GOVERNMENT OF KERALA

CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEY—1987-88

DEPARTMENT OF
ECONOMICS AND STATISTICS
THIRUVANANTHAPURAM
1990

GOVERNMENT OF KERALA

*
**
***
****
*****
****
***
**
*

CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEYS 1987-'88

*
**
***
****
*****
****
***
**
*

DEPARTMENT OF ECONOMICS AND STATISTICS
THIRUVANANTHAPURAM
1990

F O R E W O R D

This report on the Consolidated Results of Crop Estimation Survey relates to the period 1987-88. The methodology used in the crop cutting experiments on major crops viz. paddy, tapioca, coconut, arecanut, cashew and pepper and minor crops selected for the year is briefly described in this report. The crops selected during the year under review were paddy, tapioca, coconut, arecanut, cashew, pepper, cocoa, banana, plantatin, sesamem, groundnut and ginger.

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

P.L. SREEDEVI AMMA,
Director of Economics & Statistics,

Thiruvananthapuram,
8--6--1990.

C O N T E N T S

...

CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEYS 1987-'88.

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 survey 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 1987-'88. It is to be noted that the design of the surveys was changed from 1987-'88 as to obtain block level yield rate of crops.

2. Objective, Coverage and Design.

The primary objectives of the surveys were to obtain (1) estimate of average yield per hectare of paddy at block level, (2) estimates of average yield of other crops at block level. The average yield obtained through these surveys were also used for estimating the out turn of the crops in the state.

3. Coverage.

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

The table below gives the number of blocks where the surveys were planned and the number of blocks where they were actually conducted and analysed during the year 1987-'88.

Sl. No.	Crop	Season	No. of blocks/Corporation/Municipalities where survey were planned/ conducted during 1987-'88	
			Planned	Analysed
1	2	3	4	5
1.	Paddy	Autumn	195	174
		Winter	195	186
		Summer	195	119
2.	Tapioca		135	135
3.	Coconut		195	191
4.	Arecanut		163	160
5.	Cashew		161	161
6.	Pepper		154	149
7.	Cocoa		162	136
8.	Plantain		164	164
9.	Banana		125	125
10.	Sesamem		71	71
11.	Ginger		25	25
12.	Groundnut		2	2

4. Design.

The survey started with locating and marking of plot of specified size in the case of paddy, tapioca, plantain, banana, sesamum, ginger and groundnut and locating and marking of trees/standards/plants in the case of other crops using random sampling method. The produce at harvest was weighted 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 desgin was adopted for the survey. During each season viz. Autumn, Winter and Summer. Crop cutting experiments on paddy were conducted separately in the investigator nones selected for Timely Reporting Survey in each Block (from the year 1987-'88 onwards Block is treated as stratum instead of taluk). In this revised sampling design Investigator zones in each block is treated as sub-strata and the first stage unit. Paddy growing survey sub-divisions in the selected cluster from the second stage unit. In each zone, a list of survey sub-divisions of wet land plots growing paddy under HYV irrigated, HYV un-irrigated, local irrigated and local un-irrigated is prepared. The required number of key plots are selected by using circular systematic sampling merhod from the list. If the key plot contains more than one kandom, kandoms are serially numbered anti-clockwise and one kandom each was chosen by simple random for the third stage unit. A square plot of side 5 metres is the ultimate sampling unit. The produce of the plot was harvested, thresed, 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 keyplots. The plots are visited to ascertain its suitability for conducting the experiments. In certain cases, where the plot was found un-suitable for conducting the experiment, the next key plot was visited until a suitable plot is identified. If the selected plot contains more than one patch under tapioca, one patch was selected by random sampling method. A area of 2½ 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 Groundnut and Ginger

The required number of plots will be selected from the list of wetland key 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 5 for sesamum and groundnut 2 x 2 in the case of Ginger.

If the selected plot has more than one patch, a patch may be selected at random. From the southwest corner of the selected plot/patch, side x towards east and side perpeticular to x towards north are measured. Two random numbers less than or equal to z and y respectively are taken. With the help of these random numbers the Southwest corner of the experimental plot is located and the experimental plot marked.

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

4.4 **Coconut, arecanut, cashew, pepper, cocoa, plantain and banana.**

In the case of banana, the required number of plots were selected from the list of wet land key plots and for the remaining crops from the list of dry land key plots, by using simple random method. If the key plots selected does not grow a particular perenial crop for which crop cutting experiments are to be conducted, the Investigator should look for the crop in the first or second side plots on the left. If the particular crop did not exists in these plots, also be would look for the crop in the first or second side plots selected from the right side of the key plot. If the crop was not grown in the entire cluster another key plot will be selected at random for completing the required number of cuts. The plots were visited to ascertain its suitability for conducting the experiment ie. to see whether it contained the required number of bearing trees/standards were randomly selected for the experiment. For coconut, areacanut, cashew, pepper and cocoa, five trees/standards were selected and in the case of banana and plantain 3 plants. The details of produce harvested were recordedc in the prescribed proforma.

