

THE NATIONAL SAMPLE SURVEY

EIGHTEENTH ROUND : JULY 1963—JUNE 1964

NUMBER 124



SOME RESULTS OF
THE LAND UTILISATION SURVEY
AND CROP-CUTTING EXPERIMENTS



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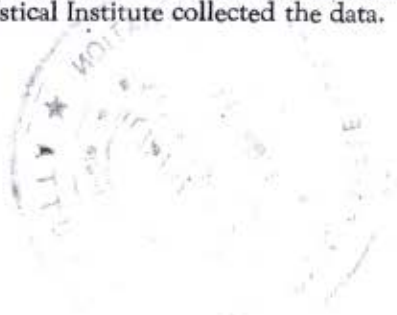
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SOME RESULTS OF THE LAND UTILISATION SURVEY AND CROP-CUTTING EXPERIMENTS :
1963-64 : 18TH ROUND

(The report entitled 'SOME RESULTS OF THE LAND UTILISATION SURVEY AND CROP-CUTTING EXPERIMENTS : 18th ROUND—JULY 1963—JUNE 1964' was prepared by Indian Statistical Institute. The views contained in the report are not necessarily those of Government of India.)*

CHAPTER 1.—INTRODUCTION

1.1 The land utilisation survey and crop-cutting experiments were continued in the agricultural year 1963-64 as part of the 18th round of National Sample Survey (NSS). At the instance of the Planning Commission, the survey in 1963-64 was carried out on an enlarged scale. Besides obtaining estimates of production of the major cereal crops at all-India level for the agricultural year 1963-64 the present survey was planned to obtain estimates of production of important cereal crops at state level by pooling the central and state samples.

1.2 *Period of survey.*—The survey started in July 1963 and ended in June 1964.

1.3 *Geographical coverage.*—The survey was carried out in the whole of rural India excluding Andaman and Nicobar Islands, Laccadive, Minicoy and Amindivi Islands, Ladakh district of Jammu & Kashmir the North-East Frontier Agency, Mao, Ukhrul and Tamenlong sub-divisions of Manipur and the Union Territories of Goa, Daman, Diu and Pondicherry.

1.4 *Sampling design.*—For the land utilisation survey, a stratified two stage sampling design with 4 independent sub-samples was adopted with villages as first stage units and clusters of plots as second stage units. For crop-yield survey a multi-stage design was used with villages, clusters of plots and sub-plots growing the specified crops and concentric circles of radii 2'3" and 4' as successive sampling units. The work of sub-samples 1 and 3 was assigned to one party of investigators and sub-samples 2 and 4 to another party of investigators. Crop-cutting experiments were planned in sub-samples 1 and 2 only. The details of the sampling design are given in Appendix 1.

1.5 *Number of villages planned and number surveyed.*—In each of the seasons, autumn, winter, spring and summer, 8472 villages were planned to be surveyed for area survey in 4 sub-samples each of 2118 villages. Crop-cutting experiments were planned on paddy, jowar, bajra, ragi, maize, wheat and barley in each season in sub-samples 1 and 2 only and for this, half the number of villages selected for area survey was taken up. Thus crop-cutting experiments were planned in 2118 villages per season in two sub-samples of 1059 villages each.

The number of sample villages surveyed for land utilisation survey and number surveyed for crop-cutting are given for each season in Tables (1.1) and (1.2) respectively.

TABLE (1.1).—Number of sample villages planned and number surveyed for land utilisation by seasons and sub-sample

(All India)

number of villages planned per sub-sample in a season=2118.

season	number of villages surveyed in sub-sample						
	1	2	3	4	1 & 3	2 & 4	1 to 4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
autumn	1,908	1,998	1,905	1,997	3,813	3,995	7,808
winter	1,972	2,008	1,954	2,016	3,926	4,024	7,950
spring	2,024	2,019	2,027	2,046	4,051	4,065	8,116
summer	2,045	2,072	2,052	2,070	4,097	4,142	8,239

*The draft report (No. D137) was submitted to the Government of India in April 1966.

TABLE (1.2).—Number of villages surveyed for crop-cutting experiments by sub-samples for each season
(All-India)

number of villages planned per season per sub-sample=1059.

season	number of villages surveyed in sub-sample								
	1			2			total		
	report- ing crop	not re- porting crop	total	report- ing crop	not re- porting crop	total	report- ing crop	not re- porting crop	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
autumn	737	225	962	750	223	973	1,487	448	1,935
winter	719	246	965	651	313	964	1,370	559	1,929
spring	545	467	1,012	555	450	1,005	1,100	917	2,017
summer	66	968	1,034	64	965	1,029	130	1,933	2,063

1.6 Number of crop-cutting experiments conducted.—A total of 32,402 crop-cutting experiments had been conducted in all the four seasons taken together. Table (1.3) gives the number of crop-cutting experiments conducted on all the seven crops taken together for each season.

TABLE (1.3).—Total number of crop-cutting experiments conducted on all the seven crops taken together by sub-samples for each season

(All India)

season	sub- sample 1	sub- sample 2	total
(1)	(2)	(3)	(4)
autumn	4,970	6,306	11,276
winter	5,053	4,785	9,838
spring	5,154	5,316	10,470
summer	386	432	818
	TOTAL	15,563	16,839
			32,402

1.7 Method of collection of data.—Data on land utilisation were collected by direct physical observation of the utilisation in sample plots. Data on yield were collected by harvesting a circular area of radius 4' located at random in sub-plot. The harvesting of crop in a sample cut of radius 4' was done in two stages—first in a circle of radius 2'3" and then in the annular portion. The yield of crop from the circle of radius 2'3" from each sample cut was used for driage experiments to obtain the driage factors for estimating the production of dry crop.

1.8 Scope of the report.—This report gives the all-India estimates of gross area and production of major cereal crops for season 1963-64. Besides the estimates of production and gross area are also given at state level for some selected states and crops as indicated below :

states	crops
(1)	(2)
Rajasthan	bajra.
Punjab	wheat.
Jammu & Kashmir	maize.
Madhya Pradesh	paddy, wheat.
Uttar Pradesh	paddy, wheat, barley.
Bihar	paddy, maize.
Orissa	paddy.
West Bengal	paddy.
Assam	paddy.
Andhra Pradesh	paddy, jowar.
Madras	paddy, jowar.
Kerala	paddy.
Gujarat	jowar, wheat.
Maharashtra	paddy, jowar.
Mysore	ragi.

It may be mentioned that the season-wise estimates for 1963-64 were made available to the Government progressively as soon as tabulation for a particular season was completed. The estimates for the whole year 1963-64 were sent along with the summer estimates of the year in March, 1965.

CHAPTER 2.—CONCEPTS AND DEFINITIONS

2.1 Some of the important concepts and definitions used in the survey are described below.

2.2 *Sample village.*—A revenue village corresponding to the census village was taken as the sample village for land utilisation survey and crop-cutting experiments. Generally, the revenue village and census village were identical, but in some cases the two were not identical. When the selected census village was a part of a revenue village, the whole of the revenue village was surveyed. If on the other hand, the census village was formed by more than one revenue village, one of the revenue villages was chosen with equal probability for the purpose of the survey.

2.3 *Season.*—For each of the crops grown in a village, appropriate season was assigned on the basis of the period of harvesting of the crop in the village in a normal year. The months of harvesting in a normal year corresponding to the different seasons are given below :

season of the crop	normal months of harvesting
(1)	(2)
autumn	August to October.
winter	November to January.
spring	February to April.
summer	May to June.

NOTE.—July was taken to correspond to summer or autumn depending on the crop and region.

When harvesting of a crop in a normal year was spread over two seasons, the crop was assigned to that season which covered the greater part of the harvesting period.

2.4 *'Proper time' of visit for land utilisation survey and crop-cutting experiments.*—The land utilisation survey was carried out in a village in proper time with respect to cereal and pulse crops for each of the seasons autumn, winter, spring and summer. The proper time for area survey for a season was the period when the sowing of all the crops of that season had been completed but harvesting had not yet started and the crops were unmistakably identifiable. Crop-cutting experiments were carried out when the crop was ripe and ready for harvesting in the selected fields.

2.5 *Plot.*—For the purpose of the enquiry, a plot was defined as a distinct patch of land generally having a major survey number.

2.6 *Pure crop and mixed crops.*—When only one crop was grown in a patch of land, it was considered as growing pure crop. A patch of land which was growing two or more crops in intermixture was taken to be under mixed crop. In case of mixed crops, the components might be sown or harvested at the same time or at different times. Sometimes the components might be at different stages of growth (e.g., one of the components might be harvestable while others might be just sprouting up from the ground). When a crop was grown in an orchard, it was considered to be under mixed crop. Also crops grown in alternate strips, each of width less than 8' were treated as mixed crops.

2.7 *Sub-plot.*—In a plot, a distinct patch growing a crop or a particular mixed crop was treated as a sub-plot. A plot was considered to have as many sub-plots as there were different patches growing the crops singly or in mixture.

2.8 *Ail or bund.*—A plot is demarcated generally by a strip of raised land commonly known as ails or bunds. Besides these, there may be ails inside the plots. Some of the inside ails will be more or less of a permanent nature having almost the same height as boundary ails. These inside ails were treated in the same manner as boundary ails.

2.9 *Gross area under a crop.*—If a patch of land was under a mixed crop, the total area under the mixed crop was taken to be the gross area under each of the components of the mixed crop. When a crop was grown pure in a patch of land, the gross area under the crop was the same as the area under the crop.

CHAPTER 3.—RESULTS OF THE SURVEY

3.1 The estimates of production and gross area for each of the seven cereal crops *viz.*, rice, jowar, bajra, ragi, maize, wheat and barley for the agricultural year 1963-64 are given in this chapter. For paddy crop, all figures relate to clean rice. To convert dry paddy into clean rice, the factor 0.662 has been used. The estimates of gross area under crops are given for each of the four sub-samples. Since the villages of sub-samples 1 and 3 were surveyed by 1 party of investigators and those of sub-samples 2 & 4 by another party of investigators, estimates of gross area are also given for each party of investigators (designated as half-sample 1 and 2, half-sample 1 being sub-samples 1 and 3, and half-sample 2, sub-sample 2 and 4 combined). Since crop-cutting experiments were conducted only in sub-samples 1 & 2, production estimates are given under two half-samples. The production estimate for a particular half sample was obtained on the basis of the estimate of yield rate obtained from a sub-sample and the acreage estimate from the two sub-samples surveyed by that same party of investigators (*i.e.*, sub-samples 1 and 3 or 2 and 4 combined).

3.2 Estimates of production

3.2.1 Table (3.1) gives the estimates of production of each of the seven crops in 1963-64 by sub-samples. The number of crop-cutting experiments conducted on each crop are also given.

