



GOVERNMENT OF KERALA

CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEYS

1984-85 AND 1985-86

DEPARTMENT OF
ECONOMICS & STATISTICS
TRIVANDRUM

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FOREWORD

This report on the consolidated results of crop estimation surveys relates to the period 1984-85 and 1985-86. The methodology employed in cropcutting experiments on major crops viz. Paddy, Tapioca, Coconut, Arecanut, Cashew, Pepper and minor crops selected for the years (1984-85 and 1985-86) is briefly described in this. The minor crops selected for crop cutting experiments during the period under review are sweet potato, ginger and sesamum in 1984-85 and nutmeg, sesamum, turmeric, banana and groundnut in 1985-86.

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

Trivandrum,
-5-1987.

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CONSOLIDATED RESULTS OF CROP ESTIMATION SURVEYS 1984-85 AND 1985-86

1. Introduction

Crop estimation surveys on paddy and tapioca were being conducted regularly in the State even before the introduction of the scheme "Establishment of an Agency for reporting Agricultural Statistics in Kerala". During 1976-77, these surveys were extended to four other important crops viz. coconut, arecanut, cashew and pepper and they were being conducted on 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 1984-85 and 1985-86.

2. Objective

The primary objectives of the survey were to obtain (1) estimates of average yield per hectare of paddy at taluk level and (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 out-turn 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 for the year 1984-85 and 1985-86.

Sl. No.	Crop	1984-85		1985-86	
		No. of Taluks where the surveys were		No. of Taluks where the surveys were	
		Planned	Analysed	Planned	Analysed
1. Paddy :	Autumn	..	55	53	61
	Winter	..	60	60	60
	Summer	..	50	50	56
2. Tapioca		..	55	55	57
3. Coconut		..	59	59	60
4. Arecanut		..	48	48	48
5. Cashewnut		..	40	40	37

Sl. No:	Crop	1984-85		1985-86	
		No. of Taluks where the surveys were		No. of Taluks where the surveys were	
		Planned	Analysed	Planned	Analysed
6.	Pepper	..	49	46	47
7.	Cocoa	..	41	40	48
8.	Nutmeg	..	..	20	19
9.	Sweet potato	..	18	18	..
10.	Ginger	..	36	34	..
11.	Sesamum	..	21	21	33
12.	Turmeric	..	..	40	33
13.	Banana	..	..	51	40
14.	Groundnut	..	..	4	51

4. Design

The Survey started with locating and marking of plot of specified size in the case of paddy, tapioca, sweet potato, ginger, sesamum, turmeric and groundnut, 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 pro forma together with other relevant details.

4.1. Paddy

A stratified multistage 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 subdivision number as the second stage unit and a square plot of side 5 meters 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 a sub sample plot.

4.2. Tapioca

The required number of plots were selected from the list of wet and dry plots. The plots were visited to ascertain its suitability for conducting the experiment. In certain cases, where the plot was found not suitable 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 2×2 sq. meters 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. Sweet Potato, Ginger, Sesamum, Turmeric, Groundnut

The required number of plots will be selected from the list of dryland plots in the case of ginger, turmeric and groundnut and from the frame of wet land plots in the case of sesamum and sweet potato. 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 $2 \times 2\text{m}$ for sweet potato, ginger and turmeric and of size $5 \times 5\text{m}$ for groundnut and sesamum.

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. With the help of the random numbers the south west corner of the experimental plot is located.

The produce from the experimental plot is harvested and the cleared produce is weighed and the weight is recorded correct to half a kg. in the case of ginger, turmeric, sweet potato and groundnut. In the case of sesamum, weight of the grain is ascertained to the nearest 10 gm. unit.

4.4. Coconut, arecanut, cashew, pepper, cocoa, nutmeg and banana

The required number of plots were selected 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, cocoa and nutmeg five trees were selected; while in respect of banana only 3 plants were selected. The details of produce harvested were recorded in the prescribed pro forma.

5. Sample Size

Total number of crop cutting experiment planned during the years 1984-85 and 1985-86 are given below:

<i>Sl. No.</i>	<i>Crop</i>	<i>1984-85</i>	<i>1985-86</i>
1.	Paddy :		
	Autumn	..	1520
	Winter	..	1558
	Summer	..	1007
2.	Tapioca	..	1102
			1273

<i>Sl. No.</i>	<i>Crop</i>	<i>1984-85</i>	<i>1985-86</i>
3.	Coconut	..	541
4.	Arecanut	..	420
5.	Cashew	..	398
6.	Pepper	..	384
7.	Cocoa	..	300
8.	Nutmeg	..	74
9.	Sweet Potato	..	170
10.	Ginger	..	315
11.	Sesamum	..	260
12.	Turmeric	..	..
13.	Banana	..	160
14.	Groundnut	..	264
		..	40

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 and 1.2 in the appendix. Details regarding the number of experiments planned and analysed in respect of all other crops for the year 1984-85 and 1985-86 are shown in Table 6 to 18.

9. Supervision

The field work of the investigators was supervised by the Statistical Inspectors at Taluk level. District level officers also conducted inspections. All inspecting officers at 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 one randomly selected experiment 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 per cent of the experiments planned in a taluk, which ever is less. Apart from these inspections at pre-harvest and post harvest stage were done 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 1984-85 and 1985-86 are given in table 2·1 and 2·2 in the appendix.

The estimated mean yield of dry paddy, the percentage sampling error and the total production of rice during the three Seasons for the year 1984-85 and 1985-86 are shown in table 3·1 and 3·2 in the appendix.

The details showing the driage ratio of paddy and percentage area under different agricultural practices during the years 1984-85 and 1985-86 for Autumn, Winter and Summer are given in tables 4, 5·11, 5·12, 5·13, 5·21, 5·22 and 5·23 respectively.

The estimated mean yield rates of tapioca, coconut, arecanut, cashew, pepper, cocoa, nutmeg, sweet potato, ginger, Sesamum, Turmeric, Banana and Groundnut are given in tables 6 to 18 in the appendix.