5. **Sample size.**

Total number of crop cutting experiments planned and conducted during the year 1987-'88 are given below.

Sl. No.	Name of crop	Season	No. of Experiments	
			Planned	Analysed
1	2	3	4	5
1.	Paddy	Autumn	3657	3607
		Winter	4168	4100
		Summer	1779	1703
2.	Tapioca		1317	1307
3.	Coconut		2541	2430
4.	Arecanut		1630	1411
5.	Cashew		1530	1274
6.	Pepper		1536	1303

(Contd..)

1	2	3	4	5
7.	Cocoa		800	617
8.	Plantain		1428	1419
9.	Banana		1157	1157
10.	Sesamum		372	336
11.	Groundnut		16	15
12.	Ginger		170	163

6. Field work.

The field work of the surveys comprising of selection of fields, identification of selected fields, locating and marking of plots 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/Officers and District level Officers.

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 1987-'88 are shown in Tables 6 to 16.

9. Supervision.

The field work of Investigators was supervised by the Statistical Inspectors and Taluk Officers at Taluk level. District level officers also conducted inspections. All the inspecting Officers at District level had to conduct harvest stage inspection at the rate of one experiment in each block and the Taluk level officers were made responsible to inspect at least one experiment in each investigator zone in the case of paddy. 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 Inspectros had to inspect five experiments or 50% of the experiments planned in a Block whichever is less. Apart from these, inspections were done at pre-harvest and post-harvest stage by the Statistical Inspectors/Officers and District Officers.

10. **Results.**

Estimates of mean yield of dry paddy based on harvest stage inspection during the three seasons of the year 1987-'88 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 1987-'88 are shown in Table 3.1 in the Appendix.

The details showing the driage ratio of paddy, percentage area under different agricultural practice during the year 1987-'88 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 mean yield rates of tapioca, coconut, arecanut, cashew, pepper, cocoa, plantain, banana, sesamum, groundnut and ginger are given in Table 6 to 16.

11. **Analysis.**

Though the Autumn season showed an increase in yield per hectare during the year when compared to the previous year but it declined in all other seasons. During Autumn the increased nos. to the tune of 7%. The highest yield of 3424 Kg. per hectare in respect of Autumn paddy was achieved by Idukki district while the lowest recorded was 1526 Kg. per hectare in Kozhikode district.

In the Winter season yield rate recorded a decline to that of last year. Pathanamthitta district recorded the highest yield rate of the season with 3227 Kg. per hectare. The lowest yield rate of the season of 1521 Kg. per hectare was in Kozhikode district.

The yield rate in the Summer season also registered a decline during the year 1987-'88 over the previous year. The highest yield rate of 4508 Kg. per hectare was achieved by Pathanamthitta district followed by Alleppey district with 3848 Kg. per hectare. The yield rate below 2000 Kg. per hectare was recorded in Trivandrum, Kollam, Kozhikode and Cannoor districts. The main reasons attributed for this decrease in yield rate per hectare are drought, pest attach and high input costs coupled with unremunerative prices at the market. The yield rate of tapioca and cashew showed a marginal increase, while the yield rate of coconut and arecanut had shown a decline to the tune of 4% each. The highest yield rate of 28.33 tonnes per hectare of tapioca was recorded in Wayanad district, closely followed by Idukki district. In the case of cashew, the highest mean yield was reported from Pathanamthitta district with 97 Kg. per hectare during the year 1987-'88.

During the year under a marginal increase to the tune of 2% in the average yield per hectare was reported under cashew. The highest yield rate per hectare was reported under cashew. The highest yield rate of 977 Kg. per hectare was reported from Pathanamthitta distrct closely followed by 946 Kg. per hectare in Cannoore district. The lowest yield rate of 210 Kg. per hectare was registered in Idukki district.

Mean yield of pepper the State showed an increase of about 38% during the reporting year when compared to the previous year. The yield rate of 528 Kg./411 Kg. 406 Kg. and 381 Kg. per hectare respectively was reported from Wayanad, Pathanamthitta, Idukki and Kollam districts.

Both the area and production under cocoa has considerably decreased during the year compared to the previous year. It shows that the cultivators were keen in the cultivation of cocoa eventhough the crop has improved market facilties. But the mean yield has increased by about 5% when compared to the year 1986-'87. While the mean yield obtained from the survey for Palakkad district was only 161 Kg. per hectare and the highest yield rate of 698 Kg. per hectare was reported from Pathanamthitta district. Five districts have recorded more than 300 Kg. per hectare of mean yield during the year.

