

REPORT  
ON  
THE CROP CUTTING SURVEY  
ON  
WINTER AND SUMMER CROP  
OF  
PADDY  
1980

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## FOREWORD

Crop Estimation Surveys on Paddy are being conducted by this Department regularly from 1950 onwards, separately for each season viz. Autumn (Viruppu), Winter (Mundakan) and Summer (Punja). The results of these Surveys are usually published in two separate reports, one for Autumn and the other for Winter and Summer together. This report deals with the object, area covered by the survey, the sampling technique adopted, the results of the analysis of the data and the reliability of the results obtained from the survey on Winter and Summer Crops of Paddy, 1980.

This report was prepared by the Agricultural Statistics Division of the Directorate of Economics and Statistics.

Trivandrum,  
9-5-1983.

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# REPORT ON CROP CUTTING SURVEY ON WINTER AND SUMMER CROP OF PADDY, 1980

## 1. Introduction :

The Directorate of Economics and Statistics have been regularly conducting annual crop estimation surveys on two important food crops of the State viz. Paddy and Tapioca. In the case of paddy, the experiments are conducted separately for each of the three seasons namely Autumn, Winter and Summer.

Usually the results of Crop Cutting Surveys on Paddy are prepared and published in two parts; one for Autumn crop and the other for Winter and Summer crops. The report for Autumn crop of paddy has already been published. The present report deals with the results of experiments conducted on winter and summer crops of paddy.

### 2.1 Objectives of the Survey :

The main objectives of the survey were (1) to estimate the average yield of paddy per hectare for each Taluk, District and the State, (2) to estimate the total production of rice in the State during the season, (3) to estimate the productivity of High Yielding Varieties of Paddy at the District level and (4) to study the cultivation practices of Paddy.

### 2.2 Period of Survey :

The harvesting period of Winter crop is from December to February and that of Summer crop is from March to May. The field work relating to Winter season was completed in February 1980 and that of Summer in May 1980.

### 2.3 Coverage and sample size:

The Survey was conducted in all the Taluks where the crop is grown during the respective seasons. During Winter 1980, the Survey covered all the taluks except Cochin. During Summer, the experiments were conducted in 50 out of 57 taluks. The taluks where the experiments were not conducted are, Shertalai, Kanjirappally, Peermade, Devikulam, Udumbanchola, Thodupuzha and Cochin.

### 2.4 Sampling design :

A Stratified multi-stage random sampling design was adopted for the survey. Taluk was treated as the stratum, revenue village as the first stage unit, a survey sub-division number as the second stage unit, a Kandom as the third stage unit, and a square plot of sides 5 metres as the ultimate sample unit. The number of experiments to be conducted in each season is fixed considering the area of the crop and availability of the Investigators. The total number of experiments to be conducted in a taluk was however limited to 30 in a crop season, subject to a minimum of 2 experiments in a village. The selection of revenue villages was done at the headquarters of the Directorate in the beginning of the agricultural year, they being the same as those selected for the TRS. The number of experiments to be conducted in each investigator unit was fixed by Deputy Director in consultation with the District Statistical Officer and Statistical Inspector. In each of the investigator units, the required number of experimental plots were selected by simple random sampling method from the frame consisting of the list of wet land survey sub-divisions in the unit growing the crop and that would be harvested in the season.

In survey sub-divisions having more than one Kandom, one Kandom was randomly selected and a square plot of side 5 metres was located at random in the selected Kandom. The crop in the square plot was harvested, threshed winnowed and weighed.

Three samples of harvested produce each weighing 250 grams were collected at the time of harvest from a taluk. The first sample was taken at the beginning, the second towards the middle and the third towards the end of the harvesting season in each taluk. The sample collected were sent to the concerned Taluk Statistical Inspectors within 24 hours for conducting driage experiments. The samples were dried and weights taken on alternative days till two consecutive weights were the same.

### 2.5 Sample selection :

The selection of plots (survey sub-division) in each Investigator unit was done by the Taluk Statistical Inspector. The selection of Kandom, if the number of Kandoms in the selected survey sub-division was more than one and the location of square plot of side 5 metres were done by the Investigators.

The list containing the details of the plots selected for crop cutting experiments were forwarded to the Assistant Director (National Sample Survey Organisation), Trivandrum and also to the District Agricultural-Officers for facilitating inspections at harvest stage by their staff.

### 2.6 Field Work:

The field work of the survey was conducted by the Investigators working in T.R.S. under the immediate supervision of the Taluk Statistical Inspectors. The District Statistical Officers were responsible for the supervision of the field work of the survey. The Additional Statistical Officers attached to the District Statistical Offices also conducted the supervision of the field work of the survey.

The total number of crop cutting experiments planned in the State during Winter and Summer 1980 were 1476 and 1192 respectively. The percentage response was about 98.7% for winter and 90.4% for summer. During the previous year the percentage of response was 98% for Winter and 96% for Summer.

The field work were allotted to 800 Investigators during Summer and Winter. But only 733 Investigators in Winter and 527 investigators in Summer had actually conducted the experiment. It was found that 5 experiments or more were done by 33 Investigators in Winter '80, and 43 Investigators in Summer '80. The average number of experiments per investigator was two in both Winter and Summer '80.

The field work of the survey was inspected at 3 stages by the Statistical Inspectors, District Statistical Officers attached to the District Statistical Offices. Targets had been fixed for the supervising officials for the conduct of inspection at the harvest stage. The Officers at the district level had been instructed to conduct harvest stage inspection at the rate of one experiment in each taluk. The Statistical Inspectors were asked to conduct harvest stage inspections atleast one in an investigator unit subject to a minimum of six experiments in the taluk. 34% of the experiments analysed were inspected at harvest stage during winter'80 and 46% in summer'80. The percentage of pre-harvest stage inspection was about 6% in Winter and 14.7% in Summer season. The post harvest stage inspection conducted was about 3.5% in Winter and 2.9% in Summer '80.

## 2.7 Analysis:

The Tabulation and analysis of the data collected through the survey was done at the Directorate by the Agricultural Statistics Division.

## 2.8 Procedure of Estimation:

(i) *Mean yield*—The taluk-wise mean yield of dry paddy and its standard error were estimated using the following formula:—

$$\text{Taluk—Mean yield} = \frac{\sum_{i=1}^K \sum_{j=1}^{n_i} x_{ij}}{\sum_{i=1}^K n_i} \quad (\bar{x})$$

Where  $n_i$  = number of experiments conducted in the  $i$  th village ( $i=1, 2, 3, \dots, k$ )

$K$  = Number of villages selected in the taluk.

$x_{ij}$  = Weight of paddy obtained from the  $j$  th experiment in the  $i$  th village ( $j=1, 2, 3, \dots, n_i$ )

Each experiment is taken from 5 metre square  $\frac{1}{100}$  hectare

Mean yield of dry paddy in kg. per hectare =  $\bar{X} \times 400 \times d$

Where  $d$  is the driage ratio of dry paddy to wet paddy.

(ii) *Standard error of Taluk mean yield:*

Variance of taluk

$$\text{mean yield} = \frac{A}{N} + \frac{B-A}{m} \times \frac{\sum_{i=1}^k n_i^2}{N^2}$$

Where  $A$  = Mean square within village

$B$  = Mean square between village

$N$  = Total number of experiments conducted in the taluk =  $\left( \sum_{i=1}^K n_i \right)$

$n_i$  = Number of experiments conducted in the  $i$  th village

$$m = \frac{N^2 - \sum_{i=1}^k n_i^2}{N(k-1)}$$

$k$  = Number of villages selected in the taluk

The Standard error (SE) is the square root of the variance.

The standard error in kg/Hectare is obtained by multiplying the root of variance with 400.

(iii) *Standard error of the State:*

Mean yield: The formula adopted for the computation of standard error of the State mean yield is indicated below.

$$\text{Standard error of the State Mean Yield} = \frac{\sqrt{\sum (a_i s_i)^2}}{\sum a_i}$$

Where  $a_i$  = Area under the crop in the  $i$  th taluk and  $s_i$  = the standard error of the estimate of mean yield in the taluk.

The data on area under paddy in each taluk estimated through the TRS have been utilised to compute the production of rice. The weight of clean rice is reckoned as 65.7% dry paddy.

### 3.1 Result of the survey:

The estimates of production of rice in the state during the different seasons in the year 1979-80 are given below.

Autumn 1979—	567,703 tonnes
Winter 1980—	526,461 ,,
Summer 1980—	205,531 ,,
Total	<u>12,99,695 ,,</u>

The production of rice in the State increased considerably during Autumn 1979 by about 23,000 tonnes compared to the previous year. It however decreased by 3500 tonnes during winter season compared to the corresponding season in the previous year. In summer season, the production showed a satisfactory increase. This fall in production in Winter season was mainly due to flood damages, water logging and decrease in the area of cultivation. It is also reported (from certain places) that the cultivators were diffident to apply adequate inputs due to low price of paddy. The climatic conditions were favourable during Summer and pest attack not acute. As a result, a better yield rate was obtained during Summer. The area under high yielding variety of paddy increased by more than 6,600 hectares and production by 33,600 tonnes in winter though the total area under and production of paddy decreased during the season.

