GOVERNMENT OF KERALA

REPORT ON THE RESULTS OF CROP CUTTING SURVEY ON PADDY—AUTUMN 1987-88

DEPARTMENT OF
ECONOMICS AND STATISTICS
TRIVANDRUM
1988

GOVERNMENT OF KERALA

*
* *
*

RESULTS OF CROP CUTTING SURVEY ON

PADDY - AUTUMN 1987-88

*
* *
*

DEPARTMENT OF ECONOMICS & STATISTICS

TRIVANDRUM

1988

FOREWORD

Crop estimation surveys on paddy are being conducted by the Department regularly since 1950, separately for each season viz. Autumn (Virippu), Winter (Mundakan) and Summer (Punja). This report deals with the object, area covered by the survey, the sampling techniques adopted, the results of the analysis of the data and the reliability of the results obtained from the survey on Autumn crop of paddy 1987-88.

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

Suggestions for the improvement of the report are welcome.

K. BALAKRISHNAN NAIR,
DIRECTOR OF ECONOMICS AND STATISTICS.

Trivandrum,
22.9.1988.

C O N T E N T S

.....

A P P E N D I X

---

1. **Introduction:-**

The Department of Economics and Statistics is regularly conducting yield estimation surveys on the most important food crop viz. paddy in the State every year. The main objective of the sample survey is to estimate the meanyield as well as the total production in the state. The survey is conducted separately during each of the three seasons viz. Autumn (Virippu), Winter (Mundakan) and Summer (Punja) in a year.

This report deals with the survey on the Autumn crop of paddy in the agricultural year 1987-88.

2. **Objectives of the Survey:-**

The main objectives of the survey were:-

1. To estimate the mean yield per hectare of dry paddy at the Block, District and the State level for each season.

2. To estimate the mean yield per hectare of High Yielding Varieties of paddy at the District level.

3. To study the difference in yield of paddy according to various cultivation practices.

3. **Period of the survey:-**

The period of the survey was from July 1987 to October 1987. The field work for the survey was conducted during this period in all the Blocks where the crop was raised during the season.

4. **Coverage:-**

The survey was designed to cover the whole state except the forest area.

5. **Sampling design:-**

The survey was conducted on a stratified sampling design. The sampling design hitherto followed for the sample survey under the scheme "Establishment of an Agency for Reporting Agricultural Statistics" was changed for framing block level estimates from the crop season khariff 1987-88 onwards. Blocks are considered as strata and investigator zones in each block forming sub-strata and the first stage unit. Paddy growing survey sub-divisions in the selected cluster form the second stage unit. In each zone a list of survey sub-divisions of wet and dry land plots growing paddy under HYV irrigated, HYV un-irrigated, local irrigated and local un-irrigated are prepared. The required number of plots are selected by using circular systematic sampling method from the

list. One Kandom each was chosen by simple random after serially numbering them anti-clockwise starting from the south west corner from the survey sub-division. They form the third stage unit. A square plot of side 5 metres located in the selected Kandom formed the ultimate sample unit and the crop in the demarcated plot harvested, threshed, winnowed and weighed. The weight of the cleaned grains and other relevant details such as irrigation status, application of fertilizers, manure, insecticides, pesticides etc. were recorded in the prescribed schedule. In each investigator zone, 6 experiments per season are to be conducted. However in corporations and Municipal areas the number of crop cutting experiments to be conducted in a season are restricted to 5 and 10 respectively.

The district is divided into blocks in rural areas and Municipalities and Corporations in the Urban areas, which are treated as stratum. These blocks are again divided into a number of investigator zones depending on the area of the block, nature of land etc. Corporation area is divided into 3 investigator zones and Municipality with an area of 10 sq. Kilometres and above are treated as one investigator zone. These investigator zones formed for the EARAS survey are treated as sub-stratum for the survey. The remaining small Municipalities are grouped with the adjoining blocks.

In each investigator zone, 100 clusters of 5 survey sub-division numbers as in the basic tax register are selected for the survey. These 100 clusters are allocated among the wet lands and dry lands in proportion to the area under these categories in the zone.

In each investigator zone, list of wet land survey sub-divisions and dry land survey sub-divisions as per the basic tax register is prepared separately in an orderly manner (one village after the other). For getting the required number of clusters from each list, equal number of survey sub-divisions from each list is selected using circular systematic sampling method. These plots will be the key plots for forming the clusters. These key plots together with the two other adjacent plots on either side (left & right in the horizontal directtion) stand facing it in south north direction form cluster. The wet land clusters of 5 survey sub-divisions each are visited every paddy season in an agricultural year in an investigator zone for the collection of area under paddy during the season. From these paddy growing plots in a season, 6 survey sub-division numbers are selected for crop cutting

for crop cutting survey.

From every block, three samples, each weighing 250 grams of wet paddy were collected at the time of harvest for conducting driage experiments. The first sample was taken at the beginning, the second towards the middle and the third towards the end of the harvest season. These samples were dried and weighed. The driage ratio thus obtained was utilised for the estimation of dry weight.

6. **Field work:-**

The field work of the survey was attended to by the Investigators under the immediate superivision of the Taluk Statistical Inspectors and Taluk Statistical Officers. The Deputy Directors of the Districts were in overall charge for the proper and timely conduct of the survey assisted by the District Officers and Additional District Officers.