TABLE (3.1).—Estimates of production of important cereal crops by sub-samples; 1963-64
(All India)

crop	number of crop-cutting experiments			production (000 tonnes)		
	sub-sample 1	sub-sample 2	total	half-sample 1	half-sample 2	combined
(1)	(2)	(3)	(4)	(5)	(6)	(7)
rice	5,114	5,307	10,421	38,283	38,621	38,454
jowar	2,835	2,551	5,386	9,408	10,847	10,128
bajra	1,444	1,645	3,089	3,483	4,570	4,027
ragi	687	1,290	1,977	1,855	1,925	1,890
maize	1,471	2,019	3,490	5,840	5,638	5,739
wheat	2,879	2,924	5,803	10,767	11,003	10,884
barley	1,113	1,103	2,236	2,295	2,263	2,280
TOTAL	15,563	16,839	32,402	71,931	74,867	73,402

3.2.2. The production of the seven cereal crops taken together was estimated to be 73.4 million tonnes comprising of 38.5 million tonnes of rice, 10.9 million tonnes of milition 10.1 million tonnes of jowar, 5.7 million tonnes of maize, 4.0 million tonnes of bajra, 2.3 million tonnes of barley and 1.9 million tonnes of ragi.

3.3 Estimates of gross area

3.3.1 Table (3.2) gives the estimates of gross area under each of the major cereal crops in 1963-64 by sub-samples.

TABLE (3.2).—Estimates of gross area under each of the major cereal crops by sub-samples, 1963-64
(All India)

crop	gross area (000 acres)						
	sub-sample 1	sub-sample 2	sub-sample 3	sub-sample 4	S.S. 1 & 3 combined	S.S. 2 & 4 combined	S.S. 1 to 4 combined
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
rice	91,494	90,791	94,199	92,620	92,846	91,707	92,276
jowar	48,432	50,326	49,197	53,696	48,814	52,011	50,413
bajra	30,195	29,447	27,852	33,257	29,024	31,352	30,188
ragi	7,252	7,010	7,546	6,827	7,400	6,918	7,158
maize	11,428	15,317	12,897	14,616	12,162	14,966	13,564
wheat	40,674	42,335	37,554	42,485	39,115	42,411	40,764
barley	11,401	13,033	11,409	9,187	11,406	11,109	11,258
TOTAL	240,876	248,262	240,654	252,688	240,767	250,474	245,621

3.3.2 Among the seven crops, the maximum of gross area was under rice (92.3 million acres) followed by jowar (50.4 million acres), wheat (40.8 million acres), bajra (30.2 million acres), maize (13.6 million acres), barley (11.3 million acres) and ragi (7.2 million acres).

3.4 Table (3.3) gives the composition of gross area under each crop under pure and mixed category at all India level.

TABLE (3.3).—Composition of gross area under each of the major cereal crops, 1963-64
(All India, sub-samples combined)

crop (1)	estimated gross area (000 acres) (2)	percentage of area under		
		pure- crop (3)	mixed crop (4)	total (5)
rice	92,276	95.83	4.17	100.00
jowar	50,413	27.16	72.84	100.00
bajra	30,188	27.02	72.98	100.00
ragi	7,158	40.08	59.92	100.00
maize	13,564	66.55	33.45	100.00
wheat	40,764	35.05	64.95	100.00
barley	11,258	13.70	87.30	100.00
TOTAL	245,621	56.21	43.79	100.00

3.5 Comparison of NSS estimates of production and gross area for 1962-63 and 1963-64. Table (3.4) gives the NSS estimates of production and gross area at All India level for the years 1962-63 and 1963-64.

TABLE (3.4).—NSS estimates of production, gross area and gross yield rate for each major crop for 1962-63 and 1963-64
(All India)

crop (1)	production (000 tonnes)		gross area (000 acres)		gross yield rate (lb/acre)	
	1962-63 (2)	1963-64 (3)	1962-63 (4)	1963-64 (5)	1962-63 (6)	1963-64 (7)
rice	34,531	38,454	91,437	92,276	832	919
jowar	10,889	10,128	52,425	50,413	458	443
bajra	3,826	4,027	30,511	30,188	276	294
ragi	1,959	1,890	6,484	7,158	666	582
maize	6,246	5,739	13,987	13,564	985	933
wheat	13,104	10,884	42,701	40,764	677	589
barley	3,181	2,280	12,845	11,258	546	446
TOTAL	73,736	73,402	250,390	245,621	×	×

3.6 Comparison of NSS and Official estimates of production. The NSS and Official estimates of production of each crop in 1963-64 are given in table (3.5).

TABLE (3.5).—NSS estimates and Official estimates of production (in '000 tonnes) for 1962-63 and 1963-64

(All India)

crop	NSS			Official†		
	1962-63	1963-64	percentage difference*	1962-63	1963-64	percentage difference**
(1)	(2)	(3)	(4)	(5)	(6)	(7)
rice	34,531	38,454	11.36	31,914	36,889	15.06
jowar	10,889	10,128	-6.99	9,621	9,135	-5.06
bajra	3,826	4,027	5.25	3,892	3,734	-4.06
ragi	1,959	1,890	-3.52	1,891	1,962	3.75
maize	6,246	5,739	-8.12	4,578	4,553	-0.01
wheat	13,104	10,884	-16.94	10,829	9,860	-8.95
barley	3,181	2,280	-28.32	2,423	2,037	-15.93
TOTAL	73,736	73,402	-0.00	65,148	68,170†	+4.24

†Partially revised figures; source, Agricultural Situation in India.

$$* \text{ Col. (4) } = \frac{\text{col. (3)} - \text{col. (2)}}{\text{col. (2)}} \times 100$$

$$** \text{ Col. (7) } = \frac{\text{col. (6)} - \text{col. (5)}}{\text{col. (5)}} \times 100$$

N.B.—1 metric tonne=2204.61 lbs.

3.6.1 According to NSS estimates the production of the seven crops taken together in 1963-64 was at the same level as in 1962-63 while the official figures showed an increase of about 4 per cent in 1963-64 as compared to 1962-63.

CHAPTER 4.—STATISTICAL TABLES

4.1 Some Statistical tables relating to the survey are given in this chapter. The number of sample villages planned and number surveyed are given for land utilisation survey as well as crop-cutting experiments by states for each season. The number of crop-cutting experiments conducted on each crop separately for pure and mixed categories are given by states for each season. The all-India estimates of gross area and production are given for each season by sub-samples in Table (11), Table (12) gives the estimates of gross area and production of each crop for selected states by sub-samples.

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Table (1) : Number of sample villages planned and number surveyed for land utilisation survey in each seasons and states.

State	no. of samp. vills. planned per s.s. and season	autumn				winter				spring				summer							
		s.s. 1	s.s. 2	s.s. 3	s.s. 4	total	s.s. 1	s.s. 2	s.s. 3	s.s. 4	total	s.s. 1	s.s. 2	s.s. 3	s.s. 4	total	s.s. 1	s.s. 2	s.s. 3	s.s. 4	total
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Jasthan	96	74	95	80	96	345	95	95	93	96	379	96	96	95	383	95	96	96	96	96	383
Jammu & Kashmir	90	70	88	71	87	316	83	86	83	84	336	83	88	86	341	89	87	89	89	87	352
Madhya Pradesh	90	77	90	79	90	336	76	90	76	89	331	89	90	89	358	90	88	88	88	88	354
Madhya Pradesh	6	5	6	2	6	19	6	6	4	6	22	6	6	6	24	6	6	6	6	6	24
Madhya Pradesh	6	6	4	4	4	18	6	5	4	5	20	6	5	6	23	6	5	6	6	6	23
Madhya Pradesh	264	253	260	251	252	1016	252	260	249	257	1,018	256	260	241	1,017	258	259	254	258	254	1,029
Madhya Pradesh	180	165	137	165	145	612	177	149	177	147	650	154	159	170	652	157	178	170	178	170	683
Madhya Pradesh	192	186	188	187	188	749	182	190	175	191	738	186	191	188	757	180	191	188	191	188	751
Madhya Pradesh	90	71	78	62	80	291	66	79	66	84	295	76	78	74	310	78	80	77	81	77	316
West Bengal	138	131	131	137	135	534	135	120	138	126	519	134	129	133	527	134	138	133	138	133	543
Assam	90	73	76	60	66	275	76	80	83	71	290	82	80	86	328	90	83	86	82	86	341
Assam	48	44	38	42	43	167	45	34	45	47	171	40	30	42	143	43	48	43	48	43	182
Assam	48	18	44	28	36	126	30	46	26	44	146	44	45	47	181	47	48	46	48	46	189
Uttar Pradesh	168	149	166	148	165	628	163	166	165	165	659	165	164	168	659	166	158	164	156	164	644
Uttar Pradesh	156	150	151	149	153	603	148	153	153	154	608	155	154	155	616	155	156	155	156	155	622
Uttar Pradesh	90	87	90	84	90	351	90	90	90	99	359	90	90	90	360	89	90	89	90	89	358
Uttar Pradesh	90	86	89	89	90	354	86	89	84	90	349	89	90	89	358	87	90	89	90	89	356
Uttar Pradesh	174	163	166	168	170	667	156	171	162	171	660	172	169	170	684	174	173	173	173	173	693
Uttar Pradesh	102	100	101	99	101	401	100	99	101	100	400	101	95	100	395	101	98	100	97	100	396
TOTAL	2,118	1,908	1,998	1,905	1,997	7,808	1,972	2,008	1,954	2,016	7,950	2,024	2,019	2,027	8,116	2,045	2,072	2,052	2,070	2,052	8,239

NATIONAL SAMPLE SURVEY, 18TH ROUND, JULY 1963—JUNE 1964

Table (2) Number of sample villages planned and number surveyed for crop-cutting experiments for each seasons by states

state	no. of sample villages planned per sub-sample and season	autumn		winter		spring		summer		total	total	total	
		s.s. 1	s.s. 2	Total	s.s. 1	s.s. 2	total	s.s. 1	s.s. 2				total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rajasthan	48	37	48	85	45	48	93	48	47	95	48	48	96
Jammu & Kashmir	45	35	44	79	44	43	87	41	44	85	45	45	90
Punjab	45	38	41	79	34	45	79	44	43	87	45	44	89
Delhi	3	3	3	6	3	3	6	3	3	6	3	3	6
Himachal Pradesh	3	3	2	5	3	3	6	3	3	6	3	2	5
Uttar Pradesh	132	127	123	250	124	127	251	127	126	253	132	129	261
Madhya Pradesh	90	85	73	158	87	75	162	75	75	150	77	89	166
Bihar	96	91	95	186	92	96	188	95	96	191	91	95	186
Orissa	45	39	41	80	38	40	78	43	45	88	42	45	87
West Bengal	69	65	60	125	68	55	123	67	64	131	68	69	137
Assam	45	39	37	76	41	38	79	38	41	79	45	40	85
Manipur	24	23	15	38	20	10	30	19	16	35	22	22	44
Tripura	24	4	21	25	22	23	45	23	24	47	24	22	46
Andhra Pradesh	84	77	81	158	81	78	159	83	82	165	83	78	161
Madras	78	75	74	149	76	73	149	78	77	155	78	72	150
Kerala	45	44	42	86	45	43	88	45	45	90	45	45	90
Gujarat	45	43	45	88	42	44	86	44	45	89	45	45	90
Maharashtra	87	83	78	161	49	70	119	86	82	168	87	87	174
Mysore	51	51	50	101	51	50	101	50	47	97	51	49	100
Total	1,059	962	973	1,935	965	964	1,929	1,012	1,005	2,017	1,034	1,029	2,063