In Summer season however a decrease was noticed in both area and production of high yielding variety. This was mainly due to the fear of cultivators about the heavier incidence of pest attack on high yielding varieties compared to other varieties. The estimated area, mean yield and its standard error, production of rice together with the number of crop-cutting experiments analysed for each taluk during Winter and Summer 1980 are given in table 1.1 and 4.1 respectively of the appendix. Comparison of the yield rates of 1980 with that of the previous year reveals that the productivity has decreased in the districts of Trivandrum, Alleppey, Ernakulam, Malappuram and Kozhikode in Winter 1980 from that of 1979. But in Summer 1980, the productivity was on an increase in 8 districts in the State compared to summer 1979.

The results of I. A. D. P. scheme of experiments conducted at Alleppey and Palghat Districts have not been received.

Usually during summer season crop cutting experiments under I. A. D. P. are not done in Palghat District as the area under summer paddy is comparably small there. In summer season the experiments were conducted in Alleppey, but it was found that the results of the State series and I. A. D. P. series could not be pooled together as the Statistical test of the means turned out to be highly significant.

The analysis of variance of plot yield pooled for the State is given in table 1.3 and 4.3 of the appendix in respect of Winter and Summer seasons respectively. In both cases the yield rate of paddy was found to be statistically significant between taluks.

The frequency distribution of plot yields obtained through the survey in each district as well as the State during Winter and Summer seasons are given in table 1.4 and 4.4 respectively in the appendix using the wet weight of paddy of the experimental plots. The highest yield rate of 4100 kg. of wet paddy per hect. was obtained from 8% of experimental plots in winter and 15% of experimental plots in summer. The lowest yield rate of less than 500 kg. of wet paddy per hect. was obtained from 2.4% of experimental plots in winter and 4% experimental plots in Summer.

In order to determine the driage ratio of dry paddy to wet paddy 168 and 144 driage experiments were conducted in Taluks statistical offices during winter and summer 1980 respectively. The lowest driage ratio was reported from Trivandrum District in both the seasons 0.868 in winter and 0.869 in summer. The highest percentage recovery of dry paddy from wet paddy was recorded in Palghat and Cannanore district (92.7) in summer. The driage ratio for the state was estimated as 90.3% in winter 90.4% in summer respectively.

### 3.2 High Yielding Varieties:

The estimated area mean yield and production of high yielding variety of paddy in each District and in the State during winter and summer 1980 are presented in table 2.1 and 5.1 respectively in the Appendix. The estimates showed that about 25% of paddy area in winter and 52% in summer 1980 was brought under high yielding varieties.

A comparative picture in respect of area mean yield and production of high yielding varieties in the different districts and State in Winter and Summer seasons of 1979-80 is provided in table 2.2 and 5.2 respectively.

The area under High Yielding Varieties increased by 8.6% in winter compared to the previous winter, the trend being accounted by 5 out of 11 Districts. But in Summer the area decreased slightly by 2.3% in the State. In the Districts of Kozhikode, Ernakulam, Kottayam, Alleppey and Trivandrum the decrease is seen.

The productivity in Winter was higher in 7 Districts as compared to previous year. The reverse trend was found only in Trivandrum, Alleppey, Kottayam and Malappuram districts. The districts of Trivandrum, Alleppey, Kottayam and Kozhikode together accounted for the fall in productivity in Summer 1980 over the previous year. The production of rice from the high yielding variety of paddy in the State increased by about 25% in winter and come down by 6.8% in summer 1980 from the level of production in the previous year.



The distribution of experimental plots with high yielding varieties of paddy according to the varieties raised in each district and the State, during Winter and Summer 1980 are given in table 2.3 and 5.3 respectively in Appendix. It is found that 19.2% and 54.5% of the experimental plots were under high yielding variety during Winter and Summer respectively. From this table it can be seen that the cultivators prefer Jyothi, Thriveni, Annapura and Jaya in summer and Jyothi, H4 and Mashoori in winter seasons. In almost all the districts Thriveni and Jaya varieties are raised in both seasons. Other newly introduced strains are not so popular.

The estimates of average yield (simple average) of various high yielding varieties at the District and the State level are presented in table 2.4 and 5.4 for Winter and Summer seasons respectively in the appendix. The highest average yield of 4873 kg. per hectare in winter was obtained by IR-20 in Idukki District and 5278 kg. per hectare in summer by H4 in Kozhikode district respectively. The names of high yielding varieties which correspond to the highest average yield in each district together with the highest average yield and the number of experimental plots where the crop was raised in each District during winter 1980 and summer 1980 are indicated in the table below:

TABLE 1

**District-wise high yielding varieties with highest average yield—Winter 1980**

Sl. No.	District	H.Y.V. correspond to highest average yield	Highest average yield (dry paddy kg./hect.)	No. of experimental plots where H.Y.V. given in col. (3) raised.
(1)	(2)	(3)	(4)	(5)
1	Trivandrum	H4	3123	3
2	Quilon	Culture 28	3115	13
3	Alleppey	Jyothi	3253	33
4	Kottayam	Bharathy	3051	51
5	Idukki	IR-20	4873	20
6	Ernakulam	H4	3083	15
7	Trichur	Jaya	3127	26
8	Palghat	Jaya	3942	73
9	Malappuram	Bharathy	4459	22
10	Kozhikode	H-4	3818	5
11	Cannanore	Sabari	3872	19

H-4 variety recorded highest average yield in three districts in winter 1980, while Jaya and Bharathy in two districts IR-20 recorded the highest yield rate among the different varieties. Jaya, Jyothi and Bharathy are found to be the most widely adopted high yielding variety during the season.

TABLE 2

**District-wise H. Y. V. with highest average yield—Summer 1980**

Sl. No.	District	H.Y.V. correspond to highest average yield	Highest average yield (dry paddy kg./hect.)	No. of experimental plots where H.Y.V. given in col. (3) raised.
(1)	(2)	(3)	(4)	(5)
1	Trivandrum	Sabari	2575	54
2	Quilon	Culture-28	1460	35
3	Alleppey	Culture-28	4540	92
4	Kottayam	Jyothi	3900	27
5	Idukki	..	..	..
6	Ernakulam	IR-8	4054	51
7	Trichur	Bharathy	4084	60
8	Palghat	Jyothi	3532	77
9	Malappuram	Jyothi	3955	65
10	Kozhikode	H-4	5278	46
11	Cannanore	Pankaj	3222	80

H-4 recorded the highest average yield in the State during Summer 1980 in Kozhikode district. In Kottayam, Palghat and Malappuram districts, Jyothi recorded the highest average yield. Culture-28 recorded the highest average yield in Alleppey district.

### 3.3 Cultivation Practices :

It was found that about 33% and 78% of the experimental plots received irrigation during Winter and Summer 1980 respectively. These percentages were 38 and 79 respectively during the corresponding seasons of the previous year. About 85% of the irrigated plots were found to have applied with chemical fertilisers in winter 1980 while in summer this percentage was found to be 88.4. In winter 1980, another 13% of the irrigated plots were reported to have applied 'other manure' only like farm yard manure, green manure etc. This type of manure was also applied to about 10% of the experimental plots in summer 1980. As far as irrigated plots were concerned, about 71% of them were found to have received chemical fertilisers and manure, green manure, compost manure, etc. during winter 1980. In summer 1980 the corresponding percentages are 86 and 1.2 respectively. About 5 per cent of the irrigated plots covered by the survey were reported unmanured in winter and 2 per cent in summer 1980.

It was reported that crops in about 43% of the experimental plots in winter and 70% in summer were treated with insecticides and pesticides.

In the case of experimental plots where high yielding varieties were raised it was found 54% and 87% of them in winter season and summer 1980 received irrigation. About 95% of the irrigated plots under high yielding varieties in winter and summer 1980 were brought under chemical fertilisers.

Insecticides and pesticides were applied to about 70% and 81% of the experimental plots under high yielding varieties in winter and summer 1980 respectively.

The estimate average yield of high yielding and other varieties of paddy is given in table 3.1 and 6.1 respectively for Winter and Summer 1980.

The estimated area, mean yield and production of high yielding varieties of paddy in each district during the three seasons viz. Autumn, Winter and Summer 1979-80 are given in table 7.1 in the Appendix to facilitate comparison. A similar statement for all varieties of paddy is given in table 7.2 in Appendix. The estimated area mean yield and production of high yielding varieties of paddy in the State for the last 4 years from 1976-77 are given separately for each season in table 7.3 in the appendix. A similar statement for all varieties of paddy for the last 9 years from 1971-72 are given in table 7.4 in the Appendix.