In the case of banana, plantain and sesamum a marginal increase in average yield has been reported during the reporting year, when compared to the previous year. The highest yield rate of banana and plantain recorded was in Idukki district with 21 and 6 tonne per hectare respectively.

The details in respect of mean yield of all crop for the year 1986-'87 and 1987-'88 are given in Table 17.1 and 17.2.

....

Table 1.1 - **Coverage, Sample size and response**

Crop: Paddy

Year: 1987-'88

District	Autumn 1987			Winter 1988			Summer 1988			Total 1987-'88		
	No. of crop cutting experiments			No. of cop cutting experiments			No. of crop cutting experiments			No. of crop cutting experiments		
	Planned	Analysed	Percentage response	Planned	Analysed	Percentage response	Planned	Analysed	Percentage response	Planned	Analysed	Percentage response
1	2	3	4	5	6	7	8	9	10	11	12	13
Thiruvananthapuram	296	285	96	345	333	97	29	27	93	670	645	96
Kollam	302	300	99	309	305	99	10	10	100	621	615	99
Pathanamthitta	169	163	96	182	176	97	87	78	90	438	417	95
Alappuzha	235	228	97	268	254	95	131	107	82	634	589	93
Kottayam	207	202	98	231	225	97	95	86	91	533	513	96
Idukki	67	65	97	77	77	100	-	-	-	144	142	99
Ernakulam	387	387	100	343	343	100	262	262	100	992	992	100
Trissur	309	307	99	429	429	100	304	299	98	1042	1035	99
Palakkad	480	470	98	451	441	98	134	128	96	1065	1039	98
Malappuram	325	325	100	468	460	98	216	212	98	1009	997	99
Kozhikode	243	238	98	270	265	98	145	128	88	658	631	96
Wayanad	-	-	-	205	205	100	171	171	100	376	376	100
Cannore	375	375	100	362	362	100	100	100	100	837	837	100
Kasaragode	262	262	100	228	227	99	95	95	100	585	584	100
State	**3657**	**3607**	**99**	**4168**	**4102**	**98**	**1779**	**1703**	**96**	**9604**	**9412**	**98**

Table 2.1 -

District/State	Season	No. of crop cutting experiments: Plann- ed for inspection	Inspected at harvest stage	Mean yield of Dry Paddy in Kg./Hectare: Before Driage (grams)	After Driage (grams)	Driage Ratio used
1	2	3	4	5	6	7
	Autumn	143	59	3000	2725	0.908
Thiruvananthapuram	Winter	167	51	12000	10935	0.911
	Summer	14	10	1750	1570	0.897
	Autumn	150	136	3750	3270	0.972
Kollam	Winter	153	107	12750	11233	0.881
	Summer	5	1	500	445	0.890
	Autumn	82	66	3750	3424	0.913
Pathanamthitta	Winter	88	57	7250	6678	0.921
	Summer	39	18	5500	5030	0.915
	Autumn	114	71	4500	3992	0.887
Alappuzha	Winter	127	84	7000	6368	0.910
	Summer	54	25	3750	3424	0.913
	Autumn	101	77	3750	3281	0.875
Kottayam	Winter	113	72	4500	4054	0.901
	Summer	43	36	3750	3405	0.908
	Autumn	33	12	1500	1312	0.875
Idukki	Winter	39	21	3000	2734	0.911
	Summer	-	-	-	-	-
	Autumn	194	92	5250	4715	0.898
Ernakulam	Winter	172	102	8750	8005	0.915
	Summer	131	79	12000	10091	0.841
	Autumn	154	59	3750	3330	0.888
Trissur	Winter	214	61	5250	4839	0.922
	Summer	150	55	5000	4578	0.916
	Autumn	235	114	3750	3405	0.908
Palakkad	Winter	220	112	7500	6701	0.893
	Summer	64	46	5750	3405	0.908

(Contd...)

(Table 2.1 contd..)