NATIONAL SAMPLE SURVEY, 18TH ROUND, JULY 1963—JUNE 1964
 Table (3.1) : Number of crop lifting experiments conducted on paddy grown pure and mixed by seasons and states
 sub-sample : 1

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Uttar Pradesh	4	..	4	..	..	..	6	..	6	10	..	10
Bihar & Kashmir	..	90	..	90	..	..	..	..	..	..	..	..	..	90	..	90
Madhya Pradesh	..	33	..	33	..	..	..	..	..	..	..	..	..	33	..	33
West Bengal
Madhya Pradesh
Uttar Pradesh	..	340	78	418	260	2	262	..	..	..	..	..	..	600	80	680
Madhya Pradesh	..	99	5	104	140	13	153	..	..	..	..	..	..	239	18	257
Bihar	..	95	4	99	476	21	497	..	..	..	..	..	..	571	25	596
Uttar Pradesh	..	33	..	33	212	..	212	..	..	..	..	..	..	245	..	245
West Bengal	..	76	..	76	362	..	362	..	..	..	6	..	6	444	..	444
Uttar Pradesh	..	35	..	35	183	..	183	..	..	..	..	..	..	218	..	218
Bihar	..	38	6	44	101	..	101	..	..	..	..	..	..	139	6	145
Uttar Pradesh	..	17	1	18	108	..	108	3	..	3	..	..	..	128	1	129
Madhya Pradesh	..	71	8	79	279	5	284	129	..	129	48	..	48	527	13	540
Madras	..	129	..	129	190	3	193	305	10	315	75	..	75	699	13	712
Kerala	..	214	8	222	212	1	213	56	..	56	6	..	6	488	9	497
Gujarat	..	35	34	69	..	..	..	..	..	..	..	..	..	35	34	69
Maharashtra	..	178	18	196	30	..	30	6	..	6	..	..	..	214	18	232
Mysore	..	43	7	50	117	2	119	12	..	12	36	..	36	208	9	217
ALL-INDIA : TOTAL	..	1,526	169	1,695	2,674	47	2,721	511	10	521	177	..	177	4,888	226	5,114

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964

Table (3.2) : Number of crop cutting experiments conducted on paddy grown pure and mixed by seasons and states
sub-sample : 2

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	8	1	9	..	..	..	..	..	..	..	..	..	8	1	9
Jammu & Kashmir	136	..	136	..	..	..	..	..	..	..	..	..	136	..	136
Punjab	60	..	60	..	..	..	..	..	..	..	..	..	70	..	70
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	298	75	373	274	1	275	..	..	..	..	..	..	572	76	648
Madhya Pradesh	60	27	87	145	4	149	..	..	..	..	..	..	205	31	236
Bihar	84	9	93	473	24	497	..	..	..	..	1	1	557	34	591
Orissa	89	..	89	213	..	213	..	..	..	5	..	5	307	..	307
West Bengal	97	5	102	278	..	278	..	..	..	..	..	..	375	5	380
Assam	54	..	54	186	..	186	..	..	..	..	..	..	240	..	240
Manipur	19	..	19	39	1	40	..	..	..	..	..	..	58	1	59
Tripura	75	24	99	106	..	106	2	..	2	..	..	..	183	24	207
Andhra Pradesh	67	23	90	292	1	293	92	..	92	44	..	44	495	24	519
Madras	159	..	159	227	2	229	282	14	296	88	..	88	756	16	772
Kerala	194	12	206	206	7	212	93	..	93	..	..	..	492	19	511
Gujarat	52	41	93	..	..	..	..	..	..	..	..	..	52	41	93
Maharashtra	243	23	266	47	..	47	6	..	6	..	..	..	296	23	319
Mysore	37	13	50	106	4	110	12	..	12	48	..	48	203	17	220
ALL-INDIA : TOTAL	1,732	253	1,985	2,591	44	2,635	487	14	501	186	1	186	4,995	312	5,307

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964

Table (3.3) : Number of crop-cutting experiments conducted on paddy grown pure and mixed by seasons and states
sub-samples : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)															
Uttar Pradesh	8	1	9	4	..	4	..	..	..	6	..	6	18	1	19
Madhya Pradesh	226	..	226	..	..	..	..	..	..	..	..	..	226	..	226
West Bengal	93	..	93	..	..	..	..	..	..	..	..	..	93	..	93
Andhra Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madhya Pradesh	638	153	791	534	3	537	..	..	..	..	..	..	1,172	156	1,328
Uttar Pradesh	159	32	191	285	17	302	..	..	..	..	..	..	444	49	493
Madhya Pradesh	179	13	192	949	45	994	..	..	..	..	1	1	1,128	59	1,187
Bihar	122	..	122	425	..	425	..	..	..	5	..	5	552	..	552
Orissa	173	5	178	640	..	640	..	..	..	6	..	6	819	5	824
West Bengal	89	..	89	369	..	369	..	..	..	..	..	..	458	..	458
Assam	57	6	63	140	1	141	..	..	..	..	..	..	197	7	204
Manipur	92	25	117	214	..	214	5	..	5	..	..	..	311	25	336
Tripura	138	31	169	571	6	577	221	..	221	92	..	92	1,022	37	1,059
Andhra Pradesh	288	..	288	417	5	422	587	24	611	163	..	163	1,455	29	1,484
Madras	408	20	428	417	8	425	149	..	149	6	..	6	980	28	1,008
Kerala	87	75	162	..	..	..	..	..	..	..	..	..	87	75	162
Gujarat	421	41	462	77	..	77	12	..	12	..	..	..	510	41	551
Maharashtra	80	20	100	223	6	229	24	..	24	84	..	84	411	26	437
Mysore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
ALL-INDIA : TOTAL	3,258	422	3,680	5,265	91	5,356	998	24	1,022	362	1	363	9,883	538	10,421

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (4.1)—Number of crop cutting experiments conducted on jowar grown pure and mixed by season and state
 sub-sample : 1

state	autumn			winter			spring			summer			all seasons		
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	..	..	..	14	60	74	..	..	..	..	..	..	14	60	74
Jammu & Kashmir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punjab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	4	..	4	..	306	306	..	..	..	..	..	..	4	306	310
Madhya Pradesh	..	..	..	40	438	478	..	..	..	..	..	..	40	438	478
Bihar	..	..	..	2	4	6	..	..	..	..	..	..	2	4	6
Orissa	..	..	..	..	6	6	..	..	..	..	..	..	..	6	6
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	14	113	127	76	132	208	28	46	74	12	..	12	130	291	421
Madras	46	2	48	34	152	186	30	8	38	82	10	82	192	172	364
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	24	20	44	28	40	68	26	..	26	..	..	..	78	60	138
Maharashtra	2	4	6	40	356	396	164	164	328	..	..	..	206	524	730
Mysore	18	76	94	..	108	108	18	76	94	12	..	12	48	260	307
ALL-INDIA : TOTAL	108	215	323	234	1,602	1,836	266	294	560	106	10	116	714	2,121	2,835

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (4.2) : Number of crop cutting experiments conducted on jowar grown pure and mixed by season and state
 sub-sample: 2

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan		2	18	20	14	122	136	..	..	..	..	..	..	16	140	156
Jammu & Kashmir	
Punjab		8	..	8	..	..	..	..	..	..	..	..	..	8	..	8
Delhi	
Himachal Pradesh	
Uttar Pradesh		..	16	16	2	270	272	..	..	..	..	..	..	2	286	288
Madhya Pradesh		2	..	2	26	396	422	..	..	..	..	..	..	28	396	424
Bihar		10	..	10	..	..	..	..	..	..	10	..	10
Orissa		16	..	16	..	..	..	..	..	..	16	..	16
West Bengal	
Assam	
Manipur	
Tripura	
Andhra Pradesh		30	146	176	40	158	198	16	60	76	24	..	24	110	364	474
Madras		20	22	42	32	136	168	16	..	16	92	16	108	160	174	334
Kerala	
Gujarat		42	18	60	22	33	55	54	26	80	..	..	..	118	77	195
Maharashtra		..	2	2	10	142	152	170	140	310	..	..	..	180	284	464
Mysore		2	70	72	..	110	110	..	..	..	2	180	182
All-India : TOTAL		104	222	326	174	1,327	1,501	256	336	592	116	16	132	650	1,901	2,551

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (4.3) : Number of crop cutting experiments conducted on jowar grown pure and mixed by season and state
 sub-sample : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	2	18	20	28	182	210	..	..	..	..	..	..	30	200	230
Jammu & Kashmir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punjab	8	..	8	..	..	..	..	..	..	..	..	..	8	..	8
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	4	16	20	2	576	578	..	..	..	..	..	..	6	592	598
Madhya Pradesh	2	..	2	66	834	900	..	..	..	..	..	..	68	834	902
Bihar	..	..	..	12	4	16	..	..	..	..	..	..	12	4	16
Orissa	..	..	..	16	6	22	..	..	..	..	..	..	16	6	22
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	44	259	303	116	290	406	44	106	150	36	..	36	240	655	895
Madras	66	24	90	66	288	354	46	8	54	174	26	200	352	346	698
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	66	38	104	50	73	123	80	26	106	..	..	..	196	137	333
Maharashtra	2	6	8	50	498	548	334	304	638	..	..	..	386	808	1,194
Mysore	18	76	94	2	178	180	18	186	204	12	..	12	50	440	490
ALL INDIA : TOTAL	212	437	649	408	2,929	3,337	522	630	1,152	222	26	248	1,364	4,022	5,386

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (5.1) : Number of crop cutting experiments conducted on bajra grown pure and mixed by season and state
 sub-sample : 1

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ajasthan		52	146	198	..	..	..	..	..	..	..	..	..	52	146	198
ammu & Kashmir		6	46	52	..	..	..	..	..	..	..	..	..	6	46	52
unjab		24	12	37	..	..	..	..	..	..	..	..	..	24	12	36
Delhi	
Himachal Pradesh	
Jtar Pradesh		4	138	142	2	114	116	..	..	..	..	..	..	6	252	258
Madhya Pradesh		4	2	6	..	..	..	..	..	..	..	..	..	4	2	6
bihar		8	4	12	..	..	..	..	..	..	8	4	12
Orissa		6	6	..	..	..	..	..	..	..	6	6
West Bengal	
Assam	
Manipur	
Tripura	
Andhra Pradesh		150	35	185	..	2	2	..	..	..	..	..	..	150	37	187
Madras		56	73	129	16	78	94	6	14	20	..	..	..	78	165	243
Cerala	
Gujarat		68	144	212	..	..	..	..	..	..	2	..	2	70	144	214
Maharashtra		84	80	164	8	2	10	..	..	..	..	..	..	92	82	174
Mysore		12	22	34	2	22	24	..	..	..	..	..	..	14	44	58
All India : TOTAL		460	698	1,158	36	228	264	6	14	20	2	..	2	504	940	1,444

Source: National Sample Survey, 18th Round, July 1963-June 1964, Part I, Table 5.1

NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (5.2) : Number of crop-cutting experiments conducted on bajra grown pure and mixed by season and states
 sub-sample : 2

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
(1)															
Uttar Pradesh	10	126	136	2	122	124							12	248	260
Madhya Pradesh	12	26	38		4	4							12	30	42
Bihar															
Orissa				8		8							8		8
West Bengal															
Assam															
Manipur															
Tripura															
Andhra Pradesh	100	102	202		10	10	2						102	112	214
Madras	74	126	200	18	60	78	2	2					94	188	282
Kerala															
Gujarat	102	102	204										102	102	204
Maharashtra	64	154	218	2		2							66	154	220
Mysore	2	68	70	2	24	26							4	92	96
ALL INDIA : TOTAL	459	928	1,387	32	220	252	4	2	6				495	1,150	1,645



NATIONAL SAMPLE SURVEY, 18TH ROUND : JULY 1963—JUNE 1964
 Table (5.3) : Number of crop-cutting experiments conducted on bajra grown pure and mixed by season and states
 sub-sample : 1 and 2 combined.

