count	Other Pests
1	Thiruvananthapuram	27	Rodent infestation, Aphids, Snail, Melon fly/Fruit fly, Rhinoceros beetle, Stem weevil, Insect species, Brown planthopper, Green hopper, White fly
2	Kollam	18	Leafcutter ants, House fly, Termite, Beetle, Three spot grass yellow, White fly
3	Pathanamthitta	12	Melon fly/Fruit fly, Leaf miner, Red palm mite, Beetle, White fly
4	Alappuzha	43	Giant African land snail, Phasmatodea, Rodent infestation, Snail, Melon fly/Fruit fly, Mongoose, Beetle, Stem weevil, Toddy cat/Musang, Brown planthopper, White fly
5	Kottayam	1	Beetle
6	Idukki	7	Bud rot disease, Phasmatodea, Red palm weevil, Stem weevil, Mealybugs, White fly
7	Ernakulam	37	Giant African land snail, Epilachna ladybugs, Rodent Infestation, Snail, Melon fly/Fruit fly, Rhinoceros beetle, Brown planthopper, Gall midges or Gall gnats, Red palm weevil, Earthworm, Grey-headed Swamphen attack, Stem weevil, Grasshopper, Beetle, White fly
8	Thrissur	22	Melon fly/Fruit fly, Rhinoceros beetle, Other insects, Beetle, White fly
9	Palakkad	25	Housefly, Ant, Melon fly/Fruit fly, Rhinoceros beetle, Red palm weevil, Stem weevil, Mite/Mandari, Rootworms
10	Malappuram	19	Melon/Fruit fly, Rhinoceros beetle, Flea, Stem weevil, Cockroaches, Insects, Beetle, White
11	Kozhikode	29	Epilachna ladybugs, Leaf curl, Melon fly/Fruit fly, Flea, Stem weevil, Beetle, White fly
12	Wayanad	23	Leaf curl, Leaf blight, Ant, Flea, Stem weevil, Mite/Mandari, Brown planthopper, Beetle, White fly
13	Kannur	18	Ant, Melon fly/Fruit fly, Stem weevil, Insects, Beetles, White fly
Total		**281**	

Appendix Table 9.3: Information regarding pest management methods and their potential effectiveness through application

Serial No.	District	Farmer count	Practices adopted to control pest infestation and No. of farmers																No. of applications made to meet the target of effective management of pests and No. of Farmers									
			Using commercially produced plant based products		Using opposite insects		Using bio fertilizers/ Nematodes		Using bio mixtures prepared in the farm field		Pheromone traps		Lamp traps		Trichoderma egg cards		Not adopt any methods		One time		Two times		Three times		More than three times		Not effective	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	37	30.33	4	3.28	20	16.39	58	47.54	40	32.79	25	20.49	0	0.00	10	8.20	0	0.00	0	0.00	11	9.02	101	82.79	0	0.00
2	Kollam	281	74	26.33	23	8.19	23	8.19	209	74.38	64	22.78	13	4.63	31	11.03	14	4.98	5	1.78	30	10.68	67	23.84	160	56.94	5	1.78
3	Pathanamthitta	175	113	64.57	18	10.29	98	56.00	129	73.71	43	24.57	11	6.29	7	4.00	5	2.86	0	0.00	26	14.86	20	11.43	123	70.29	1	0.57
4	Alappuzha	146	79	54.11	43	29.45	18	12.33	104	71.23	40	27.40	25	17.12	17	11.64	4	2.74	1	0.68	12	8.22	28	19.18	101	69.18	0	0.00
5	Kottayam	70	10	14.29	15	21.43	1	1.43	42	60.00	24	34.29	9	12.86	2	2.86	12	17.14	1	1.43	3	4.29	3	4.29	47	67.14	4	5.71
6	Idukki	225	52	23.11	5	2.22	9	4.00	116	51.56	5	2.22	6	2.67	19	8.44	39	17.33	6	2.67	62	27.56	54	24.00	53	23.56	11	4.89
7	Ernakulam	176	37	21.02	7	3.98	8	4.55	74	42.05	27	15.34	10	5.68	12	6.82	28	15.91	1	0.57	9	5.11	25	14.20	76	43.18	37	21.02
8	Thrissur	192	40	20.83	11	5.73	9	4.69	117	60.94	43	22.40	11	5.73	28	14.58	34	17.71	1	0.52	28	14.58	27	14.06	94	48.96	8	4.17
9	Palakkad	340	46	13.53	9	2.65	1	0.29	69	20.29	12	3.53	10	2.94	18	5.29	118	34.71	26	7.65	47	13.82	30	8.82	35	10.29	84	24.71
10	Malappuram	236	20	8.47	8	3.39	14	5.93	83	35.17	33	13.98	18	7.63	21	8.90	116	49.15	2	0.85	16	6.78	35	14.83	59	25.00	8	3.39
11	Kozhikode	157	5	3.18	31	19.75	18	11.46	117	74.52	51	32.48	14	8.92	20	12.74	21	13.38	4	2.55	9	5.73	24	15.29	98	62.42	1	0.64
12	Wayanad	166	17	10.24	4	2.41	2	1.20	23	13.86	4	2.41	4	2.41	4	2.41	54	32.53	5	3.01	24	14.46	11	6.63	10	6.02	62	37.35
13	Kannur	136	2	1.47	2	1.47	15	11.03	100	73.53	35	25.74	6	4.41	5	3.68	14	10.29	33	24.26	21	15.44	14	10.29	48	35.29	6	4.41
14	Kasaragod	132	35	26.52	2	1.52	12	9.09	62	46.97	7	5.30	7	5.30	4	3.03	36	27.27	9	6.82	12	9.09	27	20.45	48	36.36	0	0.00
Total count/percentage		2554	567	22.20	182	7.13	248	9.71	1303	51.02	428	16.76	169	6.62	188	7.36	505	19.77	94	3.68	299	11.71	376	14.72	1055	41.31	225	8.81

Appendix Table 9.4: Methods for obtaining pest management products and procurement of raw materials for their self-preparation, and mode of purchase of pest management products

Serial No.	District	Farmer count	Mode of availability of pest management measures and No. of farmers							Means of procuring raw materials for self-preparation of inputs and No. of farmers						Means of buying inputs and No. of farmers					
			Self-preparation	Purchase	Getting free	Self-preparation & Purchase	Self-preparation & Getting free	Purchase & Getting free	Self-preparation, Purchase & Getting free	Farmers fraternity	Ecoshop	Prominent shops selling quality products like organic produce/safe products	General Stores	Available on its own	Others	Government research centres	Ecoshop	Farmers fraternity	Producers with brand names and fame	Prominent shops selling quality products like organic produce/safe products	Others
1	Thiruvananthapuram	122	64	76	0	28	0	0	0	8	4	3	27	36	1	4	24	7	28	14	3
2	Kollam	281	225	126	7	84	6	3	2	24	43	19	145	82	0	13	67	9	4	49	1
3	Pathanamthitta	175	150	127	15	107	13	4	2	11	3	91	23	135	1	2	14	3	46	74	1
4	Alappuzha	146	120	107	0	85	0	0	0	13	10	26	77	90	6	4	27	10	7	87	4
5	Kottayam	70	51	34	0	27	0	0	0	0	0	0	39	45	0	12	4	1	2	5	13
6	Idukki	225	137	88	8	42	4	3	2	21	12	28	60	75	1	5	28	55	0	12	4
7	Ernakulam	176	114	68	2	34	1	1	0	3	11	13	35	48	0	2	29	6	5	28	2
8	Thrissur	192	131	99	4	72	4	3	3	18	22	9	89	91	1	46	39	16	9	15	2
9	Palakkad	340	160	74	2	13	0	1	0	5	3	8	28	50	1	11	21	4	6	23	12
10	Malappuram	236	91	60	1	31	1	1	1	9	14	9	63	43	0	19	13	8	3	19	9
11	Kozhikode	157	121	72	4	57	4	4	4	2	1	5	92	71	1	8	18	2	8	38	5
12	Wayanad	166	93	25	0	6	0	0	0	5	2	2	11	15	0	6	1	7	2	12	0
13	Kannur	136	92	72	9	42	9	9	9	29	29	7	46	38	0	10	51	37	4	11	2
14	Kasaragod	132	60	52	4	16	3	3	2	1	10	12	39	23	2	1	17	8	10	15	6
Total count		**2554**	**1609**	**1080**	**56**	**644**	**45**	**32**	**25**	**149**	**164**	**232**	**774**	**842**	**14**	**143**	**353**	**173**	**134**	**402**	**64**
Total percentage		**100.00**	**63.00**	**42.29**	**2.19**	**25.22**	**1.76**	**1.25**	**0.98**	**5.83**	**6.42**	**9.08**	**30.31**	**32.97**	**0.55**	**5.60**	**13.82**	**6.77**	**5.25**	**15.74**	**2.51**

Appendix Table 10.1: Details regarding disease outbreaks in farmland

Serial No.	District	Farmer count	Disease information and No. of farmers									
			Fungus		Bacteria		Virus		Cannot identify		Others	
			Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	26	21.31	21	17.21	48	39.34	6	4.92	35	28.69
2	Kollam	281	79	28.11	64	22.78	44	15.66	3	1.07	86	30.60
3	Pathanamthitta	175	72	41.14	50	28.57	60	34.29	2	1.14	66	37.71
4	Alappuzha	146	103	70.55	48	32.88	54	36.99	5	3.42	41	28.08
5	Kottayam	70	36	51.43	16	22.86	33	47.14	0	0.00	17	24.29
6	Idukki	225	143	63.56	89	39.56	18	8.00	19	8.44	9	4.00
7	Ernakulam	176	27	15.34	17	9.66	13	7.39	5	2.84	51	28.98
8	Thrissur	192	82	42.71	59	30.73	53	27.60	6	3.13	52	27.08
9	Palakkad	340	31	9.12	21	6.18	23	6.76	12	3.53	99	29.12
10	Malappuram	236	46	19.49	19	8.05	79	33.47	9	3.81	49	20.76
11	Kozhikode	157	121	77.07	76	48.41	97	61.78	11	7.01	2	1.27
12	Wayanad	166	69	41.57	8	4.82	8	4.82	38	22.89	19	11.45
13	Kannur	136	30	22.06	18	13.24	29	21.32	2	1.47	49	36.03
14	Kasaragod	132	111	84.09	13	9.85	56	42.42	0	0.00	2	1.52
Total count/percentage		**2554**	**976**	**38.21**	**519**	**20.32**	**615**	**24.08**	**118**	**4.62**	**577**	**22.59**

Appendix Table 10.2: Details regarding other disease outbreaks in farmland

Serial No.	District	Farmer count	Other diseases
1	Thiruvananthapuram	6	Leaf curl, Leaf spot, Yellow leaf disease, Banana bunchy top, Stunting, Root/Wilt disease
2	Kollam	3	Leaf curl, Fungus, Yellow leaf disease
3	Pathanamthitta	2	Coconut mite
4	Alappuzha	5	Root/Wilt disease, Stem weevil, Yellow leaf disease, Bud rot disease, Wilt disease, Root rot
5	Idukki	19	Root/Wilt disease, Fungus
6	Ernakulam	5	Carpenter ant/Kuniyan, Fungus, Coconut mite, White fly
7	Thrissur	6	Fungus, Fruit fly, White fly
8	Palakkad	12	Leaf curl, Bud rot disease, Rhinoceros beetle, Stem weevil, Root/Wilt disease, Fungus, Coconut mite, Beetles attack, White fly
9	Malappuram	9	Bud rot disease, Coconut mite, Mahali, White fly
10	Kozhikode	11	Gammosis, Bud rot disease, Bud rot disease, Stem bleeding disease, Stem weevil, Yellow leaf disease
11	Wayanad	38	Mosaic virus, Bud rot disease, Rot disease, Root/Wilt disease, Fungus, Yellow leaf disease, Bud rot disease, Coconut mite, Mahali
12	Kannur	2	Bud rot disease, Fungus
Total		118	

Appendix Table 10.3: Information on crop diseases and the methods adopted for their management

Serial No.	District	Farmer count	Diseases in crops				Disease type and farmers								Methods adopted to manage crop disease and No. of Farmers											
			Those who confront		Those who do not confront		Virus		Fungus		Bacteria		Could not identify		Using bio fertilizers		Using plant based products available for purchase		Using leaf decoctions		Others		Could not use any methods	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	105	86.07	17	13.93	54	44.26	27	22.13	21	17.21	42	34.43	29	23.77	51	41.80	19	15.57	19	15.57	6	4.92
2	Kollam	281	258	91.81	23	8.19	53	18.86	76	27.05	71	25.27	98	34.88	17	6.05	107	38.08	127	45.20	19	6.76	0	0.00
3	Pathanamthitta	175	173	98.86	2	1.14	67	38.29	78	44.57	49	28.00	82	46.86	101	57.71	122	69.71	136	77.71	3	1.71	0	0.00
4	Alappuzha	146	145	99.32	1	0.68	57	39.04	103	70.55	49	33.56	60	41.10	32	21.92	85	58.22	58	39.73	37	25.34	1	0.68
5	Kottayam	70	48	68.57	22	31.43	26	37.14	23	32.86	11	15.71	10	14.29	8	11.43	7	10.00	10	14.29	22	31.43	12	17.14
6	Idukki	225	185	82.22	40	17.78	25	11.11	151	67.11	83	36.89	20	8.89	15	6.67	112	49.78	43	19.11	21	9.33	0	0.00
7	Ernakulam	176	134	76.14	42	23.86	20	11.36	39	22.16	13	7.39	66	37.50	14	7.95	52	29.55	41	23.30	31	17.61	0	0.00
8	Thrissur	192	167	86.98	25	13.02	58	30.21	66	34.38	43	22.40	52	27.08	16	8.33	67	34.90	88	45.83	22	11.46	12	6.25
9	Palakkad	340	127	37.35	213	62.65	28	8.24	36	10.59	24	7.06	59	17.35	6	1.76	37	10.88	31	9.12	28	8.24	20	5.88
10	Malappuram	236	155	65.68	81	34.32	76	32.20	59	25.00	19	8.05	44	18.64	20	8.47	43	18.22	51	21.61	36	15.25	28	11.86
11	Kozhikode	157	152	96.82	5	3.18	101	64.33	122	77.71	69	43.95	7	4.46	21	13.38	48	30.57	81	51.59	42	26.75	6	3.82
12	Wayanad	166	115	69.28	51	30.72	8	4.82	68	40.96	7	4.22	59	35.54	1	0.60	9	5.42	15	9.04	19	11.45	72	43.37
13	Kannur	136	97	71.32	39	28.68	33	24.26	24	17.65	17	12.50	45	33.09	29	21.32	19	13.97	63	46.32	12	8.82	3	2.21
14	Kasaragod	132	130	98.48	2	1.52	63	47.73	114	86.36	6	4.55	25	18.94	14	10.61	42	31.82	26	19.70	58	43.94	0	0.00
Total		**2554**	**1991**	**77.96**	**563**	**22.04**	**669**	**26.19**	**986**	**38.61**	**482**	**18.87**	**669**	**26.19**	**323**	**12.65**	**801**	**31.36**	**789**	**30.89**	**369**	**14.45**	**160**	**6.27**

Appendix Table 10.4: Information on other methods adopted for disease management in crops

