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GOVERNMENT OF TRAVANCORE-COCHIN



BOARD OF STATISTICS

REPORT

ON

CROP-CUTTING SURVEY ON KANNI
SEPTEMBER-OCTOBER
CROP OF PADDY
IN
TRAVANCORE-COCHIN

1951

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**REPORT ON THE CROP CUTTING SURVEY ON KANN
(SEPTEMBER—OCTOBER) CROP OF PADDY
IN TRAVANCORE-COCHIN—1951**

The present crop cutting survey which is the fourth in the series, is on the Kanni (September—October) crop of 1951 and covers thirty-four out of the thirty-six Taluks of the State. The two Taluks left out are Devikulam and Peermade where the extent of paddy cultivation is comparatively small. Three hundred and sixty villages were selected for crop-cutting; this is about a twelfth of the total number of villages in the State. The number of villages allotted to each Taluk was in proportion to the extent of paddy cultivation in that Taluk. The villages in each Taluk were selected at random and from each village selected a random sample of five paddy fields was chosen. In each of these fields a square plot measuring $16\frac{1}{2}'$ by $16\frac{1}{2}'$ was harvested.

The field staff under the Board of Statistics had to visit the fields twice during the period—first, to contact owners and ascertain from them the date of harvest and then to take the cut on the day of harvesting. Even though every precaution was taken to make all the selected fields available for experimentation, it was possible to take only 1766 cuts as against the proposed number (1800).

The schedules returned by the field staff contained, besides details of locating each cut, the weight of the paddy obtained from the plot immediately after harvesting, threshing and winnowing, the date of harvest and the nature of G. M. F. Aid, if any, received by the plot.

The analysis of the data collected was done in the Office of the Board of Statistics. The results obtained are detailed in Tables I to IV given at the end of this report. Table I gives the acreage under paddy, the number of experiments conducted, the estimated average yield per acre and the total outturn of dry paddy, the total outturn of rice and the percentage standard error for the Taluks separately and for the State as a whole. Table II shows the estimated acreage under paddy, the number of experiments, the mean yield of dry paddy per acre, and the corresponding standard error both for fields which received G. M. F. Aid and which did not receive any aid. The acreages under G. M. F. Aid and no aid in a Taluk are estimated by multiplying the total area under paddy by the proportionate areas under the G. M. F. Aid and no aid respectively in the sample for the Taluk. The mean yields are the arithmetic averages of the corresponding plot yields. The standard errors of Taluk mean yields are calculated using the formula.

$$V(\bar{x}) = \frac{A}{N} + \frac{B-A}{m} \frac{\sum \epsilon_{n_i}^2}{N^2}$$

$$\text{where } m = \frac{N - \frac{\sum \epsilon_{n_i}^2}{N}}{K-1}$$

$V(\bar{x})$ denotes the variance of the Taluk mean yield, A the mean square within villages, B the mean square between villages, N the total number of experiments, n_i the number of experiments in the i th village and K the number of villages sampled in the Taluk. The mean square within the villages and between the villages are obtained from the analysis of variance tables. Table III sets out the results of the analysis of variance of yields from plots receiving **Grow More Food Aid** and no aid respectively. Out of the 25 Taluks which received G. M. F. Aid, it is found that there has been significant increase in the average yield in the following 9 Taluks only:—

- | | |
|------------------|-------------------|
| 1. Neyyattinkara | 2. Chirayinkil |
| 3. Kottarakara | 4. Pathanapuram |
| 5. Shenkottah | 6. Pathanamthitta |
| 7. Thiruvalla | 8. Muvattupuzha |

9. Chittur.

Secretary, Board of Statistics

TABLE I
Statement showing the estimated mean yield per acre and the total outturn of dry paddy and rice in 34 Taluks