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	89	302	391	..	..	..	..	..	..	..	..	..	89	302	391
Jammu & Kashmir	16	56	72	..	..	..	..	..	..	..	..	..	16	56	72
Punjab	70	60	130	..	..	..	..	..	..	..	..	..	70	60	130
Delhi	2	10	12	..	..	..	..	..	..	..	..	..	2	10	12
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	14	264	278	4	236	240	..	..	..	..	..	..	18	500	518
Madhya Pradesh	16	28	44	..	4	4	..	..	..	..	..	..	16	32	48
Bihar	..	..	..	8	4	12	..	..	..	..	..	..	8	4	12
Orissa	..	..	..	8	6	14	..	..	..	..	..	..	8	6	14
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	250	137	387	..	12	12	2	..	2	..	..	..	252	149	401
Madras	130	199	329	34	138	172	8	16	24	..	..	..	172	353	525
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	170	246	416	..	..	..	..	..	..	2	..	2	172	246	418
Maharashtra	148	234	382	10	2	12	..	..	..	..	..	..	158	236	394
Mysore	14	90	104	4	46	50	..	..	..	..	..	..	14	..	..
ALL-INDIA : TOTAL	919	1,626	2,545	68	448	516	10	16	26	2	..	2	999	2,090	3,089

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (6.1) : Number of crop-cutting experiments conducted on ragi grown pure and mixed by season and states sub-sample : 1

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jammu & Kashmir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punjab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	2	49	51	..	..	..	..	..	..	..	..	..	..	2	49	51
Madhya Pradesh	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1
Bihar	45	33	78	78	..	..	..	..	..	..	..	..	..	45	33	78
Orissa	25	..	25	25	4	6	10	..	..	..	..	..	..	29	6	35
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	3	..	3	..	..	..	..	..	..	3	..	3
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	63	6	69	69	16	16	32	41	5	46	..	..	..	120	27	147
Madras	65	4	69	69	21	21	42	31	7	38	14	..	14	131	32	163
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	3	4	7	7	24	4	28	..	..	..	..	..	..	27	8	35
Maharashtra	4	1	5	5	16	..	16	..	..	..	..	..	..	20	1	21
Mysore	16	37	53	53	13	87	100	..	..	..	..	..	..	29	124	153
ALL-INDIA : TOTAL	223	134	357	357	98	134	232	72	12	84	14	..	14	407	280	687

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (6.2) : Number of crop-cutting experiments conducted on ragi grown pure and mixed by season and states
sub-sample : 2

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	total	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jammu & Kashmir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punjab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	..	67	67	67	..	..	..	..	..	..	..	..	..	..	67	67
Madhya Pradesh	..	..	..	..	2	..	2	..	..	..	..	..	..	2	..	2
Bihar	104	154	50	154	..	..	..	..	..	..	..	4	4	104	54	158
Orissa	22	34	12	34	20	..	20	..	..	..	2	..	2	44	12	56
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	12	..	12	..	..	..	..	..	..	12	..	12
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	84	108	24	108	30	28	58	108	24	132	..	..	..	222	76	298
Madras	136	164	28	164	36	22	58	96	2	98	24	..	24	292	52	344
Kerala	..	8	8	8	..	..	..	..	..	..	..	..	..	..	8	8
Gujarat	2	3	..	3	16	10	26	..	..	..	..	..	..	18	10	28
Maharashtra	10	18	8	18	18	6	24	..	..	..	..	..	..	28	14	42
Mysore	32	78	46	78	37	156	193	4	..	4	..	..	..	73	202	275
ALL INDIA : TOTAL	390	633	243	633	171	222	393	208	26	234	26	4	30	795	495	1,290

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964
 Table (6-3) : Number of crop-cutting experiments conducted on ragi grown pure and mixed by season and state
 sub-sample : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	total	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jammu & Kashmir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punjab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	2	116	..	118	..	..	..	..	..	..	..	..	..	2	116	118
Madhya Pradesh	..	..	..	..	3	..	3	..	..	..	..	..	..	3	..	3
Bihar	149	83	..	232	..	..	..	..	..	..	..	4	4	149	87	236
Orissa	47	12	..	59	24	6	30	..	..	..	2	..	2	73	18	91
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	15	..	15	..	..	..	..	..	..	15	..	15
Manipur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	147	30	..	177	46	44	90	149	29	178	..	..	..	342	103	445
Madras	201	32	..	233	57	43	100	127	9	136	38	..	38	423	84	507
Kerala	..	..	8	8	..	..	..	..	..	..	..	..	..	..	8	8
Gujarat	5	4	..	9	40	14	54	..	..	..	..	..	..	45	18	63
Maharashtra	14	9	..	23	34	6	40	..	..	..	..	..	..	48	15	63
Mysore	48	83	..	131	50	243	293	4	..	4	..	..	..	102	326	428
ALL-INDIA : TOTAL	613	377	..	990	269	356	625	280	38	318	40	4	44	1,202	775	1,977

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (7.1) : Number of crop-cutting experiments conducted on maize grown pure and mixed by season and state

sub-sample : 1

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	37	72	109	..	..	..	..	..	10	10	..	..	..	37	82	119
Jammu & Kashmir	156	28	184	..	..	..	..	..	..	..	..	..	..	156	28	184
Punjab	166	8	174	..	..	..	..	..	..	..	..	..	..	166	8	174
Delhi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Himachal Pradesh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uttar Pradesh	52	198	250	..	..	..	..	..	..	..	..	..	..	52	198	250
Madhya Pradesh	102	90	192	..	..	..	..	..	..	..	..	..	..	102	90	192
Bihar	108	318	426	..	..	..	..	..	..	..	12	..	12	120	318	438
Orissa	16	6	22	..	..	..	..	..	..	..	..	..	..	16	6	22
West Bengal	4	..	4	..	..	..	..	..	..	..	..	..	..	4	..	4
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manipur	12	..	12	..	..	..	..	..	..	..	..	..	..	12	..	12
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	6	6	12	..	..	..	..	..	..	..	..	..	..	6	6	12
Madras	..	2	2	..	..	..	..	..	..	..	8	..	8	8	2	10
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	10	34	44	..	..	..	..	4	..	4	..	..	..	14	34	48
Maharashtra	..	6	6	..	..	..	..	..	..	..	..	..	..	..	6	6
Mysore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
ALL-INDIA : TOTAL	669	768	1,437	..	..	..	..	4	10	14	20	..	20	693	778	1,471

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964
 Table (7.2) : Number of crop-cutting experiments conducted on maize grown pure and mixed by season and state
 sub-sample : 2

states	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)															
Rajasthan.	50	182	232	..	..	..	..	..	..	..	..	..	50	182	232
Jammu & Kashmir	172	28	200	..	..	..	..	..	..	..	..	..	172	28	200
Punjab	170	16	186	..	..	..	..	..	..	..	..	..	170	16	186
Delhi	4	..	4	..	..	..	..	..	..	..	..	..	4	..	4
Himachal Pradesh	12	..	12	..	..	..	..	..	..	..	..	..	12	..	12
Uttar Pradesh	36	252	200	..	..	..	..	..	..	..	..	..	36	252	288
Madhya Pradesh	28	190	318	..	..	..	..	..	..	..	..	..	128	190	318
Bihar	156	244	400	..	..	..	..	..	..	20	..	20	176	244	420
Orissa	14	..	14	..	..	..	..	..	..	..	..	..	14	1	14
West Bengal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Assam	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manipur	10	4	14	..	..	..	..	..	..	..	..	..	10	4	14
Tripura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Andhra Pradesh	2	20	22	..	..	..	14	..	14	..	..	..	16	20	36
Madras	..	16	16	..	..	..	..	..	..	..	..	..	..	16	16
Kerala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gujarat	197	62	259	4	..	4	..	..	..	..	..	..	201	62	263
Maharashtra	8	..	8	..	..	..	2	..	2	..	..	..	10	..	10
Mysore	..	2	2	..	..	..	..	..	..	4	..	4	4	2	6
ALL-INDIA : TOTAL	959	1,016	1,975	4	..	4	16	..	16	24	..	24	1,003	1,016	2,019

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964
 Table (7.3) : Number of crop-cutting experiments conducted on maize grown pure and mixed by season and state
 sub-sample : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	..	87	254	341	..	..	..	..	10	10	..	..	..	87	264	351
Jammu & Kashmir	..	328	56	384	..	..	..	..	..	..	..	..	..	328	56	384
Punjab	..	336	24	360	..	..	..	..	..	..	..	..	..	336	24	360
Delhi	..	4	..	4	..	..	..	..	..	..	..	..	..	4	..	4
Himachal Pradesh	..	12	..	12	..	..	..	..	..	..	..	..	..	12	..	12
Uttar Pradesh	..	88	450	538	..	..	..	..	..	..	..	..	..	88	450	538
Madhya Pradesh	..	230	280	510	..	..	..	..	..	..	..	..	..	230	280	510
Bihar	..	264	562	826	..	..	..	..	..	..	32	..	..	296	562	858
Orissa	..	30	6	36	..	..	..	..	..	..	..	..	..	30	6	36
West Bengal	..	4	..	4	..	..	..	..	..	..	..	..	..	4	..	4
Assam
Manipur	..	22	4	26	..	..	..	..	..	..	..	..	..	22	4	26
Tripura
Andhra Pradesh	..	8	26	34	..	..	..	14	..	14	..	..	..	22	26	48
Madras	18	18	..	..	..	..	..	..	8	..	..	8	18	26
Kerala
Gujarat	..	207	96	303	4	..	4	4	..	4	..	..	..	215	96	311
Maharashtra	..	8	6	14	..	..	..	2	..	2	..	..	..	10	6	16
Mysore	2	2	..	..	..	..	..	..	4	..	..	4	2	6
All India : Total		1,628	1,784	3,412	4	..	4	20	10	30	44	..	..	1,696	1,794	3,490

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (8.1) : Number of crop-cutting experiments conducted on wheat grown pure and mixed by season and state sub-sample : 1

state	autumn			winter			spring			summer			all seasons		
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	70	200	270	..	..	..	70	200	270
Jammu & Kashmir	53	60	113	6	..	6	59	60	119
Punjab	95	242	337	8	8	16	103	250	353
Delhi	12	..	12	..	..	..	12	..	12
Himachal Pradesh	5	..	5	5	..	5	10	..	10
Uttar Pradesh	74	999	1,073	9	10	19	83	1,009	1,092
Madhya Pradesh	150	148	298	..	..	..	150	148	298
Bihar	81	256	337	..	..	..	81	256	337
Orissa
West Bengal	17	8	25	..	..	..	17	8	25
Assam
Manipur
Tripura
Andhra Pradesh	6	4	10	..	..	..	6	4	10
Madras
Kerala
Gujarat	84	30	114	..	..	..	84	30	114
Maharashtra	166	48	214	..	..	..	166	48	214
Mysore	1	24	25	..	..	..	1	24	25
All-India : TOTAL	814	2,019	2,833	28	18	46	842	2,037	2,879

