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REPORT ON THE CROP CUTTING SURVEY  
ON  
THE RANNI CROP OF PADDY  
1957  
(RESIDUARY T. C. AREA)

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## Report on the Crop-cutting Survey on Kanni Crop of paddy in the residuary Travancore-Cochin region—1957.

### INTRODUCTION

This report presents a Summary of the conduct of the crop-cutting survey on the Kanni crop (September—October) of paddy 1957. The survey covered only the residuary Travancore-Cochin region with the exception of Devicolum and Peermade Taluks where the acreages under paddy cultivation were relatively small. The Malabar region was left out since there was no field staff of this Department there during the period of the survey.

### SAMPLING DESIGN

A three stage random sampling design with stratification was adopted for the survey. The taluks formed the Strata villages the primary unit of sampling fields the secondary unit of sampling and the square plots the ultimate unit of Sampling. Altogether 301 villages were selected for cropcutting. The number of villages allotted to each Taluk was approximately in proportion to the area under paddy in the Taluk. A random sample of five paddy fields was chosen from each selected village and from each paddy field a square plot of side  $16\frac{1}{2}$  feet was selected at random and harvested.

### FIELD WORK

The field operations were carried out by the Field Assistants and the Statistical Officers. Their work was supervised by the District Statistical Officers. Out of 1505 plots selected for harvest, only 1264 could be actually harvested. The perimeter of the selected field and the average width of the bunds were also measured. The weight of the green winnowed harvested produce was noted correct to the nearest quarter of a pound. The driage factor for each taluk was also determined based upon actual driage experiments.

### ANALYSIS OF DATA AND THE RESULTS

The analysis of the data collected by the field staff was done in the Head Office. The area covered by the bunds was estimated to be 2.63% of the gross area reported under paddy. The estimated mean yield of dry paddy per acre for the region covered by the survey is the weighted average of the estimated taluk mean yields, the net area sown in the taluks having been adopted as weights. The standard errors for the taluk mean yields and the State mean yield are also calculated. Separate estimates for irrigated and unirrigated fields are also given taluk wise. The analysis of variance of plots yields are given in Table (IV).

## PRECISION

The total production of rice for the crop under reference in the residuary Travancore-Cochin region is estimated as 164259 tons. This estimate has a standard error of 1.34%. The mean yield is estimated as 1618 lb. of dry paddy per acre for the region covered by the survey and it has a standard error of 22 lb. The weight of rice is reckoned as 0.657 of the weight of paddy. The results are detailed in Tables I to V.

*A Statement showing the results of the previous four Kanni crops are given below for purposes of comparison.*

Crop	Area under paddy (acres)	Average yield of dry paddy in lbs/acre	Production of rice (tons)
1957 Kanni	345018	1618	164259
1956 „	424531	1629	202705
1955 „	425330	1647	210283
1954 „	423355	1558	193486
1953 „	409590	1543	185358

The decrease in the area under paddy and the mean yield per acre during the reference crop is due to the transfer of Nanjanad areas (where the yield rate is high) to the Madras State as per the States Reorganisation.

TABLE I.  
**KANNI CROP OF PADDY 1957. RESIDUARY TRAVANCORE-COCHIN REGION.**  
*Statement showing the estimated mean yield per acre and the total out-turn of dry paddy and rice in the different Taluks.*

Taluk.	Net area sown (acres)	No. of experiments.	Mean yield of dry paddy (lb/acre)	Standard Error (lb.)	Total out-turn of dry paddy (Tons)	Total out-turn of Rice (Tons)	Percentage standard error.
1. Neyyatinkara	13042	50	2159	162	12570	8258	7.50
2. Trivandrum	10430	29	1640	139	7636	5017	8.48
3. Nedumangad	12584	50	2105	140	11826	7770	6.65
4. Chirayinkil	9698	35	1824	146	7897	5188	8.00
Trivandrum District	45754	164	1955		39929	26233	
5. Quilon	6582	30	1495	124	4393	2886	8.29
6. Kottarakkara	14658	55	1239	46	8108	5327	3.71
7. Pathanapuram	10337	33	1997	80	9216	6055	4.01
8. Pathanamthitta	1772	25	1728	95	1372	901	5.50
9. Kannanthooy	10449	40	1870	61	8723	5731	3.26
10. Karunagapally	7451	30	1806	126	6007	3947	6.98
Quilon District	51249	213	1653		37819	24847	

TABLE I—(contd.)

