



GOVERNMENT OF KERALA

**REPORT ON THE
CONSOLIDATED RESULTS OF
CROP ESTIMATION SURVEYS
1986-87**

DEPARTMENT OF
ECONOMICS & STATISTICS
TRIVANDRUM
1988

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FOREWORD

This report on the consolidated results of crop estimation surveys relates to the period 1986-87. The methodology employed in crop cutting experiments on major crops viz. paddy, tapioca, coconut, arecanut, cashew, pepper and minor crops selected for the year is briefly described in this. Generally for minor crops are selected each year and during the year under review, the crops taken for crop cutting experiments were plantain, banana, sesamum, sugarcane, jack, cocoa and tamarind.

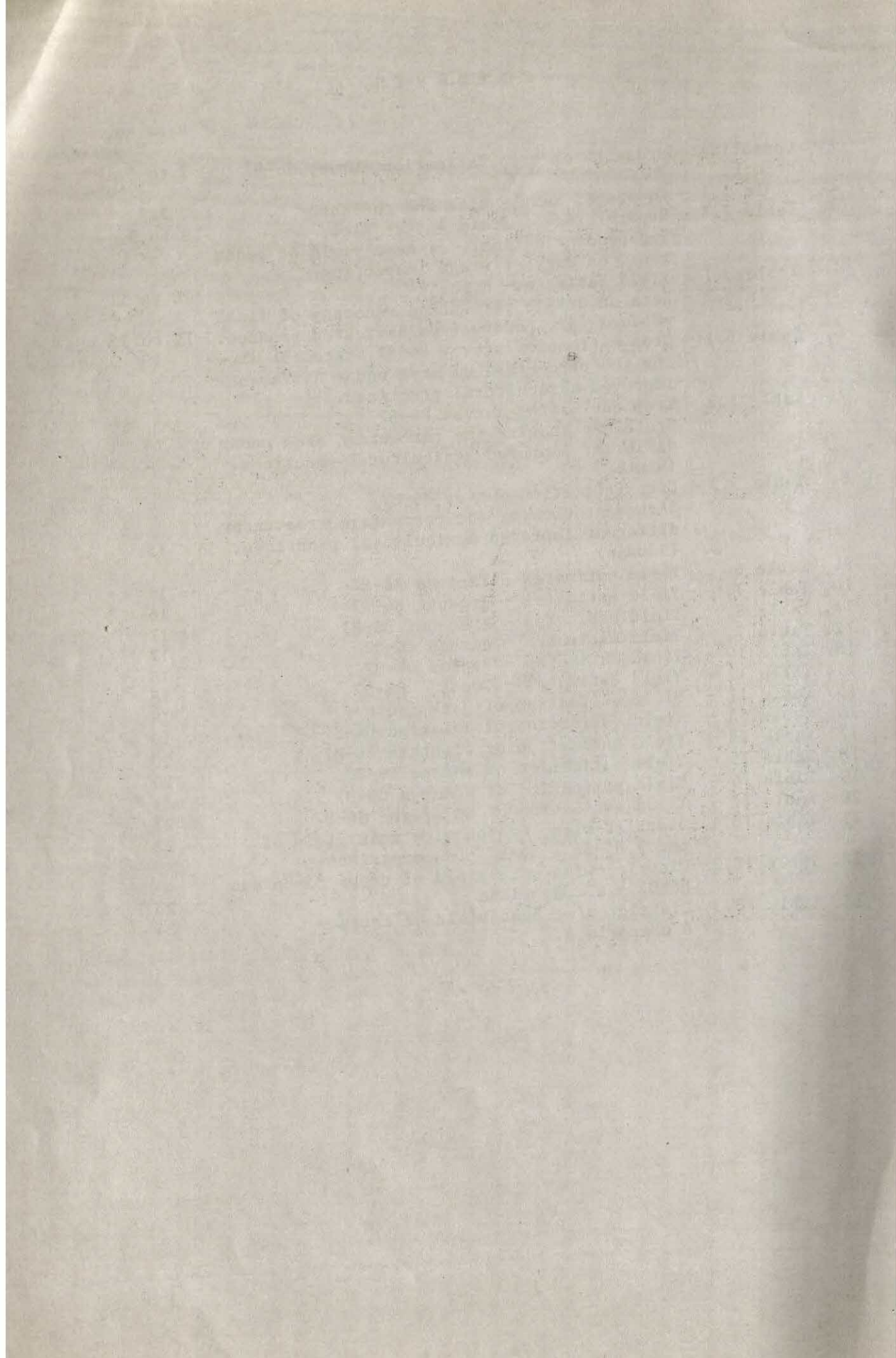
The report was prepared in the Agricultural Statistics Division of the Department.

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**CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEYS
1986-87**

1. Introduction:-

The Department of Economics and Statistics was regularly conducting crop estimation surveys in the state on paddy and tapioca even before the introduction of the Scheme "Establishment of an Agency for Reporting Agricultural Statistics". During 1976-77, these surveys were extended to four other important crops viz. coconut, arecanut, cashew and pepper and they were conducted on a regular basis. Crop cutting experiments on minor crops were also being conducted from 1977-78 onwards covering four crops every year. This report gives a brief review of the crop estimation surveys conducted during the year 1986-87.

2. Objective, Coverage and Design:-

The primary objectives of the survey were to obtain (1) estimates of average yield per hectare of paddy at taluk level (2) estimates of average yield of other crops at the district level with reasonable precision. The average yield obtained through these surveys were also used for estimating the outturn of these crops in the state.

3. Coverage:-

The yield estimation surveys were designed to cover the whole state except forest area.

The table below gives the number of taluks where the surveys were planned and the number of taluks where they were actually conducted and analysed during the year 1986-87.