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964
 Table (8.2) : Number of crop-cutting experiments conducted on wheat grown pure and mixed by season and state
 sub-sample : 2

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	68	208	276	..	..	..	68	208	276
Jammu & Kashmir	61	10	71	31	..	31	92	10	102
Punjab	106	220	326	9	..	9	115	220	335
Delhi	8	16	24	..	..	..	8	16	24
Himachal Pradesh
Uttar Pradesh	103	959	1,062	10	10	20	113	969	1,082
Madhya Pradesh	177	180	357	..	..	..	177	180	357
Bihar	70	324	394	..	..	..	70	324	394
Orissa
West Bengal	32	17	49	..	..	..	32	17	49
Assam
Manipur
Tripura
Andhra Pradesh	8	6	14	..	..	..	8	6	14
Madras	12	12	..	..	..	..	12	12
Kerala
Gujarat	81	26	107	..	..	..	81	26	107
Maharashtra	114	37	151	..	..	..	114	37	151
Mysore	7	14	21	..	..	..	7	14	21
ALL-INDIA : TOTAL	835	2,029	2,864	50	10	60	885	2,039	2,924

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (8.3) : Number of crop-cutting experiments conducted on wheat grown pure and mixed by season and state
sub-sample : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	138	408	546	..	..	..	138	408	546
Jammu & Kashmir	114	70	184	..	..	37	151	70	221
Punjab	201	462	663	..	8	25	218	470	688
Delhi	20	16	36	..	..	..	20	16	36
Himachal Pradesh	5	..	5	..	..	5	10	..	10
Uttar Pradesh	177	1,958	2,135	..	20	39	196	1,978	2,174
Madhya Pradesh	327	328	655	..	..	..	327	328	655
Bihar	151	580	731	..	..	..	151	580	731
Orissa
West Bengal	49	25	74	..	..	..	49	25	74
Assam
Manipur
Tripura
Andhra Pradesh	14	10	24	..	..	..	14	10	24
Madras	12	12	..	..	..	..	12	12
Kerala
Gujarat	165	56	221	..	..	..	165	56	221
Maharashtra	280	85	365	..	..	..	280	85	365
Mysore	8	38	46	..	..	..	8	38	46
All-India : Total	1,649	4,048	5,697	78	28	106	1,727	4,076	5,803

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table (9-1) : Number of crop-cutting experiments conducted on barley grown pure and mixed by season and state
sub-sample : 1

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	17	130	147	..	..	..	17	130	147
Jammu & Kashmir	10	10	6	..	6	6	10	16
Punjab	6	10	16	..	..	..	6	10	16
Delhi
Himachal Pradesh	1	..	1	1	..	1	2	..	2
Uttar Pradesh	22	644	666	4	..	4	26	644	670
Madhya Pradesh	8	10	18	..	..	..	8	10	18
Bihar	18	210	228	..	..	..	18	210	228
Orissa
West Bengal	5	26	31	..	..	..	5	26	31
Assam
Manipur
Tripura
Andhra Pradesh
Madras
Kerala
Gujarat	1	4	5	..	..	..	1	4	5
Maharashtra
Mysore
ALL-INDIA : TOTAL	78	1,044	1,122	11	..	11	89	1,044	1,133

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table : (9-2) : Number of crop-cutting experiments conducted on barley grown pure and mixed by season by state

Sub-sample : 2

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total	pure	mixed	total
Rajasthan	18	134	152	..	..	..	18	134	152
Jammu & Kashmir
Punjab	1	18	19	..	..	..	1	18	19
Delhi	1	4	5	..	..	..	1	4	5
Himachal Pradesh
Uttar Pradesh	16	559	575	..	..	..	16	559	575
Madhya Pradesh	7	38	45	..	..	..	7	38	45
Bihar	24	224	248	..	..	..	24	224	248
Orissa
West Bengal	5	48	53	..	..	..	5	48	53
Assam
Manipur
Tripura
Andhra Pradesh
Madras
Kerala
Gujarat	2	4	6	2	4	6
Maharashtra
Mysore
All-India : TOTAL	74	1,029	1,103	74	1,029	1,103

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NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table : (9-3) : Number of crop-cutting experiments conducted on barley grown, pure and mixed by season by state
Sub-sample : 1 and 2 combined

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	35	264	299	..	..	..	35	264	299
Jammu & Kashmir	—	10	10	6	..	6	6	10	16
Punjab	7	28	35	..	..	..	7	28	35
Delhi	1	4	5	..	..	..	1	4	5
Himachal Pradesh	1	..	1	1	..	1	2	..	2
Uttar Pradesh	38	1,203	1,241	4	..	4	42	1,203	1,245
Madhya Pradesh	15	48	63	..	..	..	15	48	63
Bihar	42	434	476	..	..	..	42	434	476
Orissa	10	74	84	..	..	..	10	74	84
West Bengal
Assam
Manipur
Tripura
Andhra Pradesh
Madras
Kerala
Gujarat	3	8	11	..	..	..	3	8	11
Maharashtra
Mysore
All-India : Total	152	2,073	2,225	11	..	11	163	2,073	2,236

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table : (10.1) : Number of crop-cutting experiments conducted on all major cereal crops, grown pure and mixed by season and state

Sub-sample : 1

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)															
Rajasthan	89	218	307	18	60	78	87	340	427	6	..	6	200	618	818
Jammu & Kashmir	252	74	326	..	..	..	53	70	123	12	..	12	317	144	461
Uttar Pradesh	223	20	243	..	..	..	101	252	353	8	8	16	332	280	612
Delhi	..	..	..	..	..	..	12	..	12	..	..	..	12	..	12
Himachal Pradesh	..	..	..	..	..	..	6	..	6	6	..	6	12	..	12
West Bengal	402	463	865	262	422	684	96	1,643	1,739	13	10	23	773	2,538	3,311
Madhya Pradesh	205	97	302	181	451	632	158	158	346	..	..	..	544	706	1,250
Bihar	248	355	603	486	29	515	99	466	565	12	..	12	845	850	1,695
Orissa	74	6	80	216	18	234	..	..	..	..	..	..	290	24	314
West Bengal	80	..	80	362	..	362	22	34	56	6	..	6	470	34	504
Assam	35	..	35	186	..	186	..	..	..	..	..	..	221	..	221
Manipur	50	6	56	101	..	101	..	..	..	..	..	..	151	6	157
Tripura	17	1	18	108	..	108	3	..	3	..	..	..	128	1	129
Andhra Pradesh	304	168	472	371	155	526	204	55	259	60	..	60	939	378	1,317
Madras	296	81	377	261	254	515	372	39	411	179	10	189	1,108	384	1,492
Kerala	214	8	222	212	1	213	56	..	56	6	..	6	488	9	497
Gujarat	140	236	376	52	44	96	115	34	149	2	..	2	309	314	623
Maharashtra	268	109	377	94	358	452	336	212	548	..	..	..	698	679	1,377
Mysore	89	142	231	132	219	351	31	100	131	48	..	48	300	461	761
ALL-INDIA : TOTAL	2,986	1,984	4,970	3,042	2,011	5,053	1,751	3,403	5,154	358	28	386	8,137	7,426	15,563

NATIONAL SAMPLE SURVEY, 18TH ROUND: JULY 1963—JUNE 1964

Table : (10.2) : Number of crop-cutting experiments conducted on all major cereal crops, grown pure and mixed by season and state

Sub-sample : 2

state	autumn			winter			spring			summer			all seasons		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Rajasthan	97	357	454	14	122	136	86	342	428	..	..	..	197	821	1,018
Jammu & Kashmir	318	38	356	..	..	..	61	10	71	..	..	..	379	48	427
Punjab	284	64	348	..	..	..	107	238	345	..	..	9	400	302	702
Delhi	6	10	16	..	..	..	9	20	29	..	..	31	46	30	76
Himachal Pradesh	12	..	12	..	..	..	..	..	..	..	..	..	12	..	12
Uttar Pradesh	344	536	880	278	393	671	119	1,518	1,637	10	10	20	751	2,457	3,208
Madhya Pradesh	202	243	445	173	404	577	184	218	402	..	..	..	559	865	1,424
Bihar	344	303	647	483	24	507	94	548	642	20	5	25	941	880	1,821
Orissa	125	12	137	257	..	257	..	..	..	7	..	7	389	12	401
West Bengal	97	5	102	278	..	278	37	65	102	..	..	..	412	70	482
Assam	54	..	54	198	..	198	..	..	..	..	..	..	252	..	252
Manipur	29	4	33	39	1	40	..	..	..	..	..	..	68	5	73
Tripura	75	24	99	106	..	106	2	..	2	..	..	..	183	24	207
Andhra Pradesh	283	315	598	362	197	559	240	90	330	68	..	68	953	602	1,555
Madras	389	192	581	313	220	533	396	30	426	204	16	220	1,302	458	1,760
Kerala	194	20	214	205	7	212	93	..	93	..	..	..	492	27	519
Gujarat	395	223	618	42	43	85	137	56	193	..	..	..	574	322	896
Maharashtra	325	187	512	77	148	225	292	177	469	..	..	..	694	512	1,206
Mysore	71	129	200	147	254	401	23	124	147	52	..	52	293	507	800
ALL-INDIA : TOTAL	3,644	2,662	6,306	2,972	1,813	4,785	1,880	3,436	5,316	401	31	432	8,897	7,942	16,839

NATIONAL SAMPLE SURVEY, 18TH, ROUND, JULY 1963—JUNE 1964

Table (10·3) : Number of crop-cutting experiments conducted on all major cereal crops, grown pure and mixed by season and state

Sub-sample 1 and 2 combined

state	autumn			winter			spring			summer			all seasons		
	pure (2)	mixed (3)	total (4)	pure (5)	mixed (6)	total (7)	pure (8)	mixed (9)	total (10)	pure (11)	mixed (12)	total (13)	pure (14)	mixed (15)	total (16)
Rajasthan	186	575	761	32	182	214	173	682	855	6	..	6	397	1,439	1,836
Jammu & Kashmir	570	112	682	..	..	..	114	80	194	43	..	43	727	192	919
Punjab	507	84	591	..	..	..	208	490	698	17	8	25	732	582	1,314
Delhi	6	10	16	..	..	..	21	20	41	..	..	..	27	30	57
Himachal Pradesh	12	..	12	..	..	..	6	..	6	6	..	6	24	..	24
Uttar Pradesh	746	999	1,745	540	815	1,355	215	3,161	3,376	23	20	43	1,524	4,995	6,519
Madhya Pradesh	407	340	747	354	855	1,209	342	376	718	..	..	..	1,103	1,571	2,674
Bihar	592	658	1,250	969	53	1,022	193	1,014	1,207	32	5	37	1,786	1,730	3,516
Orissa	199	18	217	473	18	491	..	..	..	7	..	7	679	36	715
West Bengal	177	5	182	640	..	640	59	99	158	6	..	6	882	104	986
Assam	89	..	89	384	..	384	..	..	..	..	..	..	473	..	473
Manipur	79	10	89	140	1	141	..	..	..	..	..	..	219	11	230
Tripura	92	25	117	214	..	214	5	..	5	..	..	..	311	25	336
Andhra Pradesh	587	483	1,070	733	352	1,085	444	145	589	128	..	128	1,892	980	2,872
Madras	685	273	958	574	474	1,048	768	69	837	383	26	409	2,410	842	3,252
Kerala	408	28	436	417	8	475	149	..	149	6	..	6	980	36	1,016
Gujarat	535	459	994	94	87	181	252	90	342	2	..	2	883	636	1,519
Maharashtra	593*	296	889	171	506	677	628	389	1,017	..	..	..	1,392	1,191	2,583
Mysore	160	271	431	279	473	752	54	224	278	100	..	100	593	968	1,561
ALL-INDIA : TOTAL	6,630	4,646	11,276	6,014	3,824	9,838	3,631	6,839	10,470	759	59	818	17,034	15,368	32,402