Taluk.	Net area sown (acres)	No. of experiments.	Mean yield of dry paddy (lb/acre)	Standard Error (lb.)	Total out-turn of dry paddy (Tons)	Total out-turn of Rice (Tons)	Percentage standard error.
11. Karthikapally	12651	50	1704	63	9624	6323	3.70
12. Mavelikara	7964	30	1155	224	4106	2697	19.39
13. Thiruvalla	8771	32	1746	112	6837	4492	6.41
14. Kuttanad	2891	30	1807	104	2207	1450	5.76
15. Ambalapuzha	2069	30	1775	67	1639	1077	3.77
16. Shertala	9156	60	789	38	3225	2119	4.82
Alleppey District.	42418	232	1420		27638	18158	
17. Changanachery	2811	30	2113	168	2462	1617	7.95
18. Kottayam	3440	30	2069	295	3177	2087	14.26
19. Vaikom	3430	30	937	32	1435	943	3.42
20. Meenachil	4092	30	1463	176	2673	1756	12.03
21. Thodupuzha	8895	35	1540	128	6115	4018	8.31
22. Moovattupuzha	12870	50	1653	124	9497	6240	7.50
Kottayam District.	35338	205	1608		25359.	16661	

TABLE I—(contd.)

Taluk.	Net area sown (acres)	No. of experiments	Mean yield of dry paddy (lb/acre)	Standard Error (lb.)	Total out-turn of dry paddy (Tons)	Total out-turn of Rice (Tons)	Percentage standard error.
23. Kanayannoor	19289	45	1234	55	10626	6981	4.46
24. Cochin	7282	3	1516	122	4928	3238	8.05
25. Kunnathunad	15334	21	1125	86	7701	5080	7.64
26. Alwaye	16677	36	1274	70	9485	6232	6.20
27. Parur-Cranganore	7855	38	1151	82	4036	2652	7.12
28. Mukundapuram	20259	54	1136	41	10274	6750	3.61
29. Trichur	21941	60	1192	97	11676	7671	8.14
30. Talappally	34566	95	1893	88	29211	19191	4.65
31. Chittoor	27056	98	2594	124	31332	20585	4.78
Trichur District	170259	450	1569		119269	78360	
Total Residuary Travancore-Cochin Region	345018-346011	1264	1618	22	250014	164259	1.34

Taking rice as 0.657 weight of paddy.

TABLE (II)  
Kanni Crop of Paddy 1957. Residuary  
Travancore-Cochin Region.

Statement showing mean yield of dry paddy per acre  
with its standard error for irrigated and  
unirrigated fields.

Taluk.	Irrigated fields.			Un-irrigated.		
	No. of experiments.	Mean yield of dry Paddy lb./ acre.	Standard error lb.	No. of experiments.	Mean yield of dry paddy lb./ acre.	Standard error lb.
1. Neyyattinkara ..	17	2048	316	33	2217	172
2. Trivandrum ..	13	1721	140	16	1574	232
3. Nedumangad ..	..	..	..	50	2105	140
4. Chirayinkil ..	25	1715	186	10	2096	27
5. Quilon ..	..	..	..	30	1495	124
6. Kottarakara ..	..	..	..	55	1239	46
7. Pathanapuram ..	..	..	..	33	1997	80
8. Karunagapally ..	..	..	..	30	1806	126
9. Pathanamthitta ..	..	..	..	25	1728	95
10. Mavelikara ..	5	1444	59	25	1097	248
11. Karthigapally ..	..	..	..	50	1704	63
12. Thiruvella ..	..	..	..	32	1746	112
13. Ambalapuzha ..	..	..	..	30	1775	67
14. Sherthala ..	..	..	..	60	789	38
15. Kunnathur ..	..	..	..	40	1881	61
16. Kuttanad ..	..	..	..	30	1807	104
17. Meenachil ..	..	..	..	30	1463	176
18. Kottayam ..	..	..	..	30	2069	295
19. Changanacherry ..	..	..	..	30	2113	168
20. Vaikom ..	..	..	..	30	937	32
21. Thodupuzha ..	12	1491	100	23	1566	151
22. Muvattupuzha ..	21	1770	228	29	1567	140
23. Mukundapuram ..	..	..	..	54	1136	41
24. Kunnathunad ..	10	1085	124	11	1162	129
25. Parur Cranganore ..	..	..	..	38	1151	82
26. Alwaye ..	11	1135	184	25	1335	83
27. Kanayannur ..	..	..	..	45	1234	55
28. Cochin ..	..	..	..	3	1516	122
29. Talapally ..	17	1926	175	78	1886	99
30. Trichur ..	24	1592	123	36	925	175
31. Chittur ..	67	2451	176	31	2904	162





