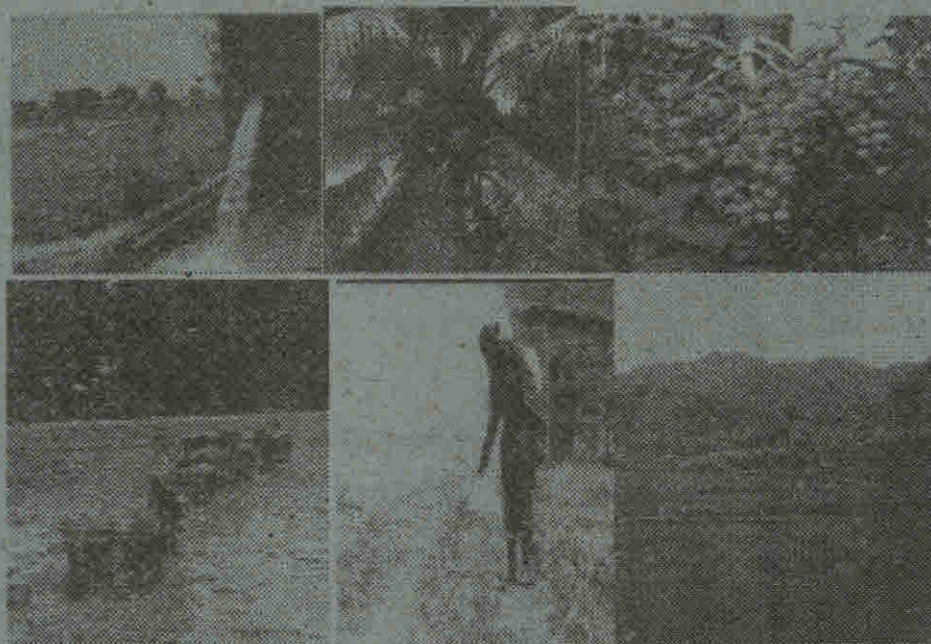




Government of Kerala



**REPORT ON
INPUT SURVEY
2001-02**

**Department of Economics & Statistics
Thiruvananthapuram
2008**



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Preface

The Ministry of Agriculture carried out the first Input survey as a part of the Agricultural Census Scheme in 1976-77 as the reference period. The present report brings out the consolidated State results of the Input Survey 2001-02 which is the sixth one in the series. The basic unit of survey is "Operational Holdings" as distinct from ownership holding, because Operational Holding is the basic unit of decision making for micro level planning.

The survey provides crucial information on use of variety of seeds, chemical fertilizers, organic manures, pesticides and IPM for irrigated and un irrigated areas separately. The survey also covers live stock held, use of agricultural machinery and implements and agricultural credits availed.

The data on Input Survey have been collected by Taluk Statistical Officers/Statistical Inspectors and supervised by District level officers of this department.

The State level supervision has been done by the State Technical Officer of the Scheme. Scrutiny and other related works have been done by the nuclear staff working in this scheme. Data processing, tabulation and estimation have been done by the computer division of this department.

I hope the report will be highly useful to planners, researchers and those who are interested in the field of Agricultural Statistics.

M.R. Balakrishnan
DIRECTOR



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CHAPTER - I

Introduction

From the commencement of first Five Year Plan, various schemes were taken up to improve the contents and coverage of Agricultural Statistics and their accuracy. The planning and execution of Agricultural programmes are often handicapped for want of comprehensive and reliable data. Due to planned development and expansion of economy, new problems of formulation and execution of projects for more intensified and diversified development have become essential. This has necessitated further improvement of their quality and content of Agricultural Statistics. During the successive five year plans, a number of measures were taken up with a view to filling up gaps in the existing agricultural statistics and devise base and means of extending its scope.

In the past, approach to agricultural planning in India was mainly restricted to setting out targets of production for different crops and other agricultural commodities at the national and state levels. In the absence of detailed data on existing and potential resources for various agro-climatic reasons at the farm levels the task of planning from the grass root becomes difficult. At the farm level, it is the farmer who decides what to produce, when to produce and how much to produce. The programme and incentives which are given to the farmers should take into account awareness of the basic characteristics of the farmers holdings such as the size distribution, the pattern of land use, availability of water and the resources in human, animal and mechanical power on the farm. It is in this context that agricultural census / Input survey becomes important.

As a part of Agricultural Census Scheme, the input Survey is also being carried out in the country since 1976-77 on regular basis at five yearly intervals. The present report on Input Survey related to the period 2001-02 is the sixth in the series.

The detailed analysis of data on different parameters of the Input Survey may be seen in the reports. It is expected that different data users, particularly policy makers, administrators, researchers and various institutions concerned with Agricultural Statistics will find this report useful.

CHAPTER –II

Concepts and definitions

Operational Holding

‘All land used wholly or partly for agricultural production and is operated as one technical unit by one person alone or with others, without regard to the title, legal form, size or location’. The technical unit has been defined as ‘that unit which is under the same management and has the same means of production such as labour force, machinery and animals’. It is clear from this definition that the actual cultivator and not the owner is the unit for collection of data.

If, during the reference year, the entire area of the operational holdings is under current fallow, this will still be considered as an operational holding for Agricultural Census, but no information can be gathered in Input Survey from such holding. These holdings will not be included in the sampling frame for Input Survey.

Parcel

A parcel is all land entirely surrounded by land of other holdings or by land not forming part of any holding. It may consist of one or more cadastral units, plots or fields.

Operational holder

The holder, for census purposes, is the person who has the responsibility for the operation of the agricultural holding. He exercises the technical initiative and responsibility for the operation of the holding and may have full economic responsibility.

Individual/ Joint Holding

- i. If the holding is operated either by a person alone or group of persons who are members of the same household, it will be considered as individual operational holding.
- ii. If two or more persons belonging to different households share jointly as partners in the economic and technical responsibility for the operation of an agricultural holdings such holdings are considered as joint holdings.

Total area of holding

The total area of the holding should include the total of all land forming part of a unit which is under the same technical responsibility and management. It should also comprise the land occupied by the farm buildings, including the house of the holder, provided such buildings are within the cultivated area. If the farm buildings are located outside cultivated area, then such buildings will not be included in the area of the holding.

Agriculture production

Agricultural Production would mean the growing of field crops, fruits, grapes, nuts, seeds, trees nurseries (except those of forest trees), bulbs, vegetables and flowers, production of coffee, tea, cocoa, rubber, jute, oilseeds, grasses, etc.

If special efforts are made to raise grass, it would be treated as a crop for the purpose of the survey.

Net Area Sown

This would represent the total cultivated area during the reference year. Areas cultivated more than once during the same year will be counted only once. Both field crops and orchards will form part of the net sown area.

Gross cropped area

This includes the total area under all crops during the year. Total gross cropped area is greater than or equal to net area sown.

Area under Current fallow

This would include all the areas which are usually cropped but have not been cultivated during the reference year. For an area to be classified as current fallow, it should be fallow during the current year and should have been cultivated during the previous year. If an area is not being cultivated for more than one year, it will be categorized as old fallow or culturable waste.

Area not available for cultivation

This would include the following seven categories:-

- a) Fallow land other than current fallow: This should include all lands which were taken up for cultivation but are temporarily out of cultivation for a period of not less than one year and not more than five years.
- ii) Culturable waste: This should include lands available for cultivation, whether or not taken up for cultivation at any time. These are lands which were not cultivated during the current year and the last five years or more in succession for one reason or the other. Such lands may be either fallow or covered with shrubs and jungles which are not put to any use. Land once cultivated but not cultivated afterwards for five years in succession should also be included in this category at the end of the five years. Culturable waste land within the holdings would alone be covered for the Input Survey.

- iii) Permanent pastures and other grazing land: This should include all grazing lands, whether they are permanent pastures and meadows or not. Village common grazing land shall be excluded for the purpose of our Census.
- iv) Land under miscellaneous tree crops: This would include cultivable land, which is not included in the net area sown but are put to some Agricultural use. Lands under Casuarine trees, thatching grasses, bamboo bushes and 'Orchards' should be classed under this category. Lands of this type outside the holdings will not be included.
- v) Forests: Only private forests would be covered for the purpose of Agricultural Census and Input Survey.
- vi) Area under non-agricultural use: This should include all lands occupied by buildings, tanks and ponds put to uses other than agricultural purpose within the holdings.
- vii) Barren and uncultivated land: This should include all barren and within cultivated holding.

Short Term Loan:

Short term Loan are those which are given for seasonal agricultural operations and their repayment period is usually less than 18 months.

Medium Term Loan:

Medium term loans are advances for specific purposes. The repayment period is more than 18 months but less than five years.

Long Term Loan

These loans are provided in three or more installments for the development of land on project area basis and are capital intensive in nature. The period of long term loan exceeds five years.

Integrated Pest Management

Traditionally there have been a number of practices adopted by farmers as plant protection measures. These practices could be categorized in four groups, viz., agronomic and cultural control, mechanical control, biological control and chemical control.