The total number of crop cutting experiments planned in the state during Autumn 1987 was 3657 and the percentage response was 98.63

7. **Supervision:-**

The yield estimation survey was inspected at three stages viz. pre-harvest, harvest and post harvest stages by the Taluk level and District level officers. The Statistical Inspectors and Taluk Statistical Officers were made responsible to inspect atleast one experiment in each investigator zone and Deputy Director, District Officer and Additional District Officer atleast one each in a Block at harvest stage. The Statistical Inspector/Additional Statistical Inspectors had to conduct atleast one harvest stage inspection in each investigator zone subject to a minimum of 5 experiments in a zone. Harvest stage inspections were conducted during Autumn 1987 to the extend of 25% of the experiments analysed. The percentage inspection at the pre-harvest stage during the season was 7.60.

8. **Analysis:-**

On completion of the surveys for each season in a Block, the data collected were transmittedto the concerned District Office of the Department, and the consolidated data were forwarded to the headquarters by the Deputy Directors. Tabulation and analysis of the data so collected were done in the Agricultural Statistics Division of the Directorate. The procedure employed for estimation of various parametres at Block, District and State level is described in the ensuing paragraphs.

9. **Estimation:-**

Mean yield of paddy, its standard Error, and production of rice were estimated from the data collected through the surveys and Estimation of mean yield has been done separately for the following categories of paddy and a weighted average is computed to obtain the mean yield of all varieties together.

1. Paddy High Yielding Varieties Irrigated (HYV-I)
2. -do- UN-irrigated (HYV-UI)
3. Paddy Local Varieties Irrigated (L-I)
4. -do- un-irrigated (L-UI)

(i) Mean Yield of paddy at Block Level

The following formula has been utilised to estimate mean yield of paddy at Block level.

$$\bar{x}_p = \frac{\sum_{j=1}^{n_p} x_{pj} \times 400 \times d}{n_p} \quad \text{where,}$$

n_p = number of crop cutting experiments conducted on the pth category paddy in the Block.

x_{pj} = Weight of paddy (in Kg.) obtained from the jth experiment on the pth category paddy of the Block.

p = 1, 2, 3, 4 represents HYV-I, HYV-UI, Local-I, Local -UI respectively.

d = The weight of dry paddy per Kg. of the harvested produce obtained through driage experiments.

The experimental plot is $\frac{1}{400}^{th}$ of a hectare and hence $\bar{x}_p$ gives the mean yield of dry paddy per hectare of the p^{th} category at Block level.

Mean yield of dry paddy of the Block for all categories taken together is obtained by computing the weighted average of the mean yield of all the four categories, weights being the proportion of area under paddy of the respective classifications. Thus mean yield of dry paddy (all categories together) in Kg. per hectare of the Block is given by

$$\bar{x} = \frac{\sum_{p=1}^{4} a_p \bar{x}_p}{\sum_{p=1}^{4} a_p} \quad \text{where}$$

a_p is the area under the p^{th} category paddy in the Block.

Mean yield of paddy for the district is obtained as the weighted average of the mean yield of the Blocks in the District, weights being the proportion of area under the crop in the respective blocks. So also mean yield of paddy for the state is computed as the weighted average mean of yield of the Districts, weights being the proportion of area under the crop in the respective districts.

(ii) Standard error of block mean yield:-

Standard Error of mean yield per hectare of the p^{th} category paddy of the Block is computed using the formula.

$$s_p = \sqrt{\frac{M.S.S}{n_p}} \times 400 \text{ d, where}$$

n_p = no. of crop cutting experiments conducted on p^{th} category paddy of the Block.

$$MSS = \frac{TSS}{n_p - 1},$$

$$TSS = \sum_{j=1}^{n_p} x_{pj}^2 - \frac{\left(\sum x_{pj}\right)^2}{n_p}$$

x_{pj} = The weight of harvested produce obtained from jth cut on the pth category paddy of the Block.

Then Standard Error of the Block mean yield is given by

$$S = \sqrt{\frac{\sum_{p=1}^{4} (a_p s_p)^2}{\left(\sum_{p=1}^{4} a_p\right)^2}} = \frac{1}{\sum_{p=1}^{4} a_p} \sqrt{\sum_{p=1}^{4} (a_p s_p)^2}$$

where a_p represents the area of p^{th} category paddy in the block

The Standard Error of the District mean yield is obtained similarly which is given by

$$S = \sqrt{\frac{\sum_{i=1}^{n} (a_i S_i)^2}{\left(\sum_{i=1}^{n} a_i\right)^2}}$$ where

n = Number of Blocks in the District.
ai = Area under paddy in the ith block of the District.
Si = Standard error of the i^{th} Block mean yield.

Computation of the Standard Error of the State mean yield is also made utilising the same formula where 'n' will represent the number of districts in the State, 'ai' area under paddy in the i^{th} district and 'Si' the Standard Error of mean yield of the i^{th} District.

(iii) Production of rice:-

The estimate of mean yield obtained from crop cutting survey and that of area obtained from area enumeration under EARAS were utilised for computation of estimates on production of rice. The weight of clear rice is reckoned as 65.7% of dry paddy.