TABLE 1.1

Coverage Sample Size and Response

Year: 1984-85

Crop: Paddy

District	Autumn 1984				Winter 1985				Summer 1985				Total 1984-85			
	No. of experiments				No. of experiments				No. of experiments				No. of experiments			
	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed
1	2	3	4	5	6	7	8	9	10	11	12	13	Total	96	1007	96
Trivandrum	120	113	94	120	118	98	48	46	96	288	277	96	96	288	277	96
Quilon	155	152	98	132	132	100	23	23	100	310	307	99	99	310	307	99
Pathanamthitta	44	41	93	50	49	98	39	38	97	133	128	96	96	133	128	96
Alleppey	154	138	90	154	145	94	116	107	92	424	390	92	92	424	390	92
Kottayam	100	97	97	96	89	93	84	82	98	280	268	96	96	280	268	96
Idukki	36	34	94	53	51	96	5	5	5	100	94	90	90	100	94	90
Ernakulam	220	213	97	200	199	100	148	148	100	568	560	99	99	568	560	99
Trichur	137	122	89	145	127	88	114	106	93	396	355	90	90	396	355	90
Palghat	160	149	93	160	149	93	68	65	96	388	363	94	94	388	363	94
Malappuram	135	128	95	120	112	93	80	74	93	335	314	94	94	335	314	94
Kozhikode	84	77	92	84	78	93	62	57	92	230	212	92	92	230	212	92
Wayanad	175	172	98	90	90	100	78	76	97	168	166	99	99	168	166	99
Cannanore				153	99	142	139	98	98	471	464	99	99	471	464	99
State	1520	1436	94	1558	1492	96	1007	96	966	4085	3894	95	95	4085	3894	95

Year : 1985-86

TABLE 1^{a,2}
Coverage Sample Size and Response
Crop : Paddy

District	Autumn 1985				Winter 1986				Summer 1986				Total 1985-86				No. of Experiments	No. of Experiments	Percentage Response	Planned	Analysed	Percentage Response																																																																																																																																																													
	No. of Experiments																																																																																																																																																																																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																					
Trivandrum	120	113	94	120	112	93	64	60	94	304	285	94	Quilon	123	85	140	138	99	64	45	70	349	306	88	Pathanamthitta	68	64	94	70	100	84	69	82	90	222	203	91	Alleppey	144	83	164	151	92	114	103	90	442	398	90	Kottayam	110	109	99	110	108	98	92	90	98	312	307	98	Idukki	36	34	94	77	77	100	48	15	31	161	126	78	Ernakulam	220	220	100	200	100	148	147	99	93	568	567	100	Trichur	137	130	95	145	133	92	120	111	93	402	374	93	Palghat	160	158	99	160	158	99	92	84	91	412	400	97	Malappuram	135	134	99	120	115	96	84	84	100	339	333	98	Kozhikode	84	80	95	84	80	95	66	57	86	234	217	93	Wayanad	175	175	100	154	90	89	99	72	100	162	161	99	Cannanore	471	469	100	State	1554	1484	95	1634	1583	97	1190	1079	91	4378	4146	95

TABLE 2.1
Supervision of field work—Rice—Independent estimate of meanyield of paddy based on harvest stage inspection 1984-85

District/State	Season	No. of experiments		Meanyield rate of paddy Kg. Hect.			
		Planned for inspection at harvest stage	Inspected at harvest stage	Before drainage	After drainage	Driage ratio used	
1	2	3	4	5	6	7	
Trivandrum	Autumn	60	55	3166	2830	.894	
	Winter	60	58	2540	2266	.892	
	Summer	24	19	1259	1103	.876	
	Autumn	78	82	2151	1899	.883	
Quilon	Autumn	66	88	3031	2634	.869	
	Winter	12	17	1308	1148	.878	
	Summer	22	11	3455	3040	.880	
	Autumn	25	42	2982	2714	.910	
Pathanamthitta	Winter	20	24	1927	1771	.919	
	Summer	77	78	2820	2411	.855	
	Autumn	77	76	2020	1826	.904	
	Winter	58	52	4165	3728	.895	
Alleppey	Summer	50	57	3466	3022	.872	
	Autumn	48	66	3158	2836	.898	
	Winter	42	42	3643	3320	.910	
	Summer	18	21	3433	3028	.882	
Idukki	Autumn	18	21	4014	3512	.875	
	Winter	27	32	3389	3084	.910	
	Summer	3	3	2988	2546	.852	
	Autumn	110	92	2864	2578	.900	
Ernakulam	Winter	100	84	2724	2438	.895	
	Summer	74	76				

TABLE 2.1—(cont.)

District/State	Season	No. of experiments			Mean yield rate of paddy Kg./Hect.			
		Planned for inspection at harvest stage	Inspected at harvest stage	Before drainage	After drainage	5	6	7
1	2	3	4					
Trichur	Autumn	66	41	2352	2107	.896		
	Winter	72	50	2303	2121	.921		
	Summer	57	40	2405	2186	.909		
	Autumn	80	78	3837	3346	.872		
Palghat	Autumn	80	73	3127	2836	.907		
	Winter	80	32	1513	1348	.891		
	Summer	34	39	2208	2016	.913		
	Autumn	68	58	2410	2212	.918		
Malappuram	Winter	60	36	1221	1121	.918		
	Summer	40	41	1513	1345	.889		
	Autumn	42	45	2759	2502	.907		
	Winter	42	36	3478	3214	.924		
Kozhikode	Summer	31	29	1995	1891	..		
	Autumn	..	..	3121	2962	.948		
	Winter	45	25	2045	1814	.949		
	Summer	39	46	2102	1944	.887		
Wayanad	Summer	87	46	2536	2351	.925		
	Autumn	77	55	641	2794	.927		
	Winter	71	47	758	2718	.878		
	Summer	758	641	779	2718	.904		
Cannanore	Autumn	..	..	756	2457	.957		
	Winter	..	..	505	2819	.907		
State	Summer	..	..	..	..	..
	Winter	..	..	..	..	..