Agronomic and cultural practices

This is a preventive method and is based upon knowledge of life history and habits of pest. The practices covered in this category include: deep ploughing after harvesting a crop to expose the hiding or resting insects, weeding, removing and destroying of stubbles and other trash, adjusting the time of sowing to avoid peak incidence period of pests. Clean cultivation, the removal of alternative wild hosts, crop rotations and choosing of insect and disease varieties.

Physical and Mechanical Control

This is one of the oldest methods and includes measures, such as collection of eggs and caterpillars (in active stages if pests): removal and destruction of infested part of the plant, beating of drums, laying of night traps and yellow traps. These methods are found effective at initial state of the pest incidence when practiced by a large number of farmers in a particular area.

Biological Control

Most of the crops have their natural enemies in the form of parasites and predators and disease causing organism. Large scale multiplication and liberation of such other agents, which naturally occur in environment but are enemies of enemies of crops (friends of crops) results in effective control of the harmful organisms. These methods are often applied by specialized agencies in

conjunction with chemical methods so that harmful effects of insecticide do not interfere with the activities of nature based enemies of pests.

Chemical control

This methods relates to use of insecticides, pesticides and weedicides, which are used as dusts, sprays and granules on the crops. Because of their nature of producing immediate results such chemicals are most popular among the farmers. Serious limitations, particularly those relating to residues on crops and destruction of useful insects, have been noted in recent years in usage of these chemicals.

Chemical Fertilizers, Organic Manure, Green Manure and Bio-Fertilizers

Package of practices followed for replenishing the nutrient losses from the soil as a result of cultivation to maintain the fertility of the soil involves use of organic manure, green manure, chemical fertilizers and bio-fertilizers. These are explained below:

Chemical Fertilizers

The chemical fertilizers refers to chemical compounds which are manufactured in factories and are used as soil nutrients. These are further classified as "macronutrients" which a supply nitrogen (N), phosphate (P) and Potash (K) and "micronutrient" fertilizers which supply Zinc, Manganese, Copper, Iron, Aluminum etc. The popular macro nutrient fertilizers are Urea, DAP, MOP,CAN and a number of complex fertilizers and the physical mixtures of these.

Organic Manure

The Organic Manure is usually not manufactured in chemical factories and is produced by the farmers in their fields using various types of agricultural

wastes. Sometimes these are also prepared using the sewage silt or municipal waste in urban areas. The organic manure is usually bulky material and is transported in trolleys. The types of manures covered in this would be Farm Yard Manure (FYM), which is prepared by putting agricultural wastes in a pit for decomposition and composting. This would also include the Vermi Compost. The various forms of oil cakes which are used as fertilizers would also fall in this category.

Bio-fertilizers

Bio-fertilizers are sold in small packets and require storage at specified temperature. These carry some living bacteria on organic base. The examples of bio-fertilizers are Rhizobium, Azabactor, Blue-green Algae and Phosphate Solubilising Bacteria (PSB). When bio-fertilizers are put in the soil, the bacteria contained in the fertilizer packet are spread in the soil and start their activity, e.g., fixing the nitrogen from air to soil. Hence bio-fertilizers are not soil nutrients in themselves, rather they act as catalysts/direct agents for making the soil nutrients available. These type of fertilizers are not very common among farmers and only some progressive farmers use them. Also because of their storage requirements these are not available everywhere.

Green Manure

Green manure refers to cultivation of a specific type of vegetation with the intention of ploughing it back in the soil when the leaves are tender and easily decomposable. The popular types of green manure used by the farmers include Sesbania (Dhencha), Sunhemp (Sanai), Indigo, Urd and Cowpea. There is also a practice of ploughing back the leafy portion of leguminous crops in the field after first or second picking for the purpose of green manuring. All such cases will be counted for the purpose of obtaining area under green manure.

Chapter -III

Sampling Design and Estimation Procedure

Objective

The main objective of the survey is to generate data on various agricultural inputs according to major size group of operational holdings viz. marginal (below 1 hecter), small (1 to 2 hecter), semi-medium (2-4 hecter) medium (4 to 10 hecters) and large (10 hecter and above), for getting an insight into the consumption pattern of inputs by various categories of farmers. This information is vital for planning their production, inputs and distribution. The inputs covered in the survey include seeds, fertilizers, pesticides, farm yard manures, bio fertilizers, agricultural implements and machinery, live stock and agricultural credits.

Scope and Coverage:

All the individual and joint holdings operated by resident cultivators constitute the population of the survey. The survey covers all type of agricultural holdings except institutional holdings. Boundary of the survey was district.

Reference Period:

The reference period of the survey was July 2001-June, 2002.

Items covered in the Survey

Under the Input Survey 2001-2002 information was collected according to size class of operational holding for the following items.

- (1) Number of parcels
- (2) Multiple cropping, separately for irrigated and unirrigated areas.

- (3) Use of fertilizers, organic manures and pesticides, separately for irrigated and unirrigated areas under major crops. (Area covered and quantity used)
- (4) Live stock held (numbers)
- (5) Use of Agricultural machinery and Implements
- (6) Agricultural credit availed.
- (7) Type of seeds used and quality problems if any
- (8) Integrated Pest Management (IPM) practices.

Unit of collection of data

The basic unit for which data for various parameters of the input survey were collected was "operational holding".

Sample size and Methodology

A two stage stratified sampling was adopted for the input survey 2001-02. Blocks/Municipalities/Corporations constitute the strata, wards within a stratum form first stage unit (FSU) and operational holdings in the selected wards constitute the second stage unit (SSU). The sample size of the 'FSU' was 7% of the total number of wards. From each Stratum i.e. 35% of the wards selected randomly out of the 20% wards already selected for phase I and II of Agricultural Census 2000-01. In a selected ward all the operational holdings was categorized into the following size groups.

Sl.No.	Size Groups
1.	Below 1 hectore.
2.	1 to 1.99 hectore
3.	2.00 to 3.99 hectores
4.	4.00 to 9.99 hectores
5.	10 hectores and above.

A simple random sample of four operational holdings was selected from each of the above size groups. The data were collected through household enquiries from the selected operational holders.

Schedules used:

The following schedules were used in input survey 2001-02.

1. Schedule -0 = Information on number of wards selected in Blocks /Municipalities/Corporations
2. Schedule -1 = List of operational holdings and record of selection in the selected wards.
3. Schedule 2.0 = Information on holdings in the selected ward in the Blocks/Municipalities/Corporations
4. Schedule 2.1 = Parcel wise details of area under multiple cropping according to irrigated and unirrigated conditions during the agricultural year 2001-2002
5. Schedule 2.2 = Area under irrigated / un-irrigated crops and use of fertilizers, pesticides etc. during the agricultural year 2001-02
6. Schedule 2.3 = Inventory of Livestock and Poultry as on 15.10.2002
7. Schedule 2.4 = Agricultural machinery and implements used during 2001-02
8. Schedule 2.5 = Agricultural credit
9. Schedule 2.6 = Seeds and Integrated Pest Management (IPM) practices.

Estimation Procedure

For estimating the population totals of various characteristics in the input survey 2001-02, "simple unbiased estimates" method was adopted which is described below.

Notations and Terminology

1. $Y_{ijp}(k)$ = value of characteristic in the p^{th} holding of j^{th} ward of i^{th} Block/Municipality/Corporation (Stratum) in the k^{th} size class
2. $N_{ij}(k)$ = Total number of holdings in the k^{th} size class in the j^{th} sample ward of the i^{th} Block/Municipality/Corporation
3. $n_{ij}(k)$ = Number of holdings sampled in the k^{th} class in the j^{th} selected ward of the i^{th} Block/Municipality/ Corporation
4. N_i = Total number of wards in the i^{th} Block/Municipality/Corporation
5. n_i = Number of wards selected in the i^{th} Block/Municipality/Corporation
6. $\hat{Y}_T(k)$ = Estimate of characteristic under study for the i^{th} Block/Municipality / Corporation in the k^{th} size class.
7. $\hat{Y}_D(k)$ = Estimate of characteristic under study for the district in the k^{th} size class
8. M = Number of Blocks / Municipalities / Corporation in the district

Then the estimate of the characteristic under study for the i^{th} Block/ Municipality/ Corporation (ie. Stratum) in the k^{th} size class is given by the formula

$$\hat{Y}_T(k) = \frac{N_i}{n_i} \sum_{j=1}^{n_j} \frac{N_{ij}(k)}{n_{ij}(k)} \sum_{p=1}^{n_{ij}(k)} Y_{ijp}(k) \quad (1)$$

And for the district, it becomes

$$\hat{Y}_D(k) = \sum_{i=1}^M \frac{N_i}{n_i} \sum_{j=1}^{n_j} \frac{N_{ij}(k)}{n_{ij}(k)} \sum_{p=1}^{n_{ij}(k)} Y_{ijp}(k) \quad (2)$$

$$= \sum_{i=1}^M \hat{Y}_T(k)$$

Chapter-IV

Analysis of Input Survey Data

Distribution of Operational Holdings and Operated Area

According to Input Survey 2001-02 the total number of operational holdings was 65.76 lakhs against the operated area of 15.78 lakhs ha (excluding institutional holdings). The corresponding figures as per Agricultural Census 2000-01 were 66.57 lakhs against the operated area of 15.69 lakhs.