Taluk	Area (acres)	Number of experiments	Estimated mean yield of dry paddy (lbs. per acre)	Standard error (lbs.)	Estimated total out-turn of dry paddy (tons)	Estimated total out-turn of rice (tons)	Percentage standard error
Thovala	11134	45	2904	160	14434	9483	5.51
Agasteeswaram	21701	75	2897	146	28066	18439	5.04
Kalkulam	21186	75	2620	81	24780	16283	3.09
Vilavancode	8365	30	2297	334	8578	5637	14.54
Neyyattinkara	12834	45	1223	99	7007	4304	8.09
Trivandam	8209	35	1395	196	5112	3359	14.05
Nedumangad	13142	50	1482	119	8695	5713	8.02
Chirayinkil	9982	35	943	47	4202	2761	4.98
Quilon	7749	35	1316	133	4553	2992	10.10
Kottarakara	15009	60	1056	73	7076	4649	6.91
Pathanapuram	10184	40	1552	148	7063	4641	9.53
Shenkottah	3880	30	2497	491	4325	2842	19.66
Kunnathur	11075	45	1282	108	6339	4158	8.42
Pathanamthitta	1525	30	1206	78	821	539	6.46
Thiruvalla	10681	40	1137	113	5421	3552	9.93
Mavelikara	11914	40	1397	53	7430	4882	3.97
Karunagappally	9591	39	1264	132	5412	3556	10.44

TABLE I—(cont.)

Taluk	Area (acres)	Number of experiments	Estimated mean yield of dry paddy (lbs. per acre)	Standard error (lbs.)	Estimated total out-turn of dry paddy (tons)	Estimated total out-turn of rice (tons)	Percentage standard error
Karthikappally	11173	48	1710	79	8529	5604	4.62
Ambalapuzha	1740	29	1010	89	785	516	8.81
Shertallai	18244	35	1019	65	8299	5453	6.38
Changanacherry	2926	30	1337	124	1746	1147	9.27
Kottayam	2759	30	909	109	1120	736	11.99
Vaikom	7141	25	1074	176	3424	2250	16.38
Meenachil	4247	30	1345	248	2550	1676	18.43
Thodupuzha	9267	35	1143	48	4729	3107	4.20
Muvattupuzha	10856	45	1268	89	6145	4038	7.02
Kunnathuned	43628	115	1023	45	19925	13090	4.39
Parur-Cranganur	19489	50	1171	131	10188	6694	11.19
Cochin-Kanayannur	20007	85	1125	124	10048	6602	11.02
Mukundapuram	21995	140	1053	56	10340	6794	5.32
Chittur	22858	95	1655	100	16888	11097	6.04
Trichur	21213	85	1073	52	10161	6677	4.85
Talappally	35368	140	1742	79	27505	18074	4.54
Total	441080	1766	1461	22	291695	191645	1.527

Taking rice as 0.6571 of dried paddy.

TABLE II
Statement showing the mean yield of dry paddy per acre with its standard error for fields which received G.M.F. Aid and no Aid

Taluk	Aid					No Aid				
	Estimated area receiving G.M.F. Aid (acres)	No. of experiments	Average yield per acre (lbs.)	Standard error (lbs.)	Estimated area under no aid (acres)	No. of experiments	Average yield per acre (lbs.)	Standard error (lbs.)		
Thovala	..	..	..	..	11134	45	2904	160
Agasteeswaram	..	..	..	..	21701	75	2897	146
Kalkulam	13792	49	2652	80	7394	26	2559	122		
Vilavancode	1757	8	2535	328	6608	22	2212	124		
Neyyattinkara	5788	20	1424	212	7046	25	1063	102		
Trivandrum	320	2	1895	..	7889	33	1364	196		
Nedumangad	2694	11	1524	145	10448	39	1471	68		
Chirayinkil	1597	4	1204	52	8385	31	913	147		
Quilon	449	3	1069	..	7300	32	1340	139		
Kottarakara	9125	30	1168	70	5883	30	944	96		
Pathanapuram	4781	21	1842	159	5413	19	1355	143		
Shencottah	2729	24	2570	506	1151	6	1989	570		
Kunnathur	10344	40	1290	114	731	5	998	228		
Pathanamthitta	1347	26	1276	56	178	4	752	8		
Thiruvalla	2841	13	1476	142	7840	27	875	68		
Mavelikara	2930	8	1413	137	8984	32	1393	55		
Karunagappally	..	..	..	..	9591	39	1264	132

TABLE II—(cont.)