TABLE 2.2
Supervision of field work—Rice—Independent estimate of meanyield of paddy based on
harvest stage inspection 1985-86

District/State	Season	No. of Experiments		Meanyield rate of paddy (kg./hect.)		
		Planned for inspection at harvest stage	Inspected at harvest stage	Before drainage	After drainage	Driage ratio used
1	2	3	4	5	6	7
Trivandrum	—	Autumn Winter Summer	60 32 73	48 34 33	3513 2511 397	3197 2285 353
Quilon	..	Autumn Winter Summer	91 70 32	91 70 31	2933 2463 862	2572 2190 770
Pathanamthitta	—	Autumn Winter Summer	34 35 42	51 33 46	2508 1715 4411	2305 1547 4036
Alleppey	—	Autumn Winter Summer	57 82 82	42 88 88	1743 1743 1794	1607 1607 1568
Kottayam	—	Autumn Winter Summer	55 55 46	44 47 43	4661 2477 3121	4223 2182 2803
Idukki	—	Autumn Winter Summer	18 38 24	24 27 11	3397 3358 2935	4157 3002 2935
Ernakulam	..	Autumn Winter Summer	110 100 74	91 100 30	3109 2985 100	2658 2719 2696

TABLE 2.2—(cont.)

District/State	Season	No. of Experiments		Mean yield rate of paddy (kg./hect.)				Driage ratio used
		Planned for inspection at harvest stage	Inspected at harvest stage	Before driage		After driage		
1	2	3	4	5	6	7		
Trichur	..	Autumn Winter	62 73	53 40	2028 3135	1803 2862		.889 .913
Palghat	..	Summer Autumn Winter	60 80 86	41 86 73	3174 3487 3344	2911 2978 2956		.917 .854 .884
Malappuram	..	Summer Autumn Winter	46 68 60	44 36 24	2313 2893 2612	2061 2659 2398		.891 .919 .918
Kozhikode	..	Summer Autumn Winter	42 42 42	25 45 34	3200 1974 1965	2982 1816 1804		.932 .920 .918
Wayanad	..	Summer Autumn Winter	33 11 45	18 .. 20	2753 3104	2549 2846		.926 .917 .916
Cannanore	..	Summer Autumn Winter	36 87 77	25 52 47	1931 2632 2848	1856 2295 2575		.872 .904 .942
State	..	Autumn Summer Autumn Winter	777 71 817 595	47 47 637 425	2373 2783 2719 3087	2235 2449 2507 2825		.880 .922 .915

TABLE 3.1
Yield estimate—Rice—1984-85

Crop: Paddy

District	Season	Area under crop		No. of experiments		Estimated yield in kg/hect. of dry paddy	Sampling errors (per cent)	Total production of rice in tonnes	
		Total (hect.)	Coverage (per cent)	Planned	Analysed				
1	2	3	4	5	6	7	8	9	10
Trivandrum	Autumn	13491	100	120	113	94	2761	4.17	24470
	Winter	13203	100	120	118	98	2368	3.21	20545
	Summer	326	100	48	46	96	1419	10.78	304
Quilon	Autumn	18997	100	155	152	98	2219	3.88	27693
	Winter	18326	100	132	132	100	2574	2.80	30992
	Summer	240	100	23	23	100	1547	13.77	244
Pathanamthitta	Autumn	7394	100	44	41	93	2801	2.25	13607
	Winter	6549	100	50	49	98	2842	4.36	12227
	Summer	3496	100	39	38	97	4391	2.23	10086
Alleppey	Autumn	32756	100	154	138	90	2866	2.41	61687
	Winter	15984	100	154	145	94	2057	5.30	21606
	Summer	24870	100	116	107	92	3502	4.20	57221
Kottayam	Autumn	11559	100	100	97	97	3295	4.86	25021
	Winter	14615	100	96	89	93	2818	4.12	27056
	Summer	5816	100	84	82	98	3793	5.88	14495
Idukki	Autumn	3525	100	36	34	94	3071	3.06	7112
	Winter	4590	100	53	51	96	3160	2.97	9530
	Summer	360	100	5	5	100	3353	10.95	793
Ernakulam	Autumn	36690	100	220	213	97	2573	2.33	62011
	Winter	38422	100	200	199	100	2554	2.43	64482
	Summer	14071	100	148	148	100	2456	3.79	22706

TABLE 3.1—(cont.)

District	Season	Area under crop (in hectares)		No. of experiments		Estimated yield in kg/hectare of dry paddy	Sampling errors (per cent)	Total production of rice in tonnes	
		Total (per cent)	Coverage (in hectares)	Planned response (per cent)	Analytical response (per cent)				
1	2	3	4	5	6	7	8	9	10
Trichur	Autumn	35576	100	137	122	89	1823	6.03	42606
	Winter	49705	100	145	127	88	2261	4.11	73828
	Summer	117259	100	114	106	93	2729	8.39	30947
	Autumn	86639	100	160	149	93	3455	3.33	196006
Palghat	Winter	78006	100	160	149	93	2957	3.62	151524
	Summer	1967	100	68	65	96	2275	4.22	2940
	Autumn	32251	100	135	128	95	1945	3.44	41216
	Winter	35861	100	120	112	93	2164	3.37	50974
Malappuram	Summer	5013	100	74	74	93	2557	7.47	8522
	Autumn	7439	100	84	77	92	1259	7.39	6152
	Winter	11432	100	84	78	93	1861	5.27	13977
	Summer	2474	100	62	57	92	2319	5.61	3769
Kozhikode	Autumn	4	100	..	..	..	1377	..	..
	Winter	23143	100	90	90	100	2758	4.28	41932
	Summer	6504	100	78	76	97	2704	2.44	11553
	Autumn	32590	100	175	172	98	1935	4.29	41442
Wayanad	Winter	16976	100	154	153	99	1900	2.68	21186
	Summer	2500	100	142	139	98	2113	2.03	3470
	Autumn	31861	100	1520	1496	94	2623	1.45	549027
	Winter	326812	100	1558	1492	96	2514	1.35	539859
Cannanore	Summer	84956	100	1007	966	96	2993	2.27	167050
	Autumn	..	..	..	..	..	..	..	..
	Winter	..	..	..	..	..	..	..	..
State	..	..	..	..	..	..	..	..	..