## APPENDIX

TABLE 1.1

Estimated area, mean yield and production of rice in each taluk—Winter 1980

<i>Taluk and District</i>	<i>No. of Expts conducted</i>	<i>Area in Hect.</i>	<i>Mean yield of dry paddy kg./Hect.</i>	<i>Std. error</i>	<i>Production of rice in tonnes</i>
(1)	(2)	(3)	(4)	(5)	(6)
1. Neyyattinkara	30	4046	1816	124	4827
2. Trivandrum	24	3352	1804	350	3973
3. Nedumangal	30	4064	2207	161	5893
4. Chirayinkil	30	4304	2552	144	7216
Trivandrum district	114	15766	2115	99	21909
5. Quilon	25	3634	2649	356	6325
6. Kottarakkara	30	6053	3419	154	13597
7. Kunnathur	36	4729	2633	123	8181
8. Pathanapuram	24	3892	2998	164	7666
9. Pathanamthitta	21	2209	2794	153	4055
10. Karunagappally	15	4542	1775	147	5297
Quilon district	151	25059	2741	78	45121
11. Karthigappally	24	4359	2086	361	5974
12. Mavelikkara	30	5329	2001	171	7006
13. Chengannur	21	2163	2615	244	3716
14. Thiruvalla	23	1312	2576	338	2220
15. Kuttanad	29	761	3506	238	1753
16. Ambalapuzha	28	3042	630	..	1259
17. Sherthafai	29	2277	621	260	929
Alleppey district	184	19243	1808	126	22857
18. Changanacherry	19	678	2123	234	946
19. Kanjirappally	12	23	2554	..	39
20. Kottayam	29	2170	2801	252	3993
21. Vaikom	23	4633	2050	383	6240
22. Meenachil	24	2657	2647	164	4621
Kottayam district	107	10161	2373	189	15839
23. Peermade	12	55	3392	..	123
24. Devikulam	12	972	3427	..	2188
25. Udumbanchola	12	539	3072	526	1088
26. Thodupuzha	30	2546	2772	208	4637
Idukki district	66	4112	2974	195	8036

(1)	(2)	(3)	(4)	(5)	(6)
27. Kothamangalam	30	3594	2263	..	5344
28. Muvattupuzha	30	6318	2541	179	10548
29. Cochin	..	..	..	..	..
30. Kanayannur	30	3777	1763	212	4375
31. Kunnathunad	30	11983	2335	162	18383
32. Alwaye	30	9816	1750	308	11286
33. Parur	30	3364	1686	..	3726
Ernakulam district	180	38852	2102	121	53662
34. Cranganore	18	1936	1142	..	1453
35. Mukundapuram	29	15236	2064	182	20661
36. Trichur	30	12835	2176	162	18349
37. Thalappally	30	14341	2143	224	20191
38. Chowaghat	29	4072	1242	249	5195
Trichur district	136	48420	2070	104	65819
39. Chittur	30	15469	3453	283	35093
40. Alathur	29	28139	3061	234	56590
41. Palghat	29	17563	3754	301	43317
42. Ottappalam	30	17070	2242	145	25144
43. Mannarghat	30	7480	2228	169	10949
Palghat district	148	85721	3038	116	171093
44. Perintalmanna	29	6830	1998	136	8966
45. Ponnani	24	3075	1471	273	2972
46. Tirur	30	10216	1565	196	10504
47. Ernad	30	15088	2217	116	21977
Malappuram district	113	35209	1921	83	44419
48. Kozhikode	30	6611	1511	104	6563
49. Quilandy	30	5260	1062	331	3670
50. Badagara	24	3003	1219	121	2405
51. South Wynad	12	13799	2521	324	23762
Kozhikode district	96	28673	1931	170	36400
52. North Wynad	12	9075	2617	344	15603
53. Tellicherry	30	3867	1688	122	4289
54. Cannanore	30	2717	1710	209	3052
55. Taliparamba	30	4620	2290	158	6951
56. Hosdurg	30	2964	1828	180	3560
57. Kasargode	30	5149	2312	113	7821
Cannanore district	162	28392	2213	119	41276
State	1457	339608	2359	43	526461

TABLE 1.2

Estimated area, meanyield and production of rice relating to winter crop of paddy—1979-80

Sl. No.	District	Area in hectares		Mean yield of dry paddy in kg./hect.		Production of rice in tonnes	
		1979	1980	1979	1980	1979	1980
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Trivandrum	16051	15766	2266	2115	23895	21909
2.	Quilon	25364	25059	2504	2741	41736	45121
3.	Alleppey	16854	19243	1851	1808	20495	22857
4.	Kottayam	13304	10161	2176	2373	19024	15839
5.	Idukki	5396	4112	2837	2974	10059	8036
6.	Ernakulam	38928	38852	2289	2102	58552	53662
7.	Trichur	51417	48420	2018	2070	68168	65849
8.	Palghat	83219	85721	2887	3038	157841	171093
9.	Malappuram	36382	35209	2010	1921	48040	44419
10.	Kozhikode	30776	28673	2208	1931	44644	36400
11.	Cannanore	28036	28392	2038	2213	37550	41276
	State	345727	339608	2333	2359	530004	526461

TABLE 1.3

Winter crop of paddy 1980—Analysis of variance of plot yield pooled for the State in kg./plot of 1/400th of an hectare

Source of variation	Sum of squares	Degrees of freedom	Mean sum of square (variance)	Variance ratio (calculated)
(1)	(2)	(3)	(4)	(5)
Between taluk	5258.83	55	95.61	*26.195
Between villages within taluk	1278.92	200	6.40	1.753
Within villages within taluk	4378.39	1201	3.65	..
All	10916.14	1456	105.66	..

\* Significant at 1 per cent level

TABLE 1.4

Frequency distribution of plot yield—winter crop of paddy—1980

Sl. No.	Class interval kg./hectare (wet paddy)	Trivandrum	Quilon	Alleppey	Kottayam	Idukki	Ernakulam	Trichur	Palghat	Malappuram	Kozhikode	Cannanore	State
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1.	Below 500	2	..	16	..	..	6	2	1	7	..	1	35
2.	500-699	..	1	14	2	..	3	1	2	1	2	3	29
3.	700-899	2	1	17	2	..	1	9	..	3	6	4	45
4.	900-1099	1	..	6	6	..	4	5	1	10	4	2	39
5.	1110-1299	2	2	10	4	..	7	10	6	3	15	14	73
6.	1300-1499	4	..	4	2	..	8	9	3	7	14	14	65
7.	1500-1699	6	2	6	1	1	6	13	4	9	10	14	72
8.	1700-1899	14	3	7	5	1	11	7	6	9	13	10	86
9.	1900-2099	16	6	7	4	..	22	8	2	13	10	18	106
10.	2100-2299	11	10	10	9	2	25	21	8	8	4	16	124
11.	2300-2499	5	8	11	9	4	23	4	3	11	11	11	100
12.	2500-2699	9	15	16	11	2	12	9	10	10	1	12	107
13.	2700-2899	8	11	9	6	9	15	7	15	8	..	10	98
14.	2900-3099	9	17	6	11	8	13	6	12	4	1	12	99
15.	3100-3299	6	11	6	6	2	9	5	11	3	2	7	68
16.	3300-3499	9	18	4	11	7	6	10	5	5	..	4	79
17.	3500-3699	5	10	4	4	6	1	3	6	..	1	2	42
18.	3700-3899	1	8	4	3	6	..	2	8	..	..	1	33
19.	3900-4099	2	9	5	2	6	4	1	10	..	1	2	42
20.	4100 and above	2	19	22	9	12	4	4	35	2	1	5	115
	All	114	151	184	107	56	180	136	148	113	96	162	1457

TABLE 1.5  
The results of driage experiments—winter crop of paddy—1980

Sl. No.	District	No. of driage experiments		Total yield collected for driage experiments (kg.)	Total yield after driage operation (kg.)	Driage ratio (percentage)
		Planned	Analysed			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Trivandrum	12	12	3000	2605	86.8
2.	Quilon	18	18	4500	3980	88.4
3.	Alleppey	21	21	5250	4783	91.1
4.	Kottayam	15	15	3750	3420	91.2
5.	Idukki	12	12	3000	2679	89.3
6.	Ernakulam	18	18	4500	4057	90.2
7.	Trichur	15	15	3750	3368	89.8
8.	Palghat	15	15	3750	3441	91.8
9.	Malappuram	12	12	3000	2727	90.9
10.	Kozhikode	12	12	3000	2738	91.3
11.	Cannanore	18	18	4500	4133	91.8
	State	168	168	42000	37931	90.3

TABLE 1.6

Estimates of area mean yield production of dry paddy (kg./hect.) during winter season from 1975 to 1980

