INDIAN CENTRAL JUTE COMMITTEE

PROGRESS REPORT

OF THE
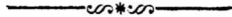
Jute Census Scheme for 1939.

PROGRESS REPORT OF THE JUTE CENSUS SCHEME FOR 1939.

Introduction.

1. In the original scheme for the Jute Census work for 1939 I had emphasized the need of starting the preparatory work early in December 1938. Administrative sanction for the scheme was not, however, obtained before the 9th of February 1939, which delayed the work of preparing the sample grids by full two months, and created many difficulties. Many of the workers who had been engaged in the 1938 scheme had been discharged, and new workers had to be engaged and trained; fresh arrangements had to be made for hiring rooms, furniture, calculating machines and accessories and many details of organizing a staff of about 60 or 70 workers. The work also had to be done at a very high pressure in order to get the maps and sampling units ready in time for starting the field work in April.

2. Another unforeseen difficulty was the lack of rain during the early part of the season which considerably delayed the sowing in many districts. This unfortunately meant that the field work could not be started at the scheduled time in many areas for which the sample grids had been already prepared. On the whole, however, the preparation of the sample units proceeded smoothly and in time to enable the field work being conducted without any serious difficulty.

Preparation of Sampling Units.

3. The actual amount of work done in preparing the sample units during the period 10th February—3rd June 1939, is shown in an abstract form in Table 1. The large volume of the work can

be easily appreciated from the fact that over three lakhs and forty thousand random numbers were used in locating the sampling points on the village maps; over forty-eight thousand samples of random plots were constructed; more than twelve thousand grids of various sizes were drawn on the maps; and over two lakhs and forty thousand individual plots were listed; and the lists were checked and copied for being despatched to the field. In the case of *char* areas and for certain big plots actual tracings of maps had to be prepared and supplied together with the list of plots; and 257 maps were prepared in this way up to the 3rd June 1939.

Distribution of Sampling Units.

4. The detailed distribution of the sampling units by districts and police stations is shown in Table 2. It will be noticed that the greater part of the preparatory work was completed by the 3rd June, 1939.

Indices of Output.

5. Detailed records of output are being kept this year as in the case of the 1938 survey. Arrangements have also been made for the systematic scrutiny of a certain proportion of all working sheets. On the basis of such scrutiny, indices are being prepared of the percentage of mistakes committed by each individual worker. Deductions on account of mistakes are then made from the gross output on the basis of time required for checking and correcting these mistakes.

6. The final indices adjusted in this way for the percentage of mistakes are shown in Table 3. It will be noticed that there is still a good deal of variation between individual workers. But on the whole the dispersion (as measured by the standard deviation of the "output index") is smaller than last year. This can be seen conveniently from the following Table 4 in which the standard deviations of the index of output are given for the different months.

TABLE 4. *Standard Deviation of Indices of Output.*

Year.	Month.	No.	Standard Deviation ± s.e.
(1)	(2)	(3)	(4)
1938	July ...	29	30.6 ± 4.02
	August ...	29	29.8 ± 3.91
	September ...	40	29.8 ± 3.33
	October ...	34	22.3 ± 2.79
1939	February ...	22	16.9 ± 2.55
	March ...	35	26.4 ± 3.15
	April ...	37	22.6 ± 2.63

7. These standard deviations can be directly compared as the mean index of output is in each case very nearly 100. In 1938 the dispersion was highest in July (30·6) when work on the Scheme was first started, and remained practically steady in August and September (29·8) when new workers were being continually taken in. In October the dispersion decreased to about 22 per cent. which may possibly be ascribed mainly to training. In February 1939 when work was resumed on this year's scheme, most of the workers who were engaged at first were already trained, and the dispersion dropped significantly to about 17 per cent. In March there was an appreciable rise (26·4) most probably due to the coming in of new workers. In April 1939 there was a slight decrease to about the same value as in October 1938.

8. The indices have proved directly useful in eliminating the less efficient workers, thus enabling the output being increased without additional expenditure. This means that the efficiency of the

statistical portion of the scheme is being effectively maintained with the help of the indices of output.

Tabulation of Field Work.

9. Arrangements have been made for the systematic tabulation of the material which is coming from the Field Section. Standard methods for compiling the time records for individual investigators have been set up; and it is proposed to investigate the form of the cost function (that is, in what way the cost of operations changes with the size and density of sampling units) in considerable detail this year.

10. It is also proposed to investigate the question of accuracy of the field enumeration on a scientific basis this year. Arrangements have been made for an independent check survey being conducted by reliable workers in a certain proportion of the villages selected at random. The results of the check survey will be sent directly to the Statistical Laboratory for comparison with the original records.

P. C. MAHALANOBIS.

19th June, 1939.

TABLE 1. Preparatory Work in the Statistical Laboratory (10th February–3rd June, 1939.)

Size of Sampling Units.	Taking of Random Numbers.	Location of Random Plots.	Drawing of Grids.	Listing.		Checking		Copying.		Tracing of Maps.	Despatched for Field-Work.	
				Samples.	Plots.	Samples.	Plots.	Samples.	Plots.		Samples.	Plots.
(1)	(2)	(3)	(4)	(5·1)	(5·2)	(6·1)	(6·2)	(7.1)	(7·2)	(8)	(9·1)	(9·2)
Random Plots		48,622		48,622	48,622	46873	46873	46873	46873		38524	38524
1-acre Grid ...		7,609	7,609	74,85	54,978	5380	35965	5380	35965		2840	20337
4-acre Grid ...	3,42,220	2,257	2,257	2,257	40,073	2304	41435	2211	39048	257	1920	32714
9-acre Grid ...		1,521	1,521	1,490	51,731	1364	45851	1325	44213		849	32418
16-acre Grid ...		516	516	513	28,623	296	14445	243	14445		93	3921
36-acre Grid ...		309	309	309	35,638	287	32141	287	32141		157	17954
TOTAL ...	3,42,220	6,0834	12,212	6,0676	25,9665	56504	216710	56319	212685	257	44383	145868

Jute Census Scheme 1939: Progress Report (19th February, 1939 3rd June, 1939)

TABLE 2. Distribution of Sampling Units by Districts and Thanas.

DISTRICT—24 PARGANAS.

Thanas.	Samples.		Total Number of Plots.				Samples.			Total Number of Plots.				Samples.			Total Number of Plots.			
	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.
	11	12	13	21	22	23	24	31	32	33	41	42	43	44	51	52	53	61	62	63	64
1 Titagarh	R.F.	4	41	41	41	41	41	1	1	11	79	79	79	79	9						
2 Naihati	"	4	61	61	61	61	61	1	1	15	193	193	193	193	9	4	5	193	193	193	193
3 Jagaddal	"	4	87	57	57	57	57	1	1	21	175	175	175	175	9	4	7	217	217	217	217
4 Khardah	"	4	82	82				1	1	21	158				9	1	10	304	304	304	34
5 Barasat	"	10	1,627	1,627				4		412	3,026				16	1	19	425			
6 Basirhat	"	4	373	3,397				4		46	1,025				36		31	3,407			
7 Bongaon	B.L.	50	2,760	2,760	2,760	2,760	2,760	4	1	78	1,865	1,865	1,865	1,865	9	1	152	7,061			
8 Baduria	"	16	1,250	1,250	1,250	1,250	1,250	6		451	4,492				9	1	39	1,658			
9 Amdanga	"	25	1,341	1,341	1,341	1,341	1,341	2		100	990	990	990	990	9	1	14	2,429	2,429	2,459	2,423

District—HOOGHLY.

10 Serampore ... R.P.	4	80	80	80	80	80	1	1	21	161	161	161	161	36	1	21	2,328	2,328	2,328	2,328
11 Chanditala ... ,,	16	999	999	999	999	999	1	2	123	1,274	1,274	1,274	1,274	9	½	31	1,397	1,397	1,397	1,397
12 Dhaniakhali ... ,,	6	624	624	624	624	624	1	8	844	7,170				4	½	52	1,222	1,222	1,222	1,222
13 Tarakeswar ... ,,	16	741	741	741	741	741	1	4	184	1,710	1,710	1,710	1,710	4	2	93	2,387			
14 Uttarpara ... 1	4	40	346	346	346	346	9	3	30	1,162	1,162	1,162	1,162	36	1	10	1,463	1,463	1,463	1,463

District—PABNA.