TABLE 3.2
Yield estimate—RICE—1985-86

Crop Paddy

District	Season	Area under crop		No. of experiments		Estimated yield (kg/hect.)	Sampling error (per cent)	Total production of rice in tonnes	
		Total (hect.)	Coverage (per cent)	Planned	Analysed				
1	2	3	4	5	6	7	8	9	10
Trivandrum	Autumn	12875	100	120	113	94	3188	2.95	26965
	Winter	13167	100	120	112	93	2290	2.62	19805
Quilon	Summer	310	100	64	60	94	1645	8.94	335
	Autumn	16667	100	145	123	85	2833	3.53	31024
	Winter	17920	100	140	138	99	2510	2.63	29551
Pathanamthitta	Summer	207	100	64	45	70	1912	7.69	260
	Autumn	5090	100	68	64	94	2167	6.65	7248
	Winter	6507	100	70	70	100	2861	6.40	12231
Alleppey	Summer	2901	100	84	69	82	4321	4.19	8236
	Autumn	13331	100	164	144	88	1492	6.23	13261
	Winter	17075	100	164	151	92	2620	3.36	29388
Kottayam	Summer	25339	100	114	103	90	4148	3.62	69322
	Autumn	10384	100	110	109	99	1881	4.31	12831
	Winter	15240	100	110	108	98	2717	3.28	27201
Idukki	Summer	6260	100	92	90	98	4394	3.82	18072
	Autumn	3431	100	36	34	94	3049	7.58	6872
	Winter	4447	100	77	77	100	3152	2.71	9267
Ernakulam	Summer	373	100	48	15	31	2881	16.77	706
	Autumn	34420	100	220	220	100	2625	2.17	59332
	Winter	35483	100	200	200	100	2565	2.07	59785
	Summer	14901	100	148	147	99	2413	2.28	23619

TABLE 3.2—(cont.)

District	Season	Area under crop (hectares)		No. of experiments		Sampling error (per cent)	Estimated yield of dry paddy (kg/hectare)	Total production of rice in tonnes	
		Total Planted	Coverage (per cent)	Analysed	Response (Per cent)				
1	2	3	4	5	6	7	8	9	10
Trichur	Autumn	32362	100	137	95	1951	4.41	41482	
	Winter	45671	100	145	92	2542	2.86	76281	
	Summer	17182	100	120	111	3027	4.59	34173	
	Autumn	84957	100	160	158	3058	3.14	170701	
	Winter	73950	100	160	158	2750	3.93	133622	
	Summer	1948	100	92	84	2076	8.96	2657	
Palghat	Autumn	28581	100	135	134	99	1906	3.20	35796
	Winter	32089	100	120	115	96	2248	3.60	47384
	Summer	4792	100	84	84	100	3137	5.04	9876
	Autumn	5504	100	84	80	95	1661	6.56	6005
	Winter	10893	100	84	80	95	1886	1.59	13499
	Summer	2353	100	66	57	86	1869	6.58	2890
Malappuram	Autumn	7	100	90	89	99	1377	6	6
	Winter	24648	100	100	72	72	2722	4.52	44077
	Summer	6112	100	100	75	100	2669	6.63	10717
	Autumn	31890	100	175	154	152	2498	3.07	50449
	Winter	16333	100	142	142	100	2055	3.06	24889
	Summer	2381	100					2.82	3215
Kozhikode	Autumn	279699	100	1554	1484	95	2514	1.39	461992
	Winter	313423	100	1634	1583	97	2559	1.29	522981
	Summer	85159	100	1190	1079	91	3290	1.91	184078
State									

TABLE 4
Data on drainage percentage recovery of final produce (dry paddy) from harvested products
1984-85 and 1985-86

District	Season	Driage experiments						Driage ratio per cent
		1984-85		1985-86		No. of experiments analysed	No. of experiments planned	
1	2	3	4	5	6	7	8	
Trivandrum	Autumn	12	12	89.40	12	12	12	90.97
	Winter	12	12	89.20	12	12	12	91.00
	Summer	11	11	87.60	12	12	12	88.90
	Autumn	18	18	88.30	12	12	12	87.73
	Winter	15	15	86.90	18	18	18	88.91
	Summer	7	7	87.80	10	10	10	89.30
Pathanamthitta	Autumn	9	9	87.16	14	14	14	88.49
	Winter	14	14	91.00	15	15	15	92.21
	Summer	11	11	91.90	16	16	16	92.70
	Autumn	18	18	85.50	18	18	18	87.38
	Winter	18	18	90.40	20	20	20	90.21
	Summer	16	16	89.50	15	15	15	90.60
Alleppey	Autumn	14	14	87.20	15	15	15	87.89
	Winter	15	15	89.80	15	15	15	89.50
	Summer	11	11	91.00	11	11	11	91.50
	Autumn	6	6	88.20	6	6	6	86.40
	Winter	12	12	87.50	12	12	12	89.40
	Summer	2	2	91.00	2	2	2	91.00
Kottayam	Autumn	21	21	85.20	26	26	26	85.54
	Winter	18	18	90.00	18	18	18	91.10
	Summer	20	20	89.50	20	20	20	89.90

TABLE 4—(cont.)