Thus both the surveys were very close in estimating the total number of holdings and operated area in the state. Since the Input Survey, institutional holdings and other type of holdings are excluded, it is normally expected that the number and area of holdings as per the input survey should be less than the corresponding data of Agricultural Census, although Input Survey is carried out after one year of the Agricultural Census but here a marginal increase is seen in the case of area.

Dispersal of Operational Holdings

A parcel has been defined as "all land entirely surrounded by land of other holdings or land not forming part of any holding". It may consist of one or more cadastral units or fields and may not be synonymous with survey number. Three or four adjoining survey numbers could make one parcel but two survey numbers of the same Panchayath ward not adjacent to each other, would make two parcels.

An Operational holding may consist of one or more than one parcel. The more the number of parcels, the more scattered will be the operational holding. All the parcels comprising an operational holding may lie within the ward of residence of the holder or might even be spread over one or more other wards.

The data on number of parcels was collected by interviewing the selected operational holder with a view to have information about the dispersal of operational holdings in different parts of the country. However, the outer limit for collecting the information in Input Survey was restricted to the district. Since an Operational Holding will have at least one parcel, the average number of parcels per Operational Holding cannot be less than one. The distribution of average number of parcels, average area per parcel and average area per holding in different size groups as per input survey 2001-02 may be seen in Table I.

Table -I

Sl. No.	Size Group (Ha)	Total holdings		Total No. of parcels	Average No. of parcels per holding	Average area per parcel (ha)	Average area per holding (ha)
		No.	Area				
1	< 1.0	6264072	986991	6721072	1.07	0.15	0.16
2	1.0-1.99	222007	295466	453295	2.04	0.65	1.33
3	2.0-3.99	73170	185764	299686	4.10	0.62	2.54
4	4.0-9.99	14939	79332	122341	8.19	0.65	5.31
5	>10	1784	30989	18553	10.40	1.67	17.37
	All groups	6575972	1578542	7614947	1.16	0.21	0.24

From the above table it can be observed that the number of parcels per holding for all size groups was 1.16 in 2001-02 against 2.0 in 1996-97. This shows that the number of parcels per holding had decreased. This may be due to the fact of selling some of the parcels by the operational holders. The trend in the number of parcels per holding over the period of times in each type of holdings is diminishing.

The average area per parcel for all groups at state level was 0.21 ha during 2001-02 against 0.19 ha in 1996-97. This shows a marginal increase.

The average operated area per holding for all size groups was 0.24 ha in 2001-2002 against 0.32 ha in 1996-97, which showed a decline. This is due to the inverse relationship between number and area of operational holdings.

Table -II

Sl. No.	Size (Ha)	Gross Cropped Area			Current fallow Land	Other Un cultivated land
		Irrigated area	Unirrigated Area	Total Area		
1	< 1.0	173718	699884	873602	23972	142022
2	1.0-1.99	77890	213705	291595	11028	18006
3	2.0-3.99	53739	134563	188302	6125	9165
4	4.0-9.99	25186	56517	81703	2181	3155
5	> 10	10252	21316	31568	416	1252
	All groups	340785	1125985	1466770	43722	173600

The gross cropped area is 14,66,770 ha. Of which 3,40,785 ha. is irrigated and 11,25,985 ha is unirrigated i.e., 23.23% is irrigated and 76.77% is unirrigated.

Table- III

Sl. No.	Size (Ha)	Irrigated Area		Unirrigated Area	
		Gross area	Net Area	Gross Area	Net Area
1	<1.0	173718	161913	699884	659074
2	1.0-1.99	77890	71086	213705	195348
3	2.0-3.99	53739	48722	134563	121731
4	4.0-9.99	25186	23178	56517	50813
5	>10	10252	9466	21316	19843
	All groups	340785	314365	1125985	1046809

From the above table, it can be observed that the irrigated area (both gross and net) shows a diminishing trend where as a marginal increase is seen in the net area un irrigated when compared to the previous survey.

The method of multiple cropping is used as an indicator of the intensity of land utilization. The percentage of area cropped once is 77.81 in irrigated area where as that in unirrigated area is 96.82. The percentage of area cropped twice and more than twice in irrigated area are 21.39 and 0.8 respectively. But the percentage of area cropped more than twice in unirrigated area is 3.18 only. The result shows an increase in irrigated area from 1996-97 to 2001-2002 i.e from 70.52% to 77.81%, and a decrease in irrigated area cropped twice and cropped more than twice i.e from 27.18% to 21.39% and from 2.3% to 0.8% respectively. Similarly there is an increase in unirrigated area from 1996-97 to 2001-02, i.e. from 92.43 to 96.82, but a decrease in unirrigated area cropped more than twice, i.e. from 7.57% to 3.18%. This means that the cultivators show least interest in multiple cropping.

Table C₃ shows a decrease in the percentage of gross cropped area by irrigation status during 2001-02 from 1996-97. The percentage of gross cropped area in 2001-02 is 23.23 and that in 1996-97 is 24.77. The percentage of gross cropped area shows lack of irrigation facilities or under utilization of available irrigation potentials.

Table C₄ indicates that the average gross cropped area per operational holding is decreased from 0.53 hectares in 1996-97 to 0.22 hectares in 2001-02. This may be due to the increase in the number of operational holdings.

The intensity of cropping is the ratio of gross cropped area to net cropped area. From table C₅ it is seen as 1.08 in the survey period 2001-02. The intensity ratio was 1.48 in 1986-87, 1.45 in 1991-92 and 1.14 in 1996-97. This shows that there is a decreasing trend in gross cropped area. Gross cropped area under irrigated crop was 340785 hectares and unirrigated crop was 1125985 hectares. Net area under irrigated crop was 314365 hectares and for unirrigated crop, it was 1046809 hectare.

From table C₆, it can be observed that 17.5% was occupied by paddy and 84.29% of irrigated area under paddy covers high yielding varieties. 4.92% of gross area under unirrigated crop is paddy where as 63.61% of this area is used for high yielding varieties of paddy. Again it can be seen that even though there was huge short fall in the percentage of irrigated area under paddy, percentage area under high yielding variety is increasing.

From table C₇, it is seen that the percentage of gross cropped area of paddy during the year 2001-02 was 7.85 while that during the year 1996-97 was 20.60. Here a decrease of 62% is seen. For coconut, the percentage of variation

compared to that of the year 1996-97 is 20% (increase). In short coconut was the most dominant crop having a share of about 33.91% of gross cropped area followed by rubber (19.61%), Paddy (17.85%) etc.. See table C8 and C9.

Crop wise use of Inputs

Application of Chemical fertilizers.

Chemical fertilizers is used to increase agricultural production and pesticides and IPM to protect the crop from insects and pests. Besides chemical fertilizers, organic manure is also used to enhance the soil fertility. The most commonly used chemical fertilizers are urea, potash, factomphos super sulphate and Ammonium phosphate. On the other hand Farm yard Manure (FYM) / compost and oil cake are the most common organic manures used by the cultivators. The input survey data were collected separately for area under high yielding and others and quantity of fertilizers used. Normally the first dose of fertilizer is given at the sowing stage and subsequently one or more applications are given to the crop. Thus the same area may receive one or more application of fertilizers but for the purpose of estimation of area fertilized, only net area under the crop in a particular season has been taken in to account.

It may be seen from the table C10 that the number of holdings irrigated are 1419003 in an area of 340756 hectare. Out of 14, 19,003 holdings growing one or more irrigated crops, 755047 holdings are treated with one or more chemical fertilizers (53.2%) in an area of 214385 hectares (62.91%). Also 88.16% of irrigated area cultivating High Yield Varieties was treated with chemical fertilizers. In the case of other varieties in irrigated area, 48.92% area are treated with one or more chemical fertilizers (see table C11)

The average consumption of NPK in irrigated area according to the quality of fertilizers treated per hectare were 40.98, 46.33 and 42.27 kg. respectively. (See table C12).

Application of Straight Fertilizers (Irrigated area)

The result of table C13 and C14 show that urea is the most commonly used chemical fertilizer i.e. 36.19% of the holdings comprising of 62.91% of area were treated with urea. The usage of potash stands in the second place i.e. 33.11%, of holdings and the area is 42.78% of irrigated area. It is seen that Ammonium Phosphate is the least used fertilizer.

Consumption of mixed fertilizers in irrigated area

The main fertilizers commonly used are Vijay 17:17:17 and factomphos. The percentage of usage is 15.89% and 14.03% respectively in irrigated area under all crops. (See Table C15, C16)

Crop wise Consumption of chemical Fertilizers (Irrigated)

The application of chemical fertilizers for paddy in High Yielding variety was 92.25% while 60.32% of area under traditional varieties was treated with chemical fertilizers.

Average consumption of N, P, K under irrigated paddy were 69.94, 29.71 and 60.51 kg./hectare respectively (See table C 19).

The percentage of number of holdings growing Tapioca treated with chemical fertilizer were 39.46 where as chemical fertilizer were used in 49.33% of area growing Tapioca in irrigated area (Table C20).