Sl. No.	Taluk and District	1975	1976	1977	1978	1979	1980
1.	Neyyattinkara	2130	2759	2453	2052	1981	1816
2.	Trivandrum	2548	2272	2086	2044	2257	1804
3.	Nedumangad	2450	2578	2156	2027	2238	2207
4.	Chirayinkil	2732	2703	2434	2524	2569	2552
	Trivandrum district	2444	2595	2280	2167	2266	2115
5.	Quilon	2230	2165	2571	2288	2509	2649
6.	Kottarakkara	2497	2872	2887	2482	2859	3419
7.	Kunnathur	2712	2376	2669	2369	2289	2633
8.	Pathanapuram	2788	3083	2812	2924	2678	2998
9.	Pathanamthitta	2732	2865	2858	2485	2103	2794
10.	Karunagappally	2089	2147	2080	1570	2302	1775
	Quilon district	2488	2585	2628	2334	2504	2741
11.	Karthigappally	1705	1682	1803	1207	2012	2086
12.	Mavelikkara	2878	1715	2096	2101	1761	2001
13.	Chengannur	3048	2569	3008	2244	1795	2615
14.	Thiruvalla	2849	2668	2840	2839	2951	2576
15.	Kuttanad	..	..	3782	3874	3496	3506
16.	Ambalapuzha	1205	2383	2151	1943	732	630
17.	Snertallay	565	1013	785	979	808	621
	Alleppey district	2007	1848	2820	2458	1851	1808
18.	Changanacherry	3031	2558	3191	2670	2583	2123
19.	Kanjirappally	1951	2062	1911	2372	2247	2554
20.	Kottayam	2499	2334	2590	2529	2081	2801
21.	Vaikom	1992	1997	1916	1921	2039	2050
22.	Meenachil	2582	2485	2547	2675	2545	2647
	Kottayam district	2358	2244	2344	2323	2176	2373
23.	Peermade	2643	3008	3198	3107	2263	3392
24.	Devicolam	2624	2524	2362	3943	2712	3427
25.	Udumbanchola	2473	2881	2077	2382	3297	3072
26.	Thodupuzha	2890	2389	2403	2428	2681	2772
	Idukki district	2694	2544	2338	2803	2837	2974
27.	Kothamangalam	2734	2374	2697	2118	2147	2263
28.	Muvattupuzha	2673	2009	2100	2215	2575	2541
29.	Cochin	..	..	..	..	..	..

TABLE 1.6—(contd.)

Sl. No.	Taluk and district	1975	1976	1977	1978	1979	1980
30.	Kanayannur	1984	1833	1088	1826	1750	1763
31.	Kunnathunad	2402	2023	2009	1962	2258	2335
32.	Alwaye	2420	2159	2227	1781	2344	1750
33.	Parur	2338	2159	2204	2218	2357	1686
	Ernakulam district	2441	2079	2102	1986	2289	2102
34.	Cranganore	1060	1255	1309	1213	1470	1142
35.	Mukundapuram	1743	1677	1853	1742	2048	2064
36.	Trichur	2306	2316	2363	2035	2227	2176
37.	Thalappally	2381	2453	2248	1992	2179	2143
38.	Chowghat	2246	1165	1330	1211	911	1942
	Trichur district	2140	1995	2037	1822	2018	2070
39.	Chittur	3858	3458	3188	3090	3043	3453
40.	Alathur	3420	3387	3035	3476	3163	3061
41.	Palghat	2889	2913	2894	3451	3481	3754
42.	Ottappalam	2445	2553	2226	2322	2114	2242
43.	Mannarghat	2675	2451	2481	2129	2252	2228
	Palghat district	3175	3050	2783	2994	2887	3038
44.	Perinthalmanna	2242	2362	2285	2286	2185	1998
45.	Ponnani	2161	2120	2135	1732	1902	1471
46.	Tirur	1811	1785	1960	1879	1595	1565
47.	Ernad	1467	2165	1890	1958	2222	2217
	Malappuram district	1812	2080	2006	1961	2010	1921
48.	Kozhikode	1970	1772	1639	1784	1762	1511
49.	Quilandy	1377	1107	1349	1163	1490	1062
50.	Badagara	1440	1299	1355	1506	1151	1219
51.	South Wynad	2171	2482	2296	2762	2886	2621
	Kozhikode district	1900	1911	1847	2083	2208	1931
52.	North Wynad	2139	2235	2474	2526	1905	2617
53.	Tellicherry	1597	1693	1902	1718	1643	1688
54.	Cannanore	1117	1713	1608	1653	1194	1710
55.	Thaliparamba	1734	2010	1981	1981	1551	2290
56.	Hosdurg	2068	2381	2239	2025	1896	1828
57.	Kasargode	2122	2107	2649	2148	2298	2312
	Cannanore district	1924	2101	2243	2088	2038	2213
	State	2382	2332	2344	2295	2333	2359

TABLE 2.1

Estimated area, mean Yield and Production of High Yielding and Other Varieties of Paddy during Winter 1980

Districts	High yielding			Others			Total		
	Area (Hect.)	Mean yield of dry paddy kg./hect.	Production of rice (T)	Area (Hect.)	Mean yield of dry paddy kg./hect.	Production of rice (T)	Area (Hect.)	Mean yield of dry paddy kg./hect.	Production of rice (T)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trivandrum	716	2767	1302	15050	2083	20607	15766	2115	21909
Quilon	1424	2734	2558	23635	2741	42563	25059	2741	45121
Alleppey	2076	2883	3931	17167	7678	18926	19243	1808	22857
Kottayam	4482	2650	7801	5679	2154	8038	10161	2373	15839
Idukki	1669	3100	3399	2443	2889	4637	4112	2974	8036
Ernakulam	4141	2453	6674	34711	2060	46988	38852	2102	53662
Trichur	8465	2263	12591	39955	2029	53258	48420	2070	65849
Palghat	49203	3453	111659	36518	2477	59434	85721	3038	171093
Malappuram	7060	1976	9162	28149	1906	35257	35209	1921	44419
Kozhikode	2287	2435	3659	26386	1888	32741	28673	1931	36400
Cannanore	3042	3103	6203	25350	2106	35073	28392	2213	41276
State	84565	3041	168939	255043	2134	357522	339608	2359	526461

TABLE 2.2  
Estimated area, mean Yield and Production of high Yielding Varieties of Paddy during Winter 1979 and 1980

Sl. No.	District	Area in hectares		Mean yield of dry paddy in kg./hect.		Production of rice in tonnes	
		1979	1980	1979	1980	1979	1980
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Trivandrum	1058	716	2156	2767	1499	1302
2.	Quilon	1509	1424	2510	2734	2488	2558
3.	Alleppey	3262	2076	3001	2883	6433	3931
4.	Kottayam	10404	4482	2024	2650	13838	7801
5.	Idukki	1292	1669	2931	3100	2488	3399
6.	Ernakulam	2715	4141	1889	2453	3369	6674
7.	Trichur	6678	8465	2281	2263	10007	12591
8.	Palghat	39488	49203	3079	3453	79881	111659
9.	Malappuram	7583	7060	2162	1976	10773	9162
10.	Kozhikode	2017	2287	1321	2435	1751	3659
11.	Cannanore State	1903	3042	2220	3103	2776	6203
		77909	84565	2643	3041	135303	168939

TABLE 2.3

Distribution of fields with high Yielding Varieties of Paddy According to the Varieties raised during Winter 1980

Sl. No.	District	No. of experiments conducted		Percentage of HYV experiment to total No. of experiments	No. of experimental plots under different High Yielding Varieties													
		HYV	Total		Tri-veni	Jaya	Jyo- thi	Cul- 28	IR-8	Asw- athy	IR- 5	IR- 20	Ro- hini	H4	Mas- hoori	Sab- ari	Bha- rathy	Pan- kaj
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1.	Trivandrum	3	114	2.63	1	..	1	..	..	..	..	..	..	1	..	..	..	..
2.	Quilon	13	151	8.61	..	1	4	3	..	..	..	..	..	4	..	1	..	..
3.	Alleppey	33	184	17.94	3	1	24	..	..	..	..	..	..	1	..	..	4	..
4.	Kottayam	51	107	47.65	..	..	24	5	..	..	..	1	..	11	..	..	10	..
5.	Idukki	20	66	30.30	1	..	1	..	1	..	..	1	..	16	..	..	..	..
6.	Ernakulam	15	180	8.33	..	2	5	1	..	..	..	..	..	7	..	..	..	..
7.	Trichur	26	136	19.11	4	2	3	9	..	..	..	..	7	..	..	..	1	..
8.	Palghat	73	148	49.32	4	7	1	..	..	..	..	..	..	1	59	..	..	1
9.	Malappuram	22	113	19.47	4	3	4	..	1	..	..	1	..	2	6	..	1	..
10.	Kozhikode	5	96	5.21	..	1	..	..	1	..	..	..	..	2	1	..	..	..
11.	Cannanore State	19	162	11.73	4	1	1	..	8	..	..	1	..	2	1	1	..	..
		280	1457	19.24	21	18	68	18	11	..	..	4	7	47	67	2	16	1

TABLE 2.4

District Average Yield of High Yielding Varieties—Winter crop of Paddy 1980 (dry Paddy in kg./hect.)