District	Season	Driage experiments						
		1984-85		1985-86		No. of experiments analysed	No. of experiments planned	Driage ratio per cent
1	2	3	4	5	6			
Trichur	Autumn	15	15	89.60	15	15	15	88.91
	Winter	14	14	92.10	15	15	15	91.30
	Summer	15	15	90.70	15	15	15	91.70
	Autumn	15	15	87.20	15	15	15	85.39
	Winter	15	15	90.70	15	15	15	88.30
	Summer	12	12	89.10	15	15	15	89.10
	Autumn	12	12	91.30	12	12	12	91.87
	Winter	12	12	91.80	12	12	12	91.80
	Summer	12	12	91.80	12	12	12	93.20
	Autumn	9	9	88.90	9	9	9	92.00
	Winter	9	9	90.70	9	9	9	91.80
	Summer	9	9	92.40	9	9	9	96.10
Malappuram	Autumn	9	9	94.80	9	9	9	94.70
	Winter	15	15	88.70	16	16	16	96.10
	Summer	15	15	92.50	16	16	16	87.23
Kozhikode	Autumn	16	16	92.70	16	16	16	90.41
	Winter	164	164	87.80	170	170	170	87.98
	Summer	178	178	90.40	186	186	186	90.60
Wayanad	Autumn	151	151	90.70	162	162	162	91.50
	Winter	164	164	87.80	170	170	170	87.98
	Summer	178	178	90.40	186	186	186	90.60
Cannanore	Autumn	15	15	94.90	9	9	9	94.70
	Winter	15	15	92.50	16	16	16	90.41
	Summer	16	16	92.70	16	16	16	94.20
State	Autumn	164	164	87.80	170	170	170	87.98
	Winter	178	178	90.40	186	186	186	90.60
	Summer	151	151	90.70	162	162	162	91.50

Autumn: 1984

TABLE 5.1.1
Crop estimation survey 1984-85—Statement showing the percentage area under different improved agricultural practices

Crop: Paddy

District	Percentage area under *									Remarks	
	Improved varieties			Other varieties			Chemical fertilizers				
	1	2	3	4	5	6	7	8	9		
Trivandrum	28.32	71.68	100.00	3.29	..	..	69.91	30.09		
Quilon	57.89	42.11	96.71	2.44	57.89	42.11					
Pathanamthitta	51.22	48.78	97.56	10.14	56.10	43.90					
Allerpey	57.25	42.75	83.34	6.52	45.65	54.35					
Kottayam	79.38	20.62	91.75	6.19	2.06	74.23	25.77				
Idukki	41.18	58.82	100.00	..	64.71	35.29					
Ernakulam	51.64	48.36	80.75	6.57	12.68	63.85	36.15				
Trichur	15.57	84.43	30.33	45.98	24.59	28.69	71.31				
Palghat	37.58	62.42	79.19	16.78	4.03	32.21	67.79				
Malappuram	13.28	86.72	57.03	33.59	9.38	39.06	60.94				
Kozhikode	29.87	70.13	54.54	42.86	2.60	29.87	70.13				
Wayanad	27.33	72.67	61.05	28.49	10.46	13.37	86.63				
Cannanore	..										
State	40-60	59-40	75-56	16-64	7-80	46-10	53-90				

*Based on the number of crop cutting experimental plots

TABLE 5.1.2

Crop estimation survey 1984-85—Statement showing the percentage area under different improved agricultural practices

Winter: 1985

Crop: Paddy

District	Percentage area under *									Remarks	
	Improved varieties			Other varieties			Chemical fertilizers				
	1	2	3	4	5	6	7	8	9		
Trivandrum	25.42	74.58	100.00	3.03	1.32	58.47	41.53				
Quilon	18.18	81.82	95.45	4.08	1.38	48.48	51.52				
Pathanamthitta	51.02	48.98	95.92	3.45	1.45	63.27	36.73				
Alleppey	15.17	84.83	95.17	1.12	1.12	46.21	53.79				
Kottayam	68.54	31.46	98.88	3.92	5.88	88.76	11.24				
Idukki	31.37	68.63	90.20	2.51	5.86	56.86	43.14				
Ernakulam	13.07	86.93	89.95	7.54	2.51	78.39	21.61				
Trichur	16.54	83.46	64.57	32.28	3.15	48.03	51.97				
Palghat	24.83	75.17	85.23	11.41	3.36	34.90	65.10				
Malappuram	16.07	83.93	78.57	19.64	1.79	61.61	38.39				
Kozhikode	11.54	88.46	65.56	25.56	8.88	24.44	75.56				
Wynad	37.78	62.22	50.00	32.05	17.95	44.87	55.13				
Cannanore	23.53	76.47	82.35	13.73	3.92	63.40	36.60				
State	24.06	75.94	84.65	11.80	3.55	55.70	44.30				

*Based on the number of crop cutting experimental plots

Crop estimation survey 1984-85—Statement showing the percentage area under different improved agricultural practices

Summer: 1985

Crop: Paddy

District	Percentage area under *								Remarks
	1	2	3	4	5	6	7	8	
Improved varieties									
Others varieties									
Chemical fertilizers									
Others manures									
Not manured									
Treated with pesticides/m									
Untreated with pesticides/m									
State ..	44.51	55.49	88.82	88.82	8.59	2.59	76.29	23.71	

*Based on the number of crop cutting experimental plots

TABLE 5.2.1

Crop estimation survey 1985-86—Statement showing the percentage area under different improved agricultural practices

Crop: Paddy

Autumn: 1985

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District	Improved varieties	Other varieties	Chemical fertilizers	Other manures	Percentage area under*					Remarks
					1	2	3	4	5	
Trivandrum	..	30.97	69.03	100.00	..	..	..	..	..	60.18
Quilon	..	64.22	35.77	90.24	..	..	..	..	..	66.67
Pathanamthitta	..	71.88	28.12	100.00	..	..	..	..	..	28.22
Alleppey	..	30.56	69.44	72.92	19.44	..	..	..	..	48.61
Kottayam	..	61.47	38.53	99.08	..	..	..	..	..	42.20
Idukki	..	23.53	76.47	97.06	2.94	..	..	..	..	41.18
Ernakulam	..	34.09	65.91	73.64	3.27	..	..	..	..	78.18
Trichur	..	24.62	75.38	66.92	24.62	..	..	..	..	37.69
Palghat	..	25.32	74.68	80.38	13.29	..	..	..	..	78.48
Malappuram	..	23.88	76.12	67.91	20.90	..	..	..	..	70.15
Kozhikode	..	20.00	80.00	57.50	27.50	..	..	..	..	83.75
Wayanad	..	37.14	62.86	57.71	35.43	..	..	..	..	..
Gannanore
State	..	36.32	63.68	77.29	14.15	..	..	..	..	55.59

*Based on the number of crop cutting experimental plots.