37.74% of irrigated area growing coconut was treated with chemical fertilizers. Average quantity of NPK consumed per hectare was 296,78 & 303 Kg./hectare respectively (Table C21)

63% of irrigated area under rubber was treated with chemical fertilizer. The quantity of NPK consumed was calculated as 34.5, 19.9 and 15.9 kg / hectare respectively (Table C 22)

Considering other food crops, 26.7% of area was treated with chemical fertilizer. The estimated quantity of N,P,K nutrients being 2.6, 2.2, 2.0 kg./hectares respectively

[Table C 23]

Chemical Fertilizers in Unirrigated Area

There are 56,62,196 unirrigated holdings and the corresponding area is 11,26,005 hectares. 34.98% of unirrigated holdings growing one or more crops was treated with chemical fertilizers. In respect of unirrigated area under High Yielding Variety, 77.28% of area was treated with chemical fertilizers where as for traditional varieties, it was only 32.16 % [Table C 24,].

Average consumption of N,P,K were estimated as 40.98, 46.33 & 42.27 in irrigated area and 27.4, 25.2 and 30.8 in unirrigated area respectively. Potash is seen as the main straight fertilizer i.e 14.81% of area was treated with potash. Urea stands in the second place and 11.26% of area was treated with urea.

Vijay 17:17:17 was the most important complex / mixed fertilizer used in un-irrigated area (14.11%) followed by factomphos (5.92%) [Table C27 to C29]

85.65% of unirrigated area under paddy were treated with chemical fertilizers. For high yielding varieties of paddy in unirrigated area 95.05% of area were used with chemical fertilizer whereas for other varieties it was only 69.22%. Average use of N, P, K for paddy in unirrigated area were 49.97, 18.36 and 37.01 kg./hectares respectively.

43.34% of area under Tapioca in unirrigated area was treated with chemical fertilizers and 21.66% of area under coconut also was treated with chemical fertilizer. The average consumption of N, P, K being 12.04, 12.89, 21.92 kg./hectare [Table 34, 35]

It is clear from table C 36 that 72% of area under Rubber in unirrigated area were treated with chemical fertilizers. The average consumption of N, P, K was 46.4, 50.02, 4153 respectively. Only 12.34% of area was treated with chemical fertilizer when other food crops are considered. The use of N, P, K was 10.02, 12.91 and 13.29 kg./ hectare respectively.

Organic Manure in irrigated and unirrigated areas

Nearly 34.29% of holdings having an area of 424609 hectares (28.95%) used Farm Yard Manure / compost/Biogas manure in irrigated area. Green manures were used in 30.93% of holdings, the area benefited being 252845 (17.24%). High Yielding Varieties of paddy were used in 23.16% of area whereas

other varieties were used in 31.27% of area. Area covered by other organic manure was 10385 hectares (20.66%) for paddy (HYV), whereas for others it was 1643 (17.54%). The area of Coconut treated with farm yard manures was 37.07% whereas for Tapioca it was 20.97%.

Plant Protection Chemicals and Pesticides

The plant protection in respect of high yielding varieties of paddy was 71.53% and for other varieties it was 43.7%.

Agricultural Machinery & Implements

During 2001-02, the number of Agricultural machinery commonly used were

1. Hand operated Sprayers	-	454421
2. Wooden Plough	-	60826
3. Steel Plough	-	13281
4. Power Sprayers	-	18679
5. Diesel Engine Pump sets	-	67457
6. Electric Pump sets	-	785935
7. Power Trailers	-	114813
8. Tractors	-	148663

[Table C 44]

It is seen that the Agricultural machinery & implements except Hand operated sprayers, Electric Pump sets, Power Trailers used are less in number when compared with Input Survey 1996-97.

Agricultural Credit

The number of operational holdings taking institutional credit was reported as 4,68,314 which came to be 7.12% only. The average amount availed / holder increased from 5688 (1996-97) to 8936 (2001-02) [Table C45, C46].

During the survey period Rs.418.49 crores were given as advance to 4,68,314 holdings through various financial institutions. The details of the percentage distribution of holders' availed loan through different types of Co-operative institutions are described in table C 47.

AGRICULTURAL CENSUS - INPUT SURVEY 2001-02

STATE : KERALA

TABLE CI

AVERAGE NUMBER OF PARCELS PER HOLDING AND AVERAGE AREA OF PARCEL

Sl.No.	Holding size class (in Ha)	1986-87		1991-92		1996-97		2001-02	
		Average No. of parcels per holdings	Average area of parcels(Ha)	Average No. of parcels per holdings	Average area of parcels(Ha)	Average No. of parcels per holdings	Average area of parcels(Ha)	Average No. of parcels per holdings	Average area of parcels (Ha)
1	2	3	4	5	6	7	8	9	10
1	Below 1.0	1.85	0.11	1.88	0.11	2	0.13	1.07	0.15
2	1.00 - 1.99	2.82	0.48	2.88	0.48	3	39.00	2.04	0.65
3	2.00 - 3.99	3.26	0.80	3.29	0.79	4	68.00	4.10	0.62
4	4.00 - 9.99	3.88	1.35	3.89	1.36	5	1.12	8.19	0.65
5	10.00 & Above	4.35	7.00	4.39	5.20	4	4.79	10.40	1.67
	All sizes	1.97	0.20	1.98	0.18	2	0.19	1.16	0.21

TABLE C2

PERCENTAGE OF AREA CROPPED ONCE AND MORE THAN ONCE BY IRRIGATION STATUS 2001-02

Sl.No.	Holding size class (in Ha)	Irrigated area				Unirrigated area		
		Cropped once	Cropped twice	Cropped more than twice	Total	Cropped once	Cropped more than twice	Total
1	2	3	4	5	6	7	8	9
1	Below 1.0	81.91	17.61	0.48	100	96.58	3.42	100
2	1.00 - 1.99	73.84	25.17	0.99	100	97	3	100
3	2.00 - 3.99	71.83	27.16	1.01	100	97.02	2.98	100
4	4.00 - 9.99	72	27.06	0.94	100	98.02	1.98	100
5	10.00 & Above	82.54	14.09	3.37	100	98.55	1.45	100
	All sizes	77.81	21.39	0.8	100	96.82	3.18	100
	1986 - 87 all sizes	42.70	49.00	8.30	100	41.2	58.8	100
	1991 - 92 all sizes	56.10	22.30	21.60	100	38	62	100
	1996-97 all sizes	70.52	27.18	2.30	100	92.43	7.57	100

TABLE C3

PERCENTAGE OF GROSS CROPPED AREA BY IRRIGATION STATUS 2001-02

Sl.No.	Holding size class (in Ha)	Irrigated	Unirrigated	Total
1	2	3	4	5
1	Below 1.0	19.89	80.11	100
2	1.00 - 1.99	26.71	73.29	100
3	2.00 - 3.99	28.54	71.46	100
4	4.00 - 9.99	30.83	69.17	100
5	10.00 & Above	32.48	67.52	100
	All sizes	23.23	76.77	100
	1986 - 87 all sizes	16.10	83.90	100
	1991 - 92 all sizes	16.70	83.30	100
	1996-97 all sizes	24.77	75.23	100

TABLE C4

AVERAGE GROSS CROPPED AREA PER OPERATIONAL HOLDINGS 2001-02

Sl. No	Holding size class (in Ha)	Irrigated area			Unirrigated area		Total			
		Cropped once	Cropped twice	Cropped more than twice	Cropped once	Cropped more than twice	2001-02	1991 - 92	1986 -87	1996-97
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	0.02	0.0046	0.0001	0.1	0.004	0.14	0.19	0.33	0.31
2	1.00 - 1.99	0.24	0.0806	0.0032	0.85	0.026	1.31	1.43	1.66	1.69
3	2.00 - 3.99	0.48	0.1809	0.0067	1.61	0.050	2.57	2.80	2.90	3.16
4	4.00 - 9.99	1.12	0.4199	0.0145	3.33	0.067	5.47	5.63	5.70	6.11
5	10.00 & Above	4.38	0.7478	0.1788	10.96	0.161	17.7	19.04	22.34	31.88
	All sizes	0.04	0.0102	0.0004	0.15	0.005	0.22	0.32	0.47	0.53

TABLE C5
INTENSITY OF CROPPING BY IRRIGATION STATUS 2001-02

Sl.No.	Holding size class (in Ha)	Irrigated crop	Unirrigated crop	Total
1	2	3	4	5
1	Below 1.0	1.07	1.06	1.06
2	1.00 - 1.99	1.1	1.09	1.09
3	2.00 - 3.99	1.1	1.11	1.1
4	4.00 - 9.99	1.09	1.11	1.1
5	10.00 & Above	1.08	1.07	1.08
	All sizes	1.08	1.08	1.08
	1986 - 87 all sizes	1.43	1.49	1.48
	1991 - 92 all sizes	1.25	1.50	1.45
	1996-97 all sizes	1.10	1.15	1.14

TABLE C6

PERCENTAGE DISTRIBUTION OF AREA UNDER PADDY TO GROSS CROPPED AREA AND AREA UNDER HYV OF PADDY TO TOTAL AREA UNDER PADDY ON IRRIGATION STATUS