Serial No.	District	Farmer count	Other practices
1	Thiruvananthapuram	19	Rice water, Bird's eye chilli/Kantari mulakku, Bio pesticide, Lemon, Pappaya leaf extract, PGR 1, PGR 2, Tobacco emulsion, Stirred boiled turmeric water, Turmeric powder, Remove disease affected areas, Garlic, Neem oil, Soap solution
2	Kollam	19	Salt, Fenugreek paste, Rice water, Nuxvomica leaves, Bird's eye chilli/Kantari mulakku, Asafoetida, Gliricidia leaves, Cow urine, Disperse wood ash, Dried red chilli, Tobacco emulsion, Fungi, Chilli powder, Remove disease affected areas, വറ്റൽChilly, Garlic, Neem oil, Big Onion/Savala, Soap solution
3	Pathanamthitta	3	Tobacco, Bordeaux mixture, Beauveria, Garlic, Jaggery, Soap
4	Alappuzha	37	Fenugreek, Rice water, Siam weed, Bird's eye chilli/Kantari mulakku, Pesticide, Cow urine, Bio pesticides, DDT, Copper sulphate, Naphthalene, Fumigate, Tobacco emulsion, Turmeric powder, Remove disease affected areas, വിഷം, Garlic, Neem cake, Neem oil, Big Onion/Savala, Soap, Homeo medicine
5	Kottayam	22	Ekalux, Pesticide, Copper sulphate, Sored curd, Bordeaux mixture, Bleaching powder, Turmeric powder, Chemical fertilizers, Sulphar
6	Idukki	21	Goat urine, Lime powder, Black Pepper, Gliricidia leaves, Cow urine, Cow dung slurry, Cow dung, Wood ash, Copper sulphate, Dasapatra kashayam/Pathila kashayam, Bordeaux mixture, Remove disease affected areas, Garlic, Neem cake, Neem oil, Sunflower leaves
7	Ernakulam	31	Neem leaves, Rice water, Bird's eye chilli/Kantari mulakku, Cow urine, Wood ash, Curd, Green Chilli, Panchagavyam, Pappaya leaf extract, Sored porridge water, Tobacco emulsion, Pheromone traps, Bordeaux mixture, Turmeric powder, Chemical method, Verticillium, Coconut oil, Garlic, Neem oil, Soap powder
8	Thrissur	22	Bird's eye chilli/Kantari mulakku, Lime powder, Cow urine, Cow dung slurry, Wood ash, Copper sulphate, Sored porridge water, Bordeaux mixture, Sand, Chemical method, Remove disease affected areas, Garlic, Neem cake, Neem oil, Waste de composer, Pseudomonas
9	Palakkad	28	Nuxvomica bark, Cow dung, Wood ash, Lime, Naphthalene, Copper sulphate, Tobacco emulsion, Fumigate, Bordeaux mixture, Bleaching powder, Organic pesticides, Neem oil, Neem cake, Pseudomonas
10	Malappuram	36	Ginger, Removes infected leaves, Ekalux, Bird's eye chilli/Kantari mulakku, Napthealene balls, Cow urine, Wood ash, Cheenamul decoction, Jeevamrutham, Nimbecidine, Copper sulphate, Panchagavyam, Tooth pain tablet, Tobacco emulsion, Bordeaux mixture, Organic pesticide, Remove disease affected areas, Garlic, Neem oil, Jaggery, Soap powder, Soap
11	Kozhikode	42	Amruthalepanam, Salt, Rice water, Ground nut cake, Nuxvomica leaves, Bird's eye chilli/Kantari mulakku, Fungicide, Cow urine, Bio pesticide, Coconut water, Pappaya leaves extract, Tobacco emulsion, sored Curd, Bordeaux mixture, Garlic, Neem oil, Soap solution, Haritha kashayam
12	Wayanad	19	Ground nut cake, Lime powder, Cow urine, Cow dung, Wood ash, Jeevamrutham, Organic manure, Trichoderma, Copper sulphate, പച്ചTurmeric, Bordeaux mixture, Neem cake, Jaggery, Pseudomonas
13	Kannur	12	Black gram/Urad, Rice water, Fumigate, Bordeaux mixture, Sand, Jaggery, Garlic, Neem cake, Neem oil, Soap
14	Kasaragod	58	Karatin, Insecticide, Marigold cultivation, Copper sulphate, Bordeaux mixture, Neem decoction, Neem cake, Soap
Total		369	

Appendix Table 10.5: Mode of acquiring disease management products and means of procuring raw materials for their self-preparation and the way of procuring premade products and the potential effectiveness through application

Serial No.	District	Farmer count	Mode of getting inputs and Farmer count							Means of procuring raw materials for self-preparation of inputs and No. of Farmers						Mode of purchasing inputs and Farmer count					No. of applications made to meet the target of effective control of diseases and No. of Farmers				
			Self-preparation	Purchase	Getting Free	Self-preparation & Purchase	Self-preparation & Getting Free	Purchase & Getting Free	Self-preparation, Purchase & Getting Free	Farmers fraternity	Ecoshop	Prominent shops selling quality products like organic produce/safe products	General stores	Available on its own	Others	Research institutions	Ecoshop	Farmers fraternity	Producers with brand names and fame	Others	One time	Two times	Three times	More than three times	Not effective
1	Thiruvananthapuram	122	46	74	2	21	1	2	1	4	5	7	24	20	0	2	24	8	27	12	0	0	11	88	0
2	Kollam	281	171	128	2	41	2	0	0	19	19	12	107	68	0	11	94	23	16	0	5	30	67	155	1
3	Pathanamthitta	175	147	125	15	99	13	5	3	13	1	86	30	111	2	2	16	8	102	4	0	26	20	127	0
4	Alappuzha	146	96	108	1	61	0	0	0	13	9	26	72	76	0	9	54	11	44	18	1	12	28	103	0
5	Kottayam	70	17	28	0	9	0	0	0	1	0	1	15	15	0	7	1	0	2	19	1	3	3	29	0
6	Idukki	225	123	111	15	52	9	9	6	20	14	21	51	80	3	2	49	66	2	7	6	62	54	62	1
7	Ernakulam	176	81	81	6	32	2	1	1	7	13	10	40	46	0	3	39	12	24	4	1	9	25	98	1
8	Thrissur	192	122	77	4	44	4	4	4	17	17	13	87	78	0	29	38	9	16	5	1	28	27	98	1
9	Palakkad	340	59	58	0	10	0	0	0	6	3	9	23	29	0	1	28	7	11	12	26	47	30	3	1
10	Malappuram	236	81	73	1	27	1	1	1	11	11	7	61	42	1	12	22	17	6	27	2	16	35	73	1
11	Kozhikode	157	127	64	3	45	3	3	3	4	6	4	92	71	4	5	16	5	34	6	4	9	24	109	0
12	Wayanad	166	28	20	0	5	0	0	0	5	0	4	10	15	0	6	6	4	4	1	5	24	11	2	1
13	Kannur	136	52	70	8	28	8	8	8	20	17	6	37	18	0	9	56	34	8	2	33	21	14	26	0
14	Kasaragod	132	70	72	7	14	4	3	2	2	9	12	36	21	13	0	18	9	29	18	9	12	27	82	0
Total count		2554	1220	1089	64	488	47	36	29	142	124	218	685	690	23	98	461	213	325	135	94	299	376	1055	7
Total percentage		100	47.77	42.64	2.51	19.11	1.84	1.41	1.14	5.56	4.86	8.54	26.82	27.02	0.90	3.84	18.05	8.34	12.73	5.29	3.68	11.71	14.72	41.31	0.27

Appendix Table 11.1: Information from harvested land- No. of crops, extent of crops, production, cost of production, and income from the sale of products

Serial No.	District	Farmer count	Number of crops cultivated	Number of farmers by crop	Average number of crops cultivated per farmer	Average number of farmers cultivating a single crop	Net crop cultivated area (In cents)	Net crop area in production (In cents)	Gross crop area in production (In cents)	Production (In Kg)	Production cost (In Rs)			Income from sales (In Rs)	Difference (In Rs) [(O)-(N)]	Income-expenditure ratio
											Item wise- Available	Item wise- Not available	Total [(L)+(M)]			
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)
1	Thiruvananthapuram	122	71	1368	11.21	19.27	20107	19517.95	26470.20	1239453.40	15099960.00	917800	16017760	27648240	11630480	1.73
2	Kollam	281	67	2715	9.66	40.52	22337	21818.00	25322.00	931940.50	5226500.70	9471650	14698150.70	26577689	11879538.30	1.81
3	Pathanamthitta	175	60	2024	11.57	33.73	15491	15176.50	16496.70	722626.22	6573898.00	6988330	13562228	21610552	8048324	1.59
4	Alappuzha	146	66	1937	13.27	29.35	16013	15313.35	19423.65	670042.95	271250.00	9899854	10171104	22809150	12638046	2.24
5	Kottayam	70	62	961	13.73	15.50	12504	10364.00	10544.00	586076.50	1689450.00	4624200	6313650	16581970	10268320	2.63
6	Idukki	225	67	1444	6.42	21.55	36165	34696.00	39368.70	577867.00	6512610.00	13512810	20025420	51082430	31057010	2.55
7	Ernakulam	176	66	1545	8.78	23.41	21585	21147.30	23390.50	614689.25	4297275.00	9042625	13339900	19904745	6564845	1.49
8	Thrissur	192	74	2709	14.11	36.61	28624	27524.65	33671.40	806571.15	3374500.00	8348553	11723053	24202762	12479709	2.06
9	Palakkad	340	67	1772	5.21	26.45	78912	77223.00	88036.00	1265451.00	15757770.00	18472470	34230240	36511002	2280762	1.07
10	Malappuram	236	72	1805	7.65	25.07	45010	40837.08	44322.01	1179893.90	11015090.00	18185565	29200655	34007349	4806694	1.16
11	Kozhikode	157	67	1901	12.11	28.37	27662	27455.00	29693.15	717926.10	893250.00	8506464	9399714	24917587	15517873	2.65
12	Wayanad	166	67	1190	7.17	17.76	35970	35860.00	35950.00	550009.00	2150900.00	11047900	13198800	32133135	18934335	2.43
13	Kannur	136	66	1481	10.89	22.44	24449	23014.70	26766.20	639774.50	6812805.00	8485276	15298081	18921890	3623809	1.24
14	Kasaragod	132	53	1099	8.33	20.74	35465	35014.50	36438.00	691365.00	16203910.00	22686510	38890420	54340501	15450081	1.40
Total		**2554**	**97**	**23951**	**9.38***	**246.92***	**420294**	**404962.03**	**455892.51**	**11193686.47**	**95879168.70**	**150190007**	**246069175.70**	**411249002**	**165179826.30**	**1.67**

* It is calculated from the total number of organic farmers and the total number of crops. Slight discrepancies may be observed when comparing with the average of district averages.

Appendix Table 11.2: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Thiruvananthapuram

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	7	81	1628	36700	48350
2	Custard apple/Soursop	1	1	25	500	0
3	Ginger	63	408.5	6084	144000	314190
4	Banana	65	2762	150342	3594800	5431650
5	Brinjal	44	236.75	5072	99100	237750
6	Cabbage	6	22.25	168	3050	6260
7	Carrot	1	20	200	5000	10000
8	Aloe vera	1	110	10000	150000	300000
9	Arecanut	7	78	229	10500	29500
10	Cashew	1	4	5	1000	0
11	Purple Yam/Kachil	30	233.5	5428	72700	262220
12	Coffee	3	7	13	-	0
13	Ash Gourd	7	84	4570	138200	165100
14	Black Pepper	43	409	1467	82700	397300
15	Cow Pea/Bush Snake Bean	2	30	850	27000	31250
16	Pineapple	2	220	12600	410000	627500
17	Cocoa	2	9	12	2000	1500
18	Guar/Cluster Bean	1	1	5	-	0
19	Cauliflower	7	29.25	155	2000	1420
20	Ivy Gourd/Coccinia grandis	22	354.75	26632	608500	918330
21	Cloves	1	2	10	2000	2000
22	Water Apple/Bell Fruit	1	1	20	500	1000
23	Spinach	55	905	12879	191950	666050
24	Bottle Gourd	1	3	133	1000	4000
25	Lemon	1	1	10	-	500
26	Elephant Yam	65	444.5	18111	113000	359625
27	Colocasia	62	412.5	7406	150100	296275
28	Maize/Corn	1	1	25	-	0
29	Nutmeg Fruit	6	51	82	9000	23000
30	Indian Blackberry/Java Plum	1	1	5	500	0
31	Dragon Fruit	1	1	2	-	0
32	Tomato	34	132.5	3897	58700	125470
33	Coconut	89	2638	53600	747810	995600
34	Lesser Yam	6	57	845	8350	8800
35	Ponderosa Lemon/Wild Lemon	2	2	52	1000	5000
36	Ground Nut	1	20	100	2000	10000
37	Paddy	12	1890	32195	778500	870080
38	Gooseberry	1	1	2	200	0
39	Green Chilli	57	187.25	2200.3	76600	228150
40	Snake Gourd	33	1597.5	39975	614450	1124350
41	Pappaya	12	91	3360	18500	54500
42	Jack Fruit	27	160	2678	33000	40850
43	Bitter Gourd	45	1984.5	56386	1237450	1900565

44	Passion Fruit	1	1	25	1000	0
45	Guava	2	4	8	200	0
46	Beans	1	0.25	5	-	0
47	Turmeric	63	516.5	4280	76050	169020
48	Pumpkin	11	180.25	7655	99200	107500
49	Sweet Potato	2	2.5	40	-	900
50	Tapioca	56	2082.5	83908	611000	1375750
51	Other medicinal plants	1	2	10	-	10000
52	Other tuber crops	19	124	1659	23750	60200
53	Other millets	2	90	85	5500	3500
54	Other vegetables	27	349.75	14982.1	318900	490400
55	Other fruits	10	18	118	2200	2200
56	Other plantain	84	2530	536408	2477100	4982755
57	Other spices	1	1	5	-	0
58	Mangosteen	1	20	100	8000	10000
59	Pomegranate	1	5	300	-	1000
60	Mango	25	220	935	41000	15500
61	Drumstick	5	8	50	1000	0
62	Rambutan	4	118	1822	150000	434000
63	Rubber	3	360	4684	129100	620875
64	Kidney Beans	1	20	25	1000	0
65	Cowpea(Trailing)	71	2311.25	45703	1072850	2281450
66	Brinjal Green Long	38	144.1	2388	46950	77200
67	Vanilla	1	10	12	3000	25800
68	Tamarind	2	6	60	2000	6000
69	Lady Finger/Okra	70	661.35	14728	217800	566805
70	Betel Leaves	1	2	100	10000	25000
71	Cucumber	36	998	59900	370000	884250
Total		**122**	**26470.20**	**1239453.40**	**15099960**	**27648240**

***See Page 247.**

Appendix Table 11.3: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Kollam						
Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	4	7	161	1200	4200
2	Custard apple/Soursop	2	3	25	-	0
3	Ginger	131	585	18465	93220	893617
4	Sesamum	7	315	661	37500	128600
5	Banana	126	2926	150777	1333200	5956123
6	Cabbage	27	77.5	2795	8000	55150
7	Sugarcane	1	140	800	20000	60000
8	Arecanut	43	251	4844	17800	166890
9	Cashew	2	31	157	500	25000
10	Purple Yam/Kachil	73	544.5	32629	68000	966100
11	Coffee	1	2	20	-	0
12	Malabar Tamarind/ Brindle Berry	7	11.5	132	1900	3500

13	Ash Gourd	29	77	2092	9050	29530
14	Black Pepper	41	422.5	4306.5	129450	525250
15	Chinese Potato/Coleus	3	23	2545	500	76200
16	Pineapple	5	4.5	113	350	0
17	Cauliflower	33	93.5	1723	9450	56900
18	Ivy Gourd/Coccinia grandis	70	355	10335	38720	262310
19	Cloves	1	1	0.5	500	0
20	Water Apple/Bell Fruit	3	4	42	100	0
21	Spinach	97	941.5	16572	108680	570580
22	Bottle Gourd	10	108	6295	16540	64350
23	Lemon	3	8	330	1650	18000
24	Elephant Yam	172	973.5	39509	111710	767900
25	Colocasia	153	832	26654	119600	990715
26	Maize/Corn	1	100	500	8000	40000
27	Nutmeg Fruit	5	23	73	900	10525
28	Indian Blackberry/Java Plum	1	1	3	-	0
29	Dragon Fruit	1	1	8	-	0
30	Tomato	71	211.5	3285	18000	72110
31	Watermelon	1	5	200	2000	0
32	Coconut	104	2377	58985	365710	1135700
33	Lesser Yam	16	125	5115	300	168500
34	Ponderosa Lemon/Wild Lemon	2	8	1070	1000	10200
35	Paddy	29	1952	22145	319000	613670
36	Gooseberry	1	2	8	-	0
37	Green Chilli	124	391.5	7130	41530	297825
38	Snake Gourd	63	441.5	10962.5	42850.35	270542
39	Pappaya	20	123.5	3688	2600	49750
40	Jack Fruit	45	181.5	6000	7050	23710
41	Bitter Gourd	156	1365.5	33798	153750	1394410
42	Passion Fruit	6	15	1106	13200	67080
43	Guava	5	5.5	53	250	0
44	Beans	2	8	350	-	10000
45	Beetroot	1	6	70	-	3000
46	Turmeric	129	695.5	18802	76800	761987
47	Pumpkin	19	65	1166	7050	23515
48	Sweet Potato	9	24	423	4000	5600
49	Tapioca	98	1767.5	146639	357850	1795160
50	Other tuber crops	9	61	1613	2900	11700
51	Other millets	1	20	850	9000	60000
52	Other vegetables	14	45	1280	6300	18090
53	Other fruits	3	5	35	100	0
54	Other plantain	154	2575	175110	1080520	4276790
55	Mangosteen	2	6	53	-	0
56	Pomegranate	2	3	14	-	0
57	Mango	49	147.5	4845	19000	108110
58	Drumstick	17	24	277	2050	1360
59	Rambutan	8	19.5	345	1150	9500
60	Ragi	1	20	10	3000	10000
61	Kidney Beans	4	145	4250	35000	244000

62	Cowpea(Trailing)	179	1879.5	45314	247590	2034370
63	Brinjal Green Long	137	586.5	14202	51510	336205
64	Tamarind	11	15	352	1650	4500
65	Lady Finger/Okra	134	762	11190	72170.35	311800
66	Betel Leaves	10	149	12549	102300	545640
67	Cucumber	27	226.5	16089	42800	231425
Total		**281**	**25322**	**931940.50**	**5226500.70**	**26577689**

*See Page 247.