Sl. No.	District	Tri-veni	Jaya	Jyo- thi	Cul-28	IR-8	Aswa- thy	Supriya	IR-20	Rohini	H4	Mas- hoori	Sabari	Bhara- thy	Pan- kaj
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1.	Trivandrum	2672	..	2498	..	..	..	..	..	..	3123	..	..	..	..
2.	Quilon	..	2867	2496	3115	..	..	..	..	..	2917	..	2230	..	..
3.	Alleppey	2913	2874	3253	..	..	..	..	..	..	1735	..	..	2439	..
4.	Idukki	2285	..	3695	..	3338	..	..	4873	..	2845	..	..	..	..
5.	Kottayam	..	..	2216	2318	..	..	..	3048	..	2675	..	..	3051	..
6.	Ernakulam	..	1805	1989	2996	..	..	..	..	..	3083	..	..	..	..
7.	Trichur	2621	3127	1716	2125	..	..	..	..	..	..	2617	..	664	..
8.	Palghat	2349	3942	2991	..	..	..	..	..	..	1413	3487	..	..	2281
9.	Malappuram	1718	1845	1332	..	346	..	..	2621	..	2468	1693	..	4459	..
10.	Kozhikode	..	1442	..	..	3570	..	..	..	..	3818	1214	..	..	..
11.	Cannanore State	1886	1743	1436	..	3215	..	..	2072	..	3747	2808	3872	..	..
		2285	2863	2552	2401	2960	..	..	3144	..	2870	3505	3043	2827	2834



TABLE 3.1

## District-wise Yield Rate for High yielding and Other varieties of Paddy According to Cultural Practices during Winter, 1980

District	Varieties	Irrigated				Unirrigated							
		Chemically manured		Not manured		Chemically manured		Other manured					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
		No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.
Trivandrum	H	1	2672	..	..	..	..	1	2672	2	1680	..	..
	O	41	1982	..	..	..	..	41	1982	67	2179	3	1666
	T	42	1998	..	..	..	..	42	1998	69	2198	3	1666
Quilon	H	2	3170	..	..	..	..	2	3170	10	2636	1	1753
	O	12	2836	..	..	..	..	12	2836	109	2704	16	2235
	T	14	2882	..	..	..	..	14	2882	119	2698	17	2253
Alleppey	H	11	2890	..	..	..	..	11	2890	22	3013	..	..
	O	7	2715	..	..	1	..	8	2377	76	2387	58	722
	T	18	2823	..	..	1	..	19	2674	98	2529	58	722
Kottayam	H	18	2457	..	..	..	..	18	2457	33	2383	..	..
	O	11	2376	..	688	..	..	12	2236	39	2503	3	1306
	T	29	2426	..	683	..	..	30	2368	72	2447	3	1306
Idukki	H	7	3373	..	3237	1	1382	10	3147	8	2634	1	2065
	O	10	2684	..	..	..	..	10	2684	34	2927	..	..
	T	17	2967	..	3237	1	1382	20	2915	42	2871	1	2065
Ernakulam	H	14	2356	..	..	..	..	14	2356	1	2814	..	..
	O	83	1942	..	2281	..	..	90	1966	39	2068	16	1119
	T	97	2001	..	2281	..	..	104	2020	40	2086	16	1119
Trichur	H	11	2597	..	..	..	..	11	2597	12	2188	2	378
	O	25	2019	..	1751	1	2363	37	1947	37	2171	35	1238
	T	36	2194	..	1751	1	2363	48	2096	49	2176	37	1192
Palghat	H	61	3506	..	2953	2	1833	64	3445	9	2987	..	..
	O	22	3033	..	1898	1	3340	26	2929	39	2189	10	2174
	T	83	3385	..	2163	3	2334	90	3296	48	2339	10	2174
Malappuram	H	5	2673	..	1929	..	..	7	2460	13	1536	2	966
	O	13	1851	..	2018	..	..	24	1926	41	1664	22	1783
	T	18	2079	..	2004	..	..	31	2048	54	1633	24	1719
Kozhikode	H	1	3501	..	..	..	..	1	3501	2	2846	2	4396
	O	4	1350	..	..	1	1754	5	1432	43	1468	39	1167
	T	5	1780	..	..	1	1754	6	1776	45	1529	41	1216
Cannanore	H	12	2739	..	..	..	..	12	2739	6	2760	1	2019
	O	46	2005	..	2048	1	698	71	2001	47	1790	21	1547
	T	58	2157	..	2048	1	698	83	2109	53	1899	22	1569
State	H	143	2974	..	2672	3	1648	151	2936	118	2509	9	1425
	O	274	2144	..	1954	5	1589	336	2103	571	2235	223	1280
	T	417	2428	..	2011	8	1612	487	2362	689	2280	232	1288

TABLE 3.1 (Contd.)

District	Varieties	Unirrigated (Contd.)			Total			Treated with pesticides			Not treated with pesticides		
		No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.	No. of expts.	Mean yield of dry paddy in Kg./hect.
(1)	(2)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	
Trivandrum	H	..	..	2	1680	..	..	..	2765	..	..	3	
	O	..	..	70	2157	..	..	..	2135	..	..	74	
	T	..	..	72	2175	..	..	..	2160	..	..	77	
Quilon	H	..	..	11	2555	..	..	..	2650	..	..	7	
	O	..	2096	126	2647	..	..	..	2792	..	..	114	
	T	1	2096	137	2638	..	..	..	2763	..	..	121	
Alleppey	H	..	..	22	3013	..	..	..	3040	..	..	4	
	O	..	975	143	1625	..	..	..	2668	..	..	106	
	T	9	975	165	1810	..	..	..	2814	..	..	110	
Kottayam	H	..	..	33	2383	..	..	..	2418	..	..	11	
	O	..	825	44	2345	..	..	..	2489	..	..	14	
	T	2	825	77	2360	..	..	..	2453	..	..	25	
Idukki	H	..	..	10	2491	..	..	..	2781	..	..	2	
	O	..	1785	36	2917	..	..	..	2864	..	..	5	
	T	2	2777	46	2826	..	..	..	2838	..	..	7	
Ernakulam	H	..	..	1	2814	..	..	..	2797	..	..	15	
	O	..	1810	75	1797	..	..	..	2054	..	..	103	
	T	20	1810	76	1809	..	..	..	2157	..	..	108	
Trichur	H	..	..	15	1930	..	..	..	2322	..	..	8	
	O	..	1926	73	1720	..	..	..	2088	..	..	65	
	T	1	1960	88	1757	..	..	..	2155	..	..	73	
Palghat	H	..	..	9	2987	..	..	..	3049	..	..	36	
	O	..	..	49	2185	..	..	..	2908	..	..	56	
	T	..	..	58	2310	..	..	..	2866	..	..	92	
Malappuram	H	..	..	15	1462	..	..	..	1883	..	..	5	
	O	..	2018	67	1724	..	..	..	1720	..	..	62	
	T	4	2018	82	1677	..	..	..	1780	..	..	67	
Kozhikode	H	..	..	4	2524	..	..	..	2968	..	..	2	
	O	..	1486	86	1332	..	..	..	1819	..	..	74	
	T	4	1486	90	1385	..	..	..	1990	..	..	76	
Cannanore	H	..	..	7	2653	..	..	..	2706	..	..	..	
	O	..	2018	72	1733	..	..	..	1969	..	..	80	
	T	4	2018	79	1813	..	..	..	2141	..	..	80	
State	H	..	..	129	2422	..	..	..	2651	..	..	83	
	O	..	1902	841	1964	..	..	..	2266	..	..	753	
	T	47	1629	970	2026	..	..	..	2387	..	..	836	