Taluk	Aid				No Aid			
	Estimated area receiving C.M.F. Aid (acres)	No. of experiments	Average yield per acre (lbs.)	Standard error (lbs.)	Estimated area under no aid (acres)	No. of experiments	Average yield per acre (lbs.)	Standard error (lbs.)
Karthikappally	358	2	1387	..	10815	46	1723	86
Ambalapuzha	..	..	..	..	1740	29	1010	89
Shertallai	..	..	..	..	18244	35	1019	65
Changanacherry	2361	21	1420	67	565	9	1147	143
Kottayam	..	..	..	..	2759	30	909	109
Vaikom	2114	11	1185	259	5027	14	1027	173
Meenachil	4247	29	1337	137	72	1	761	..
Thodupuzha	204	1	1410	..	9063	34	1135	49
Muvattupuzha	1390	4	1532	186	9466	41	1242	92
Kunnathunad	5148	16	1141	137	38480	99	1005	45
Parur-Cranganore	828	5	937	..	18661	45	1197	98
Cochin-Kanayannur	340	1	1397	..	19667	84	1222	121
Mukundapuram	..	..	..	..	21995	140	1053	59
Chittur	11840	60	1831	91	11018	35	1353	43
Trichur	..	..	..	..	21213	85	1073	52
Talappally	28011	107	1766	96	7357	33	1668	83
Total	117335	516	1696	35	323745	1250	1387	19

TABLE III

Analysis of variances of plot yields in (lbs.)² per plot of 1/160th of an acre

Taluk	Plots which received G. M. F. Aid						Plots which received no Aid						For plots of both kinds					
	Between Karas			Within Karas			Between Karas			Within Karas			Between Karas			Within Karas		
	D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.	
Thovala	8	44.92	36	10.84	8	44.92	36	10.84	8	44.92	36	10.84
Agasteeswaram	..	..	..	..	..	14	62.72	60	2.38	14	62.72	60	2.38	14	62.72	60	2.38
Kaikulam	13	11.96	35	10.02	3	10	13.20	15	6.48	14	19.26	60	7.85	14	19.26	60	7.85	
Vilavancode	4	33.89	3	7.66	14	5	96.80	16	11.35	5	119.80	24	10.35	5	119.80	24	10.35	
Neyyattinkara	5	25.20	14	0.19	7	7	9.50	17	7.32	8	14.72	36	9.56	8	14.72	36	9.56	
Trivandrum	..	..	..	..	..	6	49.16	26	13.27	6	49.16	26	13.27	6	49.16	26	13.27
Nedumangad	5	9.00	5	5.18	..	9	6.46	29	3.74	9	14.14	40	2.78	9	14.14	40	2.78	
Chirayinkil	..	..	..	..	..	6	1.79	24	2.70	6	1.79	24	2.70	6	1.79	24	2.70
Quilon	..	..	..	..	..	6	22.87	25	1.06	6	22.87	25	1.06	6	22.87	25	1.06
Kottarakara	11	5.83	18	6.66	..	11	8.99	18	1.16	11	12.01	48	4.16	11	12.01	48	4.16	
Pathanapuram	7	20.72	13	8.36	..	6	13.88	12	9.75	7	34.77	32	9.56	7	34.77	32	9.56	
Shenkotah	5	240.87	18	18.68	..	2	121.06	3	3.84	5	287.49	24	2.30	5	287.49	24	2.30	
Kunnathur	8	20.34	31	5.89	..	1	7.22	3	4.72	8	20.26	36	6.10	8	20.26	36	6.10	
Pathanamthitta	5	3.95	20	1.72	..	2	0.58	2	3.43	5	7.10	24	2.58	5	7.10	24	2.58	
Thiruvella	6	10.37	6	3.60	..	7	12.06	19	3.96	7	19.90	32	7.08	7	19.90	32	7.08	

TABLE III—(cont.)