Sl. No.	Crop	3	No. of taluks where surveys were Planned/conducted during 1986-87	
			4 Planned	5 Analysed
1	2	3	4	5
1.	Paddy	Autumn	61	60
		Winter	61	60
		Summer	51	51
2.	Tapioca		57	57
3.	Coconut		60	58
4.	Arecanut		48	48
5.	Cashew		37	37
6.	Pepper		48	48
7.	Cocoa		47	46
8.	Jack		61	61
9.	Tamarind		57	57
10.	Plantain		51	51
11.	Banana		51	51
12.	Sesamum		33	32
13.	Sugarcane		11	9

(contd.)

4. Design:-

The survey started with locating and marking of plot of specified size in the case of paddy, tapioca, plantain, banana, sesamum and sugarcane and locating and marking of trees/standards/plants in the case of other crops using random sampling method. The produce at harvest was weighed or counted, as the case may be, and recorded in the prescribed proforma together with other relevant details.

4.1 Paddy:-

A stratified random sampling design was adopted for the survey. During each season viz. Autumn, Winter and Summer, crop cutting experiments on paddy were conducted separately in the villages selected for Timely Reporting Survey in each Taluk. The Taluk was treated as Stratum, revenue village as first stage unit, a survey sub-division number as the second stage unit and a square plot of side 5 metres as the ultimate sampling unit. The produce of the plot was harvested, threshed, winnowed and weight of produce taken. Driage ratio was determined by processing sample grains taken from sub sample plots.

4.2 Tapioca:-

The required number of plots were selected from the list of wet and dry land plots. The plots were visited to ascertain its suitability for conducting the experiment. In certain cases, where the plot was found unsuitable for conducting the experiment, the next plot was visited until a suitable plot is identified. Where the selected plot contained more than one patch, one patch was selected by random sampling method. An area of 2 x 2 square metre was fixed for conducting the experiment. All tapioca plants inside the square plot were harvested, the produce cleaned by removing the soil sticking to the tuber and then the weight of the produce recorded.

4.3 Sesamum and sugarcane:-

The required number of plots will be selected from the list of wet plots. As in the case of other crops, suitable plot is selected proceeding by the order of plots in the list used for selection. The experimental plot will be of size 5 x 5m for sesamum and sugarcane.

If the selected plot has more than one patch, a patch may be selected at random. From the south west corner of the selected plot/patch, side x towards east and side y perpendicular to X towards north are measured. Two random numbers less than or equal to x and y respectively are taken.

The produce from the experimental plot is harvested and the cleaned produce is weighed and the weight is recorded correct to half a Kg in the case of sugarcane. In the case of sesamum, weight of grain is ascertained to be the nearest 10 gm unit.

4.4 Coconut, arecanut, cashew, pepper, cocoa, jack, tamarind, Plantain & banana:-

In the case of banana the required number of plots were selected from the list of wet land plots and for the remaining crops from the list of dry land plots for each crop by simple random method. The plots were visited to ascertain its suitability for conducting the experiment i.e. to see if it contained the required number of trees/standards. From each selected plot, the required number of bearing trees/standards were randomly selected for the experiment. For coconut, arecanut, cashew, pepper and cocoa, five trees/standards were selected and in the case of banana and plantain 3 plants, jack and tamarind 2 trees. The details of produce harvested were recorded in the prescribed proforma.

5. Sample size:-

Total number of crop cutting experiments planned and conducted during the year 1986-87 are given below.

6. Field work:-

The field work of the surveys comprising of selection of fields, identification of selected field, location and marking of plot or trees for the experiments, recording the weight/number of nuts of the harvested produce etc. were done by the investigators of the Department under the supervision of the Taluk Statistical Inspectors and District level officers.

The planning of the survey and statistical analysis of the data collected were done at the Headquarters of the Department.

7. Training:-

Training was imparted to officers at Taluk and District levels. The officers from the National Sample Survey Organisation also participated in these conferences. Taluk level training programmes were also organised by the District level officers.

8. Response:-

The number of experiments planned, analysed and the percentage response in respect of paddy during the three seasons in each district is given in Table 1.1 in the appendix. Details with regard to the number of experiments planned and analysed in respect of all other crops for the year 1986-87 are shown in Tables 6 to 17.

9. Supervision:-

The field work of the investigators was supervised by the Statistical Inspectors and Taluk Officers at Taluk level. District level officers also conducted inspections. All the inspecting officers at

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District level had to conduct harvest stage inspection at the rate of one experiment in each Taluk in the case of paddy while the Taluk level supervisors had to supervise ~~are~~ randomly selected in each investigator unit subject to a minimum of six experiments in a Taluk in each season. In the case of tapioca, the district level officers had to conduct inspection at the rate of three experiments in a District while the Taluk Statistical Inspectors had to inspect five experiments or 50% of the experiments planned in a Taluk, whichever is less. Apart from these, inspections were done at pre-harvest and post-harvest stages by the Statistical Inspectors and District Officers.

10. Results:-

Estimates of mean yield of dry paddy based on harvest stage inspection during the three seasons of the year 1986-87 are given in table 2.1 in the appendix.

The estimated yield of dry paddy, the percentage sampling error and the total production of rice during the three seasons for the year 1986-87 are shown in table 3.1 in the appendix.

The details showing the drilage ratio of paddy, percentage area under different agricultural practices during the year 1986-87 for Autumn, Winter and Summer are given in Table 4.1, 5.1, 5.2 and 5.3 respectively. Crop cutting has not been conducted in Wayanad District during Autumn 1987.

The estimated meanyield rates of tapioca, coconut, arecanut, cashew, pepper, cocoa, jack fruits, tamarind, plantain, banana, sesamum and sugarcane are given in tables 6 to 17.