TABLE 5.2.2
Crop Estimation Survey 1985-86—Statement showing the percentage area under different improved agricultural practices

Crop: Paddy	District	Percentage area under*				Untreated with pesticides				Winter: 1986	
		Improved varieties		Other varieties		Chemical fertil.		Other manures		Treatment of pesticides	
		1	2	3	4	5	6	7	8	9	Remarks
Trivandrum	..	15.18	84.82	99.11	2.90	0.89	2.17	54.46	45.54		
Quilon	..	10.14	89.86	94.93	100.00	21.85	8.61	31.16	68.84		
Pathanamthitta	..	51.43	48.57	69.54	1.85	3.71	90.74	61.43	38.57		
Alleppey	..	21.19	78.81	94.44	1.85	12.99	70.13	47.02	52.98		
Kottayam	..	65.74	34.26	67.53	19.48	2.50	2.00	62.00	29.87		
Idukki	..	27.27	72.73	95.50	84.21	9.77	6.02	69.99	30.08		
Ernakulam	..	12.00	88.00	86.71	8.71	8.86	4.43	49.37	50.63		
Trichur	..	15.79	84.21	76.58	66.96	32.17	0.87	48.70	51.30		
Palghat	..	23.42	76.58	84.21	62.50	20.00	17.50	26.25	73.75		
Malappuram	..	8.70	91.30	67.42	26.97	5.61	3.95	25.84	74.16		
Kozhikode	..	5.00	95.00	84.21	11.84			72.37	27.63		
Wayanad	..	22.47	77.53	68.42							
Cannanore	..	31.58									
State	..	22.43	77.57	83.77	11.43	4.80		55.27	44.73		

* Based on the number of crop cutting experimental plots.

TABLE 5.2.3
Crop Estimation Survey 1985-86—Statement showing the percentage area under different improved agricultural practices

Crop: Paddy	District	Percentage area under*			Treatment of pesticides/			Untreated with pesticides			Remarks
		Improved varieties	Other varieties	Chemical fertil.	Not manured	Insecticides/	Others	Summer: 1986	8	9	
1	2	3	4	5	6	7	8	9			
Trivandrum	..	35.00	65.00	100.00	8.89	8.89	96.67	3.33			
Quilon	..	2.22	97.78	82.22	..	..	100.00	..			
Pathanamthitta	..	66.67	33.33	100.00	..	..	100.00	..			
Alleppey	..	71.84	28.16	100.00	..	..	99.03	0.97			
Kottayam	..	63.33	36.67	98.89	1.11	..	100.00	..			
Idukki	..	33.33	66.67	73.33	20.00	6.67	93.33	6.67			
Ernakulam	..	23.81	76.19	97.28	1.36	1.36	77.55	22.45			
Trichur	..	48.65	51.35	99.10	0.90	..	87.39	12.61			
Falghat	..	17.86	82.14	86.90	4.76	8.34	60.71	39.29			
Malappuram	..	41.67	58.33	90.48	7.14	2.38	88.10	11.90			
Kozhikode	..	61.40	38.60	82.46	15.79	1.75	56.14	43.86			
Wayanad	..	36.11	63.89	66.67	20.83	12.50	23.61	76.39			
Cannanore	..	23.24	76.76	85.92	11.27	2.81	41.55	58.45			
State	..	40.50	59.50	91.57	5.65	2.78	76.18	23.82			

* Based on the number of crop cutting experimental plots.

TABLE 6
Yield estimates—Tapioca 1984-85 and 1985-86

District	1984-85		1985-86		Number of experiments				Estimated yield per hectare (tonnes)	Estimated yield per hectare (tonnes)		
	Number of experiments		Planned		Analysed		Planned					
	1	2	3	4	5	6	7					
Trivandrum	110	110	110	15.42	126	124	15.08					
Quilon	99	99	16.96	116	116	116	13.68					
Pathanamthitta	71	71	20.15	64	64	64	21.75					
Alleppey	56	56	14.74	74	74	62	17.30					
Kottayam	96	96	20.26	108	108	108	19.78					
Idukki	56	56	19.64	56	56	56	19.30					
Ernakulam	94	94	19.80	100	100	98	18.65					
Trichur	85	85	12.97	106	106	103	11.83					
Palakkad	80	80	18.72	90	90	89	13.28					
Malappuram	100	98	17.38	128	128	126	13.25					
Kozhikode	80	80	7.69	90	90	90	11.35					
Vyttila	45	45	23.05	45	45	45	20.40					
Cannanore	130	130	15.27	100	100	100	20.41					
Kasaragode	..	..	..	70	70	70	15.75			
State	1102	1100	17.04	1273	1273	1251	16.15					

TABLE 7
Yield estimate—Coconut 1984–85 and 1985–86

District	1984–85		1985–86		Estimated mean number of trees/hect.	Average yield/tree (Nos.)	Estimated mean number of trees/hect.			
	No. of experiments		No. of experiments							
	Planned	Analysed	Planned	Analysed						
1	2	3	4	5	6	7	8			
Trivandrum	50	50	45	6345	63	63	35			
Quilon	49	49	38	3990	41	41	30			
Pathanamthitta	18	18	31	4774	18	17	39			
Alleppey	41	41	40	6160	88	88	40			
Kottayam	43	42	23	3979	60	60	26			
Idukki	20	20	23	2944	23	23	33			
Ernakulam	42	42	41	6519	99	99	37			
Trichur	46	46	33	4752	59	59	44			
Palghat	28	28	28	2996	20	20	38			
Malappuram	56	56	29	3103	57	57	29			
Kozhikode	72	72	39	6279	57	56	33			
Waynad	15	15	15	735	9	9	23			
Cannanore	61	61	35	4900	39	39	33			
Kasaragode	..	..	..	..	17	17	18
State	541	540	34	5022	650	648	33			
	..	..	..	..	..	..	4792