10. Results of the survey

General:- The total production of rice in the state during Autumn 1987 was estimated at 4,22,599 tonnes. The corresponding figure for the previous year was 4,61,992 tonnes. It shows that the rice production in the State has declined to the tune of about 40,000 tonnes. This is mainly due to the decrease in the area of paddy cultivation from 2,86,569 hectares in Autumn 1986 to 2,40,445 hectares in Autumn 1987.

The estimated area, mean yield and its standard error, production of rice together with the number of crop cutting experiments analysed in each block during Autumn 1987 are given in Table I in the Appendix.

For facilitating comparison, the mean yield of paddy during the Autumn season in the state for 86-87 and 87-88 are furnished below and that of taluks and districts for the last six years are given in table - 2 in the Appendix.

Year	Crop season	Area under Paddy	Mean yield Kg/ha.	Production of rice (tonnes)
1986	Autumn	286169	2488	468409
1987	Autumn	240445	2661	420343

During the period, the lowest yield rate of wet paddy obtained per hectare was 486 Kg. and in about 4% of the experimental plots had the highest yield rate of above 4000 Kg/hectare.

With a view to find out the driage ratio of dry paddy to wet paddy, 168 driage experiments were conducted. The lowest driage ratio of 0.87 was obtained for Quilon District and the highest ratio of 0.94 for Kasaragode District. The driage ratio for the state for Autumn 1987 was estimated 0.90.

11. **High Yielding Varieties:-**

Table 3 in the appendix gives the estimated area, mean yield and production of high yielding varieties and other varieties of paddy in each district and State during Autumn 1987. about 23% of the total area under paddy was brought under High Yielding Varieties. About 25% of the total outturn of rice in the state during the season was from the High Yielding Variety. The average yield of high yielding varieties for the State showed an increase of about 12% over other varieties. The district-wise yield rates of High Yielding Variety varied from 2194 kg/hectare in Kozhikode District to 3777 Kg/hectare in Kasargode District.

About 32% of the experimental plot, covered by the survey were grown with High Yielding Variety of paddy during Autumn 1987. High Yielding Variety of paddy in the order of cultivator's preference was Jyothi, Jaya and Pavizham. The highest state average yield of 6174 Kg/hectare was from Suryaprabha cultivated in Trivandrum District. This was followed by 5855 kg/hectare from Pavizham in Palghat District and 5161 kg/hectare from IR-8 in Kasargode District. The names of HYV of paddy corresponding to the highest district average together with the highest meanyield and the number of experimental plots where the crop was raised in each district during Autumn 1987 are indicated in the table given below:-

District-wise high yielding vareities with highest average yield - Autumn 1987-88

Sl. No.	District	HYV corresponding to the highest dist.average	Highest average yield of dry paddy kg/hect.	No.of experimental plots where HYV in col. 3 is raised
1	2	3	4	5
1.	Trivandrum	Suryaprabha	6174	2
2.	Quilon	Karthika	4203	1
3.	Pathanamthitta	IR-8	3835	1
4.	Alleppey	Bharathy	3069	2
5.	Kottayam	Culture 20	4690	1
6.	Idukki	Jyothi	4018	2
7.	Ernakulam	Jyothi	3496	69
8.	Trichur	Massoori	3577	2
9.	Palghat	Pavizham	5855	1
10.	Malappuram	Triveni	5149	4
11.	Kozhikode	IR-8	3016	10
12.	Wayanad	-	-	-
13.	Cannanore	Culture	3762	1
14.	Kasargode	IR-8	5161	2

12. Cultivation practices:-

Autumn crop of paddy is considered to be mainly a rain crop. But irrigation is usually resorted to pre-sowing field operations of Autumn crop in certain parts of the State depending upon the availability of the rain.

It was reported that 16% of the experimental plot, were irrigated during Autumn 1987. Chemical fertilizers were applied to about 98% of the irrigated plots. 2% of the irrigated plots were provided with other types of manures like farm yard manure, green manure, compost manure etc. The percentage of irrigated plots left unmanured during the season was negligible.

As far as un-irrigated plots were concerned, nearly 79% of them were found to have been applied with chemical fertilizers; other manures were applied to about 16% of the plots and the remaining 5% of the plots received no manure of any sort.

It was reported that crops in about 31% of the experimental plots were treated with insecticides and pesticides though there was no report of severe attack of pests and diseases from any part of the state during the season under reference.

In the case of plots where high yielding varieties were grown, it was found that about 15% of them received irrigation during Autumn 1987. About 97% of the irrigated plots with High Yielding Varieties have been brought under chemical fertilizers. About 94% of the un-irrigated plots with High Yielding Varieties have received Chemical fertilizers while other manures were applied to about 4% of the un-irrigated plots with H.Y.V. However, about 2% of the un-irrigated plots with HYV received no manure during Autumn 1987.

Though there was no report of disease or pest attack of considerable nature on the HYV crops in the state, it was found that about 45% of the HYV plots were treated with pesticides or insecticides during the season under reference.

The estimated average yield of High Yielding and other Varieties of paddy in irrigated and un-irrigated plots, manured and un-manured plots and plots treated and un-treated with insecticides and pesticides together with the number of experiments obtained in the survey under each of these categories in respect of Autumn crop of paddy 1987 are given in Table 4 in the Appendix.