15 Pabna ... R.P.	9	1,279	1,279	1,279	1,279	1,279	1	2	234	1,878	1,878	1,878	1,878	36	¼	34	3,297	3,297	3,297	3,297
16 Ullapara ... ,,	25	4,000	4,000	4,000	4,000	4,000	4	3	321	5,695	5,695	5,695	5,695	36	½	80	9,719	9,719	9,719	9,719
17 Balkuchi ... ,,	36	2,160	2,160	2,160	2,160	2,160	1	6	357	2,709	2,709	2,709	2,709	9	3	181	6,374	6,374	6,374	6,374
Kamarkhandi ,,	36	1,272	1,272	1,272	1,272	1,272	1	6	212	1,905	1,905	1,905	1,905	9	3	103	4,312	4,312	4,312	4,312

District—RANGPUR.

19 Kurigram R.P.	6	634	634	634	634	634	4	1	106	1648	1648	1648	1648	16	½	53	2374	2374	2374	2374
20 Nilphamari ... ,,	16	2168	2168	2168	2168	2168	1	2	269	2085	2085	2085	2085	9	1	133	5115	5115	5115	5115
21 Rangpur ,,	9	1111	1111	1111	1111	1111	4	3	370	6547	6547	6547	6547	36	½	61	6765	6765	6765	6765
22 Gaibanda ,,	36	4463	4463	4463	4463	4463	1	4	495	3362	3362	3362	3362	4	3	373	6878	6878	6878	6878
23 Palashari ,,	36	2655	2655	2655	2655	2655	1	8	589	4644	4644	4644	4644	9	3	221	9415	9415	9415	9415
24 Pirgacha ,,	25	2492	2492	2492	2492	2492	4	2	200	3380	3380	3380	3380	16	2	200	10421	10421	10421	10421

TABLE 2. *Distribution of Sampling Units by Districts and Thanas.*

(8)

Thanas.	Samples.			Total Number of Plots.				Samples.			Total Number of Plots.				Samples.			Total Number of Plots.			
	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.	Size.	Density.	Number.	Listed.	Checked.	Copied.	Compared.
	1·1	1·2	1·3	2·1	2·2	2·3	2·4	3·1	3·2	3·3	4·1	4·2	4·3	4·4	5·1	5·2	5·3	6·1	6·2	6·3	6·4
District—MYMENSINGH.																					
25 Kishoreganj ...	R.P.	36	2464	2464	2464	2464	2464	4	3	206	3760	3760	3760	3760	36	1	64	6981	6981	6981	6981
26 Bajitpur	„	16	1126	1126	1126	1126	1126	4	2	141	2297	2297	2297	2297	36	¼	17	1588	1588	1588	1588
27 Melandah	„	16	1427	1427	1427	1427	1427	1	4	362	1802	1802	1802	1802	4	2	181	2079	2079	2079	2079
28 Jamalpur	„	25	5838	5838	5838	5838	5838	1	6	1249	6282	6282	6282	6282	9	2	405	8760	8760	8760	
29 Nandail...	„	33	4507	4507	4507	4507	4507	1	8	936	5909	5909	5909	5909	16	1	131	6133			
30 Netrakona	„	4	425	425	425	425	425	1	1	106	635	635	635	635	9	1	105	2808	2808	2808	2808
31 Trisal ...	„	9	826	826	826	82	826	4	1	90	1290	1290	1290	1290	16	1	43	1650	1650	1650	1650

Jute Census Scheme 1939.

TABLE 3.

ADJUSTED INDICES OF OUTPUT

(Statistical Section : 10th February 3rd June, 1939)

Roll Number.	February.	March.	April.	Roll Number.	March.	April.
(1·1)	(2·1)	(3·1)	(4·1)	(1·2)	(3·2)	(4·2)
23	106	...	...	56	72	103
24	92	105	103	57	69	96
25	123	...	129	58	108	55
26	131	...	113	59	78	124
27	147	131	114	60	87	113
28	104	144	...	61	83	80
29	...	120	...	62	171	131
30	88	94	102	65	111	114
32	88	85	92	66	93	148
33	81	86	97	67	108	77
34	98	102	99	68	...	60
37	90	95	108	69	60	69
41	124	65	116	71	96	66
42	106	...	79	72	79	69
44	109	126	125	73	68	87
45	86	122	105	74	120	104
46	93	...	...	75	123	83
47	104	143	147	76	65	112
48	87	80	89	77	142	121
49	86	98	86			
50	100	106	...			
51	77	70	115			
52	78	88	103			

APPENDIX III.

NOTE BY THE SECRETARY ON SUBJECT NO. 1.—*To consider the final report on the Jute Census work for the year 1938 and Progress Report for 1939.*

Note No. 3.

A copy of the Second Report on the Crop Census of 1938 prepared by Prof. P. C. Mahalanobis is attached for the consideration of the Committee.

SECOND REPORT ON THE CROP CENSUS OF 1938.

Introduction.

1. The First Report on the Crop Census of 1938 was submitted on the 26th of December, 1938. Owing to the uncertainty regarding the continuance of the Scheme in 1939 most of the workers had to be discharged by the end of November 1938, and further progress of work was greatly slowed down. Administrative sanction for the Jute Census Scheme for 1939 was given so late as the 9th of February 1939 which delayed starting the preparatory work by full two months. This meant a very heavy rush of work for getting the sample grids ready in time to start the field work in April 1939, and seriously interfered with the work of completing the analysis of the material collected in 1938. I am, therefore, giving here in a very condensed form a Second Report on the Crop Census of 1938; and I intend to submit a Final Report dealing with certain points which could not be investigated in sufficient detail at the time of writing the present Report.

Accuracy of Field Work.

2. The results of a plot to plot comparison of the different field enumerations were given in detail for certain districts in Tables 2(T/1)—2(T/8) and 2(M/1)—2(M/8) of the First Report. The results of similar comparisons for District Rangpur, Thana Domar, are given here in Tables (1·1)—(1·9). These tables are arranged exactly in the same way as the corresponding tables given in the First Report. For example, the present Table (1·1) may be compared, column by column, with Table 2(M/1) or 2(T/1) of the First Report. The results are also roughly similar, and do not call for any special remarks. The percentage discrepancies between different enumerations were quite as high in Rangpur as in other districts.

3. The results of the comparison between complete enumeration and random grid surveys on an acre basis for District Mymensingh, Thana Iswarganj, are shown in Tables (2·1), (2·2), and (2·3) for 1-acre, 4-acre, and 16-acre grids respectively. The results of a similar comparison on the basis of "total number of plots" were given in the First Report in Table 2(M/2), 2(M/3), and 2(M/4) for 16-acre, 4-acre, and 1-acre grids respectively. It will be noticed that the absolute percentage discrepancies are much smaller when

the comparison is made on an acre basis. This can be easily appreciated from Table (3), For the thana as a whole, for example, the absolute percentage discrepancies are 27·41, 30·32, and 26·33 for acre basis against 51·21, 41·21, and 41·46 for total plot basis in the case of 16-acre, 4-acre, and 1-acre gids respectively.

4. It will be remembered that the results of a similar comparison between Complete Enumeration and the 5-acre random grid survey conducted in Deganga Thana in 1937 were given in Table 5, p. 75 of my *Report on the Experimental Crop Census of 1937*. For the whole thana, the absolute percentage discrepancies in Iswarganj in 1938 were 27·41, 30·32 and 26·33 for 16-acre, 4-acre, and 1-acre random grids, against 80·58 for 5-acre random grids in Thana Deganga in 1937. It is encouraging to note that the absolute percentage discrepancies were appreciably lower in the 1938 Survey, showing that with better training and more experience the quality of the field work improved materially.

Accuracy of Sample Surveys.

5. I discussed the accuracy of the sample surveys in Section 4 of the First Report. As the crop schedule work had not been completed at the time of writing the above Report, 1 compared the estimates of the area under jute obtained by using grids of different sizes; and we found that the results agreed among themselves within the limits of errors of sampling.

6. I am now giving the results of a comparison between the actual area under jute obtained from Complete Enumeration and the estimate obtained from Sample Surveys. In the previous report 1 have already explained in detail the use of the sampling error and the t-statistic for this purpose. The actual results are given in Tables (4·1)—(4·7).