NATIONAL SAMPLE, SURVEY, 18TH, ROUND, JULY 1963—JUNE 1964

Table (11) : All India estimates of production and gross and under each major cereal crop by seasons

(ALL INDIA)

crop	season	production (000 tones)			gross area (000 acres)		
		half sample 1	half sample 2	combined	half sample 1	half sample 2	combined
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
rice	autumn	7,636	7,563	7,600	23,304	24,208	23,756
	winter	27,755	27,916	27,836	63,790	61,250	62,520
	spring	2,189	2,376	2,283	4,278	4,833	4,555
	summer	703	766	735	1,474	1,416	1,445
	TOTAL		38,283	38,621	38,454	92,846	91,707	92,276
jowar	autumn	854	1,306	1,080	6,675	9,155	7,915
	winter	4,884	6,207	5,546	27,005	28,555	27,780
	spring	3,554	3,206	3,380	14,702	13,966	14,335
	summer	116	128	122	432	335	383
	TOTAL		9,408	10,847	10,128	48,814	52,011	50,413
bajra	autumn	2,827	3,869	3,348	24,875	27,479	26,177
	winter	644	694	669	3,984	3,778	3,881
	spring	7	2	5	133	62	97
	summer	5	5	5	32	33	33
	TOTAL		3,483	4,570	4,027	29,024	31,352	30,188
ragi	autumn	788	674	731	2,816	2,634	2,725
	winter	905	984	944	4,194	3,763	3,978
	spring	155	259	207	370	495	432
	summer	7	8	8	20	26	23
	TOTAL		1,855	1,925	1,890	7,400	6,918	7,158
maize	autumn	5,728	5,548	5,638	11,906	14,651	13,279
	winter	45	15	30	91	93	92
	spring	61	56	59	131	122	126
	summer	6	19	12	34	100	67
	TOTAL		5,840	5,638	5,739	12,162	14,966	13,564
wheat	autumn	0	0	0	10	1	6
	winter	1	5	3	21	41	31
	spring	10,608	10,796	10,701	38,717	41,603	40,160
	summer	158	202	180	367	766	567
	TOTAL		10,767	11,003	10,884	39,115	42,411	40,764
barley	autumn	0	..	0	18	..	9
	winter	4	..	2	15	..	8
	spring	2,258	2,254	2,257	11,313	11,080	11,196
	summer	33	9	21	60	29	45
	TOTAL		2,295	2,263	2,280	11,406	11,109	11,258
TOTAL OF CROPS	autumn	17,833	18,960	18,397	69,604	78,128	73,867
	winter	34,238	35,821	35,030	99,100	97,480	98,290
	spring	18,832	18,949	18,892	69,644	72,161	70,901
	summer	1,028	1,137	1,083	2,419	2,705	2,563
	TOTAL		71,931	74,867	72,402	240,767	248,474	245,621

NATIONAL SAMPLE SURVEY : 18TH ROUND, JULY 1963—JUNE 1964

Table (12) : Estimates of production (000 tonnes) and gross area (000 acres) under selected crops in selected states by

(SUB-SAMPLES)

states	production (000 tonnes)			gross area (000 acres)							
	half- sample 1	half- sample 2	comb- ined	sub- sample 1	sub- sample 2	sub- sample 3	sub- sample 4	h.s. 1 s.s. 1&3 com.	h.s. 2 s.s. 2 & 4 comb.	s.s. 1-4 comb.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1. rice											
Uttar Pradesh	3,239	3,813	3,526	11,373	12,667	10,089	13,181	10,731	12,924	11,827	
Madhya Pradesh	2,837	3,614	3,225	9,247	12,039	11,460	8,519	10,353	10,279	10,317	
Bihar	6,386	5,404	5,895	16,450	13,884	16,117	15,570	16,283	14,727	15,506	
Orissa	5,804	3,520	4,662	11,002	8,768	12,958	8,519	11,980	8,642	10,311	
West Bengal	4,011	4,558	4,284	9,092	9,197	8,735	9,806	8,914	9,501	9,207	
Assam	2,573	3,480	3,026	5,810	6,733	5,361	8,053	5,586	7,393	6,489	
Andhra Pradesh	4,696	5,341	5,019	9,390	8,069	9,145	9,794	9,268	8,932	9,099	
Madras	3,542	3,578	3,561	6,601	6,831	7,458	6,906	7,030	6,868	6,949	
Kerala	859	1,062	961	2,042	2,366	1,516	1,571	1,779	1,968	1,875	
Maharashtra	1,495	1,327	1,411	3,851	3,274	4,377	3,864	4,114	3,569	3,842	
2. jowar											
Andhra Pradesh	1,050	1,034	1,043	6,335	6,833	7,130	8,108	6,732	7,470	7,100	
Madras	437	462	450	2,225	2,346	2,019	3,347	2,122	2,847	2,484	
Gujarat	299	672	487	3,557	2,571	2,767	4,395	3,162	3,483	3,323	
Maharashtra	3,966	3,827	3,896	15,384	16,127	18,274	14,807	16,829	15,467	16,148	
3. bajra											
Rajasthan	637	1,384	1,010	13,002	9,021	8,675	13,454	10,839	11,237	11,038	
4. ragi											
Mysore	736	640	689	3,714	2,856	3,890	3,137	3,802	2,997	3,398	
5. maize											
Jammu & Kashmir	463	339	401	528	582	691	602	610	592	601	
Bihar	1,124	1,364	1,243	2,488	2,285	2,583	4,042	2,535	3,163	2,849	
6. wheat											
Punjab	2,250	2,080	2,165	6,030	5,655	5,330	6,481	5,680	6,068	5,874	
Uttar Pradesh	3,131	3,305	3,218	15,723	16,086	13,594	14,034	14,659	15,060	14,860	
Madhya Pradesh	2,185	2,093	2,139	7,889	8,041	7,806	9,103	7,848	8,572	8,210	
Gujarat	964	833	798	1,181	1,714	1,550	1,826	1,366	1,770	1,568	
7. barley											
Uttar Pradesh	1,386	1,158	1,272	7,336	6,385	7,426	5,485	7,381	5,935	6,659	

Sampling design and estimation procedure

The sample design was a stratified two-stage one for the land utilisation survey, villages being the first stage units and clusters of plots*, the second stage units. For the crop yield survey, the design was a four-stage one with villages, clusters of plots, sub-plots** growing specified crops and circular cuts as the first, second, third and fourth stage units respectively. The first stage units were selected in the form of 4 independent sub-samples. Sub-samples 1 and 3 were surveyed by one party of investigators and sub-samples 2 and 4 by another party of investigators. The first stage units for the crop yield survey were a sub-sample of these chosen for the land utilisation survey.

2. Within a State, contiguous tehsils or parts of contiguous tehsils fairly homogeneous with respect to population density and crop-pattern were grouped together to form compact strata as far as possible such that the sum of the sizes of the villages in each stratum was exactly equal, the size being 1951/1961 census population of the village rounded off to the next higher multiple of 1000. In a few strata which cut across regions and/or NSS State-blocks, each compact section within a region and NSS State-block was called a region and NSS State-block was called a sub-stratum. In some of these cases, the strata were not geographically compact. In the whole of India 353 strata were formed.

3. The allocation of the total sample size to the various states was done on a joint consideration of the rural population, area under food crops and the investigator strength in the central NSS Blocks of the States. The allocation was modified to ensure a minimum sample size, for the central sample of 360 villages in each State and about 200 sample villages in each of the Union Territories Manipur and Tripura. The allocation was rounded off to 24 or multiples of 24 to facilitate having 4 sub-samples of 6 villages each per stratum.

4. The frame used for selection was the list of villages as per the 1951 census excepting for Jammu & Kashmir and the Union Territories where it was the 1961 census list of villages and the areas belonging to old Travancore-Cochin in Kerala where it was the 1957 list of villages. Within each stratum the tehsils were arranged in a serpentine order and four independent interpenetrating sub-samples of 12 villages each were selected circularly systematically with probability proportional to size (which is the 1951 or 1961 census population depending on the frame used in that State, of the village rounded off to the next higher multiple of 1000). In each sub-sample of a stratum the 6 villages with odd orders of selection formed the Central Sample and the remaining 6 villages formed the State sample.

5. The land utilisation survey was conducted in all the 6 villages in each of the four sub-samples for autumn, winter, spring and summer season. The crop-cutting experiments were conducted in villages 1, 3 and 6 of sub-samples 1 and 2 only of each stratum for all the four seasons.

6. In sample villages meant only for land utilisation survey a circular systematic sample of 4 clusters of 5 plots each and in sample villages meant for both land utilisation survey and crop-cutting experiments a circular systematic sample of 6 clusters of 10 plots each were selected per village. This selection procedure was adopted where cadastral maps for the villages were available and also in case of villages (without maps) where a list of plots was available. The sample clusters were selected through the basic plots (equal in number to the number of clusters to be selected), selected circularly systematically with equal probability. If the number of plots in the village was less than 20 (for a village where only land utilisation survey was to be conducted) or less than 60 (for a village where crop yield survey also was to be conducted) then all the plots in the village were completely enumerated. If neither the cadastral map nor the list of plots was available, a circular systematic sample of 4 or 6 households was selected from a sample village depending on whether it was meant only for land utilisation survey or both land utilisation survey and crop-cutting experiments and all the plots possessed by the selected households and situated within a radius of 5 miles of the sample village were surveyed. If the number of households in the villages was less than 4 or 6 as the case may be all the households were taken up for the survey. The same set of sample clusters or plots possessed by same set of households were surveyed for all the seasons.

7. In each season six sub-plots were selected circularly systematically from all the sub-plots in the sample plots surveyed for land utilisation with probability proportional to the gross area under the specified crops. From a selected sub-plot, yield data were collected from one circular cut selected at random (per crop) in case the sub-plot was growing any of the crops—paddy, ragi, wheat (grown pure) or barley (grown pure) and from two cuts selected at random (per crop) in case of sub-plots growing—jowar, bajra, wheat (mixed), maize or barley (mixed). If the number of sub-plots having the specified cereal crops in a village was less than 6, all these sub-plots were taken up for crop-cutting experiments. Selection of sub-plots for crop-cutting experiments was done afresh in each season.