APPENDIX

Table 1 Block-wise estimates of area, mean-yield and production of rice - Autumn 1987

Block and District	No.of experiments Planned	Analysed	Area in hect.	Mean yield of dry paddy Kg/ha.	Standard error	Production of rice in tonnes
1	2	3	4	5	6	7
Athiyannur	11	11	413	2989	314	811
Nemom	18	16	905	2577	88	1532
Parassala	18	15	785	3294	229	1699
Perumkadavila	30	29	1159	3546	222	2700
Kazhakuttom	36	36	693	1819	141	828
Trivandrum Rural	18	18	178	2121	221	248
Nedumangad	30	29	541	2774	153	986
Vellanad	29	29	927	2584	136	1574
Vamanapuram	18	18	1399	2643	214	2429
Chirayinkil	18	16	779	2665	191	1364
Varkala	24	23	785	2239	155	1155
Kilimanoor	30	29	1859	2785	182	3402
Corporation:						
Trivandrum	6	6	321	2821	249	595
Municipalities:						
Attingal	-	-	-	-	-	-
Nedumangad	10	10	176	2594	248	300
Varkala	-	-	-	-	-	-
TRIVANDRUM DISTRICT	296	285	10920	2735	58	19623

(contd.)

(Table 1 contd.)

1	2	3	4	5	6	7
Anchalummudu	11	10	58	2913	547	111
Chittumala	16	16	497	2104	281	687
Ithikara	30	30	1432	2673	187	2515
Mughathala	18	18	757	2638	275	1312
Karunagappally	18	18	696	1706	200	780
Chavara	12	12	378	2903	372	721
Oachira (portion)	12	12	560	2070	239	781
Sasthamcottah (Portion)	24	24	1375	2847	186	2577
Kottarakara	30	30	1621	2921	72	3111
Vettikkavala	29	28	2045	3362	235	4517
Chadayamangalam	30	30	1828	3703	197	4447
Anchal	30	30	1279	3342	171	2808
Pathanapuram	29	29	1191	3498	139	2737
Municipalities:						
Punalur	10	10	205	3704	239	499
Quilon	3	3	10	1370	31	9
QUILON DISTRICT	**302**	**300**	**13932**	**2987**	**56**	**27612**
Parakkode	24	24	1770	3429	147	3987
Pandalam (Portion)	18	18	418	3224	157	881
Sasthamcotta (Portion)	6	6	385	2847	372	715
Kulanada (Portion)	14	12	182	3104	141	369
Konni	24	22	478	3796	257	1192
Elanthoor	24	22	527	3345	294	1158
Ranni	2	2	17	2865	0	32
Mallappally	19	19	170	3465	433	387
Koipuram	16	16	121	2315	219	184
Pulikeezh	11	11	419	2132	411	587
Municipalities:						
Pathanamthitta	10	10	126	3075	104	255
Thiruvalla	1	1	13	3630	0	31
PATHANAMTHITTA DIST.	**169**	**163**	**4626**	**3245**	**139**	**9778**
Thycattusserry	18	16	876	1486	244	855
Pattanakkad	17	16	970	1448	191	923
Kanjikuzhi	18	17	939	883	243	545
Aryad	18	18	388	1122	296	286
Ambalapuzha	12	12	1071	3698	428	2602
Haripad	18	18	2131	2831	208	3964
Muthukulam	18	18	1150	1852	322	1399
Oachira (Portion)	6	6	349	2070	247	455
Chengannur	16	16	1553	3273	552	3340
Kulanada (Portion)	6	6	248	3104	124	508
Mavelikara	18	17	1323	2930	588	2547
Bharanikavu	17	17	1625	2402	53	2564
Pandalam (Portion)	6	6	427	3224	362	909
Veliyanad	7	7	1583	4020	278	4181
Champakulam	11	11	4678	4033	180	12396
Municipalities:						
Alleppey	-	0	72	1313	-	62
Chengannur	6	6	65	2014	468	86

(Contd.)

(Table 1 contd.)

1	2	3	4	5	6	7
Kayamkulam	10	10	340	2207	300	493
Mavelikara	3	2	3	2264	0	4
Sherthalai	10	9	67	504	60	22
ALLEPPEY DISTRICT	**235**	**228**	**19858**	**2923**	**90**	**38141**
Madappally	20	20	731	2674	221	1284
Vazhoor	5	5	29	2132	192	41
Kanjirappally	-	-	-	-	-	-
Pampady	15	15	159	3561	131	372
Ettumanoor	23	21	2808	4092	341	7549
Pallam	26	25	972	3733	300	2384
Uzhavoor	30	30	1480	3188	130	3100
Lalam	31	31	267	2919	188	512
Erattupettah	-	-	-	-	-	-
Vaikom	30	28	1269	3080	186	2568
Kaduthuruthy	27	27	2053	3317	291	4474
Municipalities:						
Changanacherry	-	-	-	-	-	-
Kottayam	-	-	-	-	-	-
Palai	-	-	10	3805	-	25
KOTTAYAM DISTRICT	**207**	**202**	**9778**	**3473**	**126**	**22309**
Thodupuzha	27	26	620	3400	447	1385
Elamdesam	25	24	1130	3555	126	2639
Idukki	1	1	18	3759	0	44
Arudai	-	-	-	-	-	-
Adimali	4	4	151	2741	418	272
Devicolam	-	-	-	-	-	-
Kattappana	-	-	-	-	-	-
Nedumkandom	-	-	-	-	-	-
Municipality:						
Thodupuzha	10	10	193	3659	246	464
IDUKKI DISTRICT	**67**	**65**	**2112**	**3462**	**152**	**4804**
Alangad	12	12	2663	2487	103	4351
Angamali	24	24	3993	2517	57	6604
Edappally	12	12	1529	1916	251	1925
Koovappady	30	30	3278	2345	190	5051
Kothamangalam	36	36	2518	3037	98	5025
Mulamthuruthy	23	23	1552	1937	269	1975
Muvattupuzha	30	30	1611	3111	412	3293
Palluruthy	12	12	599	1674	226	659
Pampakuda	36	36	1360	2974	207	2657
Parakadavu	12	12	2004	2478	207	3262
Parur	15	15	1075	1922	660	1357
Vadavukode	30	30	2835	2477	94	4613
Vazhakulam	39	39	3136	2221	132	4576
Vypeen	17	17	1424	1009	174	944
Vyttila	6	6	139	1936	423	177
Municipalities:						
Angamali	10	10	336	2473	251	546
Kothamangalam	10	10	478	2477	304	778