7. In these Tables, col. (1) gives the size of the grid used in the random field survey, and col. (2) the serial number of the Union in which the survey was conducted. The actual area under Jute as obtained from the Complete Enumeration is shown in col. (3); and the estimated area based on the Sample Survey together with the standard error ("s.e.") in cols. (4) and (5) respectively. The difference between the "actual" (col. (4)) and the "estimated" area (col. (5)) is given in col. (6). Dividing this difference by the

standard error, given in col. (5), we get the observed values of "t" shown in col. (7); the corresponding degrees of freedom are given in the last column (8).

8. Observed values of "t" which exceed the five per cent. critical limit are marked by single stars (*); and those which exceed the one per cent. critical limit are marked by two stars (**) following the usual convention. But the differences marked in this way are not necessarily unsatisfactory. In fact, working on the five per cent. level of significance, we expect that, on an average, the observed differences should exceed the limit in five per cent. cases; and similarly, working with the one per cent. level, on an average, one per cent. of the differences should exceed the corresponding critical limit.

9. In the present Tables (4·1)—(4·7) we have got the results of 113 different comparisons. On the five per cent. level we, therefore, expect that in five per cent. of cases, or say, in six instances the observed differences should be greater than the critical limit. Similarly, we expect that only one difference should exceed the one per cent. limit. In actual fact, however, ten of the differences are greater than the five per cent. limit, and two greater than the one per cent. limit. This is slightly higher than the theoretical values, but of the same order. The agreement between actual and estimated values is, therefore, satisfactory.

Study of the Variance Function.

10. In the First Report I explained in great detail how a satisfactory solution of the problem of Jute Census depends entirely on our knowledge of two things :—

(a) the "cost function" giving the relation between the cost of operations per square mile and the size (area) of the grids and the density (or number) of such grids per square mile used for the survey; and

(b) the "variance function" showing how the sampling variability changes as the size of the grid is changed.

11. Fortunately it is possible to investigate the "variance function" with the help of model sampling experiments conducted in the Laboratory. A large amount of material in the form of Complete Enumeration was collected in 1938 for this purpose. The

largest single block for which such information was available was an area of 121·4 square miles (77,675 acres) comprising over one lakh and forty-five thousand individual plots in Thana Iswarganj in Mymensingh District. Extensive model sampling experiments were conducted on this material. The work was laborious; altogether 8,268 grids of various sizes (1-acre, 2·5-acre, 4-acre, 6·25-acre, 9-acre, 12·25-acre, 16-acre 25-acre and 36-acre) were used in this investigation; and in each case the samples were collected in a number of instalments so as to supply material for independent comparisons for each size of grid.

12. The actual results are given in Table (5). In the case of 1-acre grids, for example, sixteen different sub-samples (A, B, C, ... P) were collected independently at random from over the whole area. The number of grids (n) in each of these sub-samples is shown in col. (2·1); the observed values of p (the proportion under jute) and the standard error of p are given in cols. (2·2) and (2·3) respectively; and the observed values of the Standard Deviation for individual grids and the standard error of the Standard Deviation are shown in cols. (2·4) and (2·5) respectively of the same Table.

13. The analysis of variance is shown in Table (6). It will be noticed that, with the exception of 1-acre and 2·25-acre grids, the differences between samples are all statistically insignificant.

14. In discussing the results of model sampling experiments based on the material collected during the Crop Census of 1937 I had tentatively proposed using the following form for the "variance function":—

$$S_x = \frac{a}{(x)^k} = a.(x)^{-k} \quad \dots\dots\dots\dots\dots\dots\dots (1)$$

where S_x = the standard deviation for individual grids of size "x" acres; and "a" and "k" are statistical constants.

Using this formula for graduating the results of the model sampling experiments in Iswarganj we get the following equation:—

$$S_x = 0.3251 (x)^{-0.1567} \quad \dots\dots\dots\dots\dots\dots\dots (2)$$

The calculated and observed values are given in Table (7).

TABLE 7. *Calculated and Observed Standard Deviations:
Iswarganj 1938.*

Size of Grids	Number of Grids	Standard Deviation			Chi-square
		Calculated	Observed	±s.e.	
(1)	(2)	(3)	(4)	(5)	(6)
1-acre	1756	0·3288	0·3346	±0·0050	3·7172
2.25- ,,	1377	·2852	·2851	·0054	0·0003
4- ,,	1101	·2600	·2567	·0054	·5222
6·25- ,,	951	·2430	·2402	·0055	·2590
9- ,,	832	·2295	·2247	·0055	·7616
12·25- ,,	732	·2187	·2132	·0056	·9645
16- ,,	618	·2007	·2047	·0059	·0018
25- ,,	476	·1956	·1905	·0060	·3402
36- ,,	305	·1817	·1850	·0068	·0020
	8208				Chi-square = 6·5778

D. F. = 7,   Chi-square = 6·58   P = 0·475

15. In Table (7) the size (area) of the grid is given in col. (1)
and the corresponding number of grids on which the result is based
is given in col. (2).   The values of the Standard Deviation calculated
from equation (2) are given in col. (3), and the corresponding
observed values together with the standard errors are given in
cols. (4·1) and (4·2) respectively.

16. Even a cursory glance at Table (7) shows the excellent
agreement between the observed values of the Standard deviations
and the values calculated from the above formula. But this point
has been further investigated with the help of the Chi-square test.
The discrepancies between calculated and observed values divided
by the corresponding standard errors (given in col. (4.2)) are
squared and shown in col. (5).   Adding the figures in col. (5), we
get the final value of Chi-square = 6·58 for nine cells. As we have
used two parameters in the formula itself, seven degrees of freedom
are left for the comparison. Using Biometric Tables Part I, Table

XII, we find that the corresponding value of the probability P is 0·18 approximately. This means that in 48 per cent. of similar experiments, that is, practically in alternate trials, the agreement between calculated and observed values would be worse. The goodness of fit is therefore excellent; and the formula used here may, therefore, be expected to give entirely satisfactory results so far as Iswarganj Thana is concerned.

17. It is most gratifying to find that this particular formula for the variance function, which I adopted last year by a happy guess, has been corroborated in a striking manner by the present series of model sampling experiments in Iswarganj Thana. It is now necessary to test this formula in other districts. Work on this point is proceeding; and if the present type of formula is confirmed by the results of model sampling experiments in other districts, then the question of the variance function will be practically settled, which will be a great step forward.

18. Owing to the very late beginning of the field survey in August 1938 and the unprecedented rise of flood water in East and North Bengal, it was not possible to collect much information regarding the cost of operations. The material which happened to be available was, however, fully utilised for describing in general terms the nature of the "cost function" in the First Report. On the theoretical side a good deal of progress has been made recently, and I have got a tentative form for the "cost function" which appears to me to be promising. I intend trying out this formula as soon as the time-records for individual workers in the 1939 scheme are tabulated. But until this material becomes available, nothing further can be done in connexion with the "cost function".

<div align="right">P. C. MAHALANOBIS.</div>

20th June, 1939.

TABLE (1·1).

Comparison between different Field Enumerations 1938.

District—RANGPUR.   Thana—DOMAR.

Enumerations Compared.		Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as % of Standard A.	
A (1·1)	B (1·2)	A (2·1)	B (2·2)	Positive. (3·1)	Negative. (3·2)	Algebraic. (4·1)	Absolute. (4·2)	Algebraic. (5·1)	Absolute. (5·2)
JUTE.									
C. E.	16-acre ...	292·92	353·75	15·34	76·17	−60·83	91·51	−20·77	31·24
C. E.	4-acre ...	244·48	302.77	22·00	80·59	−58·59	102·59	−23·96	41·96
C. E.	1-acre ...	248·17	267·62	18·14	37·59	—19·45	55·73	−7·84	22·46
C. E.	R. P.	15·33	19·17	1·67	5·51	−3·84	7·18	−25·05	46·84
16-acre	4-acre ...	158·50	225·49	36·00	102·99	−66·99	138·99	−42·26	87·69
16-acre	1-acre ...	100·26	139·11	13·40	52·25	−33·85	65·65	−38·75	65·48
4-acre	1-acre ...	317·33	418·41	39·47	105·30	−65·83	144·77	−20·74	45·62

TABLE (1·1)—*contd.*

Enumerations Compared.		Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as % of Standard A.	
A (1·1)	B (1·2)	A (2·1)	B (2·2)	Positive. (3·1)	Negative. (3·2)	Algebraic (4·1)	Absolute. (4·2)	Algebraic. (5·1)	Absolute. (5·2)
				AUS PADDY.					
C. E.	16-acre ...	59·27	41·26	24·10	6·09	18·01	30·19	30·39	50·94
C. E.	4-acre ...	28·32	29·71	11·51	12·90	−1·39	24·41	−4·91	86·19
C. E.	1-acre ...	40·69	57·71	4·57	21·59	−17·02	26·16	−41·83	64·29
C. E.	L. P.	0·67	0·99	0·67	0·99	−0·32	1·66	−47·76	247·76
61-acre	4-acre ...	41·85	52·99	13·01	24·15	−11·14	37·16	−26·62	88·79
16-acre	1-acre ...	22·59	27·46	6·14	11·01	−4·87	17·15	−21·53	75·92
4-acre	1-acre ...	50·67	63·05	14·51	26·89	−12·38	41·40	−24·43	81·70

AMAN PADDY.