TABLE 4.1

## Estimates of Area Mean Yield Production of Rice for the year Summer crop of Paddy, 1980

Sl. No.	Taluk and district	No. of Expts.	Area in hectares	Mean yield of dry paddy in kg./hectares	Standard error	Production of rice in tonnes
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Neyyattinkara	24	400	1636	264	430
2.	Trivandrum	24	280	1422	376	262
3.	Nedumangad	24	433	1048	316	298
4.	Chirayinkil	24	124	777	232	63
	Trivandrum district	96	1237	1296	165	1053
5.	Quilon	24	215	1447	429	204
6.	Kottarakkara	18	85	788	252	44
7.	Kunnathur	7	85	736	272	41
8.	Pathanapuram	6	13	1214	580	10
9.	Pathanamthitta	6	197	2777	..	359
10.	Karunagappally	6	308	1162	..	235
	Quilon district	67	903	1505	246	893
11.	Karthigappally	24	3482	3089	407	7067
12.	Mavelikkara	23	2681	4166	1580	7338
13.	Chengannur	22	1950	4014	488	5142
14.	Thiruvalla	23	2289	3025	496	4549
15.	Kuttanad	23	17742	4328	220	50449
16.	Ambalapuzha	21	950	3494	..	2181
17.	Shertallay	..	..	..	..	..
	Alleppey district	136	29094	4014	217	76726
18.	Changanacherry	15	2755	3800	1656	6878
19.	Kanjirappally	..	..	..	..	..
20.	Kottayam	24	6144	3349	676	13497
21.	Vaikom	6	442	2616	..	760
22.	Meenachil	6	214	3078	..	433
	Kottayam district	51	9545	3439	694	21568
23.	Peermade	..	12	2215(a)	..	17
24.	Devicolam	..	243	2215(a)	..	354
25.	Udumbanchola	..	..	..	..	..
26.	Thodupuzha	..	..	..	..	..
	Idukky district	..	255	2215	..	371
27.	Kothamangalam	20	840	2244	..	1238
28.	Muvattupuzha	20	1262	2215	..	1837
29.	Cochin	..	..	..	..	..
30.	Kanayannur	22	481	1886	..	596
31.	Kunnathunad	21	7299	2092	140	10032
32.	Alwaye	27	7076	2708	380	12589
33.	Parur	6	2270	2816	..	4200
	Ernakulam district	116	19228	2414	200	30492
34.	Cranganore	5	51	1692	176	57
35.	Mukundapuram	37	9681	2795	332	17777
36.	Trichur	24	7881	2810	256	14550
37.	Thalappally	24	2447	2367	640	3805
38.	Chowghat	24	1199	3050	392	2403
	Trichur district	114	21259	2763	194	38592
39.	Chittur	24	1538	3041	376	3073
40.	Alathur	23	88	2827	248	163
41.	Palghat	24	476	2958	168	925
42.	Ottappalam	30	992	2302	141	1500
43.	Mannarghat	25	965	2053	188	1302
	Palghat district	126	4059	2611	155	6963
44.	Perinthalmanna	27	877	2153	256	1241
45.	Ponnani	23	1468	3650	364	3520
46.	Tirur	22	2388	2755	556	4322
47.	Ernad	30	770	1880	356	951
	Malappuram district	102	5503	2775	268	10034
48.	Kozhikode	30	953	2577	128	1614
49.	Quilandy	19	1837	1336	232	1612
50.	Badagara	24	212	1285	252	179
51.	South Wynad	20	4343	1557	316	4443
	Kozhikode district	93	7345	1626	196	7848
52.	North Wynad	20	2565	2712	304	4570

(a)—Average yield of Muvattupuzha taluk

TABLE 4.1—(contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
53.	Tellicherry	34	532	1403	120	490
54.	Cannanore	30	109	1584	358	113
55.	Taliparamba	30	590	2011	196	780
56.	Hosdurg	30	1152	2334	244	1767
57.	Kasargode	33	1909	2608	204	3271
	Cannanore district	177	6857	2440	135	10991
	State	1078	105285	2971	105	205531

TABLE 4.2

Estimated area, mean yield and production of rice relating to Summer crop of paddy 1979 and 1980

Sl. No.	District	Area in hectares		Mean yield of dry paddy in kg./hectares		Production of rice (Tonnes)	
		1979	1980	1979	1980	1979	1980
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Trivandrum	1494	1237	1251	1296	1228	1053
2.	Quilon	840	903	1035	1505	572	893
3.	Alleppey	29576	29094	4031	4014	78322	76726
4.	Kottayam	10206	9545	3297	3439	22111	21568
5.	Idukki	274	255	1806	2215	325	371
6.	Ernakulam	19448	19228	1952	2414	24940	30492
7.	Trichur	21929	21259	2207	2763	31795	38592
8.	Palghat	3476	4059	2206	2611	5038	6963
9.	Malappuram	5644	5503	2731	2775	10127	10034
10.	Kozhikode	7415	7345	2208	1625	10758	7848
11.	Cannanore	6382	6857	2470	2440	13342	10991
	State	106684	105285	2832	2971	198558	205531

TABLE 4.3

Summer crop of Paddy 1980—Analysis of variance of Plot yield pooled for the state in kg./Plot of 1/400th an hectare

Source of variation	Sum of squares	Degrees of freedom	Mean sum of square (variance)	Variance ratio (Calculated)*
(1)	(2)	(3)	(4)	(5)
Between taluk	6131.89	49	125.14	*24.54
Between villages within taluk	2718.78	138	19.70	*3.86
Within villages within taluk	4935.99	890	5.10	..
Total	13786.66	1077	149.94	

\* Significant at 1% level

TABLE 4.4

Frequency distribution of plot yield—Summer—1980

Sl. No.	Class interval kg./hect. (wet paddy)	Trivandrum	Quilon	Alleppey	Kottayam	Idukki	Ernakulam	Trichur	Palghat	Malappuram	Kozhikode	Cannanore	State
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1.	Below 500	14	16	..	..	..	..	5	2	3	7	5	52
2.	500—699	6	5	..	..	..	..	..	..	3	4	..	18
3.	700—899	13	6	..	..	..	..	2	..	4	13	6	44
4.	900—1099	11	3	3	..	..	..	1	1	3	6	12	40
5.	1110—1299	7	6	1	4	..	2	3	2	5	1	11	42

TABLE 4.4—(contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
6.	1300—1499	7	5	2	1	..	3	3	5	3	14	11	54
7.	1500—1699	7	1	1	..	..	9	5	10	5	5	22	65
8.	1700—1899	5	4	..	2	..	12	4	3	3	7	12	52
9.	1900—2099	4	2	5	1	..	11	5	7	8	13	11	67
10.	2100—2299	5	5	1	1	..	11	8	4	5	7	14	61
11.	2300—2499	2	1	1	1	..	16	8	12	7	5	8	61
12.	2500—2699	5	2	3	3	..	12	6	9	7	2	12	61
13.	2700—2899	3	2	8	1	..	12	6	11	3	..	11	57
14.	2900—3099	2	1	5	1	..	4	9	12	1	2	10	47
15.	3100—3299	3	2	6	2	..	5	4	10	6	..	7	45
16.	3300—3499	1	2	10	3	..	5	5	10	3	..	5	44
17.	3500—3699	..	1	10	4	..	3	3	3	4	1	1	30
18.	3700—3899	..	2	6	3	..	2	10	6	8	..	2	39
19.	3900—4099	..	..	9	5	..	2	6	4	2	2	6	36
20.	4100 and above	1	1	65	19	..	7	21	15	19	4	11	163
	All	96	67	136	51	..	116	114	126	102	93	177	1078

TABLE 4.5

## The results of driage experiments—Summer crop of Paddy—1980

Sl. No.	District	No of driage experiments		Total yield collected for driage experiments (kg.)	Total yield after driage operation (kg.)	Driage ratio Percentage
		Planned	Analysed			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Trivandrum	12	12	3.000	2.606	86.9
2.	Quilon	..	15	3.750	3.299	88.0
3.	Alleppey	..	18	4.500	4.062	90.3
4.	Kottayam	..	10	2.500	2.315	92.6
5.	Idukki	..	..	..	..	..
6.	Eriakulam	..	18	4.500	4.073	90.5
7.	Trichur	..	14	3.500	3.178	90.8
8.	Palghat	..	15	3.750	3.396	90.6
9.	Malappuram	..	12	3.000	2.724	90.8
10.	Kozhikode	..	12	3.000	2.719	90.6
11.	Cannanore	..	18	4.500	4.173	92.7
	State	..	144	36.000	32.545	90.4

TABLE 4.6

## Estimated mean yield of dry paddy (kg./hect.) during Summer season from 1975 to 1980

Taluk and district	1975	1976	1977	1978	1979	1980
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Neyyattinkara	2211	1914	1581	874	1184	1636
2. Trivandrum	2109	1877	1273	458	1565	1422
3. Nedumangad	1764	1496	1158	894	1186	1048
4. Chirayinkil	1789	1225	738	854	945	777
Trivandrum district	1975	1599	1262	791	1251	1296
5. Quilon	1141	1259	1322	1070	1387	1447
6. Kottarakkara	1385	1754	1147	827	1524	788
7. Kunnathur	1749	1891	1521	434	1432	736
8. Pathanapuram	..	..	929	683	2087	1214
9. Pathanamthitta	2779	1928	1316	683	2087	2777
10. Karunagapally	1865	2166	1018	923	304	1162
Quilon district	1660	1818	1250	896	1035	1505
11. Karthigapally	3233	3738	3717	4357	4655	3089
12. Mavelikkara	3077	2634	3016	3619	3625	4166
13. Chengannur	3384	3344	3535	2893	4041	4014
14. Thiruvalla	3151	3333	3293	4350	3899	3025
15. Kuttanad	3495	3049	3046	3650	3950	4328
16. Ambalapuzha	2685	2650	3046	1773	4116	3494
17. Sherthalai	..	..	..	..	..	..
Alleppey district	3327	3068	3300	3662	4031	4014