1	2	3	4	5	6	7
	Autumn	163	56	3000	2781	0.927
Malappuram	Winter	230	59	19000	17586	0.926
	Summer	106	38	3000	2770	0.923
	Autumn	119	60	2250	2012	0.894
Kozhikode	Winter	133	47	2250	2015	0.896
	Summer	64	27	2250	1985	0.882
	Autumn	-	-	-	-	-
Wayanad	Winter	103	30	2250	2093	0.930
	Summer	86	44	2250	2095	0.931
	Autumn	188	66	2250	1987	0.883
Cannore	Winter	131	35	2250	2123	0.944
	Summer	50	15	2250	2121	0.943
	Autumn	131	20	1500	1409	0.939
Kasaragode	Winter	114	29	2250	2067	0.919
	Summer	48	32	1500	1363	0.909
	Autumn	1804	882	42000	37643	0.896
State	Winter	2050	848	96000	87431	0.911
	Summer	852	426	49250	43900	0.891

Table 3.1 - **Yield estimate - Rice - 1987-'88**

District	Area under crop			No. of experiments			Estimated yield Kg/hectare of dry paddy	Sampling errors percentage	Total production of rice in tonnes
	Season		Coverage	Planned	Analysed	Response			
1	2	3	4	5	6	7	8	9	10
Thiruvananthapuram	Atumn	10920	100	296	285	96	2658	2.18	19071
	Winter	12156	100	345	333	97	2172	1.80	17345
	Summer	224	100	29	27	93	1094	6.31	161
Kollam	Autumn	13932	100	302	300	99	2964	2.09	27129
	Winter	16239	100	309	305	99	2471	1.54	26360
	Summer	56	100	10	10	100	190	1.05	7
Pathanamthitta	Autumn	4626	100	169	163	96	3316	4.19	10078
	Winter	5528	100	182	176	97	3227	1.77	11719
	Summer	3948	100	87	78	90	4509	3.57	11693
Alappuzha	Autumn	19858	100	235	228	97	2758	3.26	35985
	Winter	23796	100	268	254	95	2807	3.21	43883
	Summer	17109	100	131	107	82	3848	2.75	43254
Kottayam	Autumn	9778	100	207	202	98	3391	3.72	21785
	Winter	12982	100	231	225	97	3147	6.77	26838
	Summer	7094	100	95	86	91	3742	5.61	17439
Idukki	Autumn	2112	100	67	65	97	3424	4.44	4751
	Winter	3526	100	77	77	100	2761	2.46	5906
	Summer	-	100	-	-	-	-	-	-
Ernakulam	Autumn	31044	100	387	387	100	2357	1.95	48082
	Winter	33111	100	343	343	100	2344	1.49	50989
	Summer	15663	100	262	262	100	2015	2.95	20739

(Contd..)

(Table 3.1 contd..)

1	2	3	4	5	6	7	8	9	10
Trissur	Autumn	25380	100	309	307	99	2163	3.01	36060
	Winter	44259	100	429	427	99	2288	1.75	66565
	Summer	14587	100	304	299	98	2959	1.79	28262
Palakkad	Autumn	74376	100	480	470	98	3044	2.53	148723
	Winter	68382	100	451	441	98	2518	2.30	113113
	Summer	1907	100	134	128	96	3363	3.05	4213
Malappuram	Autumn	22690	100	325	325	100	1996	3.26	29752
	Winter	30621	100	468	460	98	2141	1.59	43073
	Summer	3160	100	216	212	98	2984	2.33	6196
Kozhikode	Autumn	3855	100	243	238	98	1526	7.40	3866
	Winter	9685	100	270	265	98	1521	3.29	9678
	Summer	2040	100	145	128	88	1829	5.05	2452
Wayanad	Autumn	-	100	-	-	-	-	-	-
	Winter	18418	100	205	205	100	2508	2.67	30354
	Summer	2881	100	171	171	100	3121	2.92	5907
Cannore	Autumn	12700	100	375	375	100	2252	2.71	18788
	Winter	9343	100	362	362	100	2327	3.39	14287
	Summer	462	100	100	100	100	1749	4.35	531
Kasaragode	Autumn	9174	100	262	262	100	2700	2.41	16273
	Winter	6115	100	228	227	99	2538	2.05	10198
	Summer	665	100	95	95	100	2518	2.74	1100
State	**Autumn**	**240445**	**100**	**3657**	**3607**	**99**	**2661**	**1.05**	**420343**
	Winter	**293891**	**100**	**4168**	**4100**	**98**	**2436**	**0.86**	**470308**
	Summer	**69746**	**100**	**1779**	**1703**	**96**	**3098**	**1.53**	**141954**

Table 4.1 - **Data on driage percentage recovery of final produce (dry paddy) from harvested produce**

Districts	Season	No.of experiments		Driage ratio (Percentage
		Manual	Analysed	
1	2	3	4	5
	Autumn	12	12	90.8
Thiruvananthapuram	Winter	48	48	91.1
	Summer	7	7	89.7
	Autumn	15	15	97.2
Kollam	Winter	51	51	88.1
	Summer	2	2	89.0
	Autumn	15	15	91.3
Pathanamthitta	Winter	29	29	92.1
	Summer	22	22	91.5
	Autumn	18	18	88.7
Alappusha	Winter	28	28	91.0
	Summer	15	15	91.3
	Autumn	15	15	87.5
Kottayam	Winter	18	18	90.1
	Summer	15	15	90.8
	Autumn	6	6	87.5
Idukki	Winter	12	12	91.1
	Summer	-	-	-
	Autumn	21	21	89.8
Ernakulam	Winter	35	35	91.5
	Summer	48	48	84.1
	Autumn	15	15	88.8
Trissore	Winter	21	21	92.2
	Summer	20	20	91.6
	Autumn	15	15	90.8
Palakkat	Winter	30	30	89.3
	Summer	23	23	87.4

(Contd../-)

Table 4.1 contd..)