C. E.	16-acre ...	474·25	474·75	75·33	75·83	−0·50	151·16	−0·10	31·87
C. E.	4-acre ...	363·82	333·61	83·22	53·01	30·21	136·23	8·30	37·14
C· E.	1-acre ...	414·47	390·21	58·06	33·80	24·26	91·86	5·85	22·16
C. E·	R. P.	33·86	30·68	7·68	4·50	3·18	12·18	9·39	35·97
16-acre	4-acre ...	469·48	383·69	133·48	47·69	85·79	181·17	18·27	38·59
16-acre	1-acre ...	251·09	202·14	63·96	15·01	48·95	78·97	19·50	31·45
4-acre	1-acre ...	649·28	550·37	144·45	45·56	98·89	190·01	15·23	29·26

OTHER CROPS

C. E.	16-acre ...	372·56	329·24	90·16	46·84	43·32	137·00	11·63	36·77
C. E.	4-acre ...	333·68	303·91	67·84	38·07	29·77	105·91	8·92	37·74
C. E	1-acre ...	333·67	321·46	45·69	33·48	12·21	79·17	3·66	23·73
C. E.	R. P.	33·14	32·16	6·99	6·01	0·98	13·00	2·96	39·23
16-acre	4-acre ...	237·17	244·83	66·58	74·24	−7·66	140·82	−3·23	59·38
16-acre	1-acre ...	121·06	126·29	19·92	25·15	−5·23	45·07	−4·32	37·23
4-acre	1-acre ...	351·72	372·40	58·61	79·29	−20·68	137·90	−5·88	39·21

TABLE (1·2)

Comparison between different Field Enumerations, 1938.

District—RANGPUR.   Thana—DOMAR

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumerations.	
	Complete Enumeration.	16-acre Grids.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
				JUTE.				
2	79·91	87·99	6·08	14·16	−8·08	20·24	−10·11	25·33
4	181·83	228·67	8·00	54·84	−46·84	62·84	−25·76	34·56
8	4·50	4·50	0·00	0·00	0·00	0·00	0·00	0·00
9	26·68	32·59	1·26	7·17	−5·91	8·43	−22·15	31·60
TOTAL ...	292·92	353·75	15·34	76·17	−60·83	91·51	−20·77	31·24

AUS PADDY.

2	5·58	6·00	1·08	1·50	−0·42	2·58	−7·53	46·24
4	25·51	14·83	12·18	1·50	10·68	13·68	41·88	53·63
8	2·50	2·00	0·50	0·00	0·50	0·50	20·00	20·00
9	25·68	18·43	10·34	3·09	7·25	13·43	28·23	52·30
TOTAL ...	59·27	41·26	24·10	6·09	18·01	30·19	30·39	50·94

AMAN PADDY.

2	135·42	141·49	12·00	18·07	−6·07	30·07	−4·48	22·21
4	296·16	293·67	52·33	49·84	2·49	102·17	0·84	34·50
8	6·50	8·00	0·00	1·50	−1·50	1·50	−23·08	23·08
9	36·17	31·59	11·00	6·42	4·58	17·42	12·66	48·16
TOTAL ...	474·25	474·75	75·33	75·83	−0·50	151·16	−0·10	31·87

TABLE (1·2)—*contd.*

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumerations.	
	Complete Enumeration.	16-acre Grids.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

OTHER CROPS.

2	103·09	88·52	24·82	10·25	14·57	35·07	14·13	34·02
4	223·50	194·83	61·67	28·00	33·67	89·67	14·74	39·24
8	3·50	2·50	1·00	0·00	1·00	1·00	28·57	28·57
9	37·47	43·39	2 67	8·59	−5·92	11·26	−15·80	30·05
TOTAL ...	372·56	329·24	90·16	46·84	43·32	137·00	11·63	36·77

TABLE (1·3)

Comparison between different Field Enumerations, 1938.

District—RANGPUR   Thana—DOMAR.

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumeration.	
	Complete Enumeration.	16—acre Grids.	Positive	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
				JUTE.				
2	35·67	47·25	2·50	14·08	−11·58	16·58	−32·46	46·48
4	193·00	233·68	17·83	58·51	−40·68	76·34	−21·08	39·55
8	5·97	8·17	0·00	2·50	− 2·50	2·50	−41·88	41·88
9	9·84	13·67	1·67	5·50	− 3·83	7·17	−38·92	72·87
TOTAL ...	244·48	302·77	22·00	80·59	−58·59	102·59	−23·96	41·96

TABLE (1·3)—*contd.*

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumeration.	
	Complete Enumeration.	16 acre Grids.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

AUS PADDY

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumeration.	
2	5·33	4·57	1·84	1·08	0·76	2·92	14·26	54·79
4	12·16	15·16	7·00	10·00	−3.00	17·00	−24·67	139·80
8	0·00	0·33	0·00	0·33	−0·33	0·33	—	—
9	10·83	9·65	2·67	1·49	1·18	4·16	10·90	38·41
TOTAL ...	28·32	29·71	11·51	12·90	−1·39	24·41	−4·91	86·19

Aman Paddy.

2	63·50	74·60	9·91	16·01	−6·10	25·92	−8·91	37·84
4	235·66	204·33	59·33	28·00	−31·33	87·33	−13·29	37·06
8	10·16	11·50	1·16	2·50	−1·34	3·66	−13·19	36·02
9	49·50	43·18	12·82	6·50	−6·32	19·32	−12·77	39·63
Total ...	363·82	333·61	83·62	53·01	30·21	136·23	8·30	37·44

Other Crops.

2	35·50	18·58	21·00	4·08	16·92	25·08	47·66	70·65
4	191·18	178·83	34·34	21·99	12·35	56·33	6·46	29·46
8	33·17	29·00	4·50	0·33	4·17	4·83	12·57	14·56
9	73·83	77·50	8·00	11·67	−3·67	19·67	−4·97	26·64
Total ...	333·68	303·91	67·84	38·07	29·77	105·91	8·92	31·74

TABLE (1·4)

Comparison between different Field Enumerations 1938.

District—RANGPUR.   Thana—DOMAR.

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumeration.	
	Complete Enumeration.	1 acre Grids.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
				JUTE.				
2	52·25	61·24	12·25	21·24	−8·99	33·49	−17·21	64·10
4	143·50	146·50	2·17	5·17	−3·00	7·34	−2·09	5·12
6	10·25	12·71	1·05	3·51	−2·46	4·56	−24·00	44·49
8	7·67	8·00	0·17	0·50	−0·33	0·67	−4·30	8·74
9	34·50	39·17	2·50	7·17	−4·67	9·67	−13·54	28·03
TOTAL ...	248·17	267·62	18·14	37·59	−19·45	55·73	−7·84	22·46

Aus Paddy.

2	6·75	14·59	0·83	8·67	−7·84	9·50	−116·15	140·74
4	16·68	16·34	0·34	0·00	0·34	0·34	2·04	2·04
6	3 25	6·36	0·22	3·33	−3·11	3·55	−95·70	109·23
8	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
9	14·01	20·42	3·18	9·59	−6·41	12·77	−45·75	91·15
TOTAL ...	40·69	57·71	4·57	21·59	−17·02	26·16	−41·83	64·29

Aman Paddy.