Sl.No.	Holding size class (in Ha)	Irrigated			Unirrigated		
		% area under paddy to gross cropped area	% area under HYV to total area under paddy	% area under paddy to gross cropped area	% area under paddy to gross cropped area	% area under HYV to total area under paddy	
1	2	3	4	5	6		
1	Below 1.0	15.43	83.35	3.82	61.2		
2	1.0 - 1.99	20.4	84.43	7.17	61.42		
3	2.0 - 3.99	21.19	85.32	7.02	68.82		
4	4.0 - 9.99	18.97	87.48	5.98	80.28		
5	10 and Above	7.48	79.14	2.72	50.52		
	All size	17.5	84.29	4.92	63.61		
	1986-87 all sizes	55.60	30.30	18.90	21.90		
	91- 92 all sizes	49.80	33.60	10.40	33.50		
	96-97 all sizes	48.37	59.80	11.50	32.40		

TABLE C7

PERCENTAGE DISTRIBUTION OF AREA UNDER DIFFERENT CROPS (GROSS CROPPED AREA)

Sl.No.	Crop	% of total gross cropped area					
		1986 - 87	1991 - 92	1996 - 97	2001-02		
1	2	3	4	5	6		
1	Paddy	24.80	17.00	20.60	7.85		
2	Coconut	24.20	29.80	28.30	33.91		
3	Tapioca	8.70	5.70	2.80	2.81		
4	Rubber	13.30	14.80	19.80	19.61		
5	Arecanut	2.90	2.10	0.00	1.11		
6	Coffee	3.10	2.10	3.50	2.53		
7	Cashew	4.90	3.10	0.00	0.23		
8	Cardamom	0.00	1.30	1.40	2.09		
	Total	81.90	75.90	76.40	70.14		

TABLE C8

CROP WISE PERCENTAGE DISTRIBUTION OF IRRIGATED AREA

Sl.No.	Size class	Paddy	Coconut	Arecanut	Tapioca	Rubber	Pepper	Coffee	Cashew	Other crops	All crops
1	2	3	4	5	6	7	8	9	10	11	12
1	Below 1.0	15.43	39.59	1.8	1.51	0.41	0	0.02	0.01	41.23	100
2	1.00 - 1.99	20.4	26.76	1.55	0.78	0.4	0.05	0.4	0.01	49.65	100
3	2.00 - 3.99	21.19	24.34	1.19	0.67	0.48	0.02	0.84	0.03	51.24	100
4	4.00 - 9.99	18.97	17.7	1.55	0.52	0.1	0	2.32	0	58.84	100
5	10.00 & Above	7.48	17.51	0.54	0.18	0	0	9.75	0	64.54	100
	All sizes	17.5	31.97	1.59	1.1	0.38	0.01	0.7	0.01	46.74	100
	1986 - 87 all sizes	55.6	27.4	4.3	1.3	0.2	0.0	0.1	0.1	11.00	100
	1991 - 92 all sizes	49.8	32.8	3.2	1.4	0.01	2.0	0.1	0.3	10.35	100
	1996 - 97 all sizes	48.37	32.19		0.93	1.06		0.82		16.63	100

TABLE C9
CROP WISE PERCENTAGE DISTRIBUTION OF UNIRRIGATED AREA

Sl.No.	Size class	Paddy	Coconut	Arecanut	Tapioca	Rubber	Tea	Coffee	Cashew	Pepper	Cardamom	Other crops	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Below 1.0	3.82	42.77	1.11	4.2	19.18		2.32	0.19	0.09		26.32	100
2	1.00 - 1.99	7.17	24.19	0.77	2.25	33.11		3.65	0.39	0.03		28.44	100
3	2.00 - 3.99	7.02	20.17	0.76	1.67	37.82		4.17	0.68	0.03		27.68	100
4	4.00 - 9.99	5.98	16.18	0.65	1.07	39.76		4.96	0.42	0.01		30.97	100
5	10.00 & Above	2.72	5.52	0.33	2.1	37.62		10.48	0.01	0.02		41.2	100
	All sizes	4.92	34.5	0.97	3.33	25.43		3.08	0.3	0.07		27.4	100
	1986 - 87 all sizes	18.9	23.6	2.7	10.2	15.8	0.3	3.6	5.8	0	0	19.1	100
	1991 - 92 all sizes	10.4	29.3	1.9	6.6	17.6	4.9	2.4	3.7	10.2	1.6	11.4	100
	1996 - 97 all sizes	11.49	26.96		3.47	25.96	0.43	4.42			1.69	25.58	100

TABLE C10

NUMBER AND AREA OF IRRIGATED HOLDINGS AND TREATED WITH CHEMICAL FERTILIZER 2001-02

Sl.No.	Size class (in Ha)	No. of holdings growing one or more irrigated crops			Area of holdings growing one or more irrigated crops		
		Total	No. treated with one or more chemical fertilizers	Percentage	Total	Area treated with one or more chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	1262713	630134	49.9	173706	96349	55.47
2	1.00 - 1.99	103978	82111	78.97	77884	53557	68.77
3	2.00 - 3.99	41380	33649	81.32	53727	38178	71.06
4	4.00 - 9.99	9664	8064	83.44	25184	19345	76.81
5	10.00 & Above	1268	1089	85.88	10255	6956	67.83
	All sizes	1419003	755047	53.21	340756	214385	62.91
	1986-87 all sizes	878008	480189	54.70	334012	231770	69.40
	1991-92 all sizes	1452085	894259	61.60	335746	241641	72.00
	1996 - 97 all sizes	1267602	671734	52.99	394001	278781	70.76

TABLE C11

**DISTRIBUTION OF IRRIGATED AREA UNDER HYV AND OTHER CROPS TREATED WITH CHEMICAL FERTILIZERS
2001-02**

Sl.No.	Size class (in Ha)	High Yielding			Others		
		Total	Area treated with one or more chemical fertilizers	Percentage	Total	Area treated with one or more chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	53029	46115	86.96	120677	50234	41.63
2	1.00 - 1.99	32168	28603	88.92	45716	24954	54.58
3	2.00 - 3.99	23233	20666	88.95	30494	17512	57.43
4	4.00 - 9.99	10601	10009	94.42	14583	9336	64.02
5	10.00 & Above	2480	1736	70	7775	5220	67.14
	All sizes	121511	107129	88.16	219245	107256	48.92
	1986-87 all sizes	90206	89303	99.00	270416	172308	63.70
	1991-92 all sizes	59869	58625	97.90	275877	183017	66.30
	1996 - 97 all sizes	121606	117675	96.77	272395	161106	59.14

TABLE C12

AVERAGE CONSUMPTION OF CHEMICAL FERTILIZERS IN TERMS OF NUTRIENTS IN IRRIGATED AREA (KG./HA)
2001-02

Sl.No.	Size class (in Ha)	HYV			Others			Total		
		N	P	K	N	P	K	N	P	K
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	66.25	27.24	47.48	32.82	76.73	40.32	24.82	61.63	29.46
2	1.00 - 1.99	62.86	26.59	55.91	51.49	31.05	52.27	56.19	29.21	53.77
3	2.00 - 3.99	64.52	27.79	57.96	46.97	29.79	52.5	54.56	28.93	54.86
4	4.00 - 9.99	68.4	33.34	65.29	55.99	35.08	76.3	61.21	34.35	71.67
5	10.00 & Above	51.11	19.25	43.5	87.09	43.83	30.4	78.39	37.89	33.57
	All sizes	64.9	27.54	53.19	42.15	56.74	46.55	40.98	46.33	42.27
	1991-92 all sizes	57.30	22.00	40.10	54.90	23.60	50.60	55.10	23.20	48.10
	1996 - 97 all sizes	74.80	35.50	55.80	44.40	20.90	35.40	54.00	25.40	41.70

TABLE C13

DISTRIBUTION OF HOLDINGS UNDER IRRIGATED CROPS TREATED WITH STRAIGHT FERTILIZERS

Sl.No.	Size class (in Ha)	Number of Holdings				
		Growing one or more irrigated crops	Treated with Urea	Treated with super phosphate (single)	Treated with potash	Treated with Ammonium phosphate
1	2	3	4	5	6	7
1	Below 1.0	1262713	426602	15077	385912	9193
2	1.00 - 1.99	103978	57248	2889	55272	2980
3	2.00 - 3.99	41380	23480	1916	22136	1547
4	4.00 - 9.99	9664	5415	575	5809	511
5	10.00 & Above	1268	730	113	632	10
	All sizes	1419003	513475	20570	469761	14241
	1986 - 87 all sizes	878008	260341	22292	11942	7927
	1991-92 all sizes	1452085	329807	29573	283374	137
	1996 - 97 all sizes	1267602	394241	41906	328855	121