TABLE 4.6—(contd.)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
18.	Changanacherry	4850	4182	3304	2930	5140	3800
19.	Kanjirapally	..	..	..	..	..	..
20.	Kottayam	3199	3333	2536	2601	2719	3349
21.	Vaikom	2342	2680	1600	2106	..	2616
22.	Meenachil	2300	2902	2585	3670	..	3078
	Kottayam district	3409	3429	2594	2660	3297	3439
23.	Peermade	1974	3053	1836	1315	1806	2215
24.	Devikulam	..	..	1836	1315	1806	2215
25.	Udumbanchola	..	..	1836	..	..	..
26.	Thodupuzha	..	..	..	1315	..	..
	Idukki district	1974	3053	1836	1315	1806	2215
27.	Kothamangalam	1977	1323	1620	1548	1805	2244
28.	Muvattupuzha	2037	2108	1836	1315	1806	2215
29.	Cochin	..	..	..	..	..	..
30.	Kanayannur	1739	2070	1770	2090	2048	1886
31.	Kunnathunad	1899	1755	1609	1881	1809	2092
32.	Alwaye	1984	2310	2250	2421	2003	2708
33.	Parur	2508	1798	2465	2853	2201	2816
	Ernakulam district	2162	1983	2042	2236	1952	2414
34.	Cranganore	1750	1817	1568	2096	1498	1692
35.	Mukundapuram	1974	2134	2361	2380	2176	2795
36.	Trichur	2484	2061	2309	2987	2262	2810
37.	Thalappally	3235	3087	2440	2309	2133	2367
38.	Chowaghat	2069	3302	3507	2067	2369	3050
	Trichur District	2329	2317	2446	2577	2207	2763
39.	Chittur	3186	2081	1647	2196	2542	3041
40.	Alathur	3489	3461	2839	2337	2327	2827
41.	Palghat	3510	3644	3318	2872	3040	2958
42.	Ottappalam	2021	2261	1811	2450	2014	2302
43.	Mannarghat	2461	2095	1677	1436	1164	2053
	Palghat District	2547	2465	2123	2166	2206	2611
44.	Perinthalmanna	1832	3022	2465	2335	2528	2153
45.	Ponnani	3677	2468	3733	2408	2669	3650
46.	Tirur	3244	2994	2000	2516	3097	2755
47.	Eranad	1929	1948	1572	1582	1611	1880
	Malappuram District	3215	2614	2782	2295	2731	2775
48.	Kozhikode	2412	2165	1337	1602	1872	2577
49.	Quilandy	2136	1648	1579	1475	1441	1336
50.	Badagara	3381	2471	1293	1377	2020	1285
51.	South Wynad	1789	2593	1897	2057	2522	1557
	Kozhikode District	1983	2429	1754	1856	2208	1626
52.	North Wynad	2243	2518	2195	3292	3395	2712
53.	Tellicherry	1618	1900	1176	1636	1650	1403
54.	Cannanore	2005	1482	2180	1476	1608	1584
55.	Taliparamba	1402	1632	1379	2129	2183	2011
56.	Hosdurg	2394	2083	3098	2211	2962	2334
57.	Kasargode	2370	2660	2476	2245	3666	2608
	Cannanore District	2271	2477	2405	2476	3182	2440
	State	2936	2794	2497	2677	2832	2971

TABLE 5.1  
 Estimated area, mean yield and production of high yielding & other varieties of Paddy during Summer 1980

Districts	High Yielding Varieties				Others				Total
	Area Hectare	Mean yield of dry paddy kg./hect.	Production of rice (T)	Area Hectare	Mean yield of dry paddy kg./hect.	Production of rice (T)	Area hectare	Mean yield of dry paddy kg./hect.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trivandrum	744	1196	585	493	1445	468	1237	1295	1053
Quilon	366	1779	428	537	1318	465	903	1505	893
Alleppey	2091	3867	51052	9003	4340	25674	29394	4014	76726
Kottayam	8227	3523	19048	1318	2910	2520	9545	3439	21568
Idukki	215	2324	328	40	1636	43	255	2215	371
Ernakulam	3823	2492	6260	15405	2394	24230	19228	2414	30492
Trichur	9718	3176	20286	11541	2414	18306	21259	2763	38592
Palghat	2543	2947	4923	1516	2048	2040	4059	2611	6963
Malappuram	3646	3210	7688	1857	1923	2346	5503	2775	10034
Kozhikode	4303	1635	4622	3042	1614	3226	7345	1626	7848
Cannanore	1436	2829	2669	5421	2336	8322	6857	2440	10991
State	55112	3256	117889	50173	2658	87640	105285	2971	205531

TABLE 5.2  
 Estimated area, mean yield and production of high yielding variety of paddy during Summer 1979 and 1980

District	Area in hectares		Mean yield of dry paddy in kg./hect.		Production of rice in tonnes	
	1979	1980	1979	1980	1979	1980
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trivandrum	854	744	1180	1196	662	585
Quilon	176	366	1938	1779	224	428
Alleppey	24998	20091	4202	3867	69018	51052
Kottayam	9644	8227	3534	3523	22393	19048
Idukki	..	215	..	2324	..	328
Ernakulam	4314	3823	2068	2492	5863	6260
Trichur	5854	9718	2432	3176	9356	20286
Palghat	2018	2543	2673	2947	3543	4923
Malappuram	3174	3646	2993	3210	6244	7688
Kozhikode	4444	4303	2589	1635	7560	4622
Cannanore	940	1436	2721	2829	1681	2669
State	56416	55112	3414	3256	126544	117889





TABLE 6.1  
Districtwise Yield Rate for High yielding and Other Varieties of Paddy according to Cultural Practices during Summer—1980

District	Varieties	Irrigated						Unirrigated											
		Chemically manured			Other manured			Not manured			Total			Chemically manured			Other manured		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
		No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.	No. of expts.	Mean yield of dry paddy in kg./hect.
Trivandrum	H O T	36	1320	1	1392	1	0.000	36	1320	17	983	1	891						
	O T	44	862	1	1392	1	0.000	26	849	16	1896	1	891						
	H O T	60	1137	2	1725	1	3962	62	1122	33	1426	3	293						
Quilon	H O T	8	2082	2	1725	3	1021	10	1665	25	881	3	293						
	O T	16	1965	1	1725	1	1021	19	1998	7	973	3	293						
Alleppey	H O T	24	2005	2	1725	1	1021	29	1884	32	901	3	293						
	H O T	77	3814	1	1725	1	1021	77	3814	15	3695	1	891						
	O T	12	2304	1	1725	1	1021	12	2304	32	3873	1	891						
Kottayam	H O T	89	3610	1	1725	1	1021	89	3610	47	3816	1	891						
	H O T	13	3695	1	1725	1	1021	13	3695	14	3780	1	891						
	O T	10	2369	1	1725	1	1021	11	2300	13	3479	1	891						
Idukki	H O T	23	3118	1	1725	1	1021	24	3055	27	3635	1	891						
	H O T	..	..	..	..	..	..	..	..	..	..	..	..						
	O T	..	..	..	..	..	..	..	..	..	..	..	..						
Ernakulam	H O T	45	2485	2	1978	1	2715	48	2469	3	2938	1	2063						
	O T	61	2114	1	2987	1	1864	63	2124	1	2244	1	2063						
	H O T	106	2272	3	2314	2	2290	111	2273	4	2765	1	2063						
Trichur	H O T	55	3295	3	2428	1	..	58	3250	2	2427	..	..						
	O T	41	2426	9	1476	..	..	50	2255	3	1061	..	..						
	H O T	96	2924	12	1714	..	..	108	2789	5	1607	..	..						
Palghat	H O T	64	3072	3	1832	..	..	67	3016	8	2512	2	1367						
	O T	32	2166	9	2139	..	..	41	2160	4	2200	4	1767						
	H O T	96	2770	12	2062	..	..	108	2691	12	2408	6	1634						
Malappuram	H O T	59	3156	3	1857	..	..	62	3093	2	2522	1	4066						
	O T	17	2046	14	996	1	2889	32	1613	2	1614	3	1143						
	H O T	76	2908	17	1148	1	2889	94	2589	4	2058	4	1874						
Kozhikode	H O T	27	1823	8	1356	..	..	35	1717	8	2269	3	1470						
	O T	17	1562	6	1562	1	369	24	1512	16	1235	6	1017						
	H O T	44	1722	14	1444	1	369	59	1634	24	1579	9	1168						
Cannanore	H O T	76	2505	2	1465	..	..	78	2478	2	1753	..	..						
	O T	58	1890	24	1371	2	937	84	1719	9	1931	4	1806						
	H O T	134	2239	26	1378	2	937	162	2085	11	1899	4	1806						
State	H O T	460	2865	21	1713	3	906	484	2803	96	2164	7	1732						
	O T	288	1981	66	1452	8	1458	362	1873	103	2536	21	1267						
	H O T	748	2525	87	1515	11	1308	846	2405	199	2357	28	1383						

TABLE 6.1—(Concl'd.)