17. Analysis:-

A slight decline in yield per hectare of paddy is noticed in all the seasons of the year 1986-87 when compared to the previous year. The highest yield of 3406 Kg. per hectare in respect of Autumn paddy was achieved by Idukki district while the lowest recorded was 1367 Kg. per hectare in Kozhikode district.

The Winter season also recorded a decline in the yield rate to that of last year. Kottayam district recorded the highest yield rate of the season with 3383 Kg. per hectare. The lowest yield rate of the season of 1721 Kg. per hectare was in Kozhikode district.

The performance of yield rate during Summer season showed an increase over all the two seasons 1986-87, the yield rate at State level showed a slight decline. The highest yield rate of 4695 Kg. per hectare was achieved by Pathanamthitta district and it was followed by Alleppey district with 4237 kg. per hectare. The yield rate below 2000 Kg. per hectare was recorded in Trivandrum, Quilon and Cannanore districts. The main reasons attributed for this decrease in yield rate per hectare are drought, pest attack and high input costs coupled with un-remunerative prices at the market.

The yield rate of coconut has shown a decrease of about 6 percent during the year over last year, while arecanut, cashew and tapioca showed an increase of 67, 14 and 6 percent respectively. The highest yield rate of 5202 coconuts per hectare was recorded in Ernakulam District. It was *closely* closely followed by Alleppey with 5143 nuts, Trichur with 5106 nuts and Pathanamthitta district with 5032 nuts. In Kozhikode district the yield was 4950 nuts per hectare whereas in Quilon and Trivandrum it was 4810 and 4544 nuts respectively.

Major reasons for the fall in productivity of coconut are the effect of the near drought conditions prevailing in the second half of 1985-86 as also deficient rainfall during the first half of 1986-87. The weather conditions of the reporting year which was again aggravated by drought conditions in the second half coupled with the rootwilt disease in the southern parts of the state made responsible for this decline.

In respect of arecanut, the increase in productivity was marginal during the year when compared to last year. Among districts the increase in productivity was confined to southern districts of the state. The districts of Palghat, Malappuram, Kozhikode and Kasaragod showed a decline in yield. Pathanamthitta registered the highest yield rate with 277,848 nuts while the lowest rate was in Palghat district with 1,13,472 nuts. The districts of Ernakulam, Wayanad, Alleppey, Trichur and Kozhikode recorded a mean yield of 2,51,482; 2,30,350; 1,97,856; 1,96,896 and 1,90,744 nuts per hectare respectively.

During the year under report mean yield of cashew per hectare increased by about 14 percent to that of last year. The highest yield rate of 1130 Kg. was recorded in Pathanamthitta District while in Cannanore, the traditional home of cashew, the mean yield was 1008 Kg. only. The lowest mean yield obtained was in Idukki with a mere 162 Kg. per hectare. The district of Quilon also showed a better yield of 959 Kg. per hectare.

Mean yield of pepper in the state decreased by about 13 percent during the reporting year when compared to the previous year. It was mainly due to the inadequate rainfall during the first half of 1986-87 coupled with near drought conditions in the second half of the year. Cannanore, Wayanad, Kasaragod and Alleppey districts registered a better yield rate of 347 Kg., 353 Kg., 308 Kg. and 312 Kg. per hectare respectively during the period. The lowest yield rate was reported from Kottayam with 138 Kg. per hectare.

The survey has brought to light that the cultivators are progressively abandoning the cultivation of cocoa eventhough the price and market outlet of the product has improved a lot during the past two years. However the indication is that the mean yield has decreased by about 44 percent in the state during the year when compared to last year. It points to the fact that the cultivators are not properly attending to this cultivation. In Palghat district the survey has revealed that the cultivators are removing the trees from their garden and others who are not removing the trees are not manuring or irrigating

Them. The mean yield obtained from the survey for Palghat district was only 4 Kg. per hectare. The highest yield rate of 818 Kg. per hectare was reported from Pathanamthitta district. Alleppey, Ernakulam, Idukki districts showed mean yield between 544 and 463 Kg. per hectare.

Mean yield in respect of Tapioca showed an increase of 6 percent during the year compared to last year. The highest yield rate per hectare was reported from Wayanad with 29 tonnes. Kottayam, Idukki and Ernakulam also showed better yield rates ranging from 22 to 20 tonnes per hectare.

In the case of banana and sesamum also the mean yield per hectare showed a marginal decrease during the year compared to last year. The highest yield per hectare for banana was recorded in Idukki with 24 tonnes per hectare, while that of sesamum was 468 Kg. per hectare at Palghat.

The mean yield per hectare in respect of sugarcane, plantain, tamarind and jack recorded an increase during the reporting year.

The details in respect of mean yield of all crops for the year 1985-86 and 1986-87 are given in table 18.1, 18.2 and 18.3 respectively, except for sugarcane, plantain, tamarind and jack. The mean yield of those crops also is given for the years in which crop cutting experiments were conducted for the crops.