TABLE C14

DISTRIBUTION OF AREA UNDER IRRIGATED CROPS TREATED WITH STRAIGHT FERTILIZERS 2001-02

Sl.No.	Size class (in Ha)	Area of Holdings				
		Irrigated area under all crops	Urea	Super phosphate	Potash	Ammonium phosphate
1	2	3	4	5	6	7
1	Below 1.0	173706	96349	3698	64672	2980
2	1.00 - 1.99	77884	53557	1915	36017	1904
3	2.00 - 3.99	53727	38178	2489	27013	1734
4	4.00 - 9.99	25184	19345	1832	14294	1426
5	10.00 & Above	10255	6956	853	3765	120
	All sizes	340756	214385	10787	145761	8164
	1986 - 87 all sizes	334012	141680	11078	74165	0
	1991-92 all sizes	335746	155062	17690	148018	5
	1996 - 97 all sizes	394001	186665	17402	165567	128

TABLE C15

DISTRIBUTION OF HOLDINGS AND AREA UNDER IRRIGATED CROPS TREATED WITH IMPORTANT COMPLEX / MIXED FERTILIZERS 2001-02

S.I.No.	Size class (in Ha)	Growing one or more irrigated crops	Number of Holdings					
			NP Mixture (Vijay) 17:17:17	Ammonium Sulphate (Factomphos) 20:20:0	Urea Ammonium Phosphate 20:20:0	NPK Mixture 10:26:26	Mono Ammonium Phosphate 0:52:0	
1	2	3	4	5	6	7	8	
1	Below 1.0	1262713	234200	110178	55174	23103	10111	
2	1.00 - 1.99	103978	24806	19080	10340	1909	860	
3	2.00 - 3.99	41380	11860	7148	3986	1428	595	
4	4.00 - 9.99	9664	2595	1732	903	280	140	
5	10.00 & Above	1268	474	259	122	15	0	
	All sizes	1419003	273935	138397	70525	28735	11706	

TABLE C16

DISTRIBUTION OF HOLDINGS AND AREA UNDER IRRIGATED CROPS TREATED WITH IMPORTANT COMPLEX / MIXED FERTILIZERS 2001-02

Sl.No.	Size class (in Ha)	Number of Holdings					
		Under all crops	NP Mixture (Vijay) 17:17:17	Ammonium Phosphorous Sulphate (Factomphos) 20:20:0	Urea Ammonium Phosphate 20:20:0	NPK Mixture 10:26:26	Mono Ammonium Phosphate 0:52:0
1	2	3	4	5	6	7	8
1	Below 1.0	173706	25516	21171	15579	3581	2260
2	1.00 - 1.99	77884	12467	13105	7020	2749	579
3	2.00 - 3.99	53727	9746	7601	5294	1917	543
4	4.00 - 9.99	25184	4719	3587	2834	584	473
5	10.00 & Above	10255	1688	2346	1031	10	0
	All sizes	340756	54136	47810	31758	8821	3855

TABLE CI7

DISTRIBUTION OF HOLDINGS AND AREA IRRIGATED UNDER PADDY TREATED WITH CHEMICAL FERTILIZERS
2001-02

Sl.No.	Size class (in Ha)	No. of holdings growing the crop			Area under the crop		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	100661	91734	91.13	26812	23033	85.91
2	1.00 - 1.99	26005	24137	92.82	15893	14081	88.60
3	2.00 - 3.99	11652	10457	89.74	11389	9940	87.28
4	4.00 - 9.99	2460	2320	94.31	4777	4363	91.33
5	10.00 & Above	197	182	92.39	767	609	79.40
	All sizes	140975	128830	91.38	59638	52026	87.24

TABLE C18

**DISTRIBUTION OF AREA IRRIGATED UNDER HYV AND OTHER VARIETIES OF PADDY TREATED WITH
CHEMICAL FERTILIZERS 2001-02**

Sl.No.	Size class (in Ha)	HYV			Others		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	22348	20196	90.37	4464	2837	63.55
2	1.00 - 1.99	13418	12449	92.78	2475	1632	65.94
3	2.00 - 3.99	9717	9051	93.15	1672	889	53.17
4	4.00 - 9.99	4179	4112	98.40	598	251	41.97
5	10.00 & Above	607	567	93.41	160	42	26.25
	All sizes	50269	46375	92.25	9369	5651	60.32

TABLE C19

AVERAGE RATE OF APPLICATION OF FERTILISERS FOR PADDY IN DIFFERENT HOLDING SIZE CLASSES UNDER IRRIGATED CONDITION 2001-02

Sl.No.	Size class (in Ha)	Paddy area treated with chemical fertilizers	N		P		K	
			Qty. applied (MT)	Average (Kg/Ha)	Qty. applied (MT)	Average (Kg/Ha)	Qty. applied (MT)	Average (Kg/Ha)
1	2	3	4	5	6	7	8	9
1	Below 1.0	23033	1657.79	71.97	641.51	27.85	1359.19	59.01
2	1.00 - 1.99	14081	916.58	65.09	399.75	28.39	831.76	59.07
3	2.00 - 3.99	9940	702.74	70.7	313.77	31.57	633.68	63.75
4	4.00 - 9.99	4363	310.74	71.22	167.54	38.4	294.1	67.41
5	10.00 & Above	609	50.64	83.15	23.25	38.18	29.17	47.9
	All sizes	52026	3638.48	69.94	1545.82	29.71	3147.89	60.51

TABLE C20

DISTRIBUTION OF HOLDINGS AND AREA IRRIGATED UNDER TAPIOCA TREATED WITH CHEMICAL FERTILIZERS 2001-02

Sl.No.	Size class (in Ha)	No. of holdings growing the crop			Irrigated area under the crop		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	54483	19783	36.31	2620	1076	41.07
2	1.00 - 1.99	4486	2764	61.61	604	404	66.89
3	2.00 - 3.99	2003	1346	67.2	362	254	70.17
4	4.00 - 9.99	397	281	70.78	130	95	73.08
5	10.00 & Above	65	65	100	18	13	72.22
	All sizes	61434	24239	39.46	3734	1842	49.33

TABLE C21

DISTRIBUTION OF HOLDINGS AND AREA IRRIGATED UNDER COCONUT TREATED WITH CHEMICAL FERTILIZERS & AVERAGE CONSUMPTION IN TERMS OF NPK NUTRIENTS

Sl.No.	Size class (in Ha)	No. of holdings growing the crop			Irrigated area under the crop			Average quantity applied(Kg/Ha)		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	1002073	291345	29.07	68774	22845	33.22	453.4	110.1	457.0
2	1.00 - 1.99	58024	26921	46.4	20844	9256	44.41	27.2	24.6	35.2
3	2.00 - 3.99	24915	12622	50.66	13078	6296	48.14	27.3	19.5	43.1
4	4.00 - 9.99	5367	2762	51.46	4458	2423	54.35	29.3	22.3	54.8
5	10.00 & Above	428	248	57.94	1795	301	16.77	11.1	9.9	9.2
	All sizes	1090807	333898	30.61	108949	41121	37.74	296.1	77.6	302.8

TABLE C22

**DISTRIBUTION OF HOLDINGS AND AREA IRRIGATED UNDER RUBBER TREATED WITH CHEMICAL FERTILIZERS
& AVERAGE CONSUMPTION IN TERMS OF NPK NUTRIENTS**

Sl.No.	Size class (in Ha)	No. of holdings growing the crop		Irrigated area under the crop		Average quantity applied(Kg/Ha)				
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	9051	2621	28.96	709	567	79.97	40.9	18	18
2	1.00 - 1.99	862	150	17.4	313	73	23.32	27	19.6	12.7
3	2.00 - 3.99	400	257	64.25	260	169	65	25.5	23.7	12
4	4.00 - 9.99	68	28	41.18	25	9	36	42.8	38.8	37.2
5	10.00 & Above	0	0	0	0	0	0	0	0	0
	All sizes	10381	3056	29.44	1307	818	62.59	34.5	19.9	15.9

TABLE C23

DISTRIBUTION OF HOLDINGS AND AREA IRRIGATED UNDER OTHER FOOD CROPS TREATED WITH CHEMICAL FERTILIZERS & AVERAGE CONSUMPTION IN TERMS OF NPK NUTRIENTS

S.No.	Size class (in Ha)	Irrigated area under other food crops			Average quantity applied(Kg/Ha)		
		Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8
1	Below 1.0	1875	457	24.4	2.1	2.1	1.7
2	1.00 - 1.99	335	106	31.6	3.0	2.5	2.8
3	2.00 - 3.99	265	88	33.2	13.3	3.8	4.6
4	4.00 - 9.99	65	21	32.3	15.9	4.0	11.1
5	10.00 & Above	22	13	59.1	38.3	38.3	38.3
	All sizes	2562	685	26.7	2.6	2.2	2.0

TABLE C24

DISTRIBUTION OF AREA UNIRRIGATED UNDER HIGH YIELDING VARIETIES AND OTHER CROPS TREATED WITH CHEMICAL FERTILIZERS

Sl.No.	Size class (in Ha)	High yield variety			Others		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	87395	67372	77.1	612495	163115	26.6
2	1.00 - 1.99	54467	42274	77.6	159251	65392	41.1
3	2.00 - 3.99	38320	29911	78.1	96233	40779	42.4
4	4.00 - 9.99	15889	11952	75.2	40634	17810	43.8
5	10.00 & Above	4451	3457	77.7	16870	10535	62.4
	All sizes	200522	154966	77.3	925483	297631	32.2