2	81·75	79·44	18·57	16·26	2·31	34·83	2·82	42·60
4	214·82	207·32	11·67	4·17	7·50	15·84	3·49	7·37
6	36·83	27·86	9·17	0·20	8·97	9·37	24·35	25·44
8	5·17	6·50	0·00	1·33	−1·33	1·33	−25·73	25·73
9	75·90	69·09	18·65	11·84	6·81	30·49	8·97	40·17
TOTAL ...	414·47	390·21	58·06	33·80	24·26	91·86	5·85	22·16

TABLE (1·4)—*contd.*

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of Complete Enumeration.	
	Complete Enumeration.	1 acre Grids.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

OTHER CROPS.

2	78·25	63·73	22·67	8·15	14·52	30·82	18·56	39·39
4	142·00	146·84	4·50	9·34	− 4·84	13·84	− 3·41	9·75
6	27·67	31·07	0·27	3·67	− 3·40	3·94	− 12·29	14·24
8	10·16	8·50	1·66	0·00	1·66	1·66	16·34	16·34
9	75·59	71·32	16·59	12·32	4·27	28·91	5·65	38·24
TOTAL ...	333·67	321·46	45·69	33·48	12·21	79·17	3·66	23·73

TABLE (1·5)

Comparison between different Field Enumerations 1938.

District—RANGPUR   THANA—Domar.

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies		Discrepancies as percentages to Complete Enumerations.	
	Complete Enumeration.	Random Plots.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

JUTE.

2	7·17	6·00	1·17	0·00	1·17	1·17	16·32	16·32
4	6·33	8·50	0·00	2·17	−2·17	2·17	−34·28	34·28
8	1·83	4·67	0·50	3·34	−3·84	3·84	115·19	209·84
TOTAL ...	15·33	19·17	1·67	5·51	−3·84	7·18	−25·05	46·84

TABLE (1·5)—*contd.*

Serial No. of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages to Complete Enumerations.	
	Complete Enumeration.	Random Plots.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

AUS PADDY.

2	0·00	0·65	0·00	0·65	−0·65	0·65	......	......
4	0·67	0·34	0·67	0·34	0·33	1·01	49·26	150·75
8	0·00	0·00	0·00	0·00	0·00	0·00	0·00	0·00
TOTAL ...	0·67	0·99	0·67	0·99	−0·32	1·66	−47·76	247·76

AMAN PADDY.

2	10·85	13·67	0·51	3·33	−2·82	3·84	−25·99	35·39
4	13·17	9·34	5·50	0·67	4·83	6·17	36·68	46·85
8	9·84	8·67	1·67	0 50	1·17	2·17	11·89	22·05
TOTAL ...	33·86	30·68	7·68	4·50	3.18	12·18	9·39	35·97

OTHER CROPS.

2	6·98	4·68	3·65	1·35	2·30	5·00	32·95	71·63
4	4·83	7·82	0·67	3·66	−2·99	4·33	−61·91	89·65
8	21·33	19·66	2·67	1·00	1·67	3·67	7·83	17·21
TOTAL ...	33·14	32·16	6·99	6·01	0·98	13·00	2·96	39·23

TABLE (1·6)
Comparison between different Field Enumerations, 1938.
District—RANGPUR.   Thana—DOMAR.

Serial No. of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of 16-acre Grid Enumeration.	
	16 acre Grid.	4 acre Grid.	Positive.	Negative.	Algebraic	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
			JUTE					
2	27·50	27·50	11·00	11·00	0·00	22·00	0·00	80·00
3	32·16	60·17	7·83	35·84	−28·01	43·67	−87·10	135·79
4	36·00	57·84	7·66	29·50	−21·84	37·16	−60·67	103·22
7	15·83	20·33	2·50	7·00	−4·50	9·50	−28·42	60·01
8	4·50	4·50	0·00	0·00	0·00	0·00	0·00	0·00
9	22·92	20·75	4·67	2·50	2·17	7·17	9·47	31·28
10	19·59	34·40	2·34	17·15	−14·81	19·49	−75·60	99·49
TOTAL ...	158·50	225·49	36·00	102·99	−66·99	138·99	−42·26	87·69

AUS PADDY.

Aus Paddy.

2	0·50	0·50	0·50	0·50	9·00	1·00	0·00	200·00
3	3·00	6·50	2·50	6·00	−3·50	8·50	−116·67	283·33
4	1·50	5·50	0·50	4·50	−4·00	5·00	−266·67	333·33
7	1·50	4·33	0·50	3·33	−2·83	3·83	−188·67	255·33
8	2·50	2·00	0·50	0·00	0·50	0·50	20·00	20·00
9	11·59	16·91	2·50	7·82	−5·32	10·32	−45·90	89·04
10	21·26	17·25	6·01	2·00	4·01	8·01	18·86	37·68
Total ...	41·85	52·99	13·01	24·15	−11·14	37·16	−26·62	88·79

TABLE (1·6)—*contd.*

Serial No. of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of 16 acre Grid Enumeration.	
	16 acre Grid.	4 acre Grid.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
	AMAN PADDY.							
2	63·50	50·50	24·50	11·50	13·00	36·00	20·47	56·69
3	103·67	90·66	30·84	17·83	13·01	48·67	12·55	46·95
4	106·50	71·83	37·00	2·33	34·67	39·33	32·55	36·93
7	42·33	33·34	9·66	0·67	8·99	10·33	21·24	24·40
8	6·50	8·00	0·00	1·50	−1·50	1·50	−23·08	23·08
9	63·40	59·76	8·98	5·34	3·64	14·32	5·74	22·59
10	83·58	69·60	22·50	8·52	13·98	31·02	16·73	37·11
TOTAL ...	469·48	383·69	133·48	47·69	85·79	181·17	18·27	38·59

OTHER CROPS.

OTHER CROPS.

2	19·50	32·50	12·00	25·00	−13·00	37·00	−66·67	180·74
3	43·17	24·67	32·50	14·00	18·50	46·50	42·85	107·71
4	56·00	64·83	3·50	12·33	−8·83	15·83	−15·77	28·27
7	10·34	12·00	1·34	3·00	−1·66	4·34	−16·06	41·97
8	3·50	2·50	1·00	0·00	1·00	1·00	28·57	28·57
9	48·09	48·58	4·17	4·66	−0·49	8·83	−1·02	18·36
10	56·57	59·75	12·07	15·25	−3·18	27·32	−5·62	48·20
Total ...	237·17	244·83	66·58	74·24	−7·66	140·82	−3·23	59·38

TABLE (1·7)
Comparison between different Field Enumerations 1938.

District—RANGPUR.   Thana—DOMAR.

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of 4-acre Grid Enumeration.	
	16 acre Grid.	1 acre Grid.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
JUTE.								
2	28·02	34·75	7·85	14·58	− 6·73	22·43	− 24·02	80·05
3	19·00	29·83	1·50	12·33	− 10·83	13·83	− 57·00	72·79
4	20·66	24·16	1·50	5·00	− 3·50	6·50	− 16·94	31·46
7	15·00	24·87	1·13	11·00	− 9·87	12·13	− 65·80	80·87
8	4·83	5·50	0·00	0·67	− 0·67	0·67	− 13·87	13·87
9	5·00	5·00	1·00	1·00	0·00	2·00	0·00	40·00
10	7·75	15·00	0·42	7·67	7·25	8·09	− 93·54	104·39
TOTAL ...	100·26	139·11	13·40	52·25	− 38·85	65·65	− 38·75	65·48

AUS PADDY.

2	2·50	3·26	1·25	2·01	−0·76	3·26	− 30·40	130·40
3	0·50	1·83	0·00	1·33	−1·33	1·33	− 266·00	266·00
4	0·50	0·50	0·00	0·00	0·00	0·00	0·00	0·00
7	2·33	1·03	2·13	0·83	1·30	2·96	55·80	127·04
8	1·34	1·00	0·34	0·00	0·34	0·34	25·38	25·38
9	5·00	7·50	1·00	3·50	−2·50	4·50	− 50·00	90·00
10	10·42	12·34	1·42	3·34	−1·92	4·76	− 18·43	45·68
Total ...	22·59	27·46	6·14	11·01	−4·87	17·15	− 21·53	75·92

TABLE (1·7)—*contd.*

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of 16-acre Grid Enumeration.	
	16 acre Grid.	1 acre Grid.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)

AMAN PADDY.