Table 1.1
Coverage, sample size and response

Crop: Paddy	District	Autumn 1986			Winter 1987			Summer 1987			Year: 1986-87		
		No. of crop cutting experiments			No. of crop cutting experiments			No. of crop cutting experiments			Total 1986-87		
		Plan- ned	Anal- ysed	Perce- ntage response	Plan- ned	Anal- ysed	Perce- ntage response	Plan- ned	Anal- ysed	Perce- ntage response	Plan- ned	Anal- ysed	Perce- ntage response
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Trivandrum	125	111	89	120	112	93	64	53	83	309	276	89
	Quilon	145	144	99	145	144	99	64	44	69	354	332	94
	Pathanamthitta	88	88	100	84	84	100	84	72	86	256	244	95
	Alleppey	174	169	97	169	161	95	114	111	97	457	441	96
	Kottayam	130	122	94	115	112	97	92	91	99	337	325	96
	Idukki	72	32	44	77	73	95	5	5	100	154	110	71
	Ernakulam	215	210	98	190	190	100	148	148	100	553	548	99
	Trichur	146	138	95	150	146	97	120	114	95	416	398	96
	Palghat	165	163	99	160	153	96	81	76	94	406	392	97
	Malappuram	125	123	98	125	121	97	84	82	98	334	326	98
	Kozhikode	84	81	96	84	83	99	66	66	100	234	230	98
	Wayanad	48	-	-	100	89	89	77	67	87	225	156	69
	Cannanore	95	94	99	84	84	100	72	71	99	251	249	99
	Kasaragod	70	70	100	60	60	100	60	60	100	190	190	100
	State	1682	1545	92	1663	1612	97	1131	1060	94	4476	4217	94

Table 2.1

Supervision of field work - Rice - Independant estimate of mean yield of paddy based on harvest stage inspection 1986-87

District/ State	Season	No. of crop cut- ting experiments		Mean yield of dry paddy in Kg/hectare		
		Planned for insp- ection at harvest stage	Inspect- ed at harvest stage	Before driage (grams)	After driage (grams)	Driage ratio used
1	2	3	4	5	6	7
Trivandrum	Autumn	63	50	3000	2724	0.908
	Winter	60	43	3000	2737	0.912
	Summer	32	27	3000	2668	0.889
Quilon	Autumn	73	112	4000	3484	0.870
	Winter	73	75	4250	3818	0.898
	Summer	32	29	2250	1917	0.852
Pathanamthitta	Autumn	44	40	3750	3376	0.900
	Winter	42	52	3500	3229	0.923
	Summer	42	28	3750	3496	0.932
Alleppey	Autumn	87	86	4500	3932	0.874
	Winter	85	82	5250	4734	0.902
	Summer	57	40	4000	3650	0.913
Kottayam	Autumn	65	56	3750	3366	0.898
	Winter	58	41	3750	3425	0.913
	Summer	46	38	3000	2745	0.915
Idukki	Autumn	36	14	1500	1273	0.849
	Winter	39	27	3000	2688	0.896
	Summer	3	1	500	415	0.830
Ernakulam	Autumn	108	80	5250	4698	0.895
	Winter	95	88	4500	4149	0.922
	Summer	74	72	4500	4098	0.911
Trichur	Autumn	73	60	3750	3399	0.906
	Winter	75	57	3750	3451	0.920
	Summer	60	37	3750	3477	0.927
Palghat	Autumn	83	60	4000	3632	0.908
	Winter	80	69	3750	3376	0.900
	Summer	41	39	3750	3326	0.887
Malappuram	Autumn	63	36	3000	2780	0.927
	Winter	63	61	3000	2765	0.922
	Summer	42	34	3000	2770	0.923

(contd.)

Table 2.1 contd.

	1	2	3	4	5	6	7
Kozhikode	Autumn		42	44	2250	2052	0.912
	Winter		42	43	2250	2066	0.918
	Summer		33	39	2250	2032	0.903
Wayanad	Autumn		-	-	-	-	-
	Winter		50	30	2250	2073	0.921
	Summer		39	30	2250	2163	0.961
Cannanore	Autumn		48	26	2500	2126	0.850
	Winter		42	40	2250	2081	0.925
	Summer		36	16	2250	2126	0.945
Kasaragod	Autumn		35	37	1500	1373	0.915
	Winter		30	26	1500	1368	0.912
	Summer		30	12	1500	1364	0.909
State	Autumn		820	701	42750	38209	0.894
	Winter		834	734	46000	41960	0.912
	Summer		567	442	39750	36247	0.912

Table 3.1
Yield estimate - Rice - 1986-87

District	Season	area under crop		Cove- rage %	No. of experiments			Estimated yield Kg/ Hectare of dry paddy	Sampling errors of percent- age	Total prod- uction of rice in tonnes
		2	3		4	5	6			
Trivandrum	Autumn	12398	100	125	111	89	2826	2.87	23016	
	Winter	12766	100	120	112	93	2431	3.04	20391	
	Summer	280	100	64	53	83	1049	11.34	193	
Quilon	Autumn	15832	100	145	144	99	2534	2.53	26358	
	Winter	16857	100	145	144	99	2556	2.93	28308	
	Summer	135	100	64	44	69	1409	7.31	125	
Pathanamthitta	Autumn	5003	100	88	88	100	2111	6.16	6940	
	Winter	5957	100	84	84	100	2765	5.64	10822	
	Summer	2170	100	84	72	86	4695	7.77	6694	
Alleppey	Autumn	29001	100	174	169	97	1487	10.56	28324	
	Winter	17429	100	169	161	95	2609	4.37	29881	
	Summer	21408	100	114	111	97	4237	3.47	59594	
Kottayam	Autumn	12744	100	130	122	93	2428	5.85	20325	
	Winter	13571	100	115	112	97	3383	3.69	30164	
	Summer	7288	100	92	91	99	3638	5.00	17418	
Idukki	Autumn	2976	100	72	32	99	3406	4.73	6659	
	Winter	3671	100	77	73	95	3161	4.21	7624	
	Summer	438	100	5	5	100	2360	17.16	679	
Ernakulam	Autumn	33365	100	215	210	98	2394	3.59	52475	
	Winter	33060	100	190	190	100	2545	2.79	55289	
	Summer	14392	100	148	148	100	2464	3.21	23299	

(contd.)

(Table 3.1. contd.)