(Contd.)

(Table 1 contd.)

1	2	3	4	5	6	7
Muvattupuzha	10	10	83	2696	121	147
Perumbavoor	10	10	40	1941	223	51
Thrippunithura	10	10	211	1681	201	233
Corporation:						
Cochin	3	3	180	1235	447	146
ERNAKULAM DISTRICT	**387**	**387**	**31044**	**2372**	**46**	**48370**
Anthicaud	9	9	253	4091	569	680
Cherpu	20	20	500	2685	190	882
Ollukara	30	30	2674	2292	269	4027
Puzhakkal	28	28	1765	2321	257	2691
Chowannur	22	22	2426	2183	990	3479
Pazhayannur	32	31	4181	2394	192	6576
Wadakkancherry	34	33	4824	1928	159	6109
Chawakkad	14	14	88	2249	363	130
Mullasserry	9	9	545	2181	377	781
Thalikulam	9	9	37	1645	174	40
Chalakudy	16	16	1745	2046	84	2346
Irinjalakuda	12	12	596	2181	248	854
Kodakara	20	20	1620	1903	177	2025
Mala	18	18	1862	1566	189	1916
Vellangallur	15	15	1352	2119	318	1882
Kodungallur	4	4	17	1613	212	18
Mathilakom	14	14	85	698	155	39
Municipalities:						
Chavakkad	–	–	211	2633	–	365
Chalakudy	–	–	375	2033	–	501
Irinjalakuda	–	–	107	2489	–	175
Kodungallur	3	3	13	1776	135	15
Trichur	–	–	104	2252	–	154
TRICHUR DISTRICT	**309**	**307**	**25380**	**2140**	**65**	**35685**
Alathur	48	48	10068	4352	304	28786
Kuzhalmannam	45	45	9838	2896	329	18720
Palghat	42	42	9668	2896	263	18397
Kollangode	45	45	12993	2988	244	25503
Nenmara	18	18	2638	4503	424	7804
Chittur	39	39	5144	4288	153	14491
Mannarghat	54	50	5052	1799	150	5970
Attappadi	–	–	–	–	–	–
Sreekrishna Puram	41	41	4200	1935	126	5340
Pattambi	48	42	4651	1876	129	5731
Ottappalam	36	36	4648	1956	181	5974
Thrithala	34	34	2148	1869	76	2638
Municipality:						
Chittur - Thathamangalam	10	10	1477	5727	0	5557
Palghat	10	10	1186	2909	486	2267
Shornur	10	10	665	2241	355	979
PALGHAT DISTRICT	**480**	**470**	**74376**	**3032**	**77**	**148157**
Malappuram	18	18	1217	1822	269	1457
Manjeri	22	22	1171	2562	325	1971

(Contd.)

(Table 1 contd.)

1	2	3	4	5	6	7
Kondotty	18	18	1647	1744	43	1887
Vandoor	12	12	3805	1932	260	4830
Nilamboor	12	12	2087	1489	290	2041
Andathode	28	28	762	2021	133	1012
Ponnani	18	18	912	2233	241	1338
Perunthalmanna	37	37	2082	1816	90	2484
Mankada	24	24	2370	2501	127	3894
Thirurangadi	30	30	1209	1741	86	1383
Vengara	29	29	517	1855	80	630
Tirur	25	25	1783	1572	309	1841
Kuttipuram	18	18	1162	2055	100	1569
Thanur	24	24	1013	1250	158	832
Municipalities						
Manjeri	10	10	549	3330	254	1201
Malappuram	-	-	230	2073	-	313
Tirur	-	-	174	1524	-	174
MALAPPURAM DISTRICT	**325**	**325**	**22690**	**1935**	**65**	**28857**
Balusseri	19	19	333	1120	344	245
Perambra	12	12	211	1731	222	240
Meladi	18	18	231	1272	146	193
Pandalayani	18	18	297	1202	131	234
Kozhikode	24	20	246	2097	270	339
Chelannur	21	21	167	1267	145	139
Koduvally	20	20	702	1967	183	907
Kunnamangalam	25	25	983	1271	166	821
Badagara	17	16	186	2242	384	274
Thuneri	23	23	281	1592	210	294
Kunnummel	12	12	73	1793	317	86
Thodannur	22	22	74	1399	113	68
Corporation						
Calicut	10	10	68	1052	144	47
Municipality						
Badagara	2	2	3	2029	0	4
KOZHIKODE DISTRICT	**243**	**238**	**3855**	**1586**	**113**	**3891**
Kalpetta			NO AUTUMN PADDY			
Mananthoddy			-do-			
Sulthan Battery			-do-			
WAYANAD DISTRICT	-	-	-	-	-	-
Kuthuparamba	42	42	795	2579	349	1347
Peravoor	42	42	650	2199	85	939
Iritty	51	51	1155	2419	162	1836
Tellicherry	24	24	564	2394	359	887
Cannanore	12	12	349	1675	336	384
Edakkad	36	36	902	2875	167	1704
Thaliparamba	48	48	3218	2245	120	4747
Payyannur	64	64	3692	2263	132	5490
Irikkur	48	48	1358	2237	84	1996