1	2	3	4	5
	Autumn	12	12	92.7
Malappuram	Winter	76	76	92.6
	Summer	12	12	92.3
	Autumn	9	9	89.4
Kozhikode	Winter	9	9	89.6
	Summer	9	9	88.2
	Autumn	-	-	-
Wayanad	Winter	9	9	93.0
	Summer	9	9	93.1
	Autumn	9	9	88.3
Cannore	Winter	9	9	94.4
	Summer	9	9	94.3
	Autumn	6	6	93.9
Kasaragode	Winter	9	9	91.9
	Summer	6	6	90.9
	Autumn	**168**	**168**	**89.6**
State	**Winter**	**384**	**384**	**91.1**
	Summer	**197**	**197**	**89.1**

Table 5.1 - **Crop estimation survey 1987-'88**
Statement showing the percentage of area under different improved agricultural practices

CROP: PADDY

AUTUMN: 1988

Districts	Improved varieties	Other varieties	Chemical fertilizers	Other manured	Not manured	Percentage of area Treated with plant protection chemicals	Not treated with plant protection chemicals
1	2	3	4	5	6	7	8
Thiruvananthapuram	20.35	79.65	99.30	-	0.70	34.39	65.61
Kollam	70.33	29.67	94.00	5.00	1.00	20.00	80.00
Pathanamthitta	46.01	53.99	96.93	3.07	-	66.87	33.13
Alappusha	36.84	63.16	77.19	10.09	12.72	36.84	63.16
Kottayam	54.46	45.54	100.00	-	-	55.45	44.55
Idukki	7.69	92.31	100.00	-	-	67.69	32.31
Ernakulam	37.21	62.79	99.48	-	0.52	52.71	47.29
Trissore	21.50	78.50	79.48	16.94	3.58	41.69	58.31
Palakkat	13.83	86.17	79.15	14.89	5.96	14.26	85.74
Malappuram	20.00	80.60	51.69	40.00	8.31	34.15	65.85
Kozhikode	28.15	71.85	61.77	29.41	8.82	14.29	85.71
Wayanad	-	-	-	-	-	-	-
Cannore	42.40	57.60	67.70	22.40	9.87	9.87	90.13
Kasaragode	17.18	82.82	80.92	14.88	4.20	16.41	83.59
State	**31.99**	**68.01**	**81.73**	**13.53**	**4.74**	**31.36**	**68.64**

Table 5.2 - **Crop estimation survey 1987-'88**
Statement showing the percentage of area under different improved agricultural practices

CROP: PADDY

WINTER: 1988

Districts	Improved varieties	Other varieties	Chemical fertilizers	Other manured	Not manured	Percentage of area Treated with plant protection chemicals	Not treated with plant protection chemicals
1	2	3	4	5	6	7	8
Thiruvananthapuram	11.11	88.89	98.80	0.30	0.90	54.05	45.95
Kollam	5.57	94.43	93.77	5.57	0.66	18.69	81.31
Pathanamthitta	43.18	56.82	98.86	0.57	0.57	63.64	36.36
Alappusha	12.99	87.01	73.62	13.39	12.99	46.85	53.15
Kottayam	65.78	34.22	100.00	-	-	93.78	6.22
Idukki	14.29	85.71	98.70	1.30	-	57.14	42.86
Ernakulam	15.74	84.26	93.00	4.37	2.63	75.51	24.49
Trissore	9.13	90.87	79.39	16.63	3.98	59.95	40.05
Palakkat	5.67	94.33	89.12	8.39	2.49	45.80	54.20
Malappuram	8.91	91.09	70.00	24.57	5.43	52.39	47.61
Kozhikode	6.42	93.58	60.76	28.30	10.94	20.75	79.25
Wayanad	12.20	87.80	56.59	26.83	16.58	18.05	81.95
Cannore	22.10	77.90	74.31	22.10	3.59	43.37	56.63
Kasaragode	10.13	89.87	93.99	4.85	1.76	49.78	50.22
State	**15.27**	**84.73**	**83.12**	**12.46**	**4.43**	**49.83**	**50.17**