Appendix Table 11.4: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Pathanamthitta

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	1	1	100	500	1500
2	Ginger	106	362.5	21847	286850	1067650
3	Banana	125	2239	144429	1583885	5524720
4	Cardamom	2	61	2.5	1350	800
5	Orange	2	5.5	73	1300	2700
6	Brinjal	1	15	90	300	1800
7	Cabbage	12	16.6	300	4300	5650
8	Carrot	1	3	10	400	600
9	Arecanut	27	298	2148.7	34940	112210
10	Cashew	3	44	280	2400	30600
11	Purple Yam/Kachil	97	278.5	15702	100910	367880
12	Coffee	16	149.5	1127	12090	84280
13	Malabar Tamarind/ Brindle Berry	2	5	140	200	26800
14	Ash Gourd	5	13	820	6700	21550
15	Black Pepper	56	1107	5599.7	155084	1525640
16	Chinese Potato/Coleus	3	12	130	1900	5250
17	Cocoa	12	403	1552	22400	174100
18	Cauliflower	12	16.2	268	4700	7750
19	Ivy Gourd/Coccinia grandis	44	207.5	8365	79500	221360
20	Cloves	2	2	1.5	400	0
21	Spinach	39	170.3	3380	38625	137960
22	Bottle Gourd	1	5	80	400	1200
23	Elephant Yam	133	532.5	30837	170770	634492
24	Colocasia	123	401.5	17583	136350	393100
25	Maize/Corn	2	105	1350	28900	4700
26	Nutmeg Fruit	30	395	1295	139950	605210
27	Tomato	14	15.7	237	2050	2200
28	Coconut	92	1938	45397	434660	881250
29	Lesser Yam	12	29.5	860	10050	20500
30	Ponderosa Lemon/Wild Lemon	3	9.5	170	1500	7700
31	Ground Nut	2	2	70	350	850
32	Paddy	1	50	650	16000	0
33	Gooseberry	1	0.5	4	-	0
34	Green Chilli	85	92.6	1610.5	24500	57140

35	Snake Gourd	44	367.5	15235	183800	424340
36	Pappaya	7	10.5	660	2300	1800
37	Jack Fruit	51	238	24885	3000	14500
38	Bitter Gourd	83	676.5	19217.32	290275	796070
39	Passion Fruit	3	8	130	650	4800
40	Beans	1	0.1	4	-	0
41	Turmeric	93	722	18616	89350	408250
42	Pumpkin	6	7	261	1700	4500
43	Sweet Potato	2	17	630	9525	16000
44	Tapioca	94	1407	137578	530445	1833000
45	Other medicinal plants	3	134	280	74800	42000
46	Other tuber crops	1	2	30	-	0
47	Other vegetables	6	20	328	6700	13700
48	Other fruits	3	25.5	54	3950	0
49	Other plantain	137	1677	145913	738654	3422790
50	Mangosteen	25	343	4636	103550	292200
51	Mango	45	109	4233	14500	58900
52	Drumstick	2	1.5	9	-	0
53	Rambutan	33	166.5	5094	28850	221350
54	Rubber	3	300	750	42000	75000
55	Kidney Beans	3	34	182	11400	13500
56	Cowpea(Trailing)	128	787	20235	290110	785515
57	Brinjal Green Long	89	111	3431	28575	54150
58	Lady Finger/Okra	70	138.2	3036	43600	69785
59	Betel Leaves	11	157	8744	758750	1099150
60	Cucumber	14	51	1946	13200	30110
Total		**175**	**16496.70**	**722626.20**	**6573898**	**21610552**

***See Page 247.**

Appendix Table 11.5: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Alappuzha

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	4	4.25	78	-	2800
2	Ginger	64	212.5	6298.5	4500	336125
3	Sesamum	3	95	140	-	33950
4	Banana	49	908.5	46476	35000	2425340
5	Orange	1	0.2	1	-	0
6	Brinjal	2	5.5	1020	-	40360
7	Cabbage	5	13	199	-	8900
8	Arecanut	31	188.25	1674	10000	233070
9	Cashew	1	1.5	50	-	0
10	Purple Yam/Kachil	62	249.75	6576	-	175515
11	Coffee	1	0.1	20	-	1600
12	Malabar Tamarind/ Brindle Berry	17	32	816	-	100500
13	Ash Gourd	21	225	8000	-	201680
14	Black Pepper	21	34	366.5	-	40030

15	Chinese Potato/Coleus	6	10.5	220	-	11300
16	Pineapple	4	21	360	-	9750
17	Cocoa	1	20	200	-	4000
18	Guar/Cluster Bean	1	0.25	2	-	0
19	Cauliflower	7	40	504	-	27900
20	Ivy Gourd/Coccinia grandis	55	144.25	10827	-	362225
21	Cloves	1	0.3	0.5	-	1200
22	Spinach	105	2034.5	40486	25000	2099650
23	Bottle Gourd	3	3.5	85	-	3400
24	Lemon	3	1	28	-	0
25	Elephant Yam	106	680.25	19100	2500	525065
26	Colocasia	106	644.5	15176	1000	519855
27	Maize/Corn	1	1	2	-	100
28	Nutmeg Fruit	7	37	485	-	122700
28.1	Nutmeg Mace	3	4.5	11.45	-	10450
29	Dragon Fruit	1	0.1	15	-	800
30	Tomato	53	242.3	8724	-	284410
31	Watermelon	4	83	7120	-	208800
32	Coconut	106	2613.95	84577	160000	2917260
33	Lesser Yam	16	72	1119	-	39455
34	Ponderosa Lemon/Wild Lemon	8	4.6	222	-	2400
35	Paddy	25	2759	22807	-	951940
36	Green Chilli	80	389.55	6548	-	486010
37	Snake Gourd	71	676.5	33467	3000	771230
38	Pappaya	17	29	2610	-	40350
39	Jack Fruit	33	87	18460	-	29100
40	Bitter Gourd	102	680.5	18416	-	974190
41	Passion Fruit	2	1	38	-	1000
42	Guava	4	4	24	-	0
43	Beans	1	4	70	-	4200
44	Beetroot	1	1	2	-	100
45	Turmeric	61	337.5	12997	-	411290
46	Pumpkin	29	219.5	8266	-	194440
47	Sweet Potato	3	6	60	-	200
48	Tapioca	71	864.5	46745	-	717835
49	Other tuber crops	3	2.5	40	-	1125
50	Other millets	2	50	125	-	14800
51	Other vegetables	69	675	42329	-	1645255
52	Other fruits	15	77.5	2770	-	46300
53	Other plantain	103	1342.5	65011	30000	1578890
54	Mangosteen	2	1.1	30	-	2000
55	Pomegranate	1	0.5	3	-	0
56	Mango	34	119.5	17220	-	95900
57	Drumstick	1	0	2	-	0
58	Rambutan	4	6.4	275	-	22300
59	Kidney Beans	1	0.5	6	-	900
60	Cowpea(Trailing)	119	1173.5	59946	-	2733430
61	Brinjal Green Long	76	201.55	8113	250	188795
62	Tamarind	5	7.5	147	-	3100

63	Lady Finger/Okra	87	621.5	18202	-	622390
64	Betel Leaves	3	33	1205	-	141230
65	Cucumber	32	423	23095	-	380260
66	Breadfruit	1	1	35	-	0
Total		**146**	**19423.65**	**670042.95**	**271250**	**22809150**

*See Page 247.

Appendix Table 11.6: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Kottayam						
Serial No.	**Crop Name**	**Farmer count**	**Extent of land (In cents)**	**Production (In Kg)**	**Production cost* (In Rs)**	**Income from sales (In Rs)**
1	Custard apple/Soursop	3	7	225	-	9600
2	Ginger	44	177.5	3363	7250	177000
3	Banana	48	1214	85225	250500	2519600
4	Cardamom	2	15.5	25.5	-	20000
5	Brinjal	1	0.5	5	-	0
6	Cabbage	8	205.5	2587	-	62000
7	Sugarcane	1	200	86000	660000	780000
8	Arecanut	19	63	943	500	136500
9	Cashew	2	5	35	-	2000
10	Purple Yam/Kachil	27	48	3870	2000	86850
11	Coffee	14	306	2114	2000	140400
12	Malabar Tamarind/ Brindle Berry	2	2	125	-	29000
13	Ash Gourd	5	23	890	-	16250
14	Black Pepper	37	434.5	1171	352500	442000
15	Chinese Potato/Coleus	3	11	67	-	0
16	Pineapple	1	2	60	-	1000
17	Cocoa	6	89	472	-	71300
18	Cauliflower	8	205.5	3098	-	90000
19	Ivy Gourd/Coccinia grandis	33	216	14550	20000	264800
20	Cloves	3	10	40	-	19500
21	Water Apple/Bell Fruit	3	3	75	-	0
22	Spinach	14	76	2451	-	60900
23	Bottle Gourd	1	10	100	-	0
24	Lemon	3	8.5	165	-	13000
25	Elephant Yam	52	238.5	32050	18200	639200
26	Colocasia	44	132.5	6508	6050	199900
27	Nutmeg Fruit	30	579.5	2153	-	1003150
28	Dragon Fruit	1	25	100	-	10000
29	Tomato	13	31.5	676	5000	11800
30	Watermelon	3	30	2000	5000	24000
31	Coconut	46	680.5	22670	25200	429300
32	Tea	1	4	5	-	0
33	Lesser Yam	10	12	515	-	10300
34	Ponderosa Lemon/Wild Lemon	3	7	435	-	22100
35	Paddy	5	946	64710	105000	2864000
36	Green Chilli	31	65	1420	-	62800

37	Snake Gourd	12	133.5	7010	2000	133200
38	Pappaya	6	14.5	1655	-	37500
39	Jack Fruit	23	120	4530	-	40500
40	Bitter Gourd	31	210	9731	-	354700
41	Passion Fruit	8	9.5	395	-	6850
42	Guava	4	6	200	-	4000
43	Beans	1	0.5	10	-	0
44	Turmeric	44	185	5203	5050	191025
45	Pumpkin	4	53	3370	-	27500
46	Sweet Potato	2	4	120	-	2700
47	Tapioca	38	462	64440	3500	752700
48	Other medicinal plants	4	136	3270	-	290000
49	Other tuber crops	3	4	115	-	8000
50	Other millets	1	5	20	-	0
51	Other vegetables	20	41	2896	5000	109500
52	Other fruits	4	6	115	-	6500
53	Other plantain	55	739	86315	26700	1446700
54	Mangosteen	3	4	43	-	0
55	Mango	17	76	2915	-	10000
56	Drumstick	3	7	68	-	2000
57	Rambutan	18	145.5	2715	-	165800
58	Rubber	15	1315	12895	153000	1409500
59	Cowpea(Trailing)	46	415	19525	15000	683985
60	Brinjal Green Long	31	71.5	4429	-	139210
61	Lady Finger/Okra	33	214	8108	20000	513650
62	Cucumber	8	83	5085	-	28200
Total		**70**	**10544**	**586076.50**	**1689450**	**16581970**

***See Page 247.**

Appendix Table 11.7: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Idukki

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	1	2	25	800	0
2	Custard apple/Soursop	1	20	350	-	21000
3	Apple	2	21	11	-	0
4	Ginger	43	208	5171	61750	235175
5	Potato	9	72	2730	6000	49500
6	Banana	53	1014	63525	563400	1699295
7	Cardamom	23	2162	6019	1107300	12525200
8	Orange	2	350	1000	-	16000
9	Brinjal	12	85	1254	8500	19700
10	Cabbage	21	176	6472	10400	137285
11	Carrot	13	133	4030	8500	201600
12	Arecanut	44	1979	30790	69100	1948450
13	Cashew	6	116	1170	28250	97650
14	Purple Yam/Kachil	7	37	645	4250	4950

15	Coffee	107	3080.5	29471	127450	1579553
16	Malabar Tamarind/ Brindle Berry	2	9	55	200	14750
17	Ash Gourd	6	13	534	1500	7750
18	Black Pepper	156	12377	39221	2180360	15873530
19	Cow Pea/Bush Snake Bean	2	40	510	3600	12540
20	Chinese Potato/Coleus	3	22	1037	6000	31160
21	Cocoa	92	2399	31803	92765	1393890
22	Cauliflower	7	91	766	5900	15440
23	Ivy Gourd/Coccinia grandis	20	64	1032	13905	22200
24	Cloves	24	108	453.5	44000	251750
25	Spinach	10	44.5	1549	18600	43070
26	Bottle Gourd	1	3	100	100	2000
27	Small Onion/Shallot	4	5	231	-	8100
28	Lemon	3	21	134	-	1700
29	Elephant Yam	37	498.75	15842	116400	328940
30	Colocasia	18	129.75	3162	20250	96480
31	Maize/Corn	1	20	60	-	420
32	Nutmeg Fruit	90	1521	6186	172550	1622380
32.1	Nutmeg Mace	56	555.2	592.5	30900	648850
33	Tomato	5	61	1091	8000	10350
34	Coconut	80	3814	130582	240075	3488580
35	Tea	1	2	25	1500	3600
36	Lesser Yam	2	15	550	2600	7000
37	Paddy	6	538	7720	37780	134750
38	Green Chilli	13	121	674	17300	24050
39	Snake Gourd	2	9	160	1700	1500
40	Pappaya	4	44	5230	19600	68000
41	Jack Fruit	2	59	750	-	0
42	Bitter Gourd	22	95	1983	17300	60890
43	Passion Fruit	5	32	1180	300	78500
44	Guava	1	20	200	-	4000
45	Beans	47	390.25	13199	41000	580340
46	Beetroot	11	32	989	1000	18600
47	Turmeric	31	176	4037	36600	133285
48	Pumpkin	7	15	281	3600	7630
49	Tapioca	44	990.5	62415	195600	891160
50	Other tuber crops	4	51	818	8600	25000
51	Other millets	6	108.5	273	2000	46815
52	Other vegetables	17	295	4394	25500	122600
53	Other fruits	7	288	2763	1500	146000
54	Other plantain	76	915.5	37051	148750	967447
55	Other spices	1	5	10	3000	7000
56	Mangosteen	1	3	10	-	0
57	Pomegranate	2	55	350	-	3500
58	Mango	7	87	1900	4500	38500
59	Rambutan	21	393	5015	306750	478700
60	Rubber	17	2295	14020	543300	1668420
61	Ragi	1	50	250	5000	25000
62	Cowpea(Trailing)	45	567.25	10872	98500	374830

63	Brinjal Green Long	27	65	1133	9525	24095
64	Lady Finger/Okra	22	119	1918	14300	34650
65	Cucumber	9	62	3526	11700	44380
66	Garlic	12	17.5	557	3000	47350
67	Strawberry	10	201.5	6010	-	2605600
Total		**225**	**39368.70**	**577867**	**6512610**	**51082430**

*See Page 247.

Appendix Table 11.8: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Ernakulam

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	2	0.7	6	-	0
2	Custard apple/Soursop	1	0.5	15	-	0
3	Ginger	50	299.65	10926	103700	545750
4	Sesamum	1	10	55	800	2000
5	Banana	66	2095	115687	829200	3487000
6	Cabbage	18	49.25	1033	6350	15700
7	Carrot	2	1.25	21	300	0
8	Arecanut	45	649	7251	245800	1302600
9	Cashew	4	25	161	1000	14500
10	Purple Yam/Kachil	8	12.5	455	3150	15390
11	Coffee	1	2	10	500	0
12	Malabar Tamarind/ Brindle Berry	5	8.5	216	400	53800
13	Ash Gourd	23	103.75	4546	1710	65830
14	Black Pepper	22	191.5	910.25	59100	177800
15	Cow Pea/Bush Snake Bean	58	1040	20910	64280	789500
16	Chinese Potato/Coleus	27	153.5	5315	34650	189150
17	Pineapple	1	150	5000	50000	100000
18	Cocoa	9	509	5560	88200	559800
19	Guar/Cluster Bean	1	0.5	5	-	0
20	Cauliflower	19	279.65	562	6050	9000
21	Ivy Gourd/Coccinia grandis	21	64.2	1821	4900	45230
22	Cloves	1	1	1	500	0
23	Water Apple/Bell Fruit	3	3	15	-	0
24	Spinach	51	327.55	4340	18850	195470
25	Bottle Gourd	15	69.2	3483	2300	81600
26	Lemon	1	2	10	1000	3000
27	Elephant Yam	76	407.2	21611	72650	374285
28	Colocasia	51	165.2	5439	28700	154050
29	Nutmeg Fruit	47	865.5	4638.5	200800	1324150
29.1	Nutmeg Mace	7	45.4	126	-	77175
30	Indian Blackberry/Java Plum	1	0.5	0	-	0
31	Dragon Fruit	2	63	1002	25050	100000
32	Tomato	36	76.15	1036	3805	19970
33	Watermelon	1	1	25	-	375
34	Coconut	82	2647.4	83385	461500	2313265

35	Ponderosa Lemon/Wild Lemon	1	0.5	6	-	0
36	Ground Nut	1	2	15	200	500
37	Paddy	49	5817	21302	898250	775250
38	Green Chilli	46	130.8	676.5	4900	26320
39	Snake Gourd	34	360	21486.5	12100	260375
40	Pappaya	9	77.9	3550	24000	79750
41	Jack Fruit	22	136.5	5770	4000	65800
42	Bitter Gourd	50	500.95	15639	44850	638200
43	Passion Fruit	6	14.5	400	9700	38000
44	Guava	8	15.5	145	-	0
45	Beetroot	2	1.25	21	250	0
46	Turmeric	49	404.75	15649.5	135050	724575
47	Pumpkin	16	88	2294	1850	32450
48	Sweet Potato	6	23	273	2200	6000
49	Tapioca	50	1047.3	71135	223400	906750
50	Other medicinal plants	3	20	80	7000	30000
51	Other tuber crops	6	14	120	2800	7700
52	Other vegetables	41	241.7	25172	5600	905040
53	Other fruits	12	107.5	1921	39000	126200
54	Other plantain	92	1510.1	71543	293550	1525850
55	Other spices	4	12.5	210	8000	87500
56	Mangosteen	5	67.5	308	10000	60000
57	Mango	22	100	7792	5550	99200
58	Drumstick	5	18	138	1000	2000
59	Rambutan	13	72	1495	7050	148700
60	Rubber	2	270	1950	97000	250000
61	Cowpea(Trailing)	47	721.8	11762	60500	394020
62	Brinjal Green Long	64	322.8	5682	12170	147880
63	Tamarind	3	8	29	500	4200
64	Lady Finger/Okra	85	446.1	8104	26310	234030
65	Cucumber	30	513	14094	45250	301565
66	Breadfruit	4	6	350	-	10500
Total		**176**	**23390.50**	**614689.25**	**4297275**	**19904745**

*See Page 247.