(contd.)

(Table 1 contd.)

1	2	3	4	5	6	7
Municipality						
Tellicherry	3	3	12	4210	376	33
Cannanore	5	5	5	1218	200	4
CANNANORE DISTRICT	**375**	**375**	**12700**	**2321**	**61**	**19367**
Kanhangad	43	43	1397	3026	152	2777
Neeleswar	63	63	2235	2403	122	3529
Manjeswar	72	72	2930	2579	103	4964
Kasaragod	69	69	1507	3062	139	3032
Municipalities						
Kasaragod	5	5	302	3452	651	685
Kanhangad	10	10	803	1931	320	1018
KASARAGOD DISTRICT	**262**	**262**	**9174**	**2655**	**65**	**16005**
STATE	**3657**	**3607**	**240445**	**2675**	**28**	**422599**

Table 2 **Taluk-wise estimates of mean yield of dry paddy (Kg./Hect.) during autumn season from 1982 to 1987**

Taluk and district	1982	1983	1984	1985	1986	1987
1	2	3	4	5	6	7
Neyyattinkara	2640	2671	2887	3430	3719	3210
Trivandrum	2500	2214	3084	3293	2670	2027
Nedumangad	2093	2201	2705	2541	2340	2653
Chirayinkil	2497	2255	2516	3441	2556	2547
TRIVANDRUM DISTRICT	**2419**	**2338**	**2761**	**3188**	**2826**	**2658**
Quilon	1858	1768	2003	1884	1931	2509
Kottarakkara	2883	2387	2394	3490	2761	3333
Kunnathur	2659	1681	1716	2172	2302	2534
Pathanapuram	3525	3239	2945	3452	3156	3460
Pathanamthitta	2820	3174	-	-	-	-
Karunagappally	2643	2410	1754	2078	1992	2041
QUILON DISTRICT	**2715**	**2344**	**2219**	**2833**	**2534**	**2964**
Kozhencherry	-	-	2859	2662	3065	3456
Ranni	-	-	3224	2781	2891	2706
Adoor	-	-	3031	2132	2213	3435
Thiruvalla	-	-	2336	1841	1220	2586
Mallappally	-	-	2464	1756	1383	2959
PATHANAMTHITTA DISTRICT	-	-	**2801**	**2167**	**2111**	**3316**
Karthigappally	1971	2822	1967	806	1811	2284
Mavelikkara	2090	2522	1742	1575	1562	2597
Chengannur	2872	2927	2090	2310	2053	2841
Thiruvalla	2577	2550	-	-	-	-
Kuttanad	2902	2238	4297	2525	1490	4013

(Contd.)

(Table 2 contd.)

1	2	3	4	5	6	7
Ambalapuzha	630	3593	1999	2143	1358	2096
Sherthalai	1140	1214	1544	725	886	1156
ALLEPPEY DISTRICT	**2153**	**2464**	**2866**	**1492**	**1487**	**2758**
Changanacherry	3443	2708	2749	2044	1736	2565
Kanjirappally	2854	3905	2202	2558	3545	3801
Kottayam	3361	3980	3287	2178	2441	3880
Vaikom	3401	3314	3768	1298	2440	3141
Meenachil	2888	2488	2784	2702	2810	3128
KOTTAYAM DISTRICT	**3300**	**3391**	**3295**	**1881**	**2428**	**3391**
Peermade	3044	-	-	-	-	-
Devicolam	4498	2180	2526	3062	3573	2741
Udumbanchola	2995	-	2516	3064	3512	-
Thodupuzha	3157	3712	3327	3042	3338	3476
IDUKKY DISTRICT	**3603**	**2529**	**3071**	**3049**	**3406**	**3424**
Kothamangalam	2621	2619	2881	2539	2739	2946
Moovattupuzha	3258	2998	2894	2931	3309	3001
Cochin	2453	1844	1755	2199	1539	1254
Kanayannur	1593	2235	1995	2128	2206	1800
Kunnathunad	2371	1885	2517	2583	2465	2381
Alwaye	2620	2404	2892	2939	2151	2466
Parur	2248	1169	2276	2391	2108	2245
ERNAKULAM DISTRICT	**2485**	**2172**	**2573**	**2625**	**2394**	**2357**
Crangannore	1420	905	358	657	971	1151
Mukundapuram	2135	2174	2002	2112	2343	1946
Trichur	2359	2392	1893	1787	2315	2418
Thalappally	1913	2173	1849	1992	2355	2205
Chowghat	1066	1811	1010	1600	1756	2090
TRICHUR DISTRICT	**1966**	**2144**	**1823**	**1951**	**2310**	**2163**
Chittur	4549	3791	4648	3601	3843	3859
Alathur	4150	3748	4006	3878	4226	4134
Palghat	3933	2956	3474	2956	2628	2568
Ottapalam	2079	1989	2137	2146	1908	1914
Mannarghat	2035	1836	1887	1810	1789	1799
PALGHAT DISTRICT	**3560**	**3040**	**3455**	**3058**	**3105**	**3044**
Perinthalmanna	1909	1883	2143	1798	2795	2090
Ponnani	2053	1912	1841	2063	2239	2113
Tirur	1444	1729	1816	1595	1683	1671
Ernad	1636	1619	1938	2072	2151	2116
MALAPPURAM DISTRICT	**1687**	**1726**	**1945**	**1906**	**2201**	**1996**
Kozhikode	1380	1490	1329	1882	1417	1573
Quilandy	1315	1393	1421	1110	1187	1316