Taluk	Plots which received G. M. F. Aid						Plots which received no Aid						For plots of both kinds					
	Between Karas			Within Karas			Between Karas			Within Karas			Between Karas			Within Karas		
	D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.		D. F.	M. S.	
Mavelikara	2	5.85		5	12.24		8	3.93		23	4.28		8	4.56		31	5.44	
Karunagappally	..	..	..	..	..	..	7	26.27		31	10.52		7	26.27		31	10.52	
Karthikappally	..	..	..	1	0.30		9	11.14		36	4.19		9	11.78		38	4.05	
Ambalapuzha	..	..	..	..	..		5	9.06		23	5.83		5	9.06		23	5.83	
Shertallai	..	..	..	..	..		6	8.26		28	5.95		6	8.26		28	5.95	
Changanachery	5	23.01		15	6.16		4	6.53		4	3.50		5	18.13		24	7.30	
Kottayam	..	..	..	..	..		5	13.85		24	5.36		5	13.85		24	5.36	
Vaikom	..	..	..	6	13.96		3	16.18		10	8.47		5	31.41		19	9.44	
Meenachil	5	21.94		23	309.16		..	..		..	..		5	21.94		23	309.16	
Thodupuzha	..	..	..	..	..		6	3.26		27	2.43		6	3.26		27	2.43	
Muvattupuzha	3	5.41		..	..		8	13.49		32	4.21		8	13.84		36	4.64	
Kunnathuned	6	11.62		9	1.96		22	7.04		76	3.79		22	9.36		92	3.64	
Parur	..	..	..	..	..		9	16.81		35	1.61		9	16.81		35	1.61	
Cochin-Kanayannur	..	..	..	..	..		16	50.37		67	4.12		16	50.37		67	4.12	
Mukundapuram	..	..	..	..	..		27	16.90		112	6.36		27	16.90		112	6.36	
Chittur	15	18.50		44	18.61		9	22.58		25	5.88		18	36.69		76	13.42	
Trichur	..	..	..	..	..		16	8.84		68	7.78		16	8.84		68	7.78	
Talappally	23	38.73		83	4.51		11	12.09		21	8.35		27	35.49		112	5.64	

TABLE IV

Analysis of Variance of plot yields for the State in lbs. 2 per plot of (1/160)th of an acre.

(a) Plots which received no G.M.F. Aid.

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	7835.28	32	244.85
Between Karas within Taluks	8083.42	270	29.94
Within Karas	9457.94	927	9.99

(b) Plots which received G.M.F. Aid.

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	4084.49	24	170.18
Between Karas within Taluks	4153.76	143	29.05
Within Karas	2680.05	348	7.70

(c) Plots of both kinds.

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	12197.77	32	381.18
Between Karas within Taluks	13017.18	323	40.30
Within Karas	15887.99	1410	11.27

Percentage Reduction Factor for Driage in different Taluks

<i>Taluk</i>	<i>Percentage reduction</i>	<i>Taluk</i>	<i>Percentage reduction</i>
Thovala	.. 93.3	Karthikappally	.. 88.9
Agasteeswaram	.. 89.5	Ambalapuzha	.. 85.5
Kalkulam	.. 92.8	Shertallai	.. 81.2
Vilavancode	.. 92.3	Changanacherry	.. 85.5
Neyyattinkara	.. 91.5	Kottayam	.. 84.4
Trivandrum	.. 89.4	Meenachil	.. 82.7
Nedumangad	.. 91.9	Vaikom	.. 84.4
Chirayinkil	.. 88.5	Thodupuzha	.. 83.9
Quilon	.. 87.1	Muvattupuzha	.. 91.2
Kottarakara	.. 83.9	Kunnathunad	.. 85.3
Kunnathur	.. 86.6	Parur	.. 88.7
Pathanapuram	.. 89.9	Cochin-Kanayannur	.. 81.2
Shencottah	.. 88.3	Mukundapuram	.. 92.0
Pathanamthitta	.. 83.5	Chittur	.. 88.6
Thiruvalla	.. 83.3	Trichur	.. 90.2
Mavelikara	.. 87.2	Thalappally	.. 90.4
Karunagappally	.. 87.8		

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