Appendix Table 11.9: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Thrissur						
Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	13	11.8	143	-	1400
2	Custard apple/Soursop	11	10.25	189	-	0
3	Ginger	105	375.2	5320	15600	226705
4	Sesamum	3	251	28	-	750
5	Banana	50	786.75	65907	953550	2568780
6	Orange	1	0.5	10	-	0
7	Brinjal	4	14	690	-	6600
8	Cabbage	28	33.9	924	-	23890

9	Carrot	5	2.55	31	-	350
10	Aloe vera	4	3.55	48	-	1150
11	Arecanut	96	1094	12980.4	109300	2432840
12	Cashew	9	114.5	1203	-	107400
13	Purple Yam/Kachil	16	28.1	1166	-	14200
14	Coffee	5	395	590	-	41275
15	Malabar Tamarind/ Brindle Berry	20	46	978	-	130870
16	Ash Gourd	79	293.55	5709.5	6350	95790
17	Black Pepper	68	565.3	1696	12950	757650
18	Cow Pea/Bush Snake Bean	9	40	732	22000	48850
19	Chinese Potato/Coleus	49	446.8	4619	800	223515
20	Pineapple	14	13	320	-	1100
21	Cocoa	3	10.75	25	-	750
22	Guar/Cluster Bean	3	2.7	12	-	400
23	Cauliflower	31	37.8	769	-	20840
24	Ivy Gourd/Coccinia grandis	36	89.85	1706.8	-	27300
25	Cloves	2	1.2	1	-	0
26	Water Apple/Bell Fruit	14	11	99	-	0
27	Spinach	83	295.65	9273	2000	194055
28	Bottle Gourd	21	32.3	1731	1000	62590
29	Lemon	10	8.75	210	-	5400
30	Elephant Yam	77	355.85	7879	8500	142045
31	Colocasia	88	245.65	3259	-	71490
32	Maize/Corn	4	17	1660	-	3050
33	Nutmeg Fruit	65	1860.45	15690.6	114000	3822650
33.1	Nutmeg Mace	5	108	87.4	-	81980
34	Indian Blackberry/Java Plum	4	2.5	15	-	0
35	Tomato	68	151.85	2488	450	74810
36	Watermelon	3	25.7	1025	5000	15000
37	Coconut	158	6917	158956	262750	3373112
38	Lesser Yam	1	2	200	-	5000
39	Ponderosa Lemon/Wild Lemon	10	6.95	195	-	1000
40	Ground Nut	2	1.2	16	-	2000
41	Paddy	28	9871	211781	1460000	5129902
42	Gooseberry	6	3.75	16	-	0
43	Green Chilli	106	213.05	2251.1	400	239545
44	Snake Gourd	45	225.55	12616	5900	177570
45	Pappaya	55	98.2	6872	11000	68475
46	Jack Fruit	85	284	21504	1500	74100
47	Bitter Gourd	54	325.55	14233	17050	306830
48	Passion Fruit	17	11.7	443	-	8200
49	Guava	32	36	432	-	0
50	Beans	1	0.1	1	-	0
51	Beetroot	3	2.25	23	-	0
52	Turmeric	121	805	13112	16750	642320
53	Pumpkin	65	258.05	4801	2100	87775
54	Sweet Potato	9	27.9	682	200	17100
55	Tapioca	74	1015.25	54394	248000	583670
56	Other medicinal plants	4	46	220	200	25600

57	Other tuber crops	19	19.6	219	3000	12500
58	Other vegetables	13	16.6	3340.25	-	119700
59	Other fruits	22	25	454	-	2240
60	Other plantain	143	1182	77045	54400	1069550
61	Other spices	1	0.1	4	-	0
62	Mangosteen	16	25.1	317	-	16500
63	Pomegranate	2	1.2	8	-	0
64	Mango	91	358.25	19237	2500	233220
65	Drumstick	24	24.2	152	-	0
66	Rambutan	23	44.6	601	-	51500
67	Rubber	2	78	300	3000	40000
68	Cowpea(Trailing)	85	3228.45	36350.5	24300	450175
69	Brinjal Green Long	98	227.85	4284.4	-	66685
70	Tamarind	17	29	442	-	11180
71	Lady Finger/Okra	111	321.8	7458.2	9500	123848
72	Cucumber	47	141.4	2721	450	40740
73	Breadfruit	12	14.5	1675	-	17250
74	Strawberry	1	0.5	0	-	0
Total		**192**	**33671.40**	**806571.15**	**3374500**	**24202762**

*See Page 247.

Appendix Table 11.10: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Palakkad						
Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	60	1690.5	5780	13000	132410
2	Ginger	36	629.5	10991	170420	339495
3	Sesamum	1	5	4	200	0
4	Banana	31	1647	68130	625500	1546700
5	Cabbage	3	130	207	-	3000
6	Carrot	1	5	40	-	1200
7	Sugarcane	1	30	120	-	0
8	Arecanut	66	4769	60410	1308000	4684320
9	Cashew	3	66	232	500	14040
10	Purple Yam/Kachil	3	7	265	2900	9100
11	Coffee	10	241	1045	3000	49100
12	Ash Gourd	25	289	13699	59400	114300
13	Black Pepper	44	879	3278	198300	785670
14	Cow Pea/Bush Snake Bean	1	5	15	-	0
15	Chinese Potato/Coleus	7	85	2730	44700	81550
16	Cocoa	3	70	220	10000	25000
17	Guar/Cluster Bean	2	7	30	-	0
18	Cauliflower	2	105	57	-	1000
19	Ivy Gourd/Coccinia grandis	7	155	13208	71000	162860
20	Cloves	1	1	3	2000	1200
21	Little Millet/Chama	75	3829	9553	15500	87750
22	Spinach	24	334	1495	22200	62600

23	Small Onion/Shallot	7	113	560	-	16500
24	Elephant Yam	16	252	20220	75400	169390
25	Colocasia	11	35.5	1266	8100	20380
26	Maize/Corn	49	2274	6195	12500	48375
27	Nutmeg Fruit	11	393	791	205700	376350
28	Jowar	6	265	1290	2000	36700
29	Dragon Fruit	1	1	30	3000	0
30	Tomato	44	529	4941	38200	51585
31	Watermelon	1	5	30	-	1000
32	Foxtail Millet/Thina	15	845	1365	3500	19200
33	Pigeon Pea/Thuvara	151	7550	22830	58700	559600
34	Coconut	107	13543	385810	4278250	10636670
35	Lesser Yam	1	10	1250	1500	4500
36	Ground Nut	58	2602	8120	10800	222250
37	Paddy	114	18671	272495	5235800	8338257
38	Green Chilli	55	760	4780	83700	166210
39	Snake Gourd	12	128	7520	49300	72850
40	Pappaya	1	5	600	3000	6000
41	Jack Fruit	5	77	1420	11000	6800
42	Bitter Gourd	25	360	6805	75500	128430
43	Passion Fruit	2	61	790	36500	75000
44	Guava	1	100	24000	68000	250000
45	Beans	27	585	2601	2300	38850
46	Turmeric	34	710	8555	270400	243560
47	Pumpkin	29	283	7917	43250	78420
48	Sweet Potato	1	1	25	1000	0
49	Tapioca	21	733	31008	182000	512400
50	Other medicinal plants	2	42	300	1400	27500
51	Other tuber crops	7	49	745	29200	21800
52	Other millets	56	1681	2930	1600	130690
53	Other vegetables	5	46	210	1500	4200
54	Other plantain	59	2228	144670	947800	2307400
55	Other spices	1	7	25	-	0
56	Mango	13	240	26860	72000	449500
57	Horse Gram	25	1150	2005	9600	50300
58	Drumstick	1	10	50	1500	4000
59	Rambutan	1	1	20	1000	0
60	Rubber	10	2825	16975	1055000	2490250
61	Ragi	155	9984	23702	89000	276775
62	Kidney Beans	58	1774	3161	9600	58485
63	Cowpea(Trailing)	54	935.5	7643	84300	191000
64	Brinjal Green Long	51	490.5	12178	84300	126320
65	Lady Finger/Okra	48	531.5	6904	47700	129280
66	Betel Leaves	1	5	4	500	700
67	Cucumber	14	166	2343	15750	62230
Total		**340**	**88036**	**1265451**	**15757770**	**36511002**

***See Page 247.**

Appendix Table 11.11: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Malappuram						
Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	4	3.09	105.3	300	0
2	Custard apple/Soursop	1	1	10	-	0
3	Ginger	52	171.32	2774.3	20600	35000
4	Sesamum	5	280	358	23800	32500
5	Banana	39	1108.75	65094	426700	1396160
6	Orange	1	0.1	1	-	0
7	Brinjal	3	3.1	23	-	0
8	Cabbage	2	3.03	85	-	3500
9	Carrot	3	5.52	84	-	1200
10	Cinnamon	3	4	116	-	0
11	Arecanut	120	4050.3	122676	1150450	6943353
12	Cashew	3	41	660	-	24650
13	Purple Yam/Kachil	8	14.8	329	-	0
14	Coffee	3	175	1000	2000	92850
15	Malabar Tamarind/ Brindle Berry	5	5.4	69	-	3600
16	Ash Gourd	31	177.5	2946	1750	34580
17	Black Pepper	78	488.35	2863.5	96850	583750
18	Cow Pea/Bush Snake Bean	7	74	311	2700	900
19	Chinese Potato/Coleus	12	81.15	853	6800	27800
20	Pineapple	11	36.2	792	-	1600
21	Cocoa	4	1017.5	8276	200000	606000
22	Cauliflower	4	3.58	50	-	2100
23	Ivy Gourd/Coccinia grandis	11	9.55	388	4000	1000
24	Water Apple/Bell Fruit	6	19.2	1157	-	0
25	Spinach	27	75.4	1154	4300	20100
26	Bottle Gourd	23	221.25	9087	11300	124950
27	Elephant Yam	70	663.1	54248.5	82900	528950
28	Colocasia	76	517.25	11720	71900	134450
29	Nutmeg Fruit	28	752	4101.2	261300	1253460
30	Nutmeg Mace	3	1.2	9	-	9200
30.1	Indian Blackberry/Java Plum	2	5	35	-	0
31	Dragon Fruit	4	21	247	-	30000
32	Tomato	10	9.75	102	-	700
33	Watermelon	4	146.6	3385	6000	80000
34	Coconut	207	16347.95	413102	2886390	10494875
35	Lesser Yam	3	15.9	373	-	8000
36	Ponderosa Lemon/Wild Lemon	2	0.55	13	-	0
37	Ground Nut	3	45	950	-	0
38	Paddy	33	9267	153982	3068500	4426112
39	Gooseberry	2	2	13	200	0
40	Green Chilli	33	50.175	604.25	6200	21850
41	Snake Gourd	16	145.95	2825	12500	33050

42	Pappaya	38	131.25	11092	2200	178500
43	Jack Fruit	67	337.25	23772	12000	0
44	Bitter Gourd	21	224.4	3175	26300	56525
45	Passion Fruit	10	10.05	154	-	0
46	Guava	13	25.48	208	200	0
47	Beetroot	2	3.5	52	-	1400
48	Turmeric	86	643.13	10614.4	46000	151220
49	Pumpkin	44	253.45	6352	11350	50820
50	Sweet Potato	9	35.5	462	8500	4000
51	Tapioca	48	765.1	95730.15	179400	542300
52	Other medicinal plants	1	5	125	-	0
53	Other tuber crops	12	417.75	13567	503350	742400
54	Other millets	2	80	85	2300	7500
55	Other vegetables	12	9.205	211.2	-	2750
56	Other fruits	13	45.05	302	200	0
57	Other plantain	148	1719.4	85691	409400	1056139
58	Other spices	1	30	690	30000	200000
59	Mangosteen	6	76.55	1225	43000	245000
60	Pomegranate	2	0.13	22	-	0
61	Mango	71	381.8	12427	3800	8500
62	Horse Gram	1	25	10	-	0
63	Drumstick	22	25.7	650	200	6000
64	Rambutan	14	180.4	7070	356300	1059000
65	Rubber	8	1738	18980	869000	2243150
66	Kidney Beans	2	90	127	-	0
67	Cowpea(Trailing)	60	464.95	9093.5	55900	267780
68	Brinjal Green Long	31	39.805	1015.2	4700	20350
69	Tamarind	12	29.5	1220	10600	22500
70	Lady Finger/Okra	57	240.74	2087.4	13650	29800
71	Betel Leaves	4	48.1	1113	41000	56600
72	Cucumber	26	185.3	5599	38300	98875
Total		**236**	**44322.01**	**1179893.90**	**11015090**	**34007349**

*See Page 247.

Appendix Table 11.12: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Kozhikode						
Serial No.	**Crop Name**	**Farmer count**	**Extent of land (In cents)**	**Production (In Kg)**	**Production cost* (In Rs)**	**Income from sales (In Rs)**
1	Indian bean/Broad bean	2	2	8	-	0
2	Ginger	49	205.2	3477	1700	161000
3	Sesamum	2	103	180	-	15600
4	Banana	74	1247.5	91745	276400	3403275
5	Brinjal	30	195.1	5371	40	94940
6	Cabbage	4	6	125	-	2050
7	Carrot	1	0.5	5	-	160
8	Sugarcane	1	2	3	-	0
9	Arecanut	110	1185.5	10564	47500	3087350

10	Cashew	1	13	90	-	4500
11	Purple Yam/Kachil	12	23.05	792	-	8750
12	Coffee	10	108	420	-	39550
13	Malabar Tamarind/ Brindle Berry	2	7	130	-	18450
14	Ash Gourd	64	246.1	5974	2870	102195
15	Black Pepper	51	284	1078	1000	342450
16	Cow Pea/Bush Snake Bean	3	74	173	-	5000
17	Chinese Potato/Coleus	15	65	544	120	14510
18	Pineapple	4	15.5	255	-	0
19	Cocoa	18	482.5	6588	15000	268590
20	Guar/Cluster Bean	2	4	40	-	1300
21	Cauliflower	3	10	190	-	8700
22	Ivy Gourd/Coccinia grandis	16	33.8	472	280	7024
23	Cloves	1	2	30	-	16500
24	Little Millet/Chama	1	0.5	1	-	0
25	Spinach	74	276.6	5001	880	110150
26	Bottle Gourd	16	87.7	4012	100	65500
27	Elephant Yam	89	506.3	14837.5	1100	409067
28	Colocasia	77	346.8	6144.75	900	125561
29	Nutmeg Fruit	19	109	695.5	2000	206330
29.1	Nutmeg Mace	1	12	4	-	4000
30	Tomato	30	41.6	660	3060	9960
31	Watermelon	5	33	2127	-	38000
32	Coconut	136	11221	315535	384650	10567864
33	Tea	3	10	29	-	9000
34	Lesser Yam	1	1	12	-	0
35	Ground Nut	2	5	14	-	240
36	Paddy	43	6165.8	35335	23000	1251850
37	Gooseberry	1	0.5	10	-	0
38	Green Chilli	71	71.6	492.25	590	16370
39	Snake Gourd	31	69.4	2378	200	41100
40	Pappaya	17	41.2	892	1000	10000
41	Jack Fruit	19	155	8555	-	0
42	Bitter Gourd	66	278.4	6516	60850	265015
43	Passion Fruit	1	1	50	-	0
44	Guava	4	2.2	19	-	0
45	Beetroot	1	1	25	-	625
46	Turmeric	94	569.1	6265	3400	232875
47	Pumpkin	60	252.2	5736	100	102325
48	Sweet Potato	2	1.5	35	-	0
49	Tapioca	63	1005	46365.1	10900	705251
50	Other tuber crops	7	49	191	-	8250
51	Other millets	1	40	80	-	6000
52	Other vegetables	43	288.2	6865	100	52700
53	Other fruits	8	15	199	3000	3000
54	Other plantain	118	1178	68371	32200	1254650
55	Mangosteen	4	5.5	63	250	0
56	Mango	22	147	9232	-	63200
57	Drumstick	1	0.5	30	-	0

58	Rambutan	7	6.2	133	250	800
59	Rubber	10	1182	17950	-	915650
60	Kidney Beans	1	30	50	-	0
61	Cowpea(Trailing)	70	334.5	7383	10200	348640
62	Brinjal Green Long	42	78.5	877	7000	45720
63	Vanilla	2	15	16	-	18000
64	Lady Finger/Okra	85	307.4	6692	550	244075
65	Cucumber	76	433.2	9632	2060	179445
66	Breadfruit	1	3	160	-	4480
67	Strawberry	1	1	2	-	0
Total		**157**	**29693.15**	**717926.10**	**893250**	**24917587**

*See Page 247.