1	2	3	4	5	6	7	8	9	10
Trichur	Autumn	29688	100	146	138	95	2310	5.19	45050
	Winter	41600	100	150	146	97	2291	4.19	62611
	Summer	18239	100	120	120	100	2974	3.56	35636
Palghat	Autumn	82945	100	165	163	99	3105	3.12	169212
	Winter	71007	100	160	153	96	2582	4.45	120451
	Summer	912	100	81	76	94	2191	7.62	1313
Malappuram	Autumn	27247	100	125	123	98	2201	3.73	39406
	Winter	30463	100	125	121	97	2377	2.65	47567
	Summer	4598	100	84	82	98	2884	5.83	8711
Kozhikode	Autumn	5007	100	84	81	96	1367	5.49	4498
	Winter	10384	100	84	83	99	1721	5.06	11742
	Summer	2732	100	66	66	100	2088	5.60	3748
Wayanad	Autumn	22	100	48	-	-	1377	-	20
	Winter	24355	100	100	89	89	3050	6.49	48799
	Summer	5622	100	77	67	87	2409	7.89	8899
Cannanore	Autumn	17243	100	95	94	99	2278	4.39	25805
	Winter	9196	100	84	84	100	2058	3.89	12431
	Summer	522	100	72	71	99	1303	8.75	447
Kasaragode	Autumn	13098	100	70	70	100	2361	5.55	20321
	Winter	6752	100	60	60	100	2377	4.04	10543
	Summer	1430	100	60	60	100	2127	7.29	1998
State	Autumn	286569	100	1682	1545	92	2488	1.57	468409
	Winter	297068	100	1663	1612	97	2545	1.49	496623
	Summer	80166	100	1131	1060	94	3204	1.90	168754

Table 4.1
Data on drilage percentage recovery of final produce (dry paddy)
from harvested produce

Districts	Season	Driage experiments		
		No. of experiments		Driage ratio
1	2	Planned	Analysed	(Percentage)
		3	4	5
Trivandrum	Autumn	12	12	90.8
	Winter	12	12	91.2
	Summer	12	12	88.9
Quilon	Autumn	16	16	87.0
	Winter	17	17	89.8
	Summer	9	9	85.2
Pathanamthitta	Autumn	15	15	90.0
	Winter	14	14	92.3
	Summer	15	15	93.2
Alleppey	Autumn	18	18	87.4
	Winter	21	21	90.2
	Summer	16	16	91.3
Kottayam	Autumn	15	15	89.8
	Winter	15	15	91.3
	Summer	12	12	91.5
Idukki	Autumn	6	6	84.9
	Winter	12	12	89.6
	Summer	2	2	83.0
Ernakulam	Autumn	21	21	89.5
	Winter	18	18	92.2
	Summer	18	18	91.1
Trichur	Autumn	15	15	90.6
	Winter	15	15	92.0
	Summer	15	15	92.7
Palghat	Autumn	16	16	90.8
	Winter	15	15	90.0
	Summer	15	15	88.7
Malappuram	Autumn	12	12	92.7
	Winter	12	12	92.2
	Summer	12	12	92.3
Kozhikode	Autumn	9	9	91.2
	Winter	9	9	91.8
	Summer	9	9	90.3
Wayanad	Autumn	-	-	-
	Winter	9	9	92.1
	Summer	9	9	96.1

(contd.)

(Table 4.1 contd.)

1	2	3	4	5
Cannanore	Autumn	10	10	85.0
	Winter	9	9	92.5
	Summer	9	9	94.5
Kasaragode	Autumn	6	6	91.5
	Winter	6	6	91.2
	Summer	6	6	90.9
STATE	Autumn	171	171	89.4
	Winter	184	184	91.2
	Summer	159	159	91.2

Table 5.1

Crop estimation survey 1986-87 statement showing the percentage of area under different improved agricultural practices

Crop: Paddy Autumn: 1986

Districts	Impro- ved varie- ties	Other varie- ties	Chemi- cal ferti- lizers	Other manu- red	Not manu- red	Percentage of area	
						Treated with pl- ant pro- tection chemicals	Not treated with plant protection chemicals
1	2	3	4	5	6	7	8
Trivandrum	15.32	84.68	97.30	-	2.70	29.73	70.27
Quilon	66.67	33.33	95.83	4.17	-	44.44	55.56
Pathanam- thitta	59.09	40.91	98.86	-	1.14	63.64	36.36
Alleppey	40.83	59.17	84.62	9.46	5.92	52.66	47.34
Kottayam	54.92	45.08	99.18	-	0.82	89.34	10.66
Idukki	28.13	71.87	96.88	3.12	-	25.00	75.00
Ernakulam	30.95	69.05	79.05	0.47	20.48	49.05	50.95
Trichur	33.33	66.67	69.57	17.39	13.04	30.43	69.57
Palghat	19.63	80.37	68.10	26.38	5.52	19.02	80.98
Malappuram	19.51	80.49	63.42	30.89	5.69	37.40	62.60
Kozhikode	22.22	77.78	54.32	38.27	7.41	20.99	79.01
Wayanad	-	-	-	-	-	-	-
Cannanore	40.43	59.57	64.89	30.85	4.26	29.79	70.21
Kasaragode	22.86	77.14	78.57	18.57	2.86	45.71	54.29
State	35.53	64.47	80.19	13.08	6.73	42.59	57.41

estimation
 Table 5.2
 Crop estimating survey 1986-87 Statement showing the percentage area
 under different improved agricultural practices