2	48·01	42·10	15·08	9·17	5·91	24·25	12·31	50·51
3	60·00	46·67	16·33	3·00	13.33	19·33	22·22	32·22
4	41·17	34·67	7·00	0·50	6·50	7·50	15·79	18·21
7	34·33	27·20	8·63	1·50	7·13	10·13	20·77	29·51
8	5·83	5·50	0·50	0·17	0·33	0·67	5·66	11·49
9	23·50	22·00	2·00	0·50	1·50	2·50	6·38	10·64
10	38·25	24·00	14·42	0·17	14·25	14·59	37·26	38·14
TOTAL ...	251·09	202·14	63·96	15·01	48·95	78·97	19·50	31·45

2	13·47	11.89	7·42	5·84	1·58	13·26	11·73	98·44
3	20·50	21·67	4·50	5·67	− 1·17	10·17	− 5·71	49·61
4	19·67	22·67	0·50	3·50	− 3·00	4 00	−15·25	20·34
7	20·34	18·90	3·50	2·06	1·44	5·56	7·08	27·33
8	2·00	2·00	0 00	0·00	0·00	0·00	0·00	0·00
9	16·50	15·50	2·00	1·00	1·00	3·00	6·06	18·18
10	28·58	33·66	2·00	7·08	− 5·08	9·08	−17·78	31·77
TOTAL ...	121·06	126·29	19·92	25·15	− 5·23	45·07	− 4·32	37·23

TABLE (1·8)

Comparison between different Field Enumeration 1938.

District—RANGPUR. Thana—DOMAR.

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of 4-acre Grids Enumeration.	
	4-acre Grid.	1-acre Grid.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
	JUTE.							
1	55·81	61·36	10·45	16·00	−5·55	26·45	−9·94	47·39
2	28·02	39·17	3·68	14·83	−11·15	18·51	−39·79	66·06
3	53·85	61·81	7·68	15·64	−7·96	23·32	−14·78	43·31
4	59·82	67·91	4·57	12·66	−8·09	17·23	−13·52	28·80
5	56·50	65·50	3·67	12·67	−9·00	16·34	−15·93	28·92
7	16·50	29·83	1·17	14·50	−13·33	15·67	−80·79	94·97
8	9·25	6·83	3·92	1·50	2·42	5·42	26·16	58·60
9	13·08	15·50	1·58	4·00	−2·42	5·58	−18·50	42·66
10	24·50	35·25	2·75	13·50	−10·75	16·25	−43·88	66·33
TOTAL ...	317·33	383·16	39·47	105·30	−65·83	144·77	−20·74	45·62

Aus Paddy.

1	1·50	3·69	0·00	2·19	−2·19	2·19	−146·00	146·00
2	2·50	2·84	1·33	1·67	−0·34	3·00	−13·60	120·00
3	5·00	5·34	2·67	3·01	−0·34	5·68	−6·80	113·60
4	4·00	3·60	1·00	0·60	0·40	1·60	10·00	40·00
5	13·00	13·50	4·84	5·34	−0·50	10·18	−3·85	78·31
7	1·83	3·17	0·00	1·34	−1·34	1·34	−73·23	73·23
8	2·08	2·00	1·08	1·00	0·08	2·08	3·85	100·00
9	8·42	8·00	2·17	1·75	0·42	3·92	4·99	46·56
10	12·34	20·91	1·42	9·99	−8·57	11·41	−69·45	92·46
Total ...	50·67	63·05	14·51	26·89	−12·38	41·40	−24·43	81·70

TABLE (1·8)—*contd.*

Serial Number of Unions.	Total Number of Plots.		Actual Discrepancies.		Sum of Discrepancies.		Discrepancies as percentage of 4-acre Grids Enumeration.	
	4 acre Grid.	1 acre Grid.	Positive.	Negative.	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·)	(4·1)	(5·1)	(5·2)

AMAN PADDY.

1	99·62	77·67	27·64	5·71	21·93	33·35	22·01	33·48
2	47·98	39·18	14·97	6·17	8·80	21·14	18·34	44·06
3	90·81	68·51	25·81	3·51	22·30	29·32	24·56	32·29
4	100·85	90·75	15·27	5·17	10·10	20·44	10·01	20·27
5	109·67	102·67	16·50	9·50	7·00	26·00	6·38	23·71
7	57·50	46·00	16·00	4·50	11·50	20·50	20·00	35·65
8	23·75	24·83	2·50	3·58	−1·08	6·08	−4·55	25·60
9	55·26	54·50	5·34	4·58	0·76	9·92	1·38	17·95
10	63·84	46·26	20·42	2·84	17·58	23·26	27·54	36·43
TOTAL ...	649·28	550·37	144·45	45·56	98·89	190·01	15·23	29·26

OTHER CROPS.

1	51·07	65·26	6·97	21·16	−14·19	28·13	−27·78	55·08
2	13·50	10·81	7·50	4·81	2·69	12·31	19·93	91·19
3	47·34	61·34	6·67	20·67	−14·00	27·34	−29·57	57·75
4	61·33	63·74	7·33	9·74	−2·41	17·07	−3·93	27·83
5	36·83	34·33	10·83	8·33	2·50	19·16	6·79	52·02
7	23·17	20·00	7·50	4·33	3·17	11·83	13·68	51·06
8	13·92	15·34	0·25	1·67	−1·42	1·92	−10·20	13·79
9	39·24	38·00	4·74	3·50	1·24	8·24	3·16	21·00
10	65·32	63·58	6·82	5·08	1·74	11·90	2·66	18·22
TOTAL ...	351·72	372·40	58·61	79·29	−20·68	137·90	−5·88	38·21

(43)

TABLE (2·1).

Comparison between Complete and 1 acre Grid Enumerations, 1938.

District—MYMENSINGH.   Thana—ISWARGANJ.

Union Number.	Area under Jute.		Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of C. E.	
	Complete Enumeration.	1 acre Grids.	Positive +	Negative −	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
2	113·17	109·62	15·86	12·31	+3·55	28·17	+3·14	24·89
6	135·88	134·26	21·36	19·74	+1·62	41·10	+1·19	30·25
7	197·30	217·85	17·16	37·71	−20·55	54·87	−10·42	27·81
8	170·24	158·88	24·56	13·20	+11·36	37·76	+6·67	22·18
9	104·14	167·66	4·86	68·38	−63·52	73·24	−60·99	70·33
10	112·83	96·13	17·39	0·69	+16·70	18·08	+14·80	16·11

12	225·02	221·42	26·43	22·83	+3·60	49·26	+1·60	21·89
15	140·89	136·46	13·71	9·28	+4·43	22·99	+3·14	16·32
16	181·19	184·28	24·20	27·29	−3·09	51·49	−1·71	28·42
17	193·51	187·22	26·68	20·39	+6·29	47·07	+3·25	24·32
18	136·11	142·55	12·95	19·39	−6·44	32·34	−4·73	23·76
19	129·96	121·22	21·65	12·91	+8·74	34·56	+6·73	26·59
20	142·12	140·00	16·59	14·47	+2·12	31·06	+1·49	21·85
Total ...	1982·36	2017·55	243·40	278·59	−35·19	521·99	−1·78	26·33

TABLE (2·2).

Comparison between Complete and 4 acre Grid Emunerations, 1938.

District—MYMENSINGH.   Thana—ISWARGANJ.

Union Number.	Area under Jute		Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of C. E.	
	Complete Enumeration.	4 acre Grids.	Positive +	Negative −	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
2	83·15	89·81	13·34	20·00	−6·66	33·34	−8·01	40·10
6	76·32	71·67	13·07	8·12	+4·95	21·19	+6·46	27·66
7	114·11	117·73	14·23	17.85	−3·62	32·08	−3·17	28·11
8	183·97	167·05	30·83	13·91	+16·92	44·74	+9·20	24·32
9	79·84	143·35	7·58	71·09	−63·51	78·67	−79·55	98·53
10	90·62	77·01	14·67	1·06	+13·61	15·73	+15·02	17·36

15	61·78	63·89	7·95	10·06	− 2·11	18·01	− 3·41	29·15
16	63·79	59·65	9·12	4·98	+ 4·14	14·10	+ 6·49	22·10
17	220·19	217·12	26·01	22·94	+ 3·07	48·95	+ 1·39	22·23
18	77·94	74·36	7·54	3·96	+ 3·58	11·50	+ 4·59	14·75
20	75·06	74·65	11·93	11·52	+ 0·41	23·45	+ 0·55	31·24
TOTAL ...	1127·07	1156·29	156·27	185·49	− 29·22	341·76	− 2·59	30·32

TABLE (2·3)
Comparison between Complete and 16 acre Grid Enumerations, 1938.
District—Mymensingh. Thana—Iswarganj.