Appendix Table 11.13: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Wayanad						
Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Custard apple/Soursop	1	1	50	-	1500
2	Ginger	33	486.75	17447	35500	544350
3	Ginger	1	10	10	1000	38400
4	Banana	23	454	23960	197000	544970
5	Cardamom	18	198	697	1000	2412600
6	Orange	2	6	55	-	0
7	Cinnamon	1	15	0	20000	0
8	Arecanut	135	4069	111955	292700	6317480
9	Cashew	7	26	540	-	41000
10	Purple Yam/Kachil	6	31	850	50	5700
11	Coffee	146	15049	162384	720500	11641890
12	Malabar Tamarind/ Brindle Berry	2	4	230	-	33900
13	Ash Gourd	7	20.5	1366	25	21000
14	Black Pepper	139	5036	18209	331500	5826620
15	Cow Pea/Bush Snake Bean	5	65	428	-	7500
16	Chinese Potato/Coleus	2	3	52	-	1500
17	Cocoa	18	769	1881	20500	261720
18	Cauliflower	16	24.45	470	-	11675
19	Ivy Gourd/Coccinia grandis	5	17	53	-	1650
20	Cabbage	24	67.45	1739	300	28225
21	Carrot	5	6.25	66	-	0
22	Cloves	10	145	276.5	500	99700
23	Spinach	17	62.55	1366	600	22600
24	Bottle Gourd	1	0.5	7	-	140
25	Small Onion/Shallot	1	0.25	1	-	0
26	Lemon	1	2	20	-	0
27	Elephant Yam	15	142	9290	8500	93000
28	Colocasia	11	41	1310	850	14500
29	Maize/Corn	1	5	40	-	200
30	Nutmeg Fruit	19	235	629	24700	177320

30.1	Nutmeg Mace	2	2	5.5	-	8600
31	Dragon Fruit	1	10	150	-	17000
32	Tomato	32	50.25	584	-	5085
33	Coconut	111	3021	81607	81600	1479500
34	Tea	1	20	3500	30000	42000
35	Paddy	20	2708	33700	246500	496100
36	Green Chilli	38	116.95	1579	850	43250
37	Snake Gourd	3	5.5	99	-	2725
38	Pappaya	3	5	355	-	0
39	Pea Bean/Long Yard Bean	1	5	1920	4000	
40	Bitter Gourd	11	22.1	315	50	6400
41	Passion Fruit	16	121	3242	8100	127150
42	Guava	1	1	4	-	0
43	Jack Fruit	8	51	8145	-	3000
44	Beans	4	10	154	200	2700
45	Beetroot	1	1	18	-	0
46	Turmeric	32	172.75	3244	30000	126310
47	Pumpkin	9	29.5	1999	25	34500
48	Tapioca	7	67	2565	-	46600
49	Other tuber crops	1	1	20	-	0
50	Other millets	3	7	134	-	0
51	Other vegetables	15	45.5	936	-	40380
52	Other fruits	21	103	3445	600	154150
53	Other plantain	37	357.75	29020	28600	409550
54	Other spices	3	9	107	-	6850
55	Other medicinal plants	2	35	135	-	0
56	Mangosteen	3	103	2635	-	220000
57	Mango	8	40	1750	-	5000
58	Rambutan	5	17	499	-	48000
59	Rubber	25	1320	3708	57500	508260
60	Kidney Beans	1	5	120	-	0
61	Cowpea(Trailing)	42	355.55	6379	7100	114700
62	Brinjal Green Long	26	52.5	679	200	6135
63	Vanilla	1	30	70	-	8400
64	Lady Finger/Okra	13	20.95	215	300	1200
65	Garlic	1	1	2	-	0
66	Cucumber	9	35	1563	50	20450
67	Big Onion/Savala	1	1	25	-	0
Total		**166**	**35950**	**550009**	**2150900**	**32133135**

*See Page 247.

Appendix Table 11.14: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Kannur						
Serial No.	**Crop Name**	**Farmer count**	**Extent of land (In cents)**	**Production (In Kg)**	**Production cost* (In Rs)**	**Income from sales (In Rs)**
1	Indian bean/Broad bean	2	6	30	-	0
2	Apple	1	1	20	-	0

3	Ginger	19	69.5	3301	19450	87000
4	Black gram/Urad	1	30	100	10000	
5	Sesamum	1	10	3	-	0
6	Banana	66	1617	94980	1459000	2912760
7	Cardamom	2	45	40	12000	99000
8	Brinjal	16	416.5	16555	40000	335900
9	Cinnamon	1	1	2	-	0
10	Arecanut	69	1001	5941.5	266300	1519010
11	Cashew	23	1302	5075	129100	460100
12	Purple Yam/Kachil	6	24	625	500	12000
13	Coffee	7	73	620	9500	45200
14	Malabar Tamarind/ Brindle Berry	3	12	355	5000	47000
15	Ash Gourd	36	286.5	10383	68000	132600
16	Black Pepper	59	589	2714	130850	825400
17	Chinese Potato/Coleus	1	3	300	-	18000
18	Pineapple	3	11.5	180	500	0
19	Cocoa	12	364	4175	39500	233225
20	Cauliflower	8	16.3	206	1500	5500
21	Ivy Gourd/Coccinia grandis	12	28	1216	8000	21900
22	Cabbage	4	8	144	500	2000
23	Cloves	1	1	2	-	0
24	Water Apple/Bell Fruit	1	1	5	-	0
25	Spinach	84	537	18919	86950	345300
26	Bottle Gourd	15	46.5	2555	20500	56900
27	Elephant Yam	35	271	7397	35400	134300
28	Colocasia	34	201	5072	19300	77800
29	Maize/Corn	1	5	100	1000	
30	Nutmeg Fruit	9	78	333	19000	83400
30.1	Nutmeg Seed	1	3	1	1000	2000
31	Tomato	23	54.9	1755	16600	17200
32	Watermelon	1	5	100	2000	2000
33	Coconut	103	5291	103756	896455	2216350
34	Lesser Yam	2	4	210	-	16000
35	Paddy	52	4703	62370	897700	708500
36	Green Chilli	63	234	5819	60200	162340
37	Snake Gourd	19	171	6622	41500	130000
38	Pappaya	9	87	6810	105100	222000
39	Pea Bean/Long Yard Bean	10	20	1185	16000	20000
40	Bitter Gourd	49	255.5	7190	65000	153950
41	Passion Fruit	8	24	712	1400	3000
42	Guava	3	6	150	-	0
43	Jack Fruit	38	332	8088	2000	0
44	Beans	1	4	175	1000	5000
45	Turmeric	43	234	7085	40750	159000
46	Pumpkin	23	147	6807	12500	71000
47	Sweet Potato	3	19	850	6500	23500
48	Tapioca	48	631	54935	286500	999505
49	Other tuber crops	4	15	857	2500	17000
50	Other millets	9	328	913	9500	43000

51	Other vegetables	27	264	8750	17300	206800
52	Other fruits	10	35	363	2900	0
53	Other plantain	66	1165	59960	484750	1060050
54	Other spices	1	5	25	1000	3000
55	Mango	39	290	13995	12900	102000
56	Drumstick	6	7.5	183	1000	0
57	Rambutan	6	14	393	6500	36000
58	Rubber	24	3446	26115	1121000	3752000
59	Kidney Beans	1	5	20	3000	1000
60	Cowpea(Trailing)	69	552.5	12266	65600	282800
61	Brinjal Green Long	49	129	11220	50950	220100
62	Vanilla	2	14	15	1000	18000
63	Plantain	8	69	3290	35000	50100
64	Lady Finger/Okra	74	500	16816	80100	354300
65	Betel Leaves	1	10	100	-	0
66	Cucumber	54	637	28525	83750	410100
Total		**136**	**26766.20**	**639774.50**	**6812805**	**18921890**

*See Page 247.

Appendix Table 11.15: Crop wise information on harvested land- Extent of crops, production, cost of production, and income from the sale of products- District wise details

District: Kasaragod

Serial No.	Crop Name	Farmer count	Extent of land (In cents)	Production (In Kg)	Production cost* (In Rs)	Income from sales (In Rs)
1	Indian bean/Broad bean	1	2	60	-	1500
2	Ginger	9	25.5	546	6700	19600
3	Sesamum	1	360	100	-	25000
4	Banana	27	328	21403	204000	433570
5	Cabbage	5	6	195	2700	5600
6	Arecanut	115	8335.5	98731	8119700	31677700
7	Cashew	13	442	2980	83900	276900
8	Purple Yam/Kachil	1	1	60	450	2000
9	Coffee	6	60	206	2800	14850
10	Ash Gourd	11	117	8243	38100	71980
11	Black Pepper	69	959	3958	212300	1361250
12	Cow Pea/Bush Snake Bean	1	5	60	400	2400
13	Chinese Potato/Coleus	2	3	97	-	600
14	Pineapple	5	18	280	2300	4200
15	Cocoa	11	321	5340	80000	196950
16	Cauliflower	3	4	145	2100	5300
17	Ivy Gourd/Coccinia grandis	24	69	3859	26200	152230
18	Spinach	41	158	4939	18350	99900
19	Bottle Gourd	5	131	4330	10000	66200
20	Elephant Yam	10	18	1247	6200	13500
21	Colocasia	10	40	1320	7200	28850
22	Maize/Corn	1	1	50	600	1000
23	Nutmeg Fruit	11	170	1485	69000	225450

24	Tomato	12	30	2125	8100	33975
25	Coconut	126	10134	250584	3126260	7808605
26	Paddy	29	6920	72510	558000	1849526
27	Green Chilli	39	93.5	3234	17900	98790
28	Snake Gourd	16	42.5	2131	8300	33420
29	Pappaya	8	122	2818	2750	62500
30	Jack Fruit	11	67.5	6145	2750	6000
31	Bitter Gourd	21	74	3084	29650	81720
32	Passion Fruit	1	2	0	500	0
33	Guava	4	10	105	600	1000
34	Turmeric	19	54	721	12650	44800
35	Pumpkin	13	62	1813	7000	31310
36	Sweet Potato	14	62	1242	5800	17000
37	Tapioca	26	365	15129	53850	184150
38	Other millets	3	71	3050	2300	32600
39	Other vegetables	32	175	10817	60800	233025
40	Other fruits	3	35	5280	-	129000
41	Other plantain	79	1107.5	34617	75300	841540
42	Mango	9	50	2580	2000	12000
43	Horse Gram	1	10	10	400	600
44	Drumstick	1	1	75	500	1500
45	Rambutan	1	2	0	-	0
46	Rubber	24	4156	53600	3138400	7230200
47	Kidney Beans	3	12	85	2600	4120
48	Cowpea(Trailing)	74	402.5	12419	60400	294760
49	Brinjal Green Long	43	89	4191	25450	120800
50	Lady Finger/Okra	55	350.5	18405	29650	174650
51	Betel Leaves	5	32	789	17500	70400
52	Cucumber	44	327	23772	61000	247980
53	Breadfruit	1	5	400	500	8000
Total		**132**	**36438**	**691365**	**16203910**	**54340501**

*Cost of production: It includes only what is available crop wise. Otherwise, '-' is marked. Item wise expenditure from all the farmers is not available for the items for which the amount has been recorded. For all such items across 14 districts, expenditures amount to Rs 15,01,90,007.00/-. Information on the amount applicable to each district is available in Column (M) in Appendix Table 11.1 on page 225. It should be noted that the total cost of production for each district is obtained by adding the amount in column 6 of the Appendix tables 11.2 to 11.15 and the amount in Column (M) of the Appendix table 11.1 in the same order. In addition, a few farmers have kept small quantities of produce such as coconuts, pepper, cashew nuts, and paddy for future sale, as recorded in column 5 of tables 11.2 to 11.15. But, their expected selling prices are not imputed in column 7.

Appendix Table 11.16: Information on the manner in which the harvested organic agricultural products were sold

Serial No.	District	Farmer count	Methods by which produce are sold and the number of farmers												Farmers who used products for their own consumption/ needs	
			Locally		Farmers fraternity		Ecoshop		Horticorp		Direct sales		Export			
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	88	72.13	28	22.95	23	18.85	9	7.38	68	55.74	0	0.00	122	100.00
2	Kollam	281	178	63.35	118	41.99	46	16.37	16	5.69	55	19.57	0	0.00	281	100.00
3	Pathanamthitta	175	160	91.43	46	26.29	12	6.86	4	2.29	135	77.14	0	0.00	175	100.00
4	Alappuzha	146	108	73.97	25	17.12	43	29.45	13	8.90	116	79.45	0	0.00	146	100.00
5	Kottayam	70	54	77.14	27	38.57	10	14.29	2	2.86	38	54.29	0	0.00	70	100.00
6	Idukki	225	199	88.44	55	24.44	24	10.67	1	0.44	56	24.89	1	0.44	225	100.00
7	Ernakulam	176	110	62.50	18	10.23	18	10.23	3	1.70	53	30.11	0	0.00	176	100.00
8	Thrissur	192	137	71.35	23	11.98	19	9.90	6	3.13	97	50.52	3	1.56	192	100.00
9	Palakkad	340	179	52.65	7	2.06	6	1.76	9	2.65	156	45.88	0	0.00	340	100.00
10	Malappuram	236	183	77.54	5	2.12	4	1.69	3	1.27	42	17.80	1	0.42	236	100.00
11	Kozhikode	157	145	92.36	10	6.37	11	7.01	5	3.18	90	57.32	0	0.00	157	100.00
12	Wayanad	166	157	94.58	34	20.48	7	4.22	4	2.41	24	14.46	0	0.00	166	100.00
13	Kannur	136	121	88.97	20	14.71	21	15.44	5	3.68	40	29.41	3	2.21	136	100.00
14	Kasaragod	132	113	85.61	2	1.52	9	6.82	3	2.27	44	33.33	0	0.00	132	100.00
Total count/percentage		**2554**	**1932**	**75.65**	**418**	**16.37**	**253**	**9.91**	**83**	**3.25**	**1014**	**39.70**	**8**	**0.31**	**2554**	**100.00**

Appendix Table 11.17 : Mode of exportation of organic agricultural products and details regarding exported items and income generated from them

Serial No.	District	Farmer count	No. of farmers who have exported products		Export method and farmers				Exported products and farmers						Export volume, income and farmers				
					Directly		Through agencies		Vegetables		Fruits		Value added products		Volume (In Kg)		Income (In Rs)		
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Vegetables	Fruits	Vegetables	Fruits	Value added products
1	Thiruvananthapuram	122	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
2	Kollam	281	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
3	Pathanamthitta	175	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
4	Alappuzha	146	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
5	Kottayam	70	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
6	Idukki	225	1	0.44	1	100.00	0	0.00	1	100.00	0	#	0	#	1800	0	72000	0	0
7	Ernakulam	176	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
8	Thrissur	192	3	1.56	0	0.00	3	100.00	0	#	0	0.00	3	100.00	0	0	0	0	1365000
9	Palakkad	340	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
10	Malappuram	236	1	0.42	0	0.00	1	100.00	0	#	0	#	1	100.00	0	0	0	0	63000
11	Kozhikode	157	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
12	Wayanad	166	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
13	Kannur	136	3	2.21	0	0.00	3	100.00	0	#	3	100.00	0	0.00	0	7700	0	278000	0
14	Kasaragod	132	0	0.00	0	#	0	#	0	#	0	#	0	#	0	0	0	0	0
Total count/percentage		2554	8	0.31	1	12.50	7	87.50	1	100.00	3	42.86	4	57.14	1800	7700	72000	278000	1428000

It is not defined, so it is not applicable.