District	Season: Winter 1987						
	Percentage of area						
	Impro- ved varie- ties	Other varie- ties	Chemi- cal ferti- lizers	Other manu- red	Not manu- red	Treated with pl- ant pro- tection chemicals	Not treated with plant protection chemicals
1	2	3	4	5	6	7	8
Trivandrum	14.29	85.71	100.00	-	-	43.75	56.25
Quilon	9.03	90.97	95.83	3.47	0.70	43.06	56.94
Pathanam-							
thitta	59.52	40.48	100.00	-	-	73.81	26.19
Alleppey	21.74	78.26	75.16	19.88	4.96	78.26	21.74
Kottayam	66.96	33.04	99.11	-	0.89	100.00	-
Idukki	36.99	63.01	83.56	13.70	2.74	67.12	32.88
Ernakulam	18.42	81.58	95.26	3.69	1.05	67.37	32.63
Trichur	13.70	86.30	74.66	16.44	8.90	45.21	54.79
Palghat	19.61	80.39	83.01	13.07	3.92	39.22	60.78
Malappuram	15.70	84.30	76.03	19.84	4.13	58.68	41.32
Kozhikode	10.84	89.16	68.67	19.28	12.05	28.92	71.08
Wayanad	28.09	71.91	71.91	13.48	14.61	29.21	70.79
Cannanore	27.38	72.62	77.38	22.62	-	73.81	26.19
Kasaragode	20.00	80.00	93.33	6.67	-	68.33	31.67
State	24.13	75.87	85.48	10.73	3.79	59.19	41.81

Table 5.3
Crop estimation survey 1986-87 statement showing the percentage
are under different improved agricultural practices

Crop: Paddy	Season: Summer 1987							
	Improved varieties		Other varieties	Chemical fertilizers	Other manured	Not manured	Percentage of area	
District	1	2	3	4	5	6	Treated with plant protection chemicals	Not treated with plant protection chemicals
	1	2	3	4	5	6	7	8
Trivandrum		24.53	75.47	96.23	3.77	-	75.47	24.53
Quilon		9.09	90.91	79.54	13.64	6.82	77.27	22.73
Pathanam-								
thitta		65.28	34.72	100.00	-	-	94.44	5.56
Alleppey		71.17	28.83	99.10	0.90	-	99.10	0.90
Kottayam		70.33	29.67	98.90	1.10	-	92.31	7.69
Idukki		20.00	80.00	80.00	20.00	-	60.00	40.00
Ernakulam		20.95	79.05	99.32	0.68	-	78.38	21.62
Trichur		53.51	46.49	98.25	1.75	-	66.67	33.33
Palghat		11.84	88.16	88.16	6.58	5.26	38.16	61.84
Malappuram		47.56	52.44	91.46	6.10	2.44	76.83	23.17
Kozhikode		56.06	43.94	86.36	12.12	1.52	69.70	30.30
Wayanad		46.27	53.73	77.61	10.45	11.94	34.33	65.67
Cannanore		12.68	87.32	73.21	25.35	1.41	35.21	64.79
Kasaragode		15.00	85.00	85.00	15.00	-	60.00	40.00
State		40.94	59.06	91.98	5.94	2.08	71.04	28.96

Table 6

Yield estimates: Tapioca 1986-87

Districts	No. of experiments		Estimated mean yield (in tonnes)
	Planned	Analysed	
1	2	3	4
Trivandrum	126	123	15.50
Quilon	116	116	16.35
Pathanamthitta	64	64	21.20
Alleppey	74	64	14.90
Kottayam	108	108	21.93
Idukki	56	46	20.70
Ernakulam	100	100	19.53
Trichur	106	106	16.35
Palghat	90	90	13.13
Malappuram	128	128	14.08
Kozhikode	90	90	10.70
Wayanad	45	43	28.53
Cannanore	100	97	18.59
Kasaragode	70	70	16.35
State	1273	1245	17.07

Table 7

Yield estimate: Coconut 1986-87

District	No. of experiments		Average yield tree/(Nos.)	Estimated mean yield (No. of nuts/hectare)
	Planned	Analysed		
1	2	3	4	5
Trivandrum	63	63	32	4544
Quilon	41	41	37	4810
Pathanamthitta	18	18	34	5032
Alleppey	88	88	37	5143
Kottayam	60	60	24	4104
Idukki	23	20	24	2568
Ernakulam	99	99	34	5202
Trichur	59	59	37	5106
Palghat	20	20	20	2200
Malappuram	57	57	29	3799
Kozhikode	57	57	30	4950
Wayanad	9	9	21	945
Cannanore	39	39	29	4060
Kasaragode	17	17	31	4309
State	650	647	32	4492

Table 8
Yield estimates: Arecanut 1986-87

District	No. of experiments		Average yield/ trees/(Nos.)	Estimated Mean yield (No. of nuts/(Ha.))
	Planned	Analysed		
1	2	3	4	5
Trivandrum	25	25	86	150156
Quilon	25	24	107	170344
Pathanamthitta	20	17	153	277848
Alleppey	15	15	144	197856
Kottayam	25	25	94	168072
Idukki	10	10	95	136705
Ernakulam	52	46	154	251482
Trichur	50	50	112	196896
Palghat	16	16	64	113472
Malappuram	58	58	88	154968
Kozhikode	40	40	113	190744
Wayanad	30	27	170	230350
Cannanore	40	40	124	170128
Kasaragode	32	32	144	187344
State	438	425	118	182928

Table 9
Yield estimation of cashew 1986-87

Districts	No. of experiments		Average yield/in Kg/trees	Estimated mean yield (No. of yield Kg./Ha.)
	Planned	Analyse		
1	2	3	4	5
Trivandrum	21	21	1.438	306.294
Quilon	23	23	4.100	959.400
Pathanamthitta	5	5	5.458	1129.806
Alleppey	10	10	1.940	393.820
Kottayam	5	5	1.790	390.220
Idukki	5	5	0.736	390.220
Ernakulam	18	18	1.658	361.444
Trichur	21	21	2.047	499.468
Palghat	41	41	1.942	446.660
Malappuram	75	75	1.727	430.023
Kozhikode	19	19	1.923	428.829
Wayanad	18	18	2.626	567.216
Cannanore	75	75	3.908	1008.264
Kasaragode	60	60	2.703	608.175
State	396	396	2.538	664.188