(contd.)

(Table 2 contd.)

1	2	3	4	5	6	7
Badagara	1584	1242	863	2039	1587	1727
South Wayanad	-	-	-	-	-	-
KOZHIKODE DISTRICT	**1405**	**1406**	**1259**	**1661**	**1367**	**1526**
Vythiri	1377	-	-	-	1377	-
Sulthan Battery	-	-	1377	1377	1377	-
Mananthody	1377	-	-	-	1377	-
WAYANAD DISTRICT	**1377**	**-**	**1377**	**1377**	**1377**	**Nil**
North Wayanad	-	-	-	-	-	-
Tellicherry	1954	1634	1478	2401	1800	2428
Cannanore	2191	1926	1952	2409	2543	2211
Taliparamba	1800	2041	1693	2251	2312	2178
Hosdurg	2326	2205	1969	2120	-	-
Kasaragod	2112	2213	2376	2873	-	-
CANNANORE DISTRICT	**2071**	**2027**	**1935**	**2408**	**2278**	**2252**
Hosdurg	-	-	-	-	2164	2594
Kasaragod	-	-	-	-	2552	2799
KASARAGOD DISTRICT	**-**	**-**	**-**	**-**	**2361**	**2700**
STATE	**2571**	**2417**	**2623**	**2514**	**2488**	**2661**

Table - 3

District-wise estimated area, mean yield and production of high yielding and other varieties of paddy - Autumn 1987-88

District/State	High yielding varieties			Other varieties			All varieties		
	Area (Hect)	Mean yield of dry paddy (Kg/hect)	Production of rice (in tonnes)	Area (hect)	Mean yield of dry dry paddy (Kg/hect)	Production of rice (in tonnes)	Area (hect)	Mean yield of dry paddy (Kg/hect)	Production of rice(in (tonnes)
1	2	3	4	5	6	7	8	9	10
Trivandrum	1679	3192	3521	9241	2561	15550	10920	2658	19071
Quilon	9572	3282	20642	4360	2265	6487	13932	2964	27129
Pathanamthitta	1630	3367	3606	2996	3288	6472	4626	3316	10078
Alleppey	6541	2726	11716	13317	2774	24269	19858	2758	35985
Kottayam	6727	3412	15081	3051	3344	6704	9778	3391	21785
Idukki	257	3630	613	1855	3395	4138	2112	3424	4751
Ernakulam	8590	2598	14661	22454	2265	33421	31044	2357	48082
Trichur	1968	2729	3529	23412	2115	32531	25380	2163	36060
Palghat	7755	3057	15575	66621	3042	133148	74376	3044	148723
Malappuram	3758	2577	6362	18932	1880	23390	22690	1996	29752
Kozhikode	1117	2194	1610	2738	1254	2256	3855	1526	3866
Wayanad	-	-	-	-	-	-	-	-	-
Cannanore	4198	2740	7558	8502	2010	11230	12700	2252	18788
Kasaragode	878	3777	2179	8296	2586	14094	9174	2700	16273
State	**54670**	**2969**	**106653**	**185775**	**2570**	**313690**	**240445**	**2661**	**420343**

Table 4 **District-wise number of experiments and mean yield of paddy (kg/hect.) according to various cultivation practices**

(Season: Autumn 1987-88)