TABLE III—(contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13
13	..	..	..	..	5	5.24	24	1.49	5	5.24	24	1.49
14	..	..	..	..	11	3.40	48	0.71	11	3.40	48	0.71
15	..	..	..	..	7	14.30	29	1.29	7	5.74	32	3.15
16	..	..	..	..	5	12.76	24	2.50	5	12.76	24	2.50
17	..	..	..	..	5	36.30	24	11.97	5	36.30	24	11.97
18	..	..	..	..	5	101.63	24	5.73	5	101.63	24	5.73
19	..	..	..	..	5	33.14	24	5.77	5	33.14	24	5.77
20	..	..	..	..	5	1.17	24	1.35	5	1.17	24	1.35
21	..	7.11	6	12.88	6	17.82	16	3.77	6	22.34	28	5.29
22	..	4 36.19	16	2.34	5	21.95	23	3.13	9	29.84	40	2.88
23	..	..	..	..	12	3.57	41	4.28	12	3.57	41	4.28
24	..	..	6	0.21	3	6.03	7	0.39	5	5.46	15	0.52
25	..	3 3.93	8	1.20	7	9.80	30	4.27	7	9.80	30	4.27
26	..	2 10.37	8	1.20	8	6.19	16	4.55	10	7.67	25	3.52
27	..	..	..	..	9	3.40	34	4.47	9	5.21	35	4.19
28	..	..	..	..	..	0.08	2	1.75	..	0.08	2	1.75
29	..	4 18.45	12	9.40	16	29.11	61	12.38	18	28.61	76	11.76
30	..	5 13.87	18	4.61	7	40.84	28	3.43	13	21.79	46	10.89
31	..	16 71.05	50	11.81	7	30.29	23	19.57	19	58.96	78	18.45

N. B.—D. F. — Degrees of Freedom M. S. — Mean Square.

TABLE (IV)

## Kanni Crop of Paddy 1957

*Analysis of variance of plot yields pooled for the State in  
(lb)<sup>2</sup> per plot of 1/160 of an acre*

## A. Plots which received irrigation

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	2038·93	10	203·89*
Between Karas within Taluks	2265·81	50	45·31*
Within Karas within Taluks	1775·80	161	11·03
Total	6080·54	221	

## B. Plots which received no irrigation

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	11149·24	30	371·64*
Between Karas within Taluks	4805·50	200	24·03*
Within Karas within taluks	5323·06	807	6·60
Total	21277·80	1037	

## C. Plots of both kinds Combined.

Source	Sum of squares	Degrees of freedom	Variance
Between Taluks	13063·29	30	435·44*
Between Karas within Taluks	6985·30	237	28·21*
Within Karas within taluks	8378·21	996	8·41
Total	28126·80	1263	

\* Denotes Significance at 1% level

**TABLE (V)**  
**Percentage Reduction due to Driage**

Taluk	Percentage Reduction
1. Neyyattinkara	8.2
2. Trivandrum	7.3
3. Nedumangad	6.3
4. Chirayinkil	7.1
5. Quilon	6.1
6. Kottarakara	10.0
7. Pathanapuram	7.1
8. Karunagapally	8.4
9. Pathanamthitta	6.5
10. Mavelikara	13.2
11. Karthigapally	11.0
12. Thiruvalla	11.5
13. Ambalapuzha	7.5
14. Sherthala	6.9
15. Kunnathur	9.9
16. Kuttanad	7.5
17. Meenachil	8.7
18. Kottayam	13.1
19. Changanacherry	10.3
20. Vaikom	10.4
21. Thodupuzha	9.8
22. Muvattupzha	7.7
23. Mukundapuram	7.7
24. Kunnathunad	7.1
25. Parur & Cranganore	4.5
26. Alwaye	7.1
27. Kanayannur	8.3
28. Cochin	8.3
29. Thalapally	7.1
30. Trichur	5.8
31. Chittur	9.4

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TRIVANDRUM, 1958.