Table 10
Yield estimates : Pepper 1986-87

District	No. of experiments		Average yield in Kg/plant	Estimated mean yield (Kg/Ha)
	Planned	Analysed		
1	2	3	4	5
Trivandrum	23	23	1.396	209.755
Quilon	25	25	1.426	210.537
Pathanamthitta	24	24	1.783	282.240
Alleppey	10	10	2.541	312.108
Kottayam	35	35	0.890	137.886
Idukki	64	59	1.242	171.380
Ernakulam	27	27	1.035	140.220
Trichur	18	18	1.797	252.025
Palghat	10	10	1.185	143.497
Malappuram	20	20	1.199	174.240
Kozhikode	41	41	1.494	203.116
Wayanad	30	30	2.369	352.682
Cannanore	45	45	2.415	347.492
Kasaragode	25	25	2.137	308.085
State	397	392	1.610	235.731

Table 11
Yield estimation of Cocoa 1986-87

District	No. of experiments		Average yield /trees (Kg)	Average yield Kg/Ha.
	Planned	Analysed		
1	2	3	4	5
Trivandrum	9	9	4.084	263.590
Quilon	8	8	2.701	192.375
Pathanamthitta	13	13	11.479	817.950
Alleppey	25	25	7.641	544.350
Kottayam	25	25	5.618	400.425
Idukki	17	17	7.019	463.320
Ernakulam	34	34	9.681	515.460
Trichur	17	15	4.376	311.600
Palghat	16	15	0.072	4.345
Malappuram	25	20	5.503	375.375
Kozhikode	17	15	2.320	168.780
Wayanad	12	12	2.730	200.900
Cannanore	14	14	3.239	187.110
Kasaragod	11	11	4.167	234.750
State	243	233	5.678	403.011

Table 12
Yield estimation of jack fruits 1986-87

Districts	No. of experiments		Average yield	Average yield
	Planned	Analysed	/trees (Nos.)	/Ha.(Nos.)
1	2	3	4	5
Trivandrum	20	20	9	1755
Quilon	20	20	16	2524
Pathanamthitta	14	14	13	2730
Alleppey	16	15	6	990
Kottayam	24	23	16	3312
Idukki	14	14	20	4020
Ernakulam	21	21	14	2310
Trichur	17	17	18	3996
Palghat	19	19	17	2907
Malappuram	20	20	14	2562
Kozhikode	23	23	10	1590
Wayanad	13	13	15	2835
Cannanore	18	18	25	5475
Kasaragode	8	8	13	3159
State	247	245	15	2833

Table 13
Yield estimation of tamarind 1986-87

Districts	No. of experiments		Average yield	Average yield
	Planned	Analysed	/tree in Kg.	Kg/Ha.
1	2	3	4	5
Trivandrum	20	20	18.207	3168
Quilon	18	18	14.057	2994
Pathanamthitta	15	15	11.782	3429
Alleppey	12	12	15.798	3049
Kottayam	13	13	11.637	2770
Idukki	8	6	9.700	1892
Ernakulam	23	23	15.962	3815
Trichur	27	27	13.071	2209
Palghat	59	59	14.638	2225
Malappuram	21	21	12.869	2265
Kozhikode	15	15	4.524	864
Wayanad	6	6	1.744	453
Cannanore	10	10	14.214	2729
Kasaragod	5	5	15.564	4047
State	252	250	13.381	2537

Table 14
Yield estimation of plantain 1986-87

Districts	No. of experiments		Average yield /plant (Kg.)	Average yield in Tonnes/Ha
	Planned	Analysed		
1	2	3	4	5
Trivandrum	18	18	5.598	4.02
Quilon	15	15	6.109	3.86
Pathanamthitta	15	13	7.863	5.58
Alleppey	11	11	7.183	4.07
Kottayam	25	25	8.282	6.17
Idukki	-	-	8.282	7.63
Ernakulam	25	25	5.428	3.37
Trichur	25	25	5.026	2.72
Palghat	25	25	4.915	2.45
Malappuram	20	20	5.817	3.57
Kozhikode	15	15	6.005	3.60
Wayanad	11	11	5.470	5.10
Cannanore	15	15	6.755	3.78
Kasaragod	9	9	5.141	3.12
State	229	227	6.336	4.15

Table 15
Yield estimation of banana 1986-87

Districts	No. of experiments		Average yield /plant (Kg.)	Average yield in tonnes/Ha.
	Planned	Analysed		
1	2	3	4	5
Trivandrum	12	12	5.507	11.014
Quilon	20	20	6.403	12.806
Pathanamthitta	14	14	7.233	14.466
Alleppey	12	9	6.771	13.542
Kottayam	18	17	5.605	11.210
Idukki	3	3	11.876	23.752
Ernakulam	20	20	5.540	11.080
Trichur	20	20	5.336	10.672
Palghat	15	15	6.349	12.698
Malappuram	20	20	4.964	9.928
Kozhikode	15	14	5.007	10.014
Wayanad	10	10	5.944	11.888
Cannanore	15	15	5.893	11.786
Kasaragode	11	11	5.075	10.150
State	205	200	5.787	11.702

Table 16
Yield estimation of sesamum 1986-87

Districts 1	No. of experiments		Average yield in tonnes/ha. 4
	Planned 2	Analysed 3	
Trivandrum	-	-	0.276
Quilon	16	13	0.276
Pathanamthitta	-	-	0.276
Alleppey	21	12	0.249
Kottayam	5	-	0.249
Idukki	5	5	0.108
Ernakulam	25	19	0.149
Trichur	22	19	0.236
Palghat	15	14	0.468
Malappuram	10	7	0.175
Kozhikode	6	-	0.244
Wayanad	6	6	0.244
Cannanore	6	6	0.382
Kasaragode	3	3	0.243
State	129	104	0.240