Appendix Table 11.18 : Information on processing harvested products into value added products and measures taken to address deficiency of secondary-micro nutrients

Serial No.	District	Farmer count	Value added product processing and Number of farmers				Secondary micronutrient deficiency and Number of farmers				Methods adopted to address the deficiency of secondary micro nutrients deficiency and No. of farmers					
			Processed		Not processed		Identified		Not identified		Foliar spray		Soil application		Both of these	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	33	27.05	89	72.95	43	35.25	79	64.75	1	2.33	30	69.77	12	27.91
2	Kollam	281	40	14.23	241	85.77	72	25.62	209	74.38	4	5.56	34	47.22	34	47.22
3	Pathanamthitta	175	8	4.57	167	95.43	129	73.71	46	26.29	3	2.33	83	64.34	43	33.33
4	Alappuzha	146	34	23.29	112	76.71	69	47.26	77	52.74	5	7.25	4	5.80	60	86.96
5	Kottayam	70	21	30	49	70	23	32.86	47	67.14	2	8.70	13	56.52	8	34.78
6	Idukki	225	4	1.78	221	98.22	71	31.56	154	68.44	1	1.41	6	8.45	64	90.14
7	Ernakulam	176	25	14.2	151	85.8	21	11.93	155	88.07	3	14.29	4	19.05	14	66.67
8	Thrissur	192	69	35.94	123	64.06	42	21.88	150	78.13	7	16.67	15	35.71	20	47.62
9	Palakkad	340	51	15	289	85	108	31.76	232	68.24	8	7.41	93	86.11	7	6.48
10	Malappuram	236	35	14.83	201	85.17	49	20.76	187	79.24	4	8.16	22	44.90	23	46.94
11	Kozhikode	157	30	19.11	127	80.89	90	57.32	67	42.68	3	3.33	22	24.44	65	72.22
12	Wayanad	166	49	29.52	117	70.48	19	11.45	147	88.55	1	5.26	12	63.16	6	31.58
13	Kannur	136	31	22.79	105	77.21	56	41.18	80	58.82	25	44.64	1	1.79	30	53.57
14	Kasaragod	132	16	12.12	116	87.88	12	9.09	120	90.91	1	8.33	10	83.33	1	8.33
Total cunt/percentage		**2554**	**446**	**17.46**	**2108**	**82.54**	**804**	**31.48**	**1750**	**68.52**	**68**	**8.46**	**349**	**43.41**	**387**	**48.13**

Appendix Table 11.19: Details regarding the comparison of Production cost, Volume, and Price of products in organic farming

Serial No.	District	Farmer count	Cost comparison and farmers										Production comparison and farmers										Price comparison and farmers			
			Conducted		Not conducted+ Not applicable		Opinion of those who have conducted comparison						Conducted		Not conducted+ Not applicable		Opinion of those who have conducted comparison						Higher Price is getting		Not get higher price + Not applicable	
							Increasing		Decreasing		No change						Increasing		Decreasing		No change					
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	92	75.41	30	24.59	65	70.65	18	19.57	9	9.78	92	75.41	30	24.59	61	66.30	16	17.39	15	16.30	67	54.92	55	45.08
2	Kollam	281	214	76.16	67	23.84	102	47.66	82	38.32	30	14.02	226	80.43	55	19.57	137	60.62	27	11.95	62	27.43	120	42.7	161	57.3
3	Pathanamthitta	175	120	68.57	55	31.43	11	9.17	99	82.50	10	8.33	126	72	49	28	97	76.98	14	11.11	15	11.90	41	23.43	134	76.57
4	Alappuzha	146	84	57.53	62	42.47	62	73.81	12	14.29	10	11.90	91	62.33	55	37.67	61	67.03	17	18.68	13	14.29	66	45.21	80	54.79
5	Kottayam	70	50	71.43	20	28.57	10	20.00	31	62.00	9	18.00	56	80	14	20	23	41.07	14	25.00	19	33.93	16	22.86	54	77.14
6	Idukki	225	86	38.22	139	61.78	78	90.70	8	9.30	0	0.00	86	38.22	139	61.78	45	52.33	41	47.67	0	0.00	29	12.89	196	87.11
7	Ernakulam	176	107	60.8	69	39.2	69	64.49	38	35.51	0	0.00	107	60.8	69	39.2	78	72.90	29	27.10	0	0.00	68	38.64	108	61.36
8	Thrissur	192	119	61.98	73	38.02	66	55.46	52	43.70	1	0.84	119	61.98	73	38.02	85	71.43	24	20.17	10	8.40	79	41.15	113	58.85
9	Palakkad	340	150	44.12	190	55.88	92	61.33	37	24.67	21	14.00	144	42.35	196	57.65	67	46.53	29	20.14	48	33.33	35	10.29	305	89.71
10	Malappuram	236	134	56.78	102	43.22	82	61.19	31	23.13	21	15.67	129	54.66	107	45.34	74	57.36	19	14.73	36	27.91	29	12.29	207	87.71
11	Kozhikode	157	114	72.61	43	27.39	95	83.33	15	13.16	4	3.51	114	72.61	43	27.39	87	76.32	25	21.93	2	1.75	59	37.58	98	62.42
12	Wayanad	166	96	57.83	70	42.17	78	81.25	13	13.54	5	5.21	116	69.88	50	30.12	42	36.21	37	31.90	37	31.90	55	33.13	111	66.87
13	Kannur	136	80	58.82	56	41.18	56	70.00	24	30.00	0	0.00	80	58.82	56	41.18	75	93.75	5	6.25	0	0.00	55	40.44	81	59.56
14	Kasaragod	132	102	77.27	30	22.73	78	76.47	20	19.61	4	3.92	102	77.27	30	22.73	36	35.29	35	34.31	31	30.39	17	12.88	115	87.12
Total count/percentage		**2554**	**1548**	**60.61**	**1006**	**39.39**	**944**	**60.98**	**480**	**31.01**	**124**	**8.01**	**1588**	**62.18**	**966**	**37.82**	**968**	**60.96**	**332**	**20.91**	**288**	**18.13**	**736**	**28.82**	**1818**	**71.18**

Appendix Table 11.20: Information on Exclusive sales, Traceability, Scientific quality testing, and Residue toxicity testing of organic products

Serial No.	District	Farmer count	Exclusive sale facility and No. of farmers				Traceability information and Farmers				Scientific quality test and Farmers				Residual toxicity testing and farmers							
			Keep separately		Not keep separately		Information is provided		Information not provided		Conducted		Not Conducted		Conducted		Not Conducted		Presence of toxicity			
																			Found		Not found	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	35	28.69	87	71.31	1	0.82	121	99.18	11	9.02	111	90.98	10	8.2	112	91.8	0	0	10	100.00
2	Kollam	281	48	17.08	233	82.92	0	0	281	100	4	1.42	277	98.58	1	0.36	280	99.64	0	0	1	100.00
3	Pathanamthitta	175	41	23.43	134	76.57	1	0.57	174	99.43	0	0	175	100	0	0	175	100	0	#	0	#
4	Alappuzha	146	43	29.45	103	70.55	1	0.68	145	99.32	3	2.05	143	97.95	3	2.05	143	97.95	0	0	3	100.00
5	Kottayam	70	14	20	56	80	6	8.57	64	91.43	5	7.14	65	92.86	6	8.57	64	91.43	0	0	6	100.00
6	Idukki	225	30	13.33	195	86.67	19	8.44	206	91.56	29	12.89	196	87.11	25	11.11	200	88.89	0	0	25	100.00
7	Ernakulam	176	32	18.18	144	81.82	1	0.57	175	99.43	0	0	176	100	0	0	176	100	0	#	0	#
8	Thrissur	192	36	18.75	156	81.25	2	1.04	190	98.96	3	1.56	189	98.44	5	2.6	187	97.4	1	20.00	4	80.00
9	Palakkad	340	5	1.47	335	98.53	4	1.18	336	98.82	9	2.65	331	97.35	7	2.06	333	97.94	1	14.29	6	85.71
10	Malappuram	236	14	5.93	222	94.07	1	0.42	235	99.58	0	0	236	100	0	0	236	100	0	#	0	#
11	Kozhikode	157	50	31.85	107	68.15	5	3.18	152	96.82	4	2.55	153	97.45	1	0.64	156	99.36	0	0	1	100.00
12	Wayanad	166	9	5.42	157	94.58	3	1.81	163	98.19	20	12.05	146	87.95	12	7.23	154	92.77	0	0	12	100.00
13	Kannur	136	21	15.44	115	84.56	3	2.21	133	97.79	1	0.74	135	99.26	0	0	136	100	0	#	0	#
14	Kasaragod	132	13	9.85	119	90.15	0	0	132	100	0	0	132	100	0	0	132	100	0	#	0	#
Total count/percentage		**2554**	**391**	**15.31**	**2163**	**84.69**	**47**	**1.84**	**2507**	**98.16**	**89**	**3.48**	**2465**	**96.52**	**70**	**2.74**	**2484**	**97.26**	**2**	**2.86**	**68**	**97.14**

It is not defined, so it is not applicable.

Appendix Table 12.1: Information on organic certification available for farm fields

Serial No.	District	Farmer count	Availability of organic certification				Certification agency					
			Available		Not available		Indocert		PGS		Others	
			Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	3	2.46	119	97.54	0	0.00	2	66.67	1	33.33
2	Kollam	281	0	0.00	281	100.00	0	#	0	#	0	#
3	Pathanamthitta	175	0	0.00	175	100.00	0	#	0	#	0	#
4	Alappuzha	146	0	0.00	146	100.00	0	#	0	#	0	#
5	Kottayam	70	2	2.86	68	97.14	0	0.00	2	100.00	0	0.00
6	Idukki	225	23	10.22	202	89.78	1	4.35	0	0.00	22	95.65
7	Ernakulam	176	0	0.00	176	100.00	0	#	0	#	0	#
8	Thrissur	192	1	0.52	191	99.48	1	100.00	0	0.00	0	0.00
9	Palakkad	340	6	1.76	334	98.24	2	33.33	4	66.67	0	0.00
10	Malappuram	236	1	0.42	235	99.58	1	100.00	0	0.00	0	0.00
11	Kozhikode	157	2	1.27	155	98.73	0	0.00	0	0.00	2	100.00
12	Wayanad	166	11	6.63	155	93.37	2	18.18	1	9.09	8	72.73
13	Kannur	136	10	7.35	126	92.65	8	80.00	0	0.00	2	20.00
14	Kasaragod	132	0	0.00	132	100.00	0	#	0	#	0	#
Total		2554	59	2.31	2495	97.69	15	25.42	9	15.26	35	59.32

It is not defined, so it is not applicable.

Appendix Table 12.2: Information regarding crops cultivated in the farm fields certified by Indocert and the expenditure incurred for certification

Serial No.	District	Krishi Bhavan	Farmer count	Crops	Cost (In Rs)
1	Idukki	Konnathadi	1	Nutmeg Fruit, Black Pepper	500
2	Thrissur	Madakkathara	1	Black Pepper, Cashew, Coconut, Jack Fruit, Mango	2000
3	Palakkad	Kannambra	1	Paddy, Black Pepper, Turmeric, Coconut, Cowpea(Trailing), Lady Finger/Okra, Brinjal Green Long, Tomato, Pappaya, Other plantain, Ginger, Jack Fruit	1250
		Peruvembu	1	Paddy, Coconut, Mango	4500
4	Malappuram	Vettam	1	Coconut, Pappaya	6000
5	Wayanad	Kottathara	1	Coffee, Black Pepper, Ginger, Turmeric, Cardamom, Coconut, Banana, Other plantain	700
		Mananthavady	1	Coffee, Black Pepper, Coconut,Other plantain, Banana, Other fruits, Rambutan, Cardamom, Mango, Pappaya, Paddy, Ginger, Turmeric, Elephant Yam, Colocasia, Tapioca, Purple Yam/Kachil	2055
6	Kannur	Aaralam	4	Coconut, Arecanut, Cocoa, Black Pepper	2000
				Coconut, Cocoa, Black Pepper	3000
				Coconut	5000
				Coconut, Black Pepper, Arecanut	4000
		Cherupuzha	1	Cardamom, Coffee, Cocoa, Black Pepper	3000
		Chapparapadavu	3	Coconut, Black Pepper, Arecanut	500
				Coconut, Arecanut, Black Pepper	500
				Coconut, Black Pepper, Arecanut	500
Total			15		

Appendix Table 12.3: Information regarding crops cultivated in the farm fields certified by PGS and the expenditure incurred for certification

Serial No.	District	Krishi Bhavan	Farmer count	Crops	Cost (In Rs)
1	Thiruvananthapuram	Kattakada	1	Cowpea(Trailing)	0
		Kulathoor	1	Pumpkin, Ash Gourd, Bitter Gourd, Jack Fruit, Spinach, Paddy,Coconut, Tapioca, Snake Gourd, Banana, Pineapple, Pappaya, Brinjal, Green Chilli, Turmeric, Ginger, Cowpea(Trailing), Colocasia, Lady Finger/Okra, Elephant Yam, Cucumber, Cow Pea/Bush Snake Bean, Other vegetables, Ivy Gourd/Coccinia grandis, Indian bean/Broad bean	0
2	Kottayam	Aymanam	1	Lady Finger/Okra	0
		Meenachil	1	Mango	0
3	Palakkad	Wadakkancherry	4	Paddy	0
				Paddy	0
				Paddy	0
				Paddy	0
4	Wayanad	Mooppenad	1	Coffee, Black Pepper	0
Total			9		

Appendix Table 12.4: Information regarding crops cultivated in the farm fields certified by other agencies and the expenditure incurred for certification

Serial No.	District	Krishi Bhavan	Farmer count	Crops	Cost (In Rs)	Name of the agency(*)
1	Thiruvananthapuram	Vamanapuram	1	Black Pepper	0	Seed Agritech
2	Idukki	Peruvanthanam	19	Black Pepper, Turmeric, Ginger, Cloves, Other tuber crops	0	PDS
				Black Pepper, Other tuber crops, Turmeric, Ginger, Nutmeg Fruit, Cloves	0	
				Black Pepper, Turmeric, Cloves, Coconut, Ginger, Other plantain, Banana, Nutmeg Fruit	0	
				Black Pepper	0	
				Black Pepper, Turmeric, Ginger, Cloves, Other tuber crops	0	
				Black Pepper, Ginger, Turmeric, Other tuber crops	0	
				Black Pepper, Cloves, Nutmeg Fruit, Turmeric, Ginger	0	
				Black Pepper, Other tuber crops, Turmeric, Ginger	0	
				Black Pepper, Turmeric, Ginger, Nutmeg Fruit, Cloves, Coffee	0	
				Black Pepper, Turmeric, Cloves, Nutmeg Fruit, Ginger	0	
				Black Pepper, Cloves, Nutmeg Fruit, Turmeric, Ginger	0	

				Black Pepper	50	
				Ginger, Turmeric, Black Pepper, Other tuber crops	0	
				Black Pepper	50	
				Black Pepper	50	
				Ginger, Black Pepper, Turmeric, Cloves	20	
				Black Pepper	50	
				Black Pepper, Ragi, Nutmeg Fruit, Cloves	20	
				Black Pepper, Ragi, Ginger, Turmeric	20	
		Adimali	1	Black Pepper, Coffee, Cocoa, Nutmeg Fruit	250	HROPC Ltd
		Mariyapuram	1	Black Pepper, Nutmeg Fruit	1500	HDS
		Karunapuram	1	Black Pepper	0	PDS
3	Kozhikode	Koorachundu	1	Coconut	1000	FTAK
		Kodancherry	1	Coffee, Coconut, Black Pepper, Vanilla	250	
4	Wayanad	Muttil	1	Coffee, Black Pepper	0	BVAR
		Padinjarethara	1	Coffee, Black Pepper, Arecanut, Coconut, Jack Fruit, Mango	500	WSSS
		Thariyode	1	Coffee, Black Pepper, Arecanut	400	
		Ambalavayal	1	Coffee	250	
		Meenangadi	1	Coffee	0	
		Nenmeni	2	Coffee	0	Vanamoolika
				Coffee	0	
		Noolppuzha	1	Coffee	0	WSSS
5	Kannur	Naduvil	1	Coconut, Cocoa, Coffee, Nutmeg Fruit	500	FTAK
		Udayagiri	1	Coconut, Nutmeg Fruit, Cocoa	500	
Total			35			

(*) PDS- Peerumade Development Society

HDS- Highrange Development Society

HROPC Ltd- High Range Organic Producers Company Limited

WSSS- Wayanad Social Service Society

FTAK- Fair Trade Alliance Kerala

BVAR- Biowin Agro Research, Mananthavady

Appendix Table 12.5: Information on Services and Financial assistance available to farmers through the department of Agriculture

Serial No.	District	Farmer count	Participation in seminars conducted by department of Agriculture/ATMA and No. of farmers				Training on organic farming and No. of farmers				Do seminars and clusters lead to more farmers in organic farming?				Financial assistance/Subsidy and No. of farmers			
			Participated		Not participated		Attended		Not attended		Yes		No		Received		Not received	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	102	83.61	20	16.39	96	78.69	26	21.31	91	74.59	31	25.41	100	81.97	22	18.03
2	Kollam	281	224	79.72	57	20.28	199	70.82	82	29.18	121	43.06	160	56.94	231	82.21	50	17.79
3	Pathanamthitta	175	163	93.14	12	6.86	117	66.86	58	33.14	45	25.71	130	74.29	164	93.71	11	6.29
4	Alappuzha	146	121	82.88	25	17.12	90	61.64	56	38.36	112	76.71	34	23.29	113	77.40	33	22.60
5	Kottayam	70	65	92.86	5	7.14	39	55.71	31	44.29	55	78.57	15	21.43	57	81.43	13	18.57
6	Idukki	225	179	79.56	46	20.44	163	72.44	62	27.56	172	76.44	53	23.56	161	71.56	64	28.44
7	Ernakulam	176	150	85.23	26	14.77	127	72.16	49	27.84	108	61.36	68	38.64	142	80.68	34	19.32
8	Thrissur	192	141	73.44	51	26.56	125	65.10	67	34.90	133	69.27	59	30.73	160	83.33	32	16.67
9	Palakkad	340	245	72.06	95	27.94	198	58.24	142	41.76	155	45.59	185	54.41	245	72.06	95	27.94
10	Malappuram	236	131	55.51	105	44.49	106	44.92	130	55.08	111	47.03	125	52.97	129	54.66	107	45.34
11	Kozhikode	157	115	73.25	42	26.75	88	56.05	69	43.95	116	73.89	41	26.11	135	85.99	22	14.01
12	Wayanad	166	133	80.12	33	19.88	78	46.99	88	53.01	92	55.42	74	44.58	93	56.02	73	43.98
13	Kannur	136	118	86.76	18	13.24	95	69.85	41	30.15	111	81.62	25	18.38	109	80.15	27	19.85
14	Kasaragod	132	76	57.58	56	42.42	64	48.48	68	51.52	77	58.33	55	41.67	85	64.39	47	35.61
Total count/percentage		**2554**	**1963**	**76.86**	**591**	**23.14**	**1585**	**62.06**	**969**	**37.94**	**1499**	**58.69**	**1055**	**41.31**	**1924**	**75.33**	**630**	**24.67**

Appendix Table 12.6: Information regarding the switching over to organic farming- Motivation and financial improvement