Union Number.	Area under Jute.		Discrepancies.		Sum of Discrepancies.		Discrepancies as percentages of C. E.	
	Complete Enumeration.	16 acre Grids.	Positive +	Negative −	Algebraic.	Absolute.	Algebraic.	Absolute.
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5·1)	(5·2)
2	64·75	66·36	10·50	12·11	−1·61	22·61	−2·49	34·92
8	72·69	75·88	6·00	9·19	−3·19	15·19	−4·39	20·90
9	100·04	115·15	9·37	24·48	−15·11	33·85	−15·10	33·84
10	129·37	167·73	23·95	2·31	+21·64	26·26	+16·73	20·30
18	66·37	68·61	9·03	11·27	−2·24	20·30	−3·38	30·59
20	40·93	38·32	7·18	4·57	+2·61	11·75	+6·38	28·71
Total ...	474·15	472·05	66·03	63·93	+2·10	129·96	+0·04	27·41

TABLE (3)

Absolute Discrepancies as percentages of Complete Enumeration (Comparative Results).

Union Number.	District—Mymensingh Thana—ISWARGANJ Field Survey 1938.						24 Perganas, Thana—Deganga 1937†	
	Total plot Basis*			Acre Basis			Acre	Basis
	16-acre	4-acre	1-acre	16-acre	4-acre	1-acre	Union	5-acre
(1)	(2·1)	(2·2)	(2·3)	(3·1)	(3·2)	(3·3)	(4·1)	(4·2)
2	71·56	74·66	63·60	34·92	40·10	24·89		
6	...	43·93	51·97	...	27·66	30·25		
7	...	43·19	26·76	...	28·11	27·81		
8	56·56	43·94	44·61	20·90	24·32	22·18		
9	35·04	50·82	62·22	33·84	98·53	70·33	1	46·09
10	51·75	68·35	56·83	20·30	17·36	16·11	2	276·29

(49)

<div align="center">

TABLE (3)—*còntd.*

Absolute Discrepancies as percentages of Complete Enumeration (Comparative Results).

</div>

Union Number.	District—Mymensingh Field Survey 1938.			Thana—Iswarganj			24 Perganas, Thana—Deganga 1937†	
	Tota. plot Basis*			Acre Basis			Acre	Basis
	16·acre	4-acre	1-acre	16-acre	4-acre	1-acre	Union	5-acre
(1)	(2·1)	(2·2)	(2·3)	(3·1)	(3·2)	(3·3)	(4·1)	(4·2)
12	...	...	49·81	...	...	21·89	3	127·04
15	...	38·47	33·17	...	29·15	16·32	4	105·08
16	...	32·13	42·04	...	22·10	28·42	5	54·31
17	...	32·26	39·52	...	22·23	24·32	6	49·52
18	57·21	31·24	36·58	30·59	14·75	23·76	7	64·75
19	55·08	...	44·84	...	...	26·59	8	31·38
20	...	52·02	48·66	28·71	31·24	21·85	9	30·02
Thana	51·21	44·10	44·66	27·41	30·32	26·33	Thana	80·58

Footnote—*Taken from Tables 2 (M/2)–2(M/4) in *First Report on Crop Census of 1938.*
†Taken from Table (5), p.75 of *Report on Experimental Crop Census of 1957.*

TABLE (4·1).

Comparison of Estimates by Field Sampling 1938.

District—MYMENSING. Thana—ISWARGANJ.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	±S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-acre ...	2	1284	1291	±138	−7	0·05	156
	6	1727	1703	151	+24	0·16	109
	7	2674	2897	204	−223	1·09	147
	8	2593	2159	194	+434	*2·24	136
	9	2421	2895	201	−474	*2·36	137
	10	1748	1932	141	−184	1·31	128
	12	2851	2645	144	+186	1·29	147
	15	2421	2395	154	+26	0·19	124

TABLE (4·1)—*contd.*

Comparison of Estimates by Field Sampling 1938.

District—MYMENSING.   Thana—ISWARGANJ.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	16	2443	2616	160	− 173	1·08	127
	17	3075	2880	178	+ 195	1·10	161
	18	2308	2177	174	+ 131	0·75	107
	19	1878	1980	145	− 102	0·70	112
	20	1935	2126	171	− 191	1·12	119
	TOTAL ...	29358	29696	± 603	358	0·59	1710

4-acre ...	2	1064	1497	±210	−433	*2·06	42
	6	821	792	108	+29	0·27	25
	7	1580	1849	200	−269	1·34	32
	8	2447	2125	211	+322	1·53	65
	9	2202	2181	266	+21	0·08	43
	10	1555	1819	199	−264	1·33	43
	15	1275	1229	172	+46	0·27	21
	16	868	778	109	+90	0·82	18
	17	2918	2475	240	+443	1·85	50
	18	1116	1006	153	+110	0·72	24
	20	925	905	116	+20	0·17	28
Total ...		16871	16756	±622	+115	0·18	400

TABLE (4·1)—*contd.*

Comparison of Estimates by Field Sampling 1938.

District—MYMENSING.   Thana—ISWARGANJ.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom
		Actual	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
16-acre ...	2	381	382	±145	− 1	0·01	12
	8	961	843	218	+118	0·54	10
	9	1365	1149	223	+216	0·97	18
	10	1015	1123	170	−108	0·64	18
	18	634	568	134	+ 66	0·49	4
	20	330	290	78	+ 40	0·51	5
	TOTAL ...	4686	4355	±413	+331	0·77	67

(55)

TABLE (4·2).

Comparison of Estimates by Field Sampling 1938.

District—TIPPERAH.   Thana—LAKSHAM.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	±S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Random Plots.	1	36	94	±47	−58	1·23	56
	3	45	107	64	−62	0·97	51
	8	26	19	19	+7	0·37	37
	9	150	139	57	+11	0·19	76
	TOTAL ...	257	359	±100	−102	1·02	220

TABLE (4·2)—*contd.*

Comparison of Estimates by Field Sampling 1938.

District—TIPPERAH.   Thana—LAKSHAM.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t."	Degrees of Freedom.
		Actual.	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-acre ...	1	53	98	±31	−45	1·39	89
	3	73	148	41	−75	1·83	61
	6	105	235	55	−130	*2·36	50
	7	96	139	41	−43	1·05	52
	8	27	55	22	−28	1·27	33
	9	129	116	27	+13	0·48	62
	TOTAL ...	483	791	±92	−308	**3·35	347

4-acre ...	1	28	113	±50	85	1·70	23
	3	35	85	56	50	0·89	9
	7	81	245	101	164	1·62	12
	8	10	4	2	6	3·00	5
	9	91	79	32	12	0·38	10
	TOTAL ...	245	526	±130	−281	*2·15	59
16-acre ...	1	4	81	±49	−77	1·57	6
	7	81	101	31	−20	0·65	9
	TOTAL ...	85	182	±58	−97	1·67	15

TABLE (4·3) District—DACCA. Thana—KALIGANJ.

1-acre ...	4	629	644	±85	+15	0·18	66
	7	410	498	76	+88	1·16	60
	TOTAL ...	1,039	1,142	±114	+103	0·90	126

TABLE (4·4).

Comparison of Estimates by Field Sampling 1938.

District—RANGPUR. Thana—DOMAR.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t."	Degrees of Freedom.
		Actual.	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Random Plots	2	700	639	±261	+ 61	0·23	11
	4	1,549	1,714	406	− 165	0·41	24
	8	144	209	97	− 65	0·67	20
	TOTAL ...	2,393	2,562	±492	− 169	0·30	55

1-acre ...	2	700	767	±148	− 67	0·45	27
	4	1,549	1,857	230	−308	1·34	56
	6	248	293	94	− 45	0·48	12
	8	144	144	56	0	0	17
	9	515	382	109	+133	1·22	46
	TOTAL ...	3,156	3,443	±314	−287	0·91	158
4-acre ...	2	398	431	±139	− 33	0·24	6
	4	1,549	1,764	220	−215	0·98	22
	8	43	174	174	−131	0·75	2
	9	494	431	174	+ 63	0·36	12
	TOTAL ...	2,484	2,800	±358	−316	0·91	42
16-acre ...	2	700	742	±231	− 42	0·18	3
	4	1,549	1,543	418	+ 6	0·01	8
	9	126	248	17	−122	7·18	1
	TOTAL ...	2,375	2,533	±478	−158	0·34	12

TABLE (4·5).