Table 5.3 - **Crop estimation survey 1987-'88**
Statement showing the percentage of area under different improved agricultural practices

CROP: PADDY

SUMMER: 1988

Districts	Improved varieties	Other varieties	Chemical fertilizers	Other manured	Not manured	Percentage of area Treated with plant protection chemicals	Not treated with plant protection chemicals
1	2	3	4	5	6	7	8
Thiruvananthapuram	29.63	70.37	100.00	-	-	85.19	14.81
Kollam	40.00	60.00	100.00	-	-	100.00	-
Pathanamthitta	55.13	44.87	100.00	-	-	100.00	-
Alappuzha	58.88	41.12	100.00	-	-	95.33	4.67
Kottayam	93.02	6.98	100.00	-	-	100.00	-
Idukki	-	-	-	-	-	-	-
Ernakulam	28.24	71.76	99.62	0.38	-	83.97	16.03
Trissoor	45.15	54.85	98.67	0.33	1.00	91.64	8.36
Palakkat	25.00	75.00	89.06	7.03	3.91	67.19	32.81
Malappuram	54.72	45.28	88.20	9.91	1.89	83.49	16.51
Kozhikode	41.41	58.59	82.81	10.16	7.03	48.44	51.56
Wayanad	70.76	29.24	77.20	17.54	5.26	25.15	74.85
Cannore	28.00	72.00	85.00	15.00	-	31.00	69.00
Kasaragode	15.78	84.22	100.00	-	-	53.68	46.32
State	**45.33**	**54.67**	**92.96**	**5.28**	**1.76**	**76.81**	**23.19**

Table 6 - Yield estimates tapioca - 1987-'88

Districts	No. of experiments		Estimated mean yield (in tonnes)
	Planned	Analysed	
1	2	3	4
Thiruvananthapuram	108	107	16.77
Kollam	100	100	16.09
Pathanamthitta	72	72	18.32
Alappuzha	34	34	22.01
Kottayam	105	105	21.79
Idukki	66	64	25.21
Ernakulam	104	104	21.07
Trissoor	100	95	16.74
Palakkat	147	144	19.89
Malappuram	138	137	20.93
Kozhikode	85	84	13.48
Wayanad	66	66	28.33
Cannore	136	136	19.41
Kasaragode	56	55	16.42
State	**1317**	**1303**	**18.72**

Table 7 - Yield estimates of coconut - 1987-'88

District	No.of experiments		Average yield/tree (Nos.)	Estimated mean yield (No. of Nuts/hect)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	195	188	27	4103
Kollam	160	160	30	4013
Pathanamthitta	118	118	27	4112
Alappuzha	142	142	30	4454
Kottayam	180	180	22	3790
Idukki	116	97	34	3406
Ernakulam	211	182	33	5160
Trissoor	230	220	36	5398
Palakkat	265	'265	23	2614
Malappuram	249	242	28	3880
Kozhikode	176	176	30	4785
Wayanad	108	100	24	1246
Cannore	217	217	29	4236
Kasaragode	174	143	31	4196
State	**2541**	**2430**	**29**	**4313**

Table 8 - Yield estimates - Arecanut - 1987-'88

Districts	No.of experiments		Average Yield/trees (Nos.)	Estimated meanyield (No. of nuts/(Ha)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	110	102	77	153941
Kollam	100	100	104	156962
Pathanamthitta	72	72	89	222517
Alappuzha	78	60	89	138972
Kottayam	110	110	69	171716
Idukki	74	59	95	162655
Ernakulam	116	116	153	247541
Trissure	136	135	86	204014
Palakkad	168	108	66	95331
Malappuram	156	150	81	137902
Kozhikode	104	104	105	164407
Wayanad	72	72	193	214054
Cannore	138	138	156	178916
Kasaragode	96	85	152	198697
State	**1530**	**1411**	**108**	**176175**

Table 9 - Yield estimation of cashew 1987-'88

Districts	No. of experiments		Average yield/trees (in Kg.)	Estimated mean yield (Kg./Ha.)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	110	100	1.927	467.389
Kollam	100	96	3.553	850.358
Pathanamthitta	72	58	4.526	976.828
Alappuzha	78	65	1.571	397.618
Kottayam	110	57	1.767	415.065
Idukki	74	38	1.428	209.736
Ernakulam	116	98	2.092	410.467
Trissure	136	132	2.035	532.732
Palakkad	168	137	1.214	484.421
Malappuram	156	140	1.712	486.895
Kozhikode	104	95	1.547	407.452
Wayanad	72	39	2.689	591.408
Cannore	138	138	3.663	945.958
Kasaragode	96	81	2.901	638.743
State	**1530**	**1274**	**2.236**	**678.341**