TABLE C25

**CROPS WISE, IRRIGATION STATUS WISE CONSUMPTION OF CHEMICAL FERTILIZERS IN TERMS OF NPK
NUTRIENTS 2001-02**

Sl.No.	Crops	Average Consumption (Kg/Ha)		
		N	P	K
1	2	3	4	5
1	All crops	41	46.3	42.3
	Irrigated			
2	Unirrigated	27.4	25.2	30.8
	Paddy			
3	Irrigated	61	25.9	52.8
	Unirrigated	50	18.4	37
4	Coconut			
	Irrigated	296.1	77.6	302.8
5	Unirrigated	12	12.9	21.9
	Arecanut			
6	Irrigated	70.5	14.3	97.5
	Unirrigated	10.6	9.1	34.9
7	Rubber			
	Irrigated	34.5	19.9	15.9
8	Unirrigated	46.4	50	41.5

TABLE C26

RATE OF CONSUMPTION OF CHEMICAL FERTILIZERS IN UNIRRIGATED AREA IN TERMS OF NPK 2001-02

Sl.No.	Size class (in Ha)	Unirrigated area		
		N	P	K
1	2	3	4	5
1	Below 1.0	24.4	23.3	27.9
2	1.00 - 1.99	31.4	27	33.6
3	2.00 - 3.99	32.9	29	34.4
4	4.00 - 9.99	34.4	29	37.3
5	10.00 & Above	33.8	33.1	55.8
	All sizes	27.4	25.2	30.8

TABLE C27

**DISTRIBUTION OF NUMBER OF HOLDINGS OF UNIRRIGATED CROPS TREATED WITH STRAIGHT FERTILIZERS
2001-02**

Sl.No.	Size class (in Ha)	Number of Holdings							
		Growing one or more unirrigated crops	Treated with urea (46:0:0)	Treated with calcium ammonium Nitrate (25:0:0)	Treated with nuriate of potash (0:0:60)	Treated with single super phosphate (0:16:0)	Treated with Diammonium phosphate (18:46:0)	Treated with rock phosphate (0:18:0)	
1	2	3	4	5	6	7	8	9	
1	Below 1.0	5373330	469936	22108	1027586	56976	34887	12477	
2	1.00 - 1.99	205146	59077	1572	87238	6210	3507	1997	
3	2.00 - 3.99	68254	22450	467	30903	1542	1650	479	
4	4.00 - 9.99	13971	4786	45	6710	463	337	199	
5	10.00 & Above	1495	526	0	765	88	32	0	
	All sizes	5662196	556775	24192	1153202	65279	40413	15152	

TABLE C28

DISTRIBUTION OF UNIRRIGATED AREA UNDER ALL CROPS TREATED WITH STRAIGHT FERTILIZERS 2001-02

Sl.No.	Size class (in Ha)	Area of Holdings							
		Growing one or more unirrigated crops	Treated with urea (46:0:0)	Treated with calcium ammonium Nitrate (25:0:0)	Treated with nuriate of potash (0:0:60)	Treated with super phosphate (0:16:0)	Treated with ammonium phosphate (18:46:0)	Treated with massori phosphate (0:18:0)	
1	2	3	4	5	6	7	8	9	
1	Below 1.0	699890	63944	5557	86422	7897	6365	1162	
2	1.00 - 1.99	213718	30221	798	37685	3865	2242	1441	
3	2.00 - 3.99	134553	20825	317	25856	1648	2350	620	
4	4.00 - 9.99	56523	8995	149	11221	899	643	633	
5	10.00 & Above	21321	2803	0	5623	357	23	0	
	All sizes	1126005	126788	6821	166807	14666	11623	3856	

TABLE C29

DISTRIBUTION OF HOLDINGS UNDER UNIRRIGATED CROPS TREATED WITH IMPORTANT COMPLEX / MIXED FERTILIZERS

Sl.No.	Size class (in Ha)	Number of Holdings					
		Growing one or more unirrigated crops	NPK Mixture (Vijay) 17:17:17	Ammonium Sulphate (Factomphos) 20:20:0	Urea Ammonium Phosphate 20:20:0	NPK Mixture 10:26:26	Mono Ammonium Phosphate 0:52:0
1	2	3	4	5	6	7	8
1	Below 1.0	5373330	421549	225030	71714	81898	14997
2	1.00 - 1.99	205146	59119	25577	10600	11586	1199
3	2.00 - 3.99	68254	22328	9048	4378	4437	242
4	4.00 - 9.99	13971	5197	1531	928	670	81
5	10.00 & Above	1495	672	168	86	247	15
	All sizes	5662196	508865	261354	87706	98838	16534

TABLE C30

DISTRIBUTION OF AREA UNDER UNIRRIGATED CROPS TREATED WITH IMPORTANT COMPLEX / MIXED FERTILIZERS 2001-02

Sl.No.	Size class (in Ha)	Unirrigated area treated with							
		Under all crops	NPK Mixture (Vijay) 17:17:17	Ammonium Sulphate (Factomphos) 20:20:0	Urea Ammonium Phosphate 20:20:0	NPK Mixture 10:26:26	Mono Ammonium Phosphate 0:52:0		
1	2	3	4	5	6	7	8		
1	Below 1.0	699890	72283	32065	17136	16487	3760		
2	1.00 - 1.99	213718	40414	16944	7133	8452	622		
3	2.00 - 3.99	134553	27591	11628	5435	5793	165		
4	4.00 - 9.99	56523	11879	4636	2350	2000	183		
5	10.00 & Above	21321	6719	1412	621	2409	255		
	All sizes	1126005	158886	66682	32675	35141	4985		

TABLE C31

**DISTRIBUTION OF NUMBER AND AREA OF UNIRRIGATED PADDY TREATED WITH CHEMICAL FERTILIZERS
2001-02**

Sl.No.	Size class (in Ha)	Number of Holdings growing unirrigated crops paddy			Unirrigated area under crops paddy		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	120988	106354	87.9	26715	22989	86.05
2	1.00 - 1.99	29887	26081	87.27	15323	12917	84.3
3	2.00 - 3.99	10996	9737	88.55	9452	8043	85.09
4	4.00 - 9.99	2031	1704	83.9	3378	2963	87.71
5	10.00 & Above	113	113	100	580	580	100
	All sizes	164015	143989	87.79	55448	47492	85.65

TABLE C32

DISTRIBUTION OF UNIRRIGATED AREA UNDER H.Y.V AND OTHER VARIETIES OF PADDY TREATED WITH CHEMICAL FERTILIZERS 2001-02

Total	Unirrigated area under HYV		Other varieties		Percentage
	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	
1	2	3	4	5	6
35270	33525	95.05	20178	13967	69.22

TABLE C33

RATE OF APPLICATION NPK IN UNIRRIGATED AREA UNDER PADDY 2001-02

Sl.No.	Crops	Paddy		
		N	P	K
1	2	3	4	5
1	Below 1.0	49.94	19.15	35.71
2	1.00 - 1.99	45.64	16.73	35.76
3	2.00 - 3.99	51.32	17.13	38.45
4	4.00 - 9.99	60.38	21.32	44.22
5	10.00 & Above	83.07	27.79	64.71
	All sizes	49.97	18.36	37.01

TABLE C34

**DISTRIBUTION OF NUMBER AND AREA OF UNIRRIGATED TAPIOCA TREATED WITH CHEMICAL FERTILIZERS
2001-02**

Sl.No.	Size class (in Ha)	Number of Holdings growing unirrigated crops Tapioca			Area under Tapioca		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage
1	2	3	4	5	6	7	8
1	Below 1.0	816978	222349	27.22	29401	12288	41.79
2	1.00 - 1.99	45831	16745	36.54	4804	2182	45.42
3	2.00 - 3.99	14388	5362	37.27	2241	1106	49.35
4	4.00 - 9.99	2464	904	36.69	604	255	42.22
5	10.00 & Above	214	76	35.51	447	420	93.96
	All sizes	879875	245436	27.89	37497	16251	43.34

TABLE C35

DISTRIBUTION OF HOLDINGS AND AREA OF UNIRRIGATED UNDER COCONUT TREATED WITH CHEMICAL FERTILIZERS & AVERAGE CONSUMPTION IN TERMS OF NPK 2001-02

Sl.No.	Size class (in Ha)	Number of Holdings growing unirrigated crops Coconut			Area under the crop			Rate of application (Kg/Ha)		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	4760015	1167915	24.54	299326	58406	19.51	10.68	12.63	21.02
2	1.00 - 1.99	161796	78526	48.53	51703	15359	29.71	18.51	14.2	27.78
3	2.00 - 3.99	53241	24073	45.22	27136	7486	27.59	14.82	13.92	20.9
4	4.00 - 9.99	10057	4719	46.92	9144	2220	24.28	11.37	10.48	20.3
5	10.00 & Above	1031	542	52.57	1176	680	57.82	16.34	16.82	30.71
	All sizes	4986140	1275775	25.59	388485	84151	21.66	12.04	12.89	21.92