District		Irrigated								Unirrigated									
		Chemically manured		Other manured		Not manured		Total		Chemically manured		Other manured		Not manured		Total		Treated with plant protection chemicals		Not treated with plant protection chemicals	
		No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y	No.of experiments	M.Y
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Trivandrum	HYV	7	4337	-	-	-	-	7	4337	49	2972	-	-	2	1104	51	2899	35	3146	23	2960
	Local	72	3069	-	-	-	-	72	3069	155	2324	-	-	-	-	155	2324	67	2610	160	2540
	Total	79	3181	-	-	-	-	79	3181	204	2480	-	-	2	1104	206	2466	102	2794	183	2592
Quilon	HYV	1	2616	-	-	-	-	1	2616	205	3249	3	2071	2	1087	210	3212	52	3168	159	3223
	Local	2	2389	-	-	-	-	2	2389	273	3062	15	1460	10	1888	298	2942	60	3024	240	2916
	Total	2	2389	-	-	-	-	2	2389	273	3062	15	1460	10	1888	298	2942	60	3024	240	2916
Pathanam-thitta	HYV	2	2728	2	3844	-	-	4	3286	71	3304	-	-	-	-	71	3355	52	3281	23	3352
	Local	-	-	3	3634	-	-	3	3634	84	3081	1	1570	-	-	85	3063	34	3288	54	2953
	Total	2	2728	5	3718	-	-	7	3435	155	3183	1	1570	-	-	156	3172	86	3284	77	3072
Alleppey	HYV	-	-	-	-	-	-	-	-	83	2474	1	135	-	-	84	2447	41	2516	43	2381
	Local	-	-	-	-	-	-	-	-	98	2645	22	701	24	1145	144	2098	43	3372	101	1556
	Total	-	-	-	-	-	-	-	-	181	2567	23	676	24	1145	228	2226	84	2954	144	1802
Kottayam	HYV	14	3265	-	-	-	-	14	3265	96	3233	-	-	-	-	96	3233	96	3339	14	2538
	Local	19	3605	-	-	-	-	19	3605	73	3171	-	-	-	-	73	3171	16	1912	76	3545
	Total	33	3461	-	-	-	-	33	3461	169	3206	-	-	-	-	169	3206	112	3135	90	3389
Idukki	HYV	-	-	-	-	-	-	-	-	5	3656	-	-	-	-	5	3656	4	3655	1	3661
	Local	13	3497	-	-	-	-	13	3497	47	3383	-	-	-	-	47	3383	40	3469	20	3285
	Total	13	3497	-	-	-	-	13	3497	52	3410	-	-	-	-	52	3410	44	3486	21	3303
Ernakulam	HYV	89	2663	-	-	-	-	89	2663	54	2462	-	-	1	1537	55	2446	107	2663	37	2340
	Local	108	2682	-	-	-	-	108	2682	135	1983	-	-	-	-	135	1983	97	2723	146	2008
	Total	197	2674	-	-	-	-	197	2674	189	2120	-	-	1	1537	190	2117	204	2692	183	2075

(contd.)

(Table 4 contd.)

1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Trichur	HYV	4	2344	-	-	-	-	4	2344	56	2838	5	1953	1	2717	62	2765	35	2924	31	2531
	Local	19	2459	-	-	-	-	19	2459	163	2235	48	1436	11	1491	222	2026	93	2592	148	1725
	Total	23	2439	-	-	-	-	23	2439	219	2389	53	1484	12	1593	284	2187	128	2683	179	1865
Palghat	HYV	26	3925	4	2005	-	-	30	3669	29	2876	5	2104	1	2179	35	2746	17	2597	48	3376
	Local	131	3821	9	2155	6	2461	146	3662	184	2693	53	1801	22	1161	259	2380	50	3001	355	2820
	Total	157	3838	13	2109	6	2461	176	3664	213	2718	58	1827	23	1205	294	2424	67	2898	403	2886
Malappuram	HYV	-	-	-	-	-	-	-	-	55	2644	7	1742	3	2331	65	2532	27	2456	38	2586
	Local	-	-	-	-	-	-	-	-	123	1994	113	1728	24	1560	260	1838	85	2192	175	1667
	Total	-	-	-	-	-	-	-	-	178	2195	120	1729	27	1646	325	1977	112	2255	213	1831
Kozhikode	HYV	1	5257	-	-	-	-	1	5257	58	2321	5	1261	3	1564	66	2206	23	2224	44	2266
	Local	-	-	-	-	-	-	-	-	88	1442	65	1130	18	1163	171	1294	11	1616	160	1272
	Total	1	5257	-	-	-	-	1	5257	146	1791	70	1139	21	1220	237	1548	34	2027	204	1486
Wayanad	HYV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Local	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cannanore	HYV	16	3113	-	-	-	-	16	3113	127	2853	13	2409	3	1515	143	2785	16	2548	143	2848
	Local	4	2140	-	-	-	-	4	2140	109	2299	95	1944	8	1557	212	2112	22	2297	194	2092
	Total	20	2919	-	-	-	-	20	2919	236	2597	108	2000	11	1545	355	2383	38	2403	337	2413
Kasaragode	HYV	6	3011	-	-	-	-	6	3011	33	4083	4	1982	2	2400	39	3781	13	3960	32	3564
	Local	18	2856	2	3024	-	-	20	2872	155	2631	33	2567	9	1135	197	2166	30	2768	187	2597
	Total	24	2894	2	3024	-	-	26	2904	188	2886	37	2504	11	2125	236	2791	43	3128	219	2738
State	**HYV**	**166**	**3056**	**6**	**2591**	**-**	**-**	**172**	**3040**	**921**	**3002**	**43**	**1969**	**18**	**1759**	**982**	**2934**	**518**	**2970**	**636**	**2934**
	Local	**385**	**3199**	**14**	**2557**	**6**	**2461**	**405**	**3166**	**1482**	**2427**	**442**	**1655**	**124**	**1413**	**2048**	**2199**	**596**	**2704**	**1857**	**2248**
	Total	**551**	**3156**	**20**	**2567**	**6**	**2461**	**577**	**3128**	**2403**	**2647**	**485**	**1683**	**142**	**1457**	**3030**	**2437**	**1114**	**2827**	**2493**	**2423**

Typed by: Raveendran

Printed at DES offset press