Table 10 - **Yield estimates of Pepper 1987-'88**

Districts	No. of experiments		Average yield/trees (in Kg.)	Estimated mean yield (Kg./Ha.)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	110	106	1.686	234.539
Kollam	106	100	2.266	381.478
Pathanamthitta	72	68	2.406	411.263
Alappuzha	78	50	2.265	314.325
Kottayam	110	107	0.879	143.939
Idukki	74	6	2.462	405.547
Ernakulam	116	110	1.939	241.690
Trissure	136	125	1.871	284.586
Palakkad	168	104	1.233	183.159
Malappuram	156	144	1.499	232.516
Kozhikode	104	98	3.279	209.109
Wayanad	72	72	1.257	528.427
Cannore	138	138	1.715	255.409
Kasaragode	96	75	1.424	203.136
State	**1536**	**1303**	**1.781**	**320.503**

Table 11 - **Yield estimation of cocoa 1987-'88**

Districts	No. of experiments		Average yield/trees (in Kg.)	Average yield Ha/ (Kg.)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	60	48	4.729	312.197
Kollam	38	30	3.912	251.775
Pathanamthitta	72	69	10.762	698.146
Alapuzha	62	46	5.347	513.261
Kottayam	110	103	6.507	447.317
Idukki	54	48	6.970	330.251
Ernakulam	116	95	8.615	609.013
Trissure	60	31	4.613	317.765
Palakkad	10	6	3.281	161.129
Malappuram	36	21	7.596	371.276
Kozhikode	20	16	5.129	188.463
Wayanad	72	48	4.814	347.226
Cannore	50	35	5.114	255.833
Kasaragode	40	21	4.803	259.701
State	**800**	**617**	**6.348**	**418.257**

Table 12 - Yield estimation of Plantain 1987-'88

Districts	No. of experiments		Average yield/plant (in Kg.)	Average yield/Ha. (in tonnes
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	100	100	7.749	6.137
Kollam	100	100	8.595	5.011
Pathanamthitta	72	72	7.462	5.626
Alappuzha	75	66	6.378	4.356
Kottayam	109	109	6.815	5.459
Idukki	56	56	7.062	6.391
Ernakulam	110	110	8.193	4.916
Trissur	137	137	5.781	2.665
Palakkad	153	153	4.771	2.953
Malappuram	144	144	6.461	4.341
Kozhikode	102	102	4.377	2.880
Wayanad	74	74	7.228	6.043
Cannore	134	134	6.612	3.326
Kasaragode	62	62	5.818	3.910
State	**1428**	**1419**	**6.773**	**4.545**

Table 13 - Yield estimation of Banana 1987-'88

Districts	No. of experiments		Average yield/plant (in Kg.)	Average yield hect. (Tonnes)
	Planned	Analysed		
1	2	3	4	5
Thiruvananthapuram	81	81	5.679	11.358
Kollam	104	104	6.554	13.107
Pathanamthitta	82	82	7.364	14.728
Alappuzha	17	17	6.731	13.463
Kottayam	91	91	7.833	15.665
Idukki	5	5	10.276	20.550
Ernakulam	120	120	7.059	14.118
Trissur	99	99	6.043	12.086
Palakkad	115	115	6.346	12.692
Malappuram	56	56	5.848	11.697
Kozhikode	131	131	6.014	12.029
Wayanad	60	60	6.289	12.579
Cannore	162	162	6.723	13.446
Kasaragode	34	34	6.532	13.063
State	**1157**	**1157**	**6.599**	**13.197**

Table 14 - **Yield estimation of sesamum 1987-'88**

Districts	No. of experiments		Average yield/ hectare (Tonnes)
	Planned	Analysed	
1	2	3	4
Thiruvananthapuram	-	-	-
Kollam	10	8	0.761
Pathanamthitta	12	10	0.388
Alappuzha	14	14	0.248
Kottayam	4	2	0.072
Idukki	4	4	0.466
Ernakulam	62	58	0.303
Trissur	70	63	0.329
Palakkat	60	55	0.275
Malappuram	89	54	0.195
Kozhikode	4	3	0.182
Wayanad	24	21	0.321
Cannore	15	11	0.228
Kasaragode	4	3	0.087
State	**372**	**336**	**0.327**

Table 15 - **Yield estimation of groundnut 1987-'88**

Districts	No. of experiments		Average yield/ hectare (In Kg.)
	Planned	Analysed	
1	2	3	4
Thiruvananthapuram	-	-	-
Kollam	-	-	-
Pathanmathitta	-	-	-
Alappuzha	-	-	-
Kottayam	-	-	-
Idukki	-	-	-
Ernakulam	-	-	-
Trissur	-	-	-
Palakkat	16	15	943
Malappuram	-	-	-
Kozhikode	-	-	-
Wayanad	-	-	-
Cannore	-	-	-
Kasaragode	-	-	-
State	**16**	**15**	**943**