8. Estimation procedure :

8.1. Notation :

s=subscript for sth stratum/sub-stratum

i=subscript for ith sample village/selected part of village

k=number of strata/sub-strata in the State

v=number of sample villages selected in the stratum and the sub-sample for season

Z=sum of sizes (used for selection) of the villages per stratum

z=size (used for selection) of the village

* a plot is defined as a distinct patch of land having a major survey number.

** a sub-plot is defined as a contiguous patch of land within a plot having a particular type of utilisation. A plot may consist of one or more sub-plots.

r = adjustment ratio for revenue village selection and selection of part of the villages.*

N = highest survey number (adjusted)**/highest sampling serial number of plots (adjusted)**

H = total number of households in the village

n = number of clusters/households selected

c = cluster size (in terms of number of plots)

a = area under a particular crop

y = yield rate for a particular crop.

8.2. The estimate of area and yield rates for each crop were obtained separately for each crop season and for each sub-sample for crop grown 'pure' and 'mixed' separately. The estimates of crop production was obtained as a product of the estimate of the crop area (based on all sample villages where land utilisation survey was conducted including crop-cutting villages) and the estimate of yield rate (obtained from all sample villages where crop-cutting experiments were conducted).

8.3. *Acreage estimate.*—An estimate of the gross (separately for 'pure' and 'mixed') area under a particular crop in a particular season for a given sub-sample in a State is given by

$$\hat{A} = \sum_{s=1}^k \frac{Z}{v} \sum_{i=1}^v r_{si} \frac{N'_{si}}{n_{si}} a_{si}$$

where Z is constant for all strata and $v=6$ for 'autumn', 'winter', 'spring' and 'summer' season.

$$N'_{si} = \frac{N_{si}}{C_{si}} \quad \text{if clusters of plots were selected using map or a list of plots}$$

$$= H_{si} \quad \text{if households were selected}$$

$$\frac{N'}{n_{si}} = 1 \quad \text{for a village where all the plots or households in the village were surveyed.}$$

a_{si} = gross area in all the sampled clusters/plots possessed by the sampled households of the village

$$\hat{A} = \sum_{s=1}^k \hat{A}_s \quad \text{where } \hat{A}_s \text{ is the } s\text{th stratum estimate}$$

$$\hat{A}_s = \frac{Z}{v} \sum_{i=1}^v \frac{\hat{A}_{si}}{Z_{is}} \quad \text{and } \hat{A}_{si} \text{ is the estimate for the } i\text{th village in the } s\text{th stratum,}$$

$$\hat{A}_{si} = r_{si} \frac{N'_{si}}{n_{si}} a_{si}$$

8.4. *Substitutions.*—If any of the selected villages was a casualty for the land utilisation survey for season in the sense that it could not be surveyed, it was to be substituted by the next sample village selected for land utilisation survey in that stratum. Similarly if a cluster/household selected for acreage survey in a village was a casualty it was substituted by the next surveyed cluster/household. Likewise if a selected plot in a cluster selected for acreage survey was a casualty, it was substituted by the next plot.

8.5. *Production estimate.*—The production estimate P is the product of Y , an estimate of the yield rate of the crop based on the villages reporting crop-cutting experiments and A , an estimate of the area under the crop based on all the villages selected for the land-utilisation survey.

8.6. The estimate \hat{Y} is given by

$$\hat{Y} = \frac{\sum_s' \hat{A}_s \bar{Y}_s}{\sum_s' \hat{A}_s}$$

where \bar{Y}_s = simple average of yield rates over the cuts taken for the crop in the s th stratum

$$\hat{A}_s = \text{obtained as described in paragraph 8.3}$$

Σ' denotes summation over only those strata reporting crop-cutting experiments for that crop.

* r = when the surveyed revenue village coincides with the sampled census village and the whole of it was surveyed
 r = the number of areal divisions/hamlet groups formed in the village if an areal division or hamlet group was selected for survey.
 r = the number of revenue villages which are wholly contained in the sampled census village in case the surveyed revenue village was selected from among them.
 r = 1/number of census villages wholly contained in the surveyed revenue village, when the sampled census village was one of them.

** For selection of sample plots, the highest survey number or sampling serial number was rounded off to the next

8.7. As mentioned before, the area survey was planned to be conducted in all the sample villages of each of the four sub-samples while crop-cutting experiments were planned for a sub-set of villages of sub-samples 1 and 2 only. The production estimates have therefore been obtained as the product of

- (i) acreage estimate from sub-samples 1 and 3 combined and the estimate of yield rate from sub-sample 1 (designated as half-sample 1)
- (ii) acreage estimate from sub-sample 2 and 4 combined and the estimate of yield rate from sub-sample 2 (designated as half-sample 2).

It may be mentioned that half-sample 1 villages were surveyed by one party of investigators while half-sample 2 was surveyed by another party.

The combined production estimate was taken to be the mean of the two half-sample estimates.

8.8. The 'total' estimate of production for a crop is given by the sum of the production estimate for that crop grown 'pure' and that for the crop grown 'mixed'.

8.9. The estimate given above are for the green weight of the crop. The estimate for the dry weight is obtained by multiplying the sub-sample estimate for the crop for each State by a drriage factor for that sub-sample (for each season). This factor is the ratio of the total dry weight to the total green weight of that crop (pure and mixed) obtained from the cut of 2' 3" radius of the given season and sub-sample for the whole state.

8.10. If for any crop (pure or mixed) no crop-cutting experiments could be conducted in a state, but an estimate of area was obtained, an yield rate from that zone, or all-India if the former was not available, was used to obtain an estimate of production for that state.

FACSIMILE OF THE SCHEDULE USED FOR INVESTIGATION

GOVERNMENT OF INDIA NATIONAL SAMPLE SURVEY : 1963-64
Schedule 5.1 Crop-cutting Experiments

RURAL

AUTUMN
(Eighteenth Round)

[1] identification particulars of village

1. serial number		6. C.P.A. classification**		11. state.....	
2. zone-state-region		7. method code		12. district.....	
3. stratum		8. date of area survey		13. tehsil/taluk/thana*.....	
4. sub-sample		9. number of visits for crop-cutting		14. name of village.....	
5. sample village		10. total number of experiments		15. village area (0.00 acres).....	

[2] investigation particulars

1. investigator : name.....roll no.....date (i) survey..... (ii) despatch.....signature.....
2. inspector : name.....date (i) inspection.....(ii) scrutiny..... (iii) despatchsignature.....
3. scrutiniser : name.....date (i) receipt.....(ii) scrutiny..... (iii) despatchsignature.....

[3] remarks by investigator

[4] remarks by inspector

[5] number of sample fields (sub-plots) in which crop-cutting experiments were done

srl. no.	item	number
(1)	(2)	(3)
1.	sample fields originally selected for crop-cutting	
2.	originally selected fields where crop-cutting experiments were done	
3.	sample fields substituted for originally selected fields	
4.	total of sample fields where crop-cutting experiments were done (srl. no. 2+3)	
5.	sample fields missed for crop-cutting (srl. no. 1-4)	

* delete whichever is inapplicable.

[9] results of crop-cutting experiments

andom number used : starting with page..... column..... line.....

survey number	sub-plot number	gross area under crop in the sub-plot (0.00 acres)	name of crop	cut number	pure crop—P	mixed crop—M	percentage allocated to crop (official)	irrigation code (a)	type of manure used (b)	variety of seed used (c)	sowing type (d)	condition of crop (e)	length of sides (steps)		length of axes (steps)		random number		date of taking crop	weight of green crop (in gms.)						number of plants				total number of fields	total number of cuts	total of yield in circle (gms) (4)	
													east-west	rth-south	X	Y	x	y		2,3**	4-2,3**	wholly inside	inside border (Bi)	outside border (Bo)	inside border (Bi)	outside border (Bo)	border	others	total				border	others	total	2,3**	4**
(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)	(1)	(2)	(3)	(4)
crop grown singly																																	
paddy																																	
jowar																																	
bajra																																	
ragi																																	
maize																																	
wheat																																	
barley																																	
mixed crop																																	
paddy																																	
jowar																																	
bajra																																	
ragi																																	
maize																																	
wheat																																	
barley																																	

not irrigated-0; irrigated : canal-1, tank-1, well-3, others-4.
 no manure-0; organic : farmyard-1, town compost-2; inorganic-3; green manure-4, others-5.
 improved variety from : (i) agricultural department-1; (ii) market-2; (iii) other sources-3; local variety-4
 (d) broadcasting-1, transplanting-2, drilling-3, others-4.
 (e) very good-1, good-2, average-3, poor-4, very poor-5.
 * indicates radius of circle.