Serial No.	District	Farmer count	Motivation for switching over to organic farming and No. of farmers																		Financial improvement and Farmers							
			Rising cost of chemical fertilizers		Due to the health problems caused by the application of chemical fertilizers		Better income is generated through organic farming		High quality of products obtained through organic farming		Maintains soil fertility		Considering environmental issues		Promotions through the media		To make non-toxic agricultural products to the society		Self-satisfaction		Had Improvement		Had no improvement		No change		No comparison has been made	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	19	15.57	75	61.48	48	39.34	108	88.52	73	59.84	62	50.82	40	32.79	86	70.49	101	82.79	31	25.41	21	17.21	40	32.79	30	24.59
2	Kollam	281	18	6.41	92	32.74	71	25.27	202	71.89	136	48.40	28	9.96	25	8.90	115	40.93	188	66.90	117	41.64	72	25.62	62	22.06	30	10.68
3	Pathanamthitta	175	57	32.57	144	82.29	14	8.00	145	82.86	140	80.00	99	56.57	18	10.29	38	21.71	105	60.00	13	7.43	53	30.29	98	56.00	11	6.29
4	Alappuzha	146	17	11.64	136	93.15	43	29.45	135	92.47	124	84.93	106	72.60	33	22.60	115	78.77	141	96.58	41	28.08	21	14.38	29	19.86	55	37.67
5	Kottayam	70	25	35.71	39	55.71	12	17.14	53	75.71	59	84.29	36	51.43	19	27.14	47	67.14	52	74.29	32	45.71	13	18.57	19	27.14	6	8.57
6	Idukki	225	69	30.67	152	67.56	27	12.00	171	76.00	200	88.89	85	37.78	6	2.67	102	45.33	155	68.89	27	12.00	27	12.00	32	14.22	139	61.78
7	Ernakulam	176	6	3.41	81	46.02	16	9.09	70	39.77	95	53.98	28	15.91	8	4.55	91	51.70	115	65.34	42	23.86	37	21.02	25	14.20	72	40.91
8	Thrissur	192	17	8.85	130	67.71	35	18.23	140	72.92	143	74.48	95	49.48	20	10.42	127	66.15	160	83.33	43	22.40	39	20.31	31	16.15	79	41.15
9	Palakkad	340	33	9.71	58	17.06	6	1.76	60	17.65	154	45.29	39	11.47	10	2.94	46	13.53	171	50.29	28	8.24	42	12.35	62	18.24	208	61.18
10	Malappuram	236	22	9.32	150	63.56	26	11.02	135	57.20	176	74.58	109	46.19	27	11.44	135	57.20	191	80.93	36	15.25	51	21.61	65	27.54	84	35.59
11	Kozhikode	157	24	15.29	91	57.96	16	10.19	136	86.62	125	79.62	52	33.12	31	19.75	111	70.70	132	84.08	31	19.75	32	20.38	46	29.30	48	30.57
12	Wayanad	166	58	34.94	113	68.07	49	29.52	86	51.81	130	78.31	74	44.58	54	32.53	114	68.67	119	71.69	25	15.06	54	32.53	67	40.36	20	12.05
13	Kannur	136	8	5.88	98	72.06	22	16.18	87	63.97	64	47.06	49	36.03	17	12.50	42	30.88	104	76.47	32	23.53	34	25.00	9	6.62	61	44.85
14	Kasaragod	132	11	8.33	60	45.45	13	9.85	109	82.58	102	77.27	60	45.45	21	15.91	70	53.03	103	78.03	14	10.61	56	42.42	46	34.85	16	12.12
Total		**2554**	**384**	**15.04**	**1419**	**55.56**	**398**	**15.58**	**1637**	**64.10**	**1721**	**67.38**	**922**	**36.10**	**329**	**12.88**	**1239**	**48.51**	**1837**	**71.93**	**512**	**20.05**	**552**	**21.61**	**631**	**24.71**	**859**	**33.63**

Appendix Table 12.7: Major problems faced by farmers in organic sector

Serial No.	District	Farmer count	Low productivity		Lower price		Shortage of production inputs		Problems faced in pest management		Problems with disease management		Non availability of labs to test the quality of products		Lack of storage facilities		Inadequate subsidies		Inadequacy of quality organic manures/ pesticides		Lack of understanding about integrated farming		Crop loss due to climate change		Crop damage caused by wild animal attacks		Lack of Labourers		Other Problems	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	42	34.43	71	58.20	12	9.84	100	81.97	78	63.93	39	31.97	48	39.34	67	54.92	39	31.97	6	4.92	119	97.54	47	38.52	47	38.52	8	6.56
2	Kollam	281	104	37.01	111	39.50	22	7.83	176	62.63	116	41.28	11	3.91	16	5.69	28	9.96	46	16.37	8	2.85	227	80.78	40	14.23	88	31.32	7	2.49
3	Pathanamthitta	175	118	67.43	64	36.57	38	21.71	133	76.00	131	74.86	8	4.57	19	10.86	81	46.29	37	21.14	7	4.00	161	92.00	126	72.00	110	62.86	1	0.57
4	Alappuzha	146	81	55.48	90	61.64	38	26.03	133	91.10	127	86.99	47	32.19	37	25.34	55	37.67	68	46.58	19	13.01	129	88.36	4	2.74	38	26.03	21	14.38
5	Kottayam	70	17	24.29	45	64.29	5	7.14	56	80.00	49	70.00	12	17.14	43	61.43	22	31.43	51	72.86	3	4.29	58	82.86	10	14.29	16	22.86	8	11.43
6	Idukki	225	111	49.33	181	80.44	35	15.56	131	58.22	122	54.22	76	33.78	94	41.78	135	60.00	40	17.78	24	10.67	186	82.67	163	72.44	39	17.33	2	0.89
7	Ernakulam	176	32	18.18	64	36.36	3	1.70	76	43.18	47	26.70	21	11.93	26	14.77	30	17.05	17	9.66	6	3.41	161	91.48	5	2.84	65	36.93	44	25.00
8	Thrissur	192	63	32.81	87	45.31	41	21.35	109	56.77	99	51.56	12	6.25	42	21.88	31	16.15	45	23.44	12	6.25	138	71.88	49	25.52	41	21.35	9	4.69
9	Palakkad	340	49	14.41	106	31.18	6	1.76	24	7.06	20	5.88	13	3.82	31	9.12	24	7.06	16	4.71	2	0.59	197	57.94	304	89.41	89	26.18	11	3.24
10	Malappuram	236	69	29.24	126	53.39	34	14.41	137	58.05	130	55.08	43	18.22	49	20.76	97	41.10	64	27.12	23	9.75	90	38.14	143	60.59	75	31.78	17	7.20
11	Kozhikode	157	75	47.77	109	69.43	40	25.48	98	62.42	85	54.14	51	32.48	79	50.32	103	65.61	48	30.57	40	25.48	117	74.52	105	66.88	55	35.03	18	11.46
12	Wayanad	166	91	54.82	121	72.89	61	36.75	68	40.96	82	49.40	77	46.39	100	60.24	85	51.20	72	43.37	31	18.67	130	78.31	132	79.52	64	38.55	6	3.61
13	Kannur	136	37	27.21	82	60.29	12	8.82	52	38.24	43	31.62	29	21.32	32	23.53	46	33.82	19	13.97	12	8.82	122	89.71	107	78.68	49	36.03	11	8.09
14	Kasaragod	132	49	37.12	62	46.97	25	18.94	93	70.45	79	59.85	29	21.97	27	20.45	71	53.79	57	43.18	9	6.82	67	50.76	82	62.12	51	38.64	0	0.00
Total count/percentage		**2554**	**938**	**36.73**	**1319**	**51.64**	**372**	**14.57**	**1386**	**54.27**	**1208**	**47.30**	**468**	**18.32**	**643**	**25.18**	**875**	**34.26**	**619**	**24.24**	**202**	**7.91**	**1902**	**74.47**	**1317**	**51.57**	**827**	**32.38**	**163**	**6.38**

Appendix Table 12.8: Other problems faced by farmers in organic sector

Serial No.	District	Farmer count	Other problems
1	Thiruvananthapuram	8	Rodent infestation, High labour cost, Lack of good quality seeds, Scarcity of water
2	Kollam	7	High cost of production, Rodent infestation, Health problems of farmers, High labour cost, Lack of guidelines for organic farming, Physical disabilities
3	Pathanamthitta	1	Does not bear fruit together
4	Alappuzha	21	Malabar giant squirrel attack, Lack of high yielding seeds, Monitor lizards attack, Lack of climate resilient seeds, White-breasted water hen attack, Need for more organic fertilizers, Higher labour cost, Encouragement from Krishi Bhavan is needed, Shortage of quality seeds, Shortage of indigenous seeds, Attack of avian, Bandicoot rat menace, Mite attack, Waterlogging area
5	Kottayam	8	Lighten farmers labour burden, No farmer collectives, High labour cost, Fewer working hours, Soil test reports are not available on time.
6	Idukki	2	High labour cost, Scarcity of water
7	Ernakulam	44	Lesser whistling duck attack, Rodent infestation, Attack of avian, High labour cost, Lack of harvesting machine, Scarcity of water, Stem borer infestation, Parrot attack, Cormorants attack, Otter attack, Grey-headed Swamp hen attack, Salvinia molesta attacks, Aphid attack, Insufficient machinery, Marketing challenges, Provide adequate subsidies
8	Thrissur	9	Rodent infestation, High labour cost, Soil salinity, Marketing challenges, Lack of market
9	Palakkad	11	High labour cost, Income is not obtained in accordance with expenses, Scarcity of water, Shortage of VFPCK
10	Malappuram	17	Lack of scientific foundation seen in Government schemes, High labour cost, Bandicoot rat menace, Marketing challenges, Lack of market
11	Kozhikode	18	Theft of agricultural crops, High labour cost, Income is not obtained in accordance with expenses, Scarcity of water, Benefits are not received on time
12	Wayanad	6	Not getting recognition in the society, Shortage of quality seeds, Scarcity of water, Non-availability of bio pesticides, Insufficiency of assistance provided by the government
13	Kannur	11	Theft of agricultural crops, Lack of good quality seeds, Organic products possess lesser appeal, Lack of price stability, High labour cost, Scarcity of water, Absence of organic market, Products to be taken to distant places to sell, Products not being sold on time, Waterlogging
Total		163	

Appendix Table 12.9: Severity based ranking of major problems faced by farmers in organic sector

Serial No.	District	Farmer count	Low productivity		Lower price		Shortage of production inputs		Problems faced in pest management		Problems with disease management		Non availability of labs to test the quality of products		Lack of storage facilities		Inadequate subsidies		Inadequacy of quality organic manures/ pesticides		Lack of understanding about integrated farming		Crop loss due to climate change		Crop damage caused by wild animal attacks		Lack of labourers		Other Problems	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	8	6.56	24	19.67	4	3.28	34	27.87	27	22.13	8	6.56	14	11.48	18	14.75	6	4.92	2	1.64	51	41.80	15	12.30	8	6.56	2	1.64
2	Kollam	281	25	8.90	33	11.74	7	2.49	70	24.91	43	15.30	4	1.42	4	1.42	9	3.20	16	5.69	4	1.42	115	40.93	26	9.25	27	9.61	3	1.07
3	Pathanamthitta	175	84	48.00	19	10.86	8	4.57	28	16.00	32	18.29	2	1.14	5	2.86	34	19.43	13	7.43	3	1.71	39	22.29	25	14.29	38	21.71	1	0.57
4	Alappuzha	146	20	13.70	20	13.70	8	5.48	39	26.71	36	24.66	11	7.53	7	4.79	12	8.22	14	9.59	4	2.74	65	44.52	2	1.37	7	4.79	5	3.42
5	Kottayam	70	6	8.57	18	25.71	1	1.43	16	22.86	16	22.86	3	4.29	10	14.29	6	8.57	16	22.86	1	1.43	20	28.57	4	5.71	3	4.29	2	2.86
6	Idukki	225	31	13.78	63	28.00	12	5.33	33	14.67	27	12.00	19	8.44	18	8.00	29	12.89	8	3.56	8	3.56	84	37.33	116	51.56	14	6.22	1	0.44
7	Ernakulam	176	15	8.52	28	15.91	2	1.14	28	15.91	18	10.23	7	3.98	7	3.98	8	4.55	4	2.27	4	2.27	90	51.14	2	1.14	29	16.48	18	10.23
8	Thrissur	192	19	9.90	31	16.15	10	5.21	36	18.75	29	15.10	4	2.08	10	5.21	7	3.65	11	5.73	5	2.60	61	31.77	19	9.90	10	5.21	2	1.04
9	Palakkad	340	20	5.88	42	12.35	2	0.59	10	2.94	6	1.76	4	1.18	10	2.94	7	2.06	4	1.18	1	0.29	133	39.12	244	71.76	31	9.12	4	1.18
10	Malappuram	236	22	9.32	42	17.80	6	2.54	50	21.19	43	18.22	11	4.66	10	4.24	32	13.56	14	5.93	7	2.97	19	8.05	81	34.32	20	8.47	13	5.51
11	Kozhikode	157	21	13.38	28	17.83	9	5.73	50	31.85	46	29.30	15	9.55	16	10.19	22	14.01	11	7.01	8	5.10	48	30.57	41	26.11	9	5.73	6	3.82
12	Wayanad	166	19	11.45	35	21.08	11	6.63	13	7.83	19	11.45	17	10.24	16	9.64	18	10.84	13	7.83	17	10.24	38	22.89	66	39.76	14	8.43	1	0.60
13	Kannur	136	8	5.88	19	13.97	3	2.21	13	9.56	11	8.09	7	5.15	8	5.88	10	7.35	4	2.94	4	2.94	62	45.59	49	36.03	20	14.71	5	3.68
14	Kasaragod	132	18	13.64	23	17.42	13	9.85	27	20.45	25	18.94	12	9.09	8	6.06	18	13.64	13	9.85	5	3.79	13	9.85	24	18.18	12	9.09	0	0.00
Total count/percentage		**2554**	**230**	**9.01**	**339**	**13.27**	**56**	**2.19**	**377**	**14.76**	**298**	**11.67**	**75**	**2.94**	**101**	**3.95**	**154**	**6.03**	**103**	**4.03**	**23**	**0.90**	**624**	**24.43**	**700**	**27.41**	**185**	**7.24**	**33**	**1.29**
Rank Number			6		4		12		3		5		11		10		8		9		14		2		1		7		13	

Appendix Table 12.10: Information on problems faced in marketing of organic agricultural products and the details of facilities for the storage of harvested products

Serial No.	District	Farmer count	Problems with marketing and No. of farmers														Storage facilities and Farmers									
			Lack of shops selling organic products exclusively		Shortage of Ecoshops		Need for direct selling to consumers		Reluctance from consumers to pay higher prices for organic products		Lack of protocols for safe handling of products without damage		Impact of Covid		Inadequacy of non-exploitative marketing system		Facilities available		Facilities not available		Type of facility					
																					Zero energy cool chamber		Fridge		Others	
			Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
1	Thiruvananthapuram	122	88	72.13	73	59.84	65	53.28	81	66.39	55	45.08	71	58.20	59	48.36	2	1.64	120	98.36	0	0.00	1	50.00	1	50.00
2	Kollam	281	124	44.13	36	12.81	77	27.40	129	45.91	17	6.05	77	27.40	54	19.22	19	6.76	262	93.24	0	0.00	19	100.00	0	0.00
3	Pathanamthitta	175	137	78.29	99	56.57	120	68.57	107	61.14	13	7.43	121	69.14	133	76.00	0	0.00	175	100.00	0	#	0	#	0	#
4	Alappuzha	146	104	71.23	35	23.97	79	54.11	88	60.27	40	27.40	69	47.26	56	38.36	2	1.37	144	98.63	1	50.00	1	50.00	0	0.00
5	Kottayam	70	38	54.29	32	45.71	15	21.43	43	61.43	16	22.86	42	60.00	49	70.00	2	2.86	68	97.14	0	0.00	0	0.00	2	100.00
6	Idukki	225	179	79.56	89	39.56	93	41.33	168	74.67	24	10.67	111	49.33	105	46.67	7	3.11	218	96.89	0	0.00	0	0.00	7	100.00
7	Ernakulam	176	91	51.70	38	21.59	34	19.32	77	43.75	14	7.95	15	8.52	30	17.05	2	1.14	174	98.86	1	50.00	0	0.00	1	50.00
8	Thrissur	192	133	69.27	53	27.60	78	40.63	91	47.40	24	12.50	81	42.19	54	28.13	16	8.33	176	91.67	5	31.25	10	62.50	1	6.25
9	Palakkad	340	137	40.29	56	16.47	102	30.00	61	17.94	65	19.12	22	6.47	150	44.12	13	3.82	327	96.18	0	0.00	1	7.69	12	92.31
10	Malappuram	236	184	77.97	78	33.05	68	28.81	132	55.93	37	15.68	75	31.78	128	54.24	14	5.93	222	94.07	1	7.14	7	50.00	6	42.86
11	Kozhikode	157	153	97.45	135	85.99	97	61.78	54	34.39	52	33.12	45	28.66	93	59.24	2	1.27	155	98.73	0	0.00	2	100.00	0	0.00
12	Wayanad	166	144	86.75	101	60.84	72	43.37	76	45.78	61	36.75	62	37.35	80	48.19	6	3.61	160	96.39	2	33.33	1	16.67	3	50.00
13	Kannur	136	55	40.44	45	33.09	39	28.68	61	44.85	19	13.97	30	22.06	41	30.15	2	1.47	134	98.53	0	0.00	2	100.00	0	0.00
14	Kasaragod	132	110	83.33	44	33.33	42	31.82	77	58.33	29	21.97	57	43.18	19	14.39	0	0.00	132	100.00	0	#	0	#	0	#
Total count/percentage		**2554**	**1677**	**65.66**	**914**	**35.79**	**981**	**38.41**	**1245**	**48.75**	**466**	**18.25**	**878**	**34.38**	**1051**	**41.15**	**87**	**3.41**	**2467**	**96.59**	**10**	**11.49**	**44**	**50.57**	**33**	**37.93**

It is not defined, so it is not applicable.