Table 16 - Yield estimation of ginger 1987-'88

Districts	No. of experiments		Average yield/ of dry Ginger/ Hect.(tonnes)
	Planned	Analysed	
1	2	3	4
Thiruvananthapuram	-	-	-
Kollam	-	-	-
Pathanamthitta	16	16	1.965
Alappuzha	-	-	-
Kottayam	12	11	2.111
Idukki	38	38	3.393
Ernakulam	22	22	3.076
Trissur	-	-	-
Palakkat	-	-	-
Malappuram	-	-	-
Kozhikode	10	5	1.566
Wayanad	72	71	4.720
Cannore	-	-	-
Kasaragode	-	-	-
State	**170**	**163**	**3.151**

Table 17.1 - **District-wise, season-wise of mean yield of paddy 1986-'87 - 1987-'88 - a comparison**

District	Dry paddy in Kg./Ha Autumn		Dry paddy in Kg/Ha Winter		Dry paddy in Kg/Ha. Summer	
	1986-'87	1987-'88	1986-'87	1987-'88	1986-'87	1987-'88
1	2	3	4	5	6	7
Thiruvananthapuram	2826	2658	2431	2172	1049	1094
Kollam	2534	2964	2556	2471	1409	190
Pathanamthitta	2111	3316	2765	3227	4695	4508
Alappuzha	1487	2758	2609	2807	4237	3848
Kottayam	2428	3391	3383	3147	3638	3742
Idukki	3406	3424	3161	2761	2360	-
Ernakulam	2394	2357	2545	2344	2464	2015
Trissur	2310	2163	2291	2288	2974	2959
Palakkad	3105	3044	2582	2518	2191	3363
Malappuram	2201	1996	2377	2141	2884	2984
Kozhikode	1367	1526	1721	1521	2088	1829
Wayanad	1377	-	3050	2508	2409	3121
Cannore	2278	2252	2058	2327	1303	1749
Kasaragode	2361	2700	2377	2538	2127	2518
State	**2488**	**2661**	**2545**	**2438**	**3204**	**3098**

Table 17.2 - **District-wise mean yield of crops - 1986-'87 & 1987-'88 - a comparison**

Districts	Coconut Nos/Ha.		Arecanut Nos/Ha.		Cashewnut Kg/Ha.		Pepper Kg/Ha.		Cocoa Kg/Ha.		Tapioca in Tonnes/ha.		banana in Tonnes/ha.		Sesamum Kg/Ha.		Plantain Kg/Ha.	
	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88	86-87	87-88
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Thiruvananthapuram	4544	4103	150156	153941	306	467	210	235	264	312	16	15	11	11	276	327	4020	6137
Kollam	4810	4013	170344	156962	959	850	211	381	192	252	16	15	13	13	276	761	3860	5011
Pathanamthitta	5032	4112	277848	222517	1130	977	282	411	818	698	21	20	14	15	276	388	5580	5626
Alappuzha	5143	4454	197856	138972	394	398	312	314	544	513	15	18	14	13	249	245	4070	4356
Kottayam	4104	3790	168072	171716	390	415	138	144	400	447	22	20	11	16	249	72	6170	2459
Idukki	2568	3406	136705	162655	390	210	171	406	463	330	21	26	24	21	108	466	7630	6391
Ernakulam	5202	5160	251482	247541	361	410	140	242	515	609	20	19	11	14	149	303	3370	4916
Trissur	5106	5398	196896	204014	499	533	252	285	312	318	16	14	11	12	236	329	2720	2665
Palakkad	2200	2614	113472	95331	447	484	143	183	4	161	13	19	13	13	468	275	2450	2953
Malappuram	3799	3880	154968	137902	430	487	174	233	375	371	14	14	10	12	175	195	3570	4341
Kozhikode	4950	4785	190744	164407	429	407	203	209	169	188	11	14	10	12	244	182	3600	2880
Wayanad	945	1246	230350	214054	567	591	353	528	201	347	29	29	12	13	244	321	5100	6043
Kannore	4060	4236	170128	178916	1008	946	347	255	187	256	19	18	12	13	382	228	3780	3326
Kasaragode	4309	4196	187344	198697	608	639	308	203	235	260	16	18	10	13	243	87	3120	3910
State	**4492**	**4313**	**182928**	**176175**	**664**	**678**	**236**	**321**	**403**	**418**	**17**	**18**	**12**	**13**	**240**	**327**	**4150**	**4545**