TABLE 8
Yield estimates—Arecanut 1984-85 and 1985-86

District	1984-85				1985-86				Estimated mean of yield (No. trees/hect.)	Estimated mean of yield (No. trees/hect.)		
	Planned		Analysed		Planned		Analysed					
	Number of experiments	Average yield/treec (Nos.)										
1	2	3	4	5	6	7	8	9				
Trivandrum	25	25	60	115440	25	25	71	122475				
Quilon	22	22	70	117740	25	25	91	149695				
Pathanamthitta	15	15	87	159123	20	20	126	233100				
Alleppey	15	15	52	73632	15	15	81	113643				
Kottayam	25	25	61	107787	25	25	81	138267				
Idukki	10	10	64	97728	10	10	66	120054				
Ernakulam	52	52	106	190164	52	51	142	237708				
Trichur	50	50	94	172678	50	49	105	191310				
Palghat	16	16	100	171500	16	16	103	162019				
Malapparamba	48	48	81	138915	58	58	91	158613				
Kozhikode	40	40	120	209880	40	39	123	209715				
Wayanad	30	30	132	170148	30	29	154	165242				
Cannanore	72	72	141	199233	40	40	157	214933				
Kasaragod	..	..	..	..	32	32	148	199060		
Total	420	420	100	163250	438	434	115	181703				

TABLE 9
Yield estimate Cashew 1984-85 and 1985-86

District	1984-85				1985-86				Estimated mean yield kg/hect.	
	Number of experiments		Yield/kg.		Number of experiments		Yield/kg.			
	Planned	Analysed	Average tree/kg.	tree/kg.	Planned	Analysed	Average tree/kg.	tree/kg.		
1	2	3	4	5	6	7	8	9		
Trivandrum	..	21	21	3.131	660.641	21	21	1.882	385.810	
Quilon	..	21	21	2.140	475.080	23	23	2.817	647.910	
Pathanamthitta	..	9	9	0.876	205.860	5	5	1.703	391.690	
Alleppey	..	10	10	1.335	244.305	10	10	1.081	177.284	
Kottayam	..	5	5	2.374	448.686	5	5	0.704	111.936	
Idukki	..	5	5	1.130	267.810	5	5	0.997	197.406	
Ernakulam	..	18	18	1.769	415.715	18	18	2.502	532.926	
Trichur	..	21	21	1.751	427.244	21	21	1.450	356.110	
Palghat	..	41	41	1.942	454.428	41	41	2.002	448.448	
Malappuram	..	75	75	1.525	369.050	75	75	1.694	421.806	
Kozhikode	..	19	19	1.608	352.152	19	19	2.144	454.528	
Wynad	..	18	18	1.811	316.925	18	18	1.013	216.782	
Cannanore	..	135	135	2.599	647.51	75	71	2.682	686.592	
Kasargod	60	60	3.458	843.752	
Total	..	398	398	2.076	528.222	396	392	2.231	582.250	

TABLE 10
Yield Estimates—Pepper 1984-85 and 1985-86

District	1984-85				1985-86				Estimated mean yield/hect. (kg.)	
	No. of experiments		Average yield/plant (kg.)		No. of experiments		Average yield/plant (kg.)			
	Analysed	Planned	Analysed	Planned	Analysed	Planned	Analysed	Planned		
	1	2	3	4	5	6	7	8	9	
Trivandrum	23	23	1.290	1.290	184.884	23	23	2.162	309.442	
Quilon	22	22	1.224	1.224	185.436	25	25	2.572	377.805	
Pathanamthitta	18	18	1.418	1.418	226.920	24	24	2.051	325.637	
Alleppey	10	10	1.756	1.756	232.179	10	10	1.733	177.892	
Kottayam	35	35	0.508	0.508	79.296	35	35	0.583	91.776	
Idukki	65	65	1.045	1.045	138.690	65	65	1.498	225.828	
Ernakulam	27	27	0.646	0.646	88.395	27	27	1.270	171.790	
Trichur	23	23	1.169	1.169	179.104	18	18	1.053	151.292	
Palghat	10	10	1.084	1.084	158.236	10	10	2.110	279.792	
Malappuram	20	20	1.059	1.059	162.285	20	20	2.277	342.456	
Kozhikode	41	41	1.132	1.132	176.154	41	40	1.636	226.800	
Wayanad	30	30	1.406	1.406	222.256	30	30	4.031	533.330	
Cannanore	70	70	1.126	1.126	177.444	50	50	1.975	308.396	
Kasaragod	..	..	..	..	..	20	20	1.647	246.976
State	394	394	0.998	0.998	163.934	398	397	1.854	272.458	

TABLE 11
Yield Estimate—Cocoa 1984-85 and 1985-86

District	1984-85				1985-86				Average Yield/hect. (kg.)	Average Yield/tree (kg.)	No. of experiments	No. of experiments	Average Yield/hect. (kg.)					
	Planned		Analysed		Planned		Analysed											
	1	2	3	4	5	6	7	8										
Trivandrum	..	5	5	1.954	120.130	9	9	2.617	388	..	..	..	..	..
Quilon	..	10	10	1.089	74.980	8	8	1.540	212	..	..	..	..	..
Pathanamthitta	..	20	20	6.065	427.700	13	13	7.730	1074	..	..	..	..	..
Alleppey	..	40	35	3.388	213.360	25	25	9.882	1204	..	..	..	..	..
Kottayam	..	20	20	4.607	304.040	25	25	4.925	687	..	..	..	..	..
Idukki	..	20	20	4.091	260.950	17	17	6.341	803	..	..	..	..	..
Ernakulam	..	40	40	5.202	339.300	34	34	8.230	1047	..	..	..	..	..
Trichur	..	20	18	1.416	93.280	17	17	2.102	288	..	..	..	..	..
Palghat	..	30	27	3.838	273.600	23	23	3.210	433	..	..	..	..	..
Malappuram	..	30	23	4.195	311.355	25	25	5.613	726	..	..	..	..	..
Kozhikode	..	20	19	2.646	160.785	17	14	3.165	409	..	..	..	..	..
Wayanad	..	15	15	3.625	217.600	12	12	1.979	289	..	..	..	..	..
Cannanore	..	30	30	2.783	193.905	14	12	7.026	858	..	..	..	..	..
Kasaragod	11	11	1.417	207	..	..	..	..	..
State	..	300	282	3.758	253.975	250	245	5.355	721	..	..	..	..	..