Table 17
Yield estimation of sugarcane 1986-87

Districts 1	No. of experiments		Average yield of gur in tonnes/ha. 4
	Planned 2	Analysed 3	
Trivandrum	-	-	5.275
Quilon	-	-	5.275
Pathanamthitta	22	20	7.160
Alleppey	23	23	5.275
Kottayam	23	-	5.275
Idukki	20	10	6.238
Ernakulam	-	-	5.275
Trichur	-	-	5.275
Palghat	25	25	6.981
Malappuram	25	-	5.275
Kozhikode	25	-	5.275
Wayanad	-	-	5.275
Cannanore	-	-	5.275
Kasaragode	-	-	5.275
State	90	78	6.557

Table 18.1
District-wise, season-wise mean yield of paddy
1985-86 & 1986-87 - A comparison

District	Autumn		Winter		Summer	
	Dry paddy in Kg./Ha.		Dry paddy in Kg./ha.		Dry paddy in Kg./ha.	
	85-86	86-87	85-86	86-87	85-86	86-87
1	2	3	4	5	6	7
Trivandrum	3188	2826	2290	2431	1645	1049
Quilon	2833	2534	2510	2556	1912	1409
Pathanamthirra	2167	2111	2861	2765	4321	4695
Alleppey	1492	1487	2620	2609	4148	4237
Kottayam	1881	2428	2717	3383	4394	3638
Idukki	3049	3406	3172	3161	2881	2360
Ernakulam	2625	2394	2565	2545	2413	2464
Tirichur	1951	2310	2542	2291	3027	2974
Palghat	3058	3105	2750	2582	2076	2191
Malappuram	1906	2201	2248	2377	3137	2884
Kozhikode	1661	1367	1886	1721	1869	2088
Wayanad	1377	1377	2722	3050	2669	2409
Cannanore	2408	2278	2319	2058	2055	1303
Kasaragod	-	2361	-	2377	-	2127
State	2514	2488	2559	2545	3290	3204

Table 18.2
District-wise mean yield of crops - 1985-86 & 1986-87
A comparison

District	Coconut Nos./ha		Arecanut No./ha.		Cashew Kg./ha.		Pepper Kg./ha.		Cocoa Kg./ha.		Tapioca in tonnes/ha.		Banana tonnes/ha.		Sesamum Kg./ha.	
	85-	86-	85-	86-	85-	86-	85-	86-	85-	86-	85-	86-	85-	86-	85-	86-
J	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Trivandrum	4655	4544	122475	150156	386	306	309	210	388	264	15	16	12	11	347	276
Quilon	3960	4810	149695	170344	648	959	378	211	212	192	14	16	12	13	347	276
Pathanamthitta	5811	5032	233100	277848	392	1130	326	282	1074	818	22	21	13	14	347	276
Alleppey	5680	5143	113643	197856	177	394	178	312	1204	544	17	15	15	14	198	249
Kottayam	4480	4104	138267	168072	112	390	92	138	687	400	20	22	17	11	192	249
Idukki	4059	2568	120054	136705	197	162	226	171	803	463	19	21	13	24	318	108
Ernakulam	5661	5202	237708	251482	533	361	172	140	1047	515	19	20	12	11	221	149
Trichur	6116	5106	191310	196896	356	499	151	252	288	312	12	16	12	11	271	236
Palghat	4104	2200	162019	113472	448	447	280	143	433	4	13	13	13	13	166	468
Malappuram	4031	3799	158613	154968	422	430	342	174	726	375	13	14	12	10	365	175
Kozhikode	5412	4950	209715	190744	455	429	227	203	409	169	11	11	14	10	365	244
Wayanad	1495	945	165242	230350	217	567	533	353	289	201	20	29	15	12	446	244
Cannanore	4653	4060	214933	170128	687	1008	308	347	858	187	20	19	13	12	486	382
Kasaragode	2304	4309	199060	187344	844	608	247	308	207	235	16	16	13	10	131	243
State	4792	4492	181703	182928	582	664	272	236	721	403	16	17	13	12	259	240

Table 18.3
District-wise mean yield of crops - A comparison

District	Sugarcane (gur)		Plantain		Tamarind		Jack		
	Kg./Hect.	86-87	Kg./hect.	83-84	Kg./Hect.	86-87	No./hect.	83-84	86-87
1	2	3	4	5	6	7	8	9	
Trivandrum	4571	5275	3810	4020	2535	3168	4488	1755	
Quilon	5768	5275	4570	3860	2069	2994	11025	2524	
Pathanamthitta	5768	7160	4310	5580	-	3429	7968	2730	
Alleppey	5768	5275	3030	4070	718	3049	4104	990	
Kottayam	5768	5275	5080	6170	1126	2770	3348	3312	
Idukki	5338	6238	3920	7630	1241	1892	3330	4020	
Ernakulam	5760	5275	5070	3370	1355	3815	4620	2310	
Trichur	5190	5275	2220	2720	2089	2209	3792	3996	
Palghat	5800	6981	4350	2450	2608	2225	4158	2907	
Malappuram	5190	5275	3080	3570	1779	2265	1932	2562	
Kozhikode	5214	5275	3620	3600	2414	864	2688	1590	
Wayanad	5333	5275	5430	5100	-	453	1752	2835	
Cannanore	5214	5275	3960	3780	1714	2729	2730	5475	
Kasaragode	5194	5275	-	3120	-	4047	-	3159	
State	5454	6557	4030	4150	1771	2537	4118	2833	