Comparison of Estimates by Field Sampling 1938.

District—Rajsahi.   Thana—Badalgachi.

Size of Grid	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Random Plots	5	387	448	± 139	− 61	0·47	17
	6	23	71	41	− 48	1·17	3
	Total ...	400	519	± 145	−119	0·82	20
1-acre ...	1	1,226	996	± 250	+230	0·92	29
	5	379	326	102	+ 53	0·52	11
	Total ...	1,605	1,322	± 270	+283	1·01	40
16-acre ...	1	551	496	± 129	+ 55	0·43	8
	5	147	117	40	+ 30	0·75	2
	Total ...	698	613	± 135	+ 85	0·62	10

TABLE (4·6).

Comparison of Estimates by Field Sampling 1938.

District—MURSHIDABAD.   Thana—BELDANGA.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	± S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-acre ...	1	418	383	± 63	+ 35	0·56	56
	3	408	270	118	+ 138	1·17	20
	4	131	107	34	+ 24	0·71	23
	5	164	136	70	+ 28	0·40	17
	8	42	45	41	− 3	0·08	1
	9	149	157	81	− 8	0·10	11
	TOTAL ...	1,312	1,098	± 179	+ 214	1·20	128

TABLE (4·6)—*contd.*

Comparison of Estimates by Field Sampling 1938.

District—MURSHIDABAD.   Thana—BELDANGA.

Size of Grid.	Union No.	Area under Jute in acres.			Difference.	Observed "t"	Degrees of Freedom.
		Actual.	Estimated.	±S. E.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4-acre ...	1	418	339	±183	+79	0·43	6
	3	403	169	82	+234	*2·85	12
	4	161	234	134	−73	0·55	5
	5	164	140	94	+24	0·26	8
	9	149	92	92	+57	0·62	2
	TOTAL ...	1,295	974	±240	+321	1·33	33
16-acre ...	3	392	402	±298	−10	0·03	5

TABLE (4·7)		District—PABNA.			Thana—SABA.		
Random Plots	3	212	93	±69	+119	1·73	54
	5	288	214	86	+74	0·86	85
	TOTAL ...	500	307	±110	+193	1·75	139
1-acre ...	2	251	146	±62	+105	1·69	33
	3	124	11	5	+113	**22·60	29
	5	289	488	131	−199	1·52	33
	6	223	229	39	−6	0·15	70
	TOTAL ...	887	874	±150	+13	0·09	165
4-acre ...	2	185	270	±72	−85	1·18	12
	3	87	269	85	−182	2·14	10
	5	317	433	91	−116	1·28	28
	6	223	220	47	+3	0·06	24
	TOTAL ...	812	1,192	±151	−380	*2·52	74
16-acre ...	3	103	99	±37	+4	0·11	6

TABLE (5).

Results of Model Sampling Experiments in Thana Iswarganj (1938 Survey).

Serial Number.	N	P	± S.E.	S.D.	± S.E.	N	P	± S.E.	S.D.	± S.E.
	2·1	2·2	2·3	2·4	2·5	3·1	3·2	3·3	3·4	3·5
			1acre					2·25acre		
A	122	·4520	±·0300	·3412	±·0218	122	·4202	±·0275	·3032	±·0194
B	122	·3518	·0313	·3452	·0221	122	·3347	·0266	·2936	·0188
C	121	·3520	·0300	·3205	·0212	121	·3523	·0256	·2819	·0181
D	117	·3627	·0299	·3234	·0211	117	·3592	·0259	·2804	·0183
E	136	·3557	·0271	·3159	·0192	136	·3609	·0233	·0722	·0165
F	114	·3418	·0294	·3136	·0208	114	·3526	·0262	·2706	·0185
G	100	·4019	·0344	·3443	·0243	100	·4086	·0302	·3015	·0214
H	119	·4207	·0309	·3369	·0218	119	·4034	·0246	·2688	·0173
I	107	·4158	·0298	·3081	·0211	107	·3990	·0255	·2633	·0180
J	103	·4283	·0316	·3202	·0223	103	·4155	·0253	·2564	·0170
K	111	·5217	·0313	·3300	·0221	111	·5204	·0273	·2875	·0193
L	105	·4295	·0322	·3301	·0228	105	·4466	·0282	·2892	·0190
M	100	·5250	·0362	·3617	·0256			4acre		
N	97	·4582	·0357	·3512	·0252	122	·4152	±·0249	·2750	±·0176
O	94	·4052	·0316	·3066	·0223	122	·3361	·0214	·2608	·0173
P	88	·4783	·0319	·3275	·0247	121	·3507	·0220	·2521	·0162
Q			6·25acre			117	3629	·0243	·2626	·0172
R	122	·4079	±·0225	·2484	±·0159	136	·3593	·0211	·2464	·0149
S	122	·3304	·0224	·2474	·0158	114	·3533	·0259	·2768	·0183
T	121	·3609	·0216	·2371	·0153	100	·3990	·0260	·2597	·0184
U	117	·3644	·0221	·2392	·0156	119	·4053	·0235	·2564	·0166
V	136	·3611	·0199	·2319	·0141	107	·3922	·0226	·2336	·0160
W	114	·3769	·0219	·2340	·0155	103	·4010	·0218	·2213	·0154
X	100	·3044	·0235	·2348	·0166					
Y	119	·4036	·0225	·2453	·0159					

TABLE (5) – *Contd.*

Serial Number.	N	P	± S.E.	S.D.	± S.E.	N	P	± S.E.	S.D.	± S.E.
	2·1	2·2	2·3	2·4	2·5	3·1	3·2	3·3	3·4	3·5
	9acre					12·25—acre				
A	122	·4008	±·0211	·2328	±·0149	122	·3048	±·0194	·2143	±·0137
B	122	·3294	·0214	·2367	·0151	122	·3333	·0205	·2266	·0145
C	121	·3017	·0205	·2254	·0145	121	·3640	·0196	·2159	·0139
D	117	·3072	·0208	·2247	·0147	117	·3008	·0194	·2094	·0137
E	130	·3640	·0187	·2178	·0132	130	·3635	·0179	·2083	·0127
F	114	·3779	·0201	·2143	·0142	114	·3813	·0190	·2032	·0134
G	100	8814	·0219	2190	·0155					
H	25acre					16—acre				
I	122	·3040	±·0177	·1958	±·0125	122	·3073	±·0196	·2164	±·0130
J	122	·3609	·0192	·2120	·0135	122	·3308	·0109	·2203	·0171
K	121	·3791	·0180	·1985	·0127	121	·3673	·0183	·2017	·0129
L	117	·3568	·0188	·2036	·0133	117	·3656	·0183	·1976	·0129
M	36acre					130	·3021	·0171	·1997	·0121
N	122	·3657	±·0167	·1844	±·0118					
O	122	·3711	·0172	·1898	·0122					
P	121	·3680	·0166	·1828	·0177					

TABLE (6).

Iswarganj 1938 Model Sampling Experiments : Analysis of Variance.

Size of Grids.	Total.		Between.		Within.		Ratio of Variances.
	D. F.	Variance.	D. F.	Variance.	D. F.	Variance.	
(1)	(2·1)	(2·2)	(3·1)	(3·2)	(4·1)	(4·2)	(5)
1-acre ...	1,755	0·111954	15	0·412053	1,740	0·109367	3·7676
2·25 ,, ...	1,376	·081265	11	·310063	1,365	·079421	3·9040
4 ,, ...	1,100	·065887	9	·086422	1,151	·065726	1·3149
6·25 ,, ...	950	·057700	7	·081857	943	·057537	1·4227
9 ,, ...	831	·050500	6	·058133	825	·050459	1·1521
12·25 ,, ...	731	·045452	5	·051780	726	·045408	1·1403
16 ,, ...	617	·043011	4	·051325	613	·042956	1·1948
25 ,, ...	481	·041063	3	·035700	478	·041097	0·8687
36 ,, ...	364	·034238	2	·000950	362	·034422	0·0275