District	Varieties	Unirrigated (cont'd.)			Total			Treated with pesticides			Not treated with pesticides		
		No. of expts.	Mean yield of dry paddy in kg./hect.	(16)	No. of expts.	Mean yield of dry paddy in kg./hect.	(18)	No. of expts.	Mean yield of dry paddy in kg./hect.	(20)	No. of expts.	Mean yield of dry paddy in kg./hect.	(22)
(1)	(2)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)				
Trivandrum	H	..	..	18	978	46	1218	8	1138				
	O	..	..	16	1896	26	1483	16	866				
	T	..	..	34	1410	72	1313	24	957				
Quilon	H	..	..	25	881	23	1351	12	634				
	O	3	214	13	641	20	1886	12	715				
	T	3	214	38	799	43	1600	24	674				
Alleppey	H	..	..	15	3695	92	3795	..	..				
	O	..	..	32	3873	43	3433	..	3953				
	T	..	..	47	3816	135	3679	1	3953				
Kottayam	H	..	..	14	3780	26	3794	1	2294				
	O	..	..	13	3479	23	2956	1	1610				
	T	..	..	27	3635	49	3420	2	1952				
Idukki	H	..	..	..	..	..	..	..	..				
	O	..	..	..	..	..	..	..	..				
	T	..	..	..	..	..	..	..	..				
Ernakulam	H	..	..	3	2938	42	2585	9	2082				
	O	..	..	2	2154	40	2267	25	1897				
	T	..	..	5	2625	82	2430	34	1946				
Trichur	H	..	..	2	2427	53	3301	7	2632				
	O	1	0.000	4	796	35	2250	19	1956				
	T	1	0.000	6	1339	88	2882	26	2138				
Palghat	H	..	..	10	2282	58	2899	19	2986				
	O	..	..	8	1984	21	2497	28	1856				
	T	..	..	28	2150	79	2192	47	2313				
Malappuram	H	..	..	3	3037	52	3274	13	2358				
	O	..	..	5	1331	16	2124	21	1157				
	T	..	..	8	1971	68	3003	34	1616				
Kozhikode	H	..	..	11	2051	18	2287	28	1481				
	O	1	232	23	1135	13	1603	34	1222				
	T	1	232	34	1431	31	2000	62	1339				
Cannanore	H	..	..	2	1753	67	2475	13	2384				
	O	..	..	13	1893	44	1966	53	1556				
	T	..	..	15	1874	111	2273	86	1719				
State	H	..	..	103	2135	477	2853	110	1961				
	O	5	178	129	2238	281	2332	210	1483				
	T	5	178	232	2192	758	2660	320	1647				

TABLE 7.1

## Season-wise area, mean yield and production of high yielding varieties of paddy during 1979-80

Sl. No.	District	Area under high yielding varieties (hect.)				Mean yield of high yielding varieties (dry paddy kg./hect.)				Production of rice in tonnes			
		Autumn 1979	Winter 1980	Summer 1980	Total 1979-80	Autumn 1979	Winter 1980	Summer 1980	Annual average 1979-80	Autumn 1979	Winter 1980	Summer 1980	Total 1979-80
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1.	Trivandrum	2050	716	744	3510	2495	2767	1196	2275	3360	1302	585	5247
2.	Quilon	10637	1424	366	12427	2759	2734	1779	2727	19283	2558	428	22269
3.	Alleppey	12384	2076	20091	34551	3341	2883	3867	3620	27186	3931	51052	82169
4.	Kottayam	8313	4482	8227	21022	3151	2650	3523	3190	17213	7801	19048	44062
5.	Idukki	3287	1669	215	5171	3026	3100	2324	3021	6536	3399	328	10263
6.	Ernakulam	19998	4141	3823	27962	2485	2453	2492	2481	32648	6674	6260	45582
7.	Trichur	6975	8465	9718	25158	2306	2263	3176	2628	10570	12591	20286	43447
8.	Palghat	66215	49203	2543	117961	4281	3453	2947	3908	186284	111659	4923	302866
9.	Malappuram	8236	7060	3646	18942	2902	1967	3210	2616	15704	9162	7688	32554
10.	Kozhikode	1444	2287	4303	8034	1622	2435	1635	1860	1539	3659	4622	9820
11.	Cannanore	2998	3042	1436	7476	2240	3103	2829	2705	4413	6203	2669	13285
	State	142537	84565	55112	282214	3467	3041	3256	3298	324736	168939	117889	611564

TABLE 7.2

## Season-wise area, mean yield and production of rice in each district during 1979-80

Sl. No.	District	Area (hect.)				Mean yield (dry paddy kg./hect.)				Production of rice (tonnes)			
		Autumn 1979	Winter 1980	Summer 1980	Total 1979-80	Autumn 1979	Winter 1980	Summer 1980	Annual average 1979-80	Autumn 1979	Winter 1980	Summer 1980	Total 1979-80
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1.	Trivandrum	15560	15766	1237	32563	2269	2115	1296	2158	23200	21909	1053	46162
2.	Quilon	23933	25059	903	49895	2224	2741	1505	2470	34970	45121	893	80984
3.	Alleppey	31722	19243	29094	80059	2481	1808	4014	2876	51694	22857	76726	151277
4.	Kottayam	13222	10161	9545	32928	2808	2373	3439	2857	24398	15839	21568	61805
5.	Idukki	3459	4112	255	7826	2899	2974	2215	2917	6590	8036	371	14997
6.	Ernakulam	43075	38852	19228	101155	2204	2102	2414	2205	62365	53662	30492	146519
7.	Trichur	40975	48420	21259	110634	1860	2070	2763	2125	50067	65849	38592	154508
8.	Palghat	88981	85721	4059	178761	3481	3038	2611	3249	203505	171093	6963	381561
9.	Malappuram	39445	35209	5503	80157	2041	1921	2775	2039	52909	44419	10034	107362
10.	Kozhikode	9753	28673	7345	45771	1329	1931	1626	1754	8513	36400	7848	52761
11.	Cannanore	38248	28392	6857	73497	1970	2213	2440	2107	49492	41276	10991	101759
	State	346373	339608	105285	793266	2481	2359	2971	2494	567703	526461	205531	1299695

TABLE 7.3  
Season-wise area, mean yield and production of high yield varieties of rice in Kerala during the period from 1976-80

Agricultural year	Autumn			Winter			Summer			Total			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Area in hect.	Mean yield of dry paddy kg./hect.	Production of rice in tonnes	Area in hect.	Mean yield of dry paddy kg./hect.	Production of rice in tonnes	Area in hect.	Mean yield of dry paddy kg./hect.	Production of rice in tonnes	Area in hect.	Mean yield of dry paddy kg./hect.	Production of rice in tonnes	
1976-77	115764	2443	185784	74803	2777	136488	73407	2907	140183	263974	2666	462455	
1977-78	142129	3081	287710	89565	2831	166549	61599	3039	123036	293293	2996	577295	
1978-79	144909	3063	291604	77909	2643	135303	56416	3414	126544	279234	3017	553451	
1979-80	142537	3467	324736	84565	3041	168939	55112	3256	117889	282214	3298	261564	

TABLE 7.4  
Season-wise area, mean yield and production of rice in Kerala during the period from 1971-72 to 1979-80

Agricultural year	Autumn			Winter			Summer			Total			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Area (hect.)	Mean yield of dry paddy (kg./hect.)	Production of rice in tonnes	Area (hect.)	Mean yield of dry paddy (kg./hect.)	Production of rice in tonnes	Area in (hect.)	Mean yield of dry paddy (kg./hect.)	Production of rice in tonnes	Area (hect.)	Mean yield of dry paddy (kg./hect.)	Production of rice in tonnes	
1971-72	395293	2126	552246	381971	2378	596808	97888	3151	202684	875157	2351	1351738*	
1972-73	391900	2237	576192	382171	2426	603234	99623	2918	190941	873694	2527	1376367*	
1973-74	392765	2347	605595	380980	2028	507755	100930	2168	143719	874675	2187	1257069*	
1974-75	394927	2064	535515	384836	2382	602186	101703	2936	196200	881466	2303	1333931	
1975-76	375043	2241	552392	396392	2296	597975	104587	2632	180894	876022	2313	1331191	
1976-77	363822	2040	487647	381678	2344	587737	108874	2497	178619	854374	2234	1254003	
1977-78	365111	2300	551792	370859	2295	559190	104404	2677	183653	840374	2345	1294635	
1978-79	346827	2388	544171	345727	2333	530004	106684	2832	198558	799238	2423	1272733	
1979-80	348373	2481	567703	339608	2359	526491	105285	2971	205531	793266	2494	1299695	

\*Pooled estimates of State series and IADP series of experiments.

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