Appendix A: Survey Questionnaire

Department of Economics and Statistics

Survey on Organic Farming and Marketing in Kerala: 2021-22

Basic Information

1	District	:		Code			
2	Block	:		Code			
3	Grama Panchayath/Municipality/Corporation	:		Code			
4	Name of Krishi Bhavan	:					
5	Name and Address of Farmer (with Mobile Number)	:					
6	Schedule ID	:					
7	Educational qualification of the farmer (Below 10th standard-1, SSLC-2, Pre-degree/Plus Two-3, Graduation4, Post-Graduation-5, Professional Degree-6)	:					
8	Total area of agricultural land (In cents)	:					
9	In it, area under organic cultivation (In cents)	:					
10	Is there a buffer zone? (Yes-1, No-2)	:					
11	If any, (Manmade-1, Natural-2)	:					
12	If Code-1 is in Serial No. 11, how wide is the buffer zone built?	:					
13	Ownership of agricultural land (Own-1, Lease-2, Both of these-3)	:					
14	a) Own land area (In cents)	:					
	b) Leased land area (In cents)	:					

15. Information of crops - Annual/ Long Term Crops (Organic Only)

Sl No.	Name	Code	Single crop		Mixed crop			
					Major crop		Inter crop	
			Extent	No. of years being farmed	Extent	No. of years being farmed	Extent	No. of years being farmed
1								
2								
3								
4								
5								

Note:- Please refer to Annexure-I of the instruction book for the crop code. Regarding the extent of land, use the following codes: 5 cents to 50 cents - 1, 50 cents to 100 cents - 2, 100 cents to 200 cents - 3, 200 to 250 cents - 4, More than 250 cents - 5, Less than 5 cents - 6. For the number of years being farmed, use the following codes: less than 3 years - 1, 3 to 5 years - 2, and more than 5 years - 3.

15.1 Information of crops (Seasonal crops only)

Extent (In cents)	Name	Code	Last year, how many times was the crop planted? (1 time-1, 2 times-2, 3 times-3, 4 times-4)

16	Type of land based on terrain. Put (✓) mark. (Midland- [ ], Lowland- [ ], Highland- [ ]		
17	**Keeping Records**		
	i Year wise details on production (Available-1, Not available-2)	:	
	ii Basic details, such as soil testing (Available-1, Not available-2, Partially Available-3)	:	
	iii Details on crops cultivated (Available-1, Not available-2)	:	
18	Before the commencement of organic farming, how many years of farming experience do you have? [Phase I] (Less than 3 years-1, More than 3 years-2, Starting organic farming from scratch-3)	:	
19	Whether soil tests been done before switching over to organic farming? (Yes-1, No-2)	:	
20	If yes, where? [State soil testing laboratary-1, Central governemnt research centres-2, Kerala agricultural university-3, Others (specify)-9]	:	

21	**Chemical properties of soil**				Soil condition before starting organic farming
	i)	Carbon - Nitrogen Ratio (C-N Ratio)			
		a	Data in the result : Yes-1, No-2		
		b	If yes, level of Carbon to Nitrogen (Narrow-1, Optimum-2, Wide-3)		
	ii)	Cation Exchange Capacity (CEC)			
		a	Data in the result : Yes-1, No-2		
		b	If yes, level of CEC (Low-1, Moderate-2, Adequate-3)		
	iii)	Soil acidity (Soil pH)			
		a	Data in the result : Yes-1, No-2		
		b	If yes, level of pH (Extremely acidic-1, Moderately acidic-2, Slightly acidic-3, Neutral-4, Alkaline-5)		
	iv)	**Measurement of Plant Nutrients**			

		Soil condition before starting organic farming		
I	**Primary Nutrients**			
Nutrient elements		Low	Medium	High
1	Nitrogen			
2	Phosphorus			
3	Potassium			
II	**Secondary Nutrients**			
Nutrient elements		Low	Medium	High
1	Calcium			
2	Magnesium			
3	Sulphur			
III	**Micro Nutrients**			
Nutrient elements		Low	Medium	High
1	Zinc			
2	Boron			
3	Molybdenum			
4	Manganese			
5	Silica			
6	Copper			
7	Nickel			
8	Chlorine			
9	Iron			

Details regarding organic farming

22	Whether soil tests been conducted since starting organic farming? (Yes-1, No-2)	:	
23	If yes, where was the test done? [State soil testing lab-1, Central government research centres-2, Kerala agricultural university-3, Others (please specify)-9]	:	
24	How many years have you been farming organically? (Less than 3 years-1, 3 to 5 years-2, More than 5 years-3)	:	
24.1	If Code 3 is in Serial No. 24, How many years?	:	
25	Which type of seed is used for farming? (Indigenous-1, Hybrid-2, Both of these-3)	:	
26	Whether seed treatment care has been adopted? (Yes-1, No-2)	:	
27	If so, which type of treatment was adopted? (Organic method-1, Chemical method-2, Both of these-3	:	
28	Whether all crops are cultivating organically? (Yes-1, No-2)	:	

29 If not so, why not? Put (✓) mark.

a	Decrease in productivity		e	Subsidy is not available for all crops	
b	Need based technology required for farming is not reliable		f	Scarcity of organic manures	
c	Absence of documented monitor records in Kerala		g	Non availability of marketing facilities	
d	Increase in cost		h	Widespread pest infestation/ crop damage due to disease	

30 Pests and diseases challenging in farm. Put (✓) mark.

Pests			**Diseases**		
a	Sap sucking pests		a	Fungus	
b	Leaf eating caterpillars		b	Bacteria	
c	Insect pests		c	Virus	
d	Nematodes		d	Others (Specify)	
e	Others (Specify)				
f	Not applicable		e	Cannot identify	
	Total (a+b+c+d+e)			**Total** (a+b+c+d)	

31	Methods adopted for plant nutrition (Organic manures-1, Integrated manures-2, Both of these-3)	
32	Method of organic farming adopted in the farm field? (Traditional farming method-1, Cultivation method required for international certification-2, Natural farming method-3, Integrated method of traditional farming and natural farming-4)	

33 What are the plant nourishment inputs used for organic farming? Put (✓) mark.

a	Microbial inoculants/Bio fertilizers		f	Panchagavyam	
b	Fish amino acid		g	Vermicompost	
c	Egg amino acid		h	Leaves extracts in Vriksha Ayurvedham	
d	Other tinctures like this		i	Others (Specify)	
e	Jeevamrutham				

34 How these inputs are made available? Put (✓) mark.
(Self-preparation- ☐, Purchase- ☐, Getting Free- ☐

a) If preparing by self, how did you procure the required raw materials? Put (✓) mark.

1	Farmers fraternity		4	General stores	
2	Ecoshop		5	Available on its own	
3	Prominent shops selling quality products like organic produce/safe products		6	Others (Specify)	

b) If purchase from outside, then from where? Put (✓) mark.

1	Research centres		4	Producers with brand names and fame	

	2	Ecoshop		5	Prominent shops selling quality products like organic produce/safe products	
	3	Farmers fraternity		6	Others (Specify)	
c)	If getting free, then from where? Put (✓) mark.					
	1	Krishi Bhavan		4	Farmers fraternity	
	2	Grama Panchayath		5	Individuals	
	3	Krishi Vigyan Kendra		6	Others (Specify)	
35	Whether disease infestation observed in crops? (Yes-1, No-2)					
36	If so, what kind of? Put (✓) mark.					
	a	Virus		c	Bacteria	
	b	Fungus		d	Cannot identify	
37	What method has been adopted to control these? Put (✓) mark.					
	a	Using Bio fertilizers		c	Using leaf decoctions	
	b	Using plant based products available for purchase		d	Others (Specify)	
38	From where these disease management products were available? Put (✓) mark. (Self-preparation- ☐, Purchase- ☐, Getting Free- ☐					
a)	If preparing the products by self, how did you procure the required raw materials? Put (✓) mark.					
	1	Farmers fraternity		4	General stores	
	2	Ecoshop		5	Available on its own	
	3	Prominent shops selling quality products like organic produce/safe products		6	Others (Specify)	
b)	If purchase, then from where? Put (✓) mark.					
	1	Research institutions		4	Producers with brand names and fame	
	2	Ecoshop		5	Others (Specify)	
	3	Farmers fraternity				
39	What are the methods adopted to control crop pests? Put (✓) mark.					
	a	Using commercially produced plant based products		e	Pheromone traps	
	b	Using opposite insects		f	Lamp traps	
	c	Using bio fertilizers/Nematodes		g	Trichoderma egg cards	
	d	Using bio mixtures prepared in the farmfield		h	Not adopted any methods	
40	From where these pest management products are available? Put (✓) mark. (Self-preparation- ☐, Purchase- ☐, Getting Free- ☐					
a)	If preparing the products by self, how did you procure the required raw materials? Put (✓) mark.					
	1	Farmers fraternity		4	General stores	
	2	Ecoshop		5	Available on its own	
	3	Prominent shops selling quality products like organic produce/safe products		6	Others (Specify)	
b)	If purchase from out side, then from where? Put (✓) mark.					
	1	Government/Research centres		4	Producers with brand names and fame	
	2	Ecoshop		5	Prominent shops selling quality products like organic produce/safe products	
	3	Farmers fraternity		6	Others (Specify)	
41	No. of applications made to meet the target of effective pest/disease management. (One time-1, Two times-2, Three times-3, More than three times-4, Not effective-5)					
	Pest management				Disease management	

42	Production in organic farming (Agricultural year: 2020-21)						
	Sl No.	Crop Name	Code	Extent (In cents)	Production (In Kg)	Production cost (In Rs)	Income from sales (In Rs)
42.1	The total expenditure (in Rupees) incurred for the production of the crops mentioned against Serial No. 42 [Applicable only where crop wise expenditure is not available].						

43	Mode of selling products. Put (✓) mark.					
	a	Locally		e	Direct Sales	
	b	Farmers fraternity		f	Export	
	c	Ecoshop		g	Own use	
	d	Horticorp				
44	Export method? (Direct-1, Through agencies-2)					

45	If exports are applicable, then income from exports			
	Serial No.	Items	Quantity (In Kg)	Earnings (In Rs)
	1	Spices		
	2	Tea		
	3	Coffee		
	4	Vegetables		
	5	Fruits		
	6	Value added products		
	Total			

46	Has the processing of value-added products been done? (Yes-1, No-2)	
47	Have the symptoms of secondary micronutrient deficiency been recognized in crops? (Yes-1, No-2)	
48	If yes, the solution adopted for rectifying the problem. (Foliar spray-1, Soil application-2, Both of these-3)	

49	**Chemical properties of soil**			Soil condition after starting organic farming
	i)	Carbon - Nitrogen Ratio (C-N ratio)		
		a	Data in the result : Yes-1, No-2	
		b	If yes, level of Carbon to Nitrogen (Narrow-1, Optimum-2, Wide-3)	
	ii)	Cation Exchange Capacity (CEC)		
		a	Data in the result : Yes-1, No-2	
		b	If yes, level of CEC (Low-1, Moderate-2, Adequate-3)	
	iii)	Soil acidity (Soil pH)		
		a	Data in the result : Yes-1, No-2	
		b	If yes, level of pH (Extremely acidic-1, Moderately acidic-2, Slightly acidic-3, Neutral-4, Alkaline-5)	
	iv)	**Measurement of Plant Nutrients**		
		I	**Primary Nutrients**	

		Nutrient elements	Soil condition after starting organic farming		
			Low	Medium	High
I	1	Nitrogen			
	2	Phosphorus			
	3	Potassium			
II		**Secondary Nutrients**			
		Nutrient elements	Soil condition after starting organic farming		
	1	Calcium	Low	Medium	High
	2	Magnesium			
	3	Sulphur			
III		**Micro Nutrients**			
		Nutrient elements	Soil condition after starting organic farming		
			Low	Medium	High
	1	Zinc			
	2	Boron			
	3	Molybdenum			
	4	Manganese			
	5	Silica			
	6	Copper			
	7	Nickel			
	8	Chlorine			
	9	Iron			

50	What methods have been used for soil enrichment? Put (✓) mark.					
	a	Compost		d	Decoction of leaves	
	b	Vermiompost		e	Jeevamrutham	
	c	Green leaves manure		f	Others (Specify)	
51	From where these soil enrichment products were available? Put (✓) mark. Self-preparation- ☐, Purchase- ☐, Getting Free- ☐					
52	If preparing the products by self, how did you procure the required raw materials? Put (✓) mark.					
	a	Farmers fraternity		d	General stores	
	b	Ecoshop		e	Available on its own	
	c	Prominent shops selling quality products like organic produce/safe products		f	Others (Specify)	

53	If purchase, then from where? Put (✓) mark.					
	a	Research centres		d	Producers with brand names and fame	
	b	Ecoshop		e	Others (Specify)	
	c	Farmers fraternity				
54	Whether comparison of expenditure has been made between the first year and subsequent years in organic farming? (Yes-1, No-2)					
55	If yes, please specify? (Increase-1, Decrease-2, No Change-3)					
56	Whether comparison of production has been made between the first year and subsequent years in organic farming? (Yes-1, No-2)					
57	If yes, please specify? (Increase-1, Decrease-2, No Change-3)					
58	Whether organic produces command higher prices than pre-organic produces? (Yes-1, No-2)					
59	Whether products specifically exhibited for sale at outlets? (Yes-1, No-2)					
60	Whether 'Traceability' details have been made available on the products? (Yes-1, No-2)					
61	Whether the products have been made for scientific quality testing? (Yes-1, No-2)					
62	Whether residual toxicity test is conducted in products? (Yes-1, No-2)					
63	If so, what is the result? (Toxic Detected-1, Not Detected-2)					
64	What is the motivation for switching over to organic farming? Put (✓) mark.					
	a	Rising cost of chemical fertilizers		f	Considering environmental issues	
	b	Due to the health problems caused by the application of chemical fertilizers		g	Promotions through the media	
	c	Better income is generated through organic farming		h	To make non-toxic agricultural products to the society	
	d	High quality of products obtained through organic farming		i	Self-satisfaction	
	e	Maintains soil fertility				
65	Has there been any financial improvement due to the shift from first phase of agriculture to organic farming? (Yes-1, No-2, No Change-3, Not Applicable-4)					
66	**Problems faced by farmers (Give rank based on severity)**					
	a	Low productivity		h	Inadequate subsidies	
	b	Lower price		i	Inadequacy of quality organic manures/ pesticides	
	c	Shortage of production inputs		j	Lack of understanding about integrated farming	
	d	Problem faced in pest management		k	Crop loss due to climate change	
	e	Problems with disease management		l	Crop damage caused by wild animal attacks	
	f	Non availability of labs to test the quality of products		m	Lack of Labourers	
	g	Lack of storage facilities		n	Others[Specify]	
67	**Problems encountered in the process of marketing of products.** Put (✓) mark.					
	a	Lack of shops selling organic products exclusively		e	Lack of protocols for the safe handling of products without damage	
	b	Shortage of Ecoshops		f	Impact of Covid	
	c	Need for direct selling to consumers		g	Inadequacy of non-exploitative marketing system	
	d	Reluctance from consumers to pay higher prices for organic products				
68	Is there a facility for keeping the products intact? (Yes-1, No-2)					

69	If yes, what type of facility? [Zero energy cool chamber-1, Fridge-2, Air cooled rack-3, others(Specify)-9]	
	Assistance available to farmers	
70	Have you attended a seminar on organic farming conducted by the department of Agriculture or ATMA, etc. (Yes-1, No-2)	
71	Have you received training in organic farming? (Yes-1, No-2)	
72	Is it possible to attract more farmers to participate in organic farming through the service offered by the seminars/clusters? (Yes-1, No-2)	
73	Whether received any subsidy or financial assistance available from Krishi Bhavan for agricultural activities? (Yes-1, No-2)	
	Certification information	
74	Whether organic certification received? (Yes-1, No-2)	
75	If yes, which crops are cultivated on the certified land?	

Sl No.	Crop	Code	Certification agency	Cost of certification

Note :- Code for certification agency [Lacon-1, Indocert-2, PGS-3, Others(specify)-9]

76	Remarks of the Investigator:	
77	Field operation details	
a)	Name of the Investigator, Mobile number, Signature with date	
b)	Name of the Supervisory Officer, Designation, Signature with date	

Appendix B: Field Snapshots


UNF
WORLD'S LARGEST
NAVARA FARM


CHOMALA
KOTHANDAN
PONNI


KALAMALLI PHOOL
കാലാമല്ലി ഫൂൽ


THEVALAKANNAN
തവളക്കണ്ണൻ


KARIGA JAVALI


വിവരശേഖരണം
ജില്ലാതല ഉദ്ഘാടനം
ഉദ്ഘാടനം: ശ്രീ.കെ.പി.മോഹനൻ
സാമ്പത്തിക സ്ഥിതിവിവരകണക്ക് വകുപ്പ് ,

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