NATIONAL SAMPLE SURVEY REPORTS ALREADY PUBLISHED

- St. No.
- 1 General Report No. 1 on the First Round (October 1950-March 1951)
 - 2 Tables with Notes on the Second Round (April-June 1951)
 - 3 Tables with Notes on the Third Round (August-November 1951)
 - 4 Special Report on the Survey of Persons in the "Live-Register" of Delhi Employment Exchange (August-September 1951)
 - 5 Technical Paper on Some Aspects of the Development of the Sample Design
 - 6 Survey of Faridabad Township (March-April 1954)
 - 7 Couple Fertility (Second Round, April-June, 1951 and Fourth Round, April-September 1952)
 - 8 Report on Preliminary Survey of Urban Employment (September 1953)
 - 9 Report on the Sample Survey of Displaced Persons in the Urban Areas of the Bombay State (July-September 1953)
 - 10 First Report on Land Holdings, Rural Sector (Eighth Round : July 1954-March 1955)
 - 11 Report on Sample Survey of Manufacturing Industries, 1949-50
 - 12 A Technical Note on Age Grouping
 - 13 Report on Household Transport Operations (Seventh Round : October 1953-March 1954)
 - 14 Report on Some Characteristics of the Economically Active Population (Fourth to Seventh Round : April 1952-March 1954)
 - 15 Report on Sample Survey of Manufacturing Industries, 1951
 - 16 Report on Employment and Unemployment (Ninth Round : Preliminary, May-November 1955)
 - 17 Report on Sample Survey of Employment in Calcutta (September 1953)
 - 18 Tables with Notes on Consumer Expenditure (Fourth Round : April-September 1952)
 - 19 Report on small Scale Manufacture : Household Enterprises smaller than Registered Factories (Seventh round : October 1953-March 1954)
 - 20 Report on Pattern of Consumer Expenditure (Second to Seventh Round : May-November, 1955)
 - 21 Household Small Scale Manufacturing Establishments (Ninth Round : May-November 1955)
 - 22 Report on Sample Survey of Manufacturing Industries, 1952
 - 23 Report on Sample Survey of Manufacturing Industries, 1953
 - 24 Report on Household Retail Trade (Seventh to Ninth Round : October 1953-September 1955)
 - 25 Sample Verification Livestock Census : 1956
 - 26 A Preliminary Report on Housing Condition (Seventh Round : October 1953-March 1954)
 - 27 Technical Records of Sample Design, Instructions to Field Workers and List of Sample Villages and Urban Blocks (Ninth Round : May-November 1955)
 - 28 Report on Sample Survey of Manufacturing Industries, 1954(1)
 - 29 Notes on Some Results of the Land Utilisation Survey (Tenth Round : December 1955-May 1956)
 - 30 Report on Land Holdings (2) : Operational Holdings in Rural India (Eighth Round : July 1954-April 1955)
 - 32(I) Some Aspects of Costs of Cultivation of Paddy, Wheat, Jowar and Bajra (Fifth to Seventh Round : October 1952-March 1954)
 - 32(II) Some Aspects of Costs of Cultivation of Barley, Maize, Ragi, Gram, Small Millets, Groundnut, Cotton and Jute (Fifth to Seventh Round : October 1952-March 1954)
 - 32(III) Some Aspects of Costs of Cultivation of Minor Cereals, Pulses, Sugarcane, Oil Seeds, Potato, Spices and Tobacco (Fifth to Seventh Round : October 1952-March 1954)
 - 33 Tables with Notes on Wages, Employment, Income and Indebtedness of Agricultural Labour Households in Rural Areas (Eleventh and Twelfth Rounds : August 1956-August 1957)
 - 34 Tables with Notes on Employment and Unemployment (Tenth Round : December 1955-May 1956)
 - 35 Tables with Notes on Livestock Products (Fifth to Seventh Round : April 1952-March 1954)
 - 36 Report on Land Holdings (3) : Some Aspects of Ownership Holdings (Eighth Round : July 1954-April 1955)
 - 37 Survey of Book Reader's Preference in India (Thirteenth Round : September 1957-May 1958)
 - 38 Some Results of the Land Utilisation Survey and Crop-cutting Experiments : (Thirteenth Round : September 1957-May 1958)
 - 39 Tables with Notes on Consumer Expenditure (Eighth Round : July 1954-March 1955)
 - 40 Tables with Notes on Consumer Expenditure (Ninth Round : May-November 1955)
 - 41 Household Retail Trade (Tenth Round : December 1955-May 1956)
 - 42 Report on Small Scale Manufacture : Household Enterprises smaller than Registered Factories (Seventh to Eighth Round : October 1953-April 1955)
 - 43 Tables with Notes on Small Scale Manufacture : Household Enterprises smaller than Registered Factories (Ninth and Tenth Rounds : May 1955-May 1956)
 - 44 A Note on Profession and Services (Fourth to Eighth Round : April 1952-April 1955)
 - 45 Report on Indian Villages : A Study of Some Social and Economic Aspects (Tenth to Twelfth Round : December 1955-August 1957)
 - 46 Tables with Notes on Consumer Expenditure of Agricultural Labour Households in Rural Areas (Eleventh and Twelfth Rounds : August 1956-August 1957)
 - 47 Tables with Notes on Consumer Expenditure (Tenth Round : December 1955-May 1956)
 - 48 Preliminary Estimates of Birth and Death Rates and of the Rate of Growth of Population (Fourteenth Round : July 1958-July 1959)
 - 49 Report on Morbidity (Thirteenth Round : September 1957-May 1958)
 - 50 Tables with Notes on Housing Condition (Tenth Round : December 1955-May 1956)
 - 51 Tables with Notes on Housing Condition (Eleventh Round : August 1956-January 1957)
 - 52 Tables with Notes on Employment and Unemployment (Eleventh and Twelfth Rounds : August 1956-August 1957)
 - 53 Tables with Notes on Internal Migration (Ninth-Eleventh, Twelfth and Thirteenth Rounds : May 1955-May 1958)
 - 54 Vital Rates (Seventh Round : October 1953-March 1954)
 - 55 Report on Sample Survey of Manufacturing Industries, 1954(2) : Exploratory Survey of Scheduled Industries
 - 56 Report on Sample Survey of Manufacturing Industries, 1955(1) : Survey of Scheduled Industries
 - 57 Report on Sample Survey of Manufacturing Industries, 1955(2)
 - 58 Report on Sample Survey of Manufacturing Industries, 1956(1) : Survey of Scheduled Industries

- Sl. No.
- 59 Tables with Notes on Pattern of Household Ownership and Possession of Land in Rural Area, 1950-51 to 1953-54 (Eighth Round : July 1954-April 1955)
 - 60 Tables with Notes on Farming Condition and Practices in Rural Areas 1953-54 (Eighth Round : July 1954-April 1955)
 - 61 Notes on the Results of the Land Utilisation Survey and Crop-cutting Experiments : (Eleventh Round : August 1956-February 1957)
 - 62 Report on Employment and Unemployment (Ninth Round : Supplementary : May-November 1955)
 - 63 Tables with Notes on Employment and Unemployment in Urban Areas (Thirteenth Round : September 1957-May 1958)
 - 64 Indian Villages : A Study of Some Social and Economic Aspects (Thirteenth Round : September 1957-May 1958)
 - 65 Tables with Notes on Animal Husbandry (Eleventh Round : August 1956-January 1957)
 - 66 Report on Land Holdings (4) : Rural Sector, States (Eighth Round : July 1954-April 1955)
 - 67 Tables with Notes on Housing Condition (Twelfth Round : March-August 1957)
 - 68 Tables with Notes on Rural Indebtedness (Eighth Round : July 1954-April 1955)
 - 69 Notes on the Results of the Land Utilisation Survey and Crop-cutting Experiments (Twelfth Round : March-August 1957)
 - 70 Technical Paper on Sample Design (Fourteenth Round : July 1958-June 1959)
 - 71 Consumer Expenditure by Levels of Household Expenditure (Thirteenth Round : September 1957-May 1958)
 - 72 Tables with Notes on Milk Production (Twelfth Round : March-August 1957)
 - 73 Some Results of the Land Utilisation Survey and Crop-cutting Experiments (Fourteenth Round : July 1958-June 1959)
 - 74 Report on Land Holdings (5), Rural Sector (Some Aspects of Operational Holdings—Population Zones and All India) : Eighth Round, July 1954—April 1955
 - 75 Report on Sample Survey of Manufacturing Industries : 1956(2)
 - 76 Fertility and Mortality Rates in India (Fourteenth Round : July 1958-June 1959)
 - 77 Tables with Notes on Consumer Expenditure (Eleventh Round : August 1956-February 1957)
 - 78 Tables with Notes on Consumer Expenditure (Twelfth Round : March-August 1957)
 - 79 Some Results of the Land Utilisation Survey and Crop-cutting Experiments (Fifteenth Round : July 1959-June 1960)
 - 80 Tables with Notes on Consumer Expenditure (Thirteenth Round : September 1957-May 1958)
 - 81 Report on Land Holdings : Urban Sector (Eighth Round, July 1954-April 1955)
 - 82 Tables with Notes on Some Aspects of Cost of Cultivation of Paddy, Wheat, Barley, Maize, Millets, Pulses, Oil Seeds and Vegetables, Urban India (Fifth to Seventh Round, 1951-1953)
 - 83 Report on Sample Survey of Manufacturing Industries, 1957(1)
 - 84 Tables with Notes on Sample Survey of Manufacturing Industries : Survey of Scheduled Industries 1957
 - 85 Tables with Notes on Employment and Unemployment in Urban Areas, (Fourteenth Round : July 1958-June 1959)
 - 86 Tables with Notes on Sample Survey of Manufacturing Industries, 1957(2)
 - 87 Tables with Notes on Average Budget of Agricultural Labour Households in Rural Areas (Eleventh and Twelfth Rounds : August 1956-August 1957)
 - 88 Tables with Notes on Household Receipts and Disbursements : Fourteenth Round, July 1958-June 1959
 - 89 Tables with Notes on Dwelling Habits of Occupants of the Two-room Government Residences in New Delhi, July 1960.
 - 90 Tables with Notes on Survey of Scheduled Industries, 1958 : Sample Survey of Manufacturing Industries, 1958
 - 91 Tables with Notes on the Annual Survey of Industries, 1959 : Sample Sector : Summary Results
 - 92 Some Results of Land Utilisation Survey and Crop-cutting Experiments (Sixteenth Round : July 1960-June 1961)
 - 93 Tables with Notes on Sample Survey of Manufacturing Industries 1958, Factory Establishments : Summary Results.
 - 94 Tables with Notes on Small Scale Manufacture : Rural and Urban (Fourteenth Round : July 1958-June 1959)
 - 95 Tables with Notes on Household Indebtedness (Sixteenth Round : July 1960-June 1961)
 - 96 The Annual Survey of Industries, 1960 : Sample Sector; Summary Results
 - 97 Tables with Notes on Capital Formation (Fifteenth Round : Rural : July 1959-June 1960)
 - 98 Tables with Notes on Consumer Expenditure (Preliminary) : Fifteenth Round : July 1959-June 1960
 - 99 Tables with Notes on Household Non-Registered Trade (Fifteenth Round : July 1959-June 1960)
 - 100 Tables with Notes on Rural Employment and Unemployment (Fourteenth Round : July 1958-June 1959)
 - 101 Tables with Notes on Consumer Expenditure (Preliminary) : Sixteenth Round : July 1960-August 1961
 - 102 Tables with Notes on Consumer Expenditure : Fourteenth Round : July 1958-June 1959
 - 103 Tables with Notes on Urban Labour Force : Sixteenth Round : July 1960-June 1961
 - 104 Tables with Notes on Consumer Expenditure : Fifteenth Round : July 1959-June 1960
 - 105 Tables with Notes on Household Non-Mechanised Transport and Utilization of Working Animals : Fifteenth Round : July 1959-June 1960
 - 106 Tables with Notes on Land Utilization Survey and Crop-cutting Experiments : Seventeenth Round : July 1961-June 1962
 - 107 Tables with Notes on Consumer Expenditure : Eleventh and Twelfth Round : August 1956-August 1957
 - 108 Report on the Type Study on Consumption and Disposal of Cereals and Capital Formation by Households : 1959-60
 - 109 Tables with Notes on Indian Villages : Fourteenth Round : July 1958-June 1959
 - 110 Tables with Notes on Rates of Birth, Death and Growth of Rural Population : Fifteenth Round : July 1959-July 1960
 - 111 Tables with Notes on Sample Survey of Manufacturing Industries : 1958 : Factory Establishments : Detailed Results
 - 112 Tables with Notes on Land Utilization and Crop-cutting Experiments : Eighteenth Round : July 1962-June 1963
 - 113 Tables with Notes on Agricultural Holdings in Rural India : Sixteenth Round : July 1960-June 1961
 - 114 Tables with Notes on Employment and Unemployment in rural areas : Sixteenth Round : July 1960-June 1961
 - 115 Tables with Notes on disposal of cereals by producer household in Rural areas, 15th round : July 1959-June 1960.
 - 116 Tables with Notes on Family Planning : Sixteenth Round : July 1960-June 1961.
 - 117 Tables with Notes on the Enquiry of Physically Handicapped Persons—Sixteenth Round : July 1960-August 1961
 - 118 Tables with Notes on the Annual Survey of Industries 1961—Sample Sector : Summary Results.
 - 120 Tables with Notes on the Annual Survey of Industries 1962—Sample Sector : Summary Results.
 - 121 Preliminary estimates of birth and death rates and of rate of growth of population, 18th Round : February 1963-January 1964.
 - 124 Some Results of the land utilisation survey and Crop-cutting experiments—18th Round : July 1964-June 1964.

NOTE.—Report Nos. 119 and 122-124 are under print.