TABLE 12

Yield estimates—Nut stage 1985-86

District	No. of experiments Planned	Average yield per tree			Average yield per hectare		
		2	3	4	5	6	7
1							
Trivandrum	8	6	74	4.005	18574	1005.255	
Quilon	8	8	71	2.695	17537	665.665	
Pathanamthitta	11	11	153	3.552	39321	912.864	
Alleppey	2	246	1.388	68142	384.476		
Kottayam	..	..	..	..	17936	1411.280	
Idukki	14	14	303	11.537	17936	1411.280	
Ernakulam	5	5	87	3.770	69387	2641.973	
Trichur	1	56	2.619	13050	565.500		
Palghat	3	80	7.565	12208	570.942		
Malappuram	3	70	1.241	17840	1686.995		
Kozhikode	3	..	..	18550	328.865		
Wynad	8	104	8.316	17936	1411.280		
Cannanore	8	..	..	25688	2054.052		
Kasaragod	..	..	..	17936	1411.280		
State	71	61	76	5.980	40677	1714.030	

TABLE 13
Yield estimates—Sweet potato 1984-85

District	No. of experiments		Average yield/Hect. in tonnes
	Planned	Analysed	
1	2	3	4
Trivandrum	..	10	5.756
Quilon	..	45	4.816
Pathanamthitta	..	5	6.185
Alleppey	6.185
Kottayam	7.981
Idukki	8.088
Ernakulam	7.843
Trichur	7.843
Palghat	..	25	8.007
Malappuram	..	35	8.545
Kozhikode	..	20	5.571
Wayanad	..	15	8.129
Cannanore	..	15	9.978
State	..	170	8.367

TABLE 14
Yield estimates—Ginger 1984-85

District	Number of experiments		Average yield/Hect. (Tonnes)
	Planned	Analysed	
1	2	3	4
Trivandrum	..	10	4.065
Quilon	..	24	2.806
Pathanamthitta	..	28	2.609
Alleppey	..	13	3.204
Kottayam	..	70	2.532
Idukki	..	30	2.795
Ernakulam	..	35	3.236
Trichur	..	10	1.628
Palghat	..	5	2.406
Malappuram	..	20	1.965
Kozhikode	..	15	1.425
Wayanad	..	30	3.828
Cannanore	..	35	2.879
State	..	325	2.837

TABLE 15
Yield estimates—Sesamum—1984-85 and 1985-86

District	1984-85		1985-86		Averagd yield/ Hect. in tonnes		Averagd yield/ Hect. in tonnes	
	No. of experiments		No. of experiments		Analysed			
	Planned	Analysed	Planned	Analysed	Planned	Analysed		
1	2	3	4	5	6	7	0.347	
Tiruvandrum	30	9	0.153	16	16	16	0.347	
Quilon	30	30	0.155	15	15	15	0.347	
Pathanamthitta	15	15	0.348	15	15	15	0.192	
Alleppey	15	15	0.311	5	5	5	0.192	
Kollayam	44	44	0.140	25	25	25	0.318	
Idukki	45	43	0.436	19	19	19	0.221	
Ernakulam	30	35	0.195	15	15	15	0.271	
Trichur	35	35	0.192	10	10	10	0.166	
Palghat	5	5	0.268	6	6	6	0.365	
Malappuram	15	15	0.130	8	8	8	0.446	
Kozhikode	10	10	0.164	3	3	3	0.486	
Wayanad	..	..	..	..	..	..	0.131
Cananore	..	..	..	..	..	..	..
Kasaragod	..	..	..	..	..	..	..
State	260	226	0.251	122	122	122	0.259	

TABLE 16

Yield estimates—Turmeric 1985–86

District	No. of experiments		Average yield per experiment Kgs.	Average yield of dry turmeric in tonnes/hectares
	Planned	Analysed		
(1)	(2)	(3)	(4)	(5)
Trivandrum	..	5	4	1.575
Quilon	..	7	7	4.000
Pathanamthitta	..	3	3	8.500
Alleppey	..	1	1	4.300
Kottayam	..	20	20	6.720
Idukki	..	12	12	5.733
Ernakulam	..	25	25	2.720
Trichur	..	5	5	3.960
Palghat	..	20	20	4.410
Malappuram	..	10	10	3.880
Kozhikode	..	15	14	2.750
Wynad	..	15	15	6.693
Cannanore	..	10	10	4.830
Kasaragod	..	5	5	2.440
State	..	153	151	4.513
				1.960

TABLE 17

Yield estimates—Banana 1985–86

District	No. of experiments		Average yield per plant Kg.	Average yield per hectare in tonnes
	Planned	Analysed		
(1)	(2)	(3)	(4)	(5)
Trivandrum	..	12	12	5.955
Quilon	..	20	20	5.944
Pathanamthitta	..	14	14	6.688
Alleppey	..	12	7	7.470
Kottayam	..	18	18	8.605
Idukki	..	3	3	6.742
Ernakulam	..	20	20	6.303
Trichur	..	20	19	6.035
Palghat	..	15	15	6.464
Malappuram	..	20	19	5.794

TABLE 17—(cont.)

District	No. of experiments		Average yield per plant Kg.	Average yield per hectare in tonnes (5)
	Planned	Analysed		
(1)	(2)	(3)	(4)	(5)
Kozhikode	..	15	15	6.687
Wynad	..	10	10	7.193
Cannanore	..	14	14	6.287
Kasaragod	..	11	11	6.371
State	..	<u>204</u>	<u>197</u>	<u>6.536</u>

TABLE 18

Yield estimates—Groundnut 1985-86

District	No. of experiments		Mean yield of dry nut/hectare in tonnes (4)
	Planned	Analysed	
(1)	(2)	(3)	(4)
Trivandrum	0.545
Quilon
Pathanamthitta	0.545
Alleppey
Kottayam
Idukki
Ernakulam
Trichur	..	40	0.545
Palghat	0.545
Malappuram
Kozhikode
Wynad	0.545
Cannanore	0.545
Kasaragod
State	..	<u>40</u>	<u>31</u>

960