TABLE C36

DISTRIBUTION OF HOLDINGS AND AREA OF UNIRRIGATED UNDER RUBBER TREATED WITH CHEMICAL FERTILIZERS & AVERAGE CONSUMPTION IN TERMS OF NPK 2001-02

Sl.No.	Size class (in Ha)	Number of Holdings growing unirrigated crop			Area under the crop			Rate of application (Kg/Ha)		
		Total	Treated with chemical fertilizers	Percentage	Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8	9	10	11
1	Below 1.0	604640	401583	66.42	134229	93476	69.64	46.21	49.86	39.85
2	1.00 - 1.99	95418	70499	73.88	70765	53561	75.69	47.92	51.76	42.58
3	2.00 - 3.99	37627	27761	73.78	50889	37888	74.45	46.38	49.91	42.68
4	4.00 - 9.99	7845	5396	68.78	22471	16218	72.17	46.56	47.96	42.64
5	10.00 & Above	898	686	76.39	8020	5034	62.77	35.71	43.91	49.84
	All sizes	746428	505925	67.78	286374	206177	72	46.4	50.02	41.53

TABLE C37

**DISTRIBUTION OF AREA UNIRRIGATED UNDER OTHER FOOD CROPS TREATED WITH CHEMICAL FERTILIZERS
& RATE IN TERMS OF NPK 2001-02**

Sl.No.	Size class (in Ha)	Area under the crop			Rate of application (Kg/Ha)		
		Total	Treated with chemical fertilizers	Percentage	N	P	K
1	2	3	4	5	6	7	8
1	Below 1.0	16805	1899	11.30	10.1	14.8	15.4
2	1.00 - 1.99	3756	610	16.24	11.11	8.51	7.53
3	2.00 - 3.99	1788	284	15.88	9.54	8.17	9.56
4	4.00 - 9.99	715	53	7.41	4.2	4.03	3.78
5	10.00 & Above	42	5	11.90	3.81	2.62	2.62
	All sizes	23106	2851	12.34	10.02	12.91	13.29

TABLE C38

NUMBER OF HOLDINGS AND AREA BENEFITED BY ORGANIC MANURE IN IRRIGATED AREA 2001-02

Sl.No.	Name of organic manure	No. of holdings benefited by the manure	% to the total holdings growing irrigated crops	Area benefited by the manure (Ha)	% to the total area under irrigated crops
1	2	3	4	5	6
1	Field yield manure/ Compost/ Biogas manure	2179308	34.29	424609	28.95
2	Oil cake	342259	5.39	65687	4.48
3	Other organic manure	2081520	32.75	274876	18.74
4	Green manure	1965932	30.93	252845	17.24

TABLE C39

PERCENTAGE OF IRRIGATED AREA UNDER PADDY, TAPIOCA AND COCONUT TREATED WITH ORGANIC MANURE 2001-02

Sl. No.	Name of crops	Total irrigated area under the crop	Area covered by farm yard manure	Percentage to col. 3	Area covered by other organic manure	Percentage to col. 6
1	2	3	4	5	6	7
1	Paddy	50269	11641	23.16	10385	20.66
	Others	9369	2930	31.27	1643	17.54
2	Tapioca	430	83	19.30	9	2.09
	Others	3304	700	21.19	644	19.49
3	Coconut	4082	1785	43.73	146	3.58
	Others	104867	38598	36.81	29611	28.24

TABLE C40 -

**PERCENTAGE OF AREA IRRIGATED, TREATED WITH DIFFERENT ORGANIC MANURE AND GREEN MANURE
2001-02**

Sl. No.	Size class (Ha)	Field yield manure / Compost / Bio-gas manure	Oil cake	Other organic manure	Green manure
1	2	3	4	5	6
1	Below 1.0	29.62	8.34	24.17	24.46
2	1.00 - 1.99	35.85	9.65	18.65	23.89
3	2.00 - 3.99	31.4	12.06	16.2	19.48
4	4.00 - 9.99	35.96	18.7	17.31	15.84
5	10.00 & Above	34.01	28.29	11.57	6.46
	All sizes	31.93	10.59	20.76	22.37

TABLE C41

PERCENTAGE OF UNIRRIGATED AREA UNDER PADDY, TAPIOCA AND COCONUT TREATED WITH ORGANIC MANURE 2001-02

Sl. No.	Name of crops	Total unirrigated area under the crop	Area covered by farm yard manure	Percentage to col. 3	Area covered by other organic manure	Percentage to col. 6
1	2	3	4	5	6	7
1	Paddy	35270	6570	18.63	9019	25.57
	Others	20178	5431	26.92	3106	15.39
2	Tapioca	185	77	41.62	448	242.16
	Others	2418	748	30.93	13590	562.03
3	Coconut	8586	1081	12.59	610	7.1
		379899	133734	35.2	121420	31.96

TABLE C42

PERCENTAGE OF AREA UNIRRIGATED, TREATED WITH DIFFERENT ORGANIC MANURE AND GREEN MANURE
2001-02

Sl. No.	Size class (Ha)	Field yield manure / Compost / Bio-gas manure	Oil cake	Other organic manure	Green manure
1	2	3	4	5	6
1	Below 1.0	27.1	2.37	21.79	18.39
2	1.00 - 1.99	31.37	3.01	14.25	12.88
3	2.00 - 3.99	29	1.98	10.36	11.12
4	4.00 - 9.99	24.02	3.02	9.57	7.97
5	10.00 & Above	30.56	10.22	8.36	4.16
	All sizes	28.05	2.63	18.13	15.69

TABLE C43

PERCENTAGE OF AREA UNDER PADDY TREATED WITH PESTICIDES 2001-02

Sl.No.	Irrigated / Unirrigated	Area under paddy HYV (Ha)			Area under other varieties of paddy (Ha)		
		Total	Treated with pesticides	Percentage	Total	Treated with pesticides	Percentage
1	2	3	4	5	6	7	8
1	Irrigated	50269	39981	79.53	9369	5141	54.87
2	Unirrigated	35270	21207	60.13	20178	7770	38.51
3	Total	85539	61188	71.53	29547	12911	43.7

TABLE C44

NUMBER OF AGRICULTURAL MACHINERY OWNED AND USED BY OPERATIONAL HOLDINGS DURING 2001-02

Sl. No.	Size class (in Ha)	Hand operated sprayer/ duster	Animal operated implements		Power operated implements/ equipments					
			Wooden Plough	Steel Plough	Sprayer	Diesel engine pump set	Electric pump set	Power tiller	Tractor used for agriculture purpose/wheel tractor	
1	2	3	4	5	6	7	8	9	10	
	Below 1.0	365513	46387	9987	8262	42260	683135	92930	110101	
	1.00 - 1.99	54749	10172	2230	5855	15043	66223	15159	24649	
	2.00 - 3.99	24848	3153	700	3131	7192	28214	5507	10645	
	4.00 - 9.99	7499	1078	344	1214	2625	7459	1114	2978	
	10.00 & Above	1812	36	20	217	337	904	103	290	
	All sizes	454421	60826	13281	18679	67457	785935	114813	148663	

TABLE C45

DISTRIBUTION OF HOLDINGS AVAILED INSTITUTIONAL CREDIT FOR AGRICULTURAL PURPOSES 2001-02

Sl. No.	Size class (Ha)	Total No. of operational holdings	Estimated number of operational holdings who took institutional credit	Percentage
I	2	3	4	5
1	Below 1.0	6264072	388417	6.2
2	1.00 - 1.99	222007	56027	25.24
3	2.00 - 3.99	73170	18609	25.43
4	4.00 - 9.99	14939	4594	30.75
5	10.00 & Above	1784	667	37.39
	All sizes	6575972	468314	7.12

TABLE C46

DISTRIBUTION OF AMOUNT OF AGRICULTURAL CREDIT PER HOLDER 2001-02

Sl. No.	Size class (Ha)	No. of holders who took institutional credit	Amount of institutional credit taken (Rs)	Average amount per holder
1	2	3	4	5
1	Below 1.0	388417	3124529798	8044
2	1.00 - 1.99	56027	661422237	11805
3	2.00 - 3.99	18609	308414863	16573
4	4.00 - 9.99	4594	86572108	18845
5	10.00 & Above	667	3917500	5873
	All sizes	468314	4184856506	8936

TABLE C47
PERCENTAGE OF DISTRIBUTION OF AGRICULTURAL CREDIT 2001-02

Sl. No.	Size class (Ha)	Total No. of operational holdings	Percentage of operational holdings took institutional credit	Percentage of operational holdings that took institutional credit				
				PACS	PLDDB / SLDDB	CBB	RRBA	
1	2	3	4	5	6	7	8	
1	Below 1.0	6264072	6.2	56.09	18.27	11.29	19.35	
2	1.00 - 1.99	222007	25.24	48.79	21	14.72	31	
3	2.00 - 3.99	73170	25.43	52.03	27.05	19.89	33.99	
4	4.00 - 9.99	14939	30.75	40.34	27.41	16.22	52.66	
5	10.00 & Above	1784	37.39	15.44	24.89	19.94	65.22	
	All sizes	6575972	7.12	54.84	19.05	12.11	21.72	

