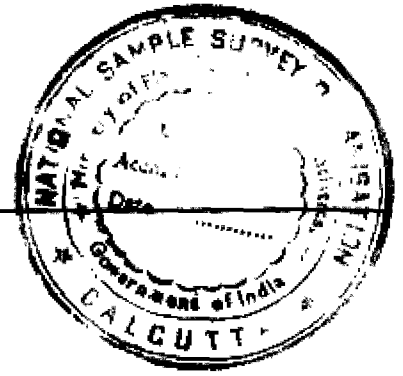


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भारत सरकार

GOVERNMENT OF INDIA

राष्ट्रीय प्रतिदर्श सर्वेक्षण संगठन

NATIONAL SAMPLE SURVEY ORGANISATION

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TABLES WITH NOTES ON USE OF IRRIGATION
IN HOUSEHOLD HOLDINGS
JAMMU & KASHMIR, HIMACHAL PRADESH, HARYANA,
PUNJAB, RAJASTHAN & UTTAR PRADESH

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DEPARTMENT OF STATISTICS

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NATIONAL SAMPLE SURVEY ORGANISATION

TABLES WITH NOTES
ON
USE OF IRRIGATION IN HOUSEHOLD HOLDINGS

NSS 31ST ROUND : JULY 1976-JUNE 1977

JAMMU & KASHMIR, HARYANA, HIMACHAL PRADESH,
PUNJAB, RAJASTHAN AND UTTAR PRADESH

C O N T E N T S

Page

Section I :	Introduction & Summary	1 - 3
Appendix I :	List of Tables and the Tables	4 - 115
Appendix II :	Concepts and Definitions	116 - 117
Appendix III:	Sample Design and Estimation Procedure	118 - 120

NATIONAL SAMPLE SURVEY

TABLES WITH NOTES

ON
USE OF IRRIGATION IN HOUSEHOLD HOLDINGS
NSS 31ST ROUND : JULY 1976 - JUNE 1977

JAMMU & KASHMIR, HARYANA, HIMACHAL PRADESH,
PUNJAB, RAJASTHAN AND UTTAR PRADESH

INTRODUCTION & SUMMARY

- 1.1 A survey on the use of irrigation in rural areas was carried out by the National Sample Survey Organisation (NSSO) in the thirtyfirst round of the NSS from July 1976 to June 1977. In this survey particulars of irrigation in household holdings were collected by household enquiry from a sample of household holdings. Information on crops grown and use of fertilisers, manures and pesticides in the household holdings was also collected. The reference period for the survey was the agricultural year July 1975 - June 1976.
- 1.2 The survey covered the whole rural India except the States of Sikkim, Nagaland and Meghalaya and Union Territories of Chandigarh, Arunachal Pradesh, Andaman & Nicobar Islands, Mizoram, Lakshadweep and Dadra & Nagar Haveli.^{1/}
- 1.3 All the States and Union Territories included in the geographical coverage of the survey participated in the survey at least on a full matching basis by canvassing a sample of equal size following identical concepts and definitions.
- 1.4 For the purpose of the survey there was a general sample of villages distributed all over the country. Also, there was an additional special sample of villages from the command areas of (i) major irrigation projects commissioned after 1947 and (ii) medium irrigation projects commissioned after 1964. In the central sample, the number of villages planned to be surveyed was 8304 for the general sample and 2054 for the special sample from the command areas of major and medium projects.
- 1.5 For the general sample the design was stratified two stage with district (or portion of district) as stratum, village as first stage unit and household as second stage unit of sampling. The list of 1971

1/ Two tehsils of district Surguja & four tehsils of district Bastar of Madhya Pradesh; three tehsils of district Chandrapur & one tehsil of district Amravati of Maharashtra and Ladakh district of Jammu & Kashmir were also not covered.

census villages was used as sampling, frame for the general sample. In each sample village a fixed number of households was initially selected circular systematically after arranging all the households in the village in a specified order. 2/

1.6 The sample households selected in each sample village were divided into three mutually exclusive categories : category 1 consisted of households which cultivated at least some plot of land during 1975-76 with irrigation, category 2 consisted of the households which cultivated land during 1975-76, wholly without irrigation and category 3 consisted of residual households which did not cultivate any land during the period. Such households which cultivated usually using irrigation were however included in category 1 and not in category 2 even if they cultivated land during 1975-76 wholly without irrigation. For the sample households of category 1, that is the households which cultivated land during 1975-76 with (or usually using) irrigation, particulars of irrigation, crops grown, use of fertiliser, manure and pesticides etc. were collected in schedule 22.1. For the sample households of category 2, that is the sample households which cultivated land without irrigation during 1975-76, particulars of unirrigated household holdings were collected in schedule 22.2. For the households of category 3, no schedule was canvassed.

1.7 This report is based on data collected in schedule 22.1 in the general sample of villages in the central sample in six States, namely, Jammu & Kashmir, Haryana, Himachal Pradesh, Punjab, Rajasthan, and Uttar Pradesh. It presents information on area possessed, net area sown, net area irrigated, gross area irrigated, area irrigated by different types of irrigation, area under various irrigated & unirrigated crops, use of fertiliser, manure and pesticides, expenditure on irrigation etc. relating to households usually using irrigation. Estimates of total area possessed, area possessed with irrigation facility, net area sown, net area irrigated by type of irrigation, gross crop area, gross area irrigated by type of irrigation etc. for such households for the six States are presented in table (A) in a summarised form. 3/

1.8 Detailed statistical tables are given in Appendix I. Appendix II gives concepts and definitions used in the survey. A note on sample design & estimation procedure is given in Appendix III.

2/ For details, see the note on sample design and estimation procedure given in Appendix-III.

3/ Information on a few select items was presented earlier in NSS draft Report No.289 as well as in Sarvekshana, vol.3, No.2, October 1979.

Table (A) : Estimates of number of households usually using irrigation, area possessed, net area sown, net area irrigated and area under crop by states

[figures in columns 2-25 are in hundred hectares]

state	no. of households usually using irrigation	area possessed			net area irrigated			net area irrigated by flow			
		total	irrigable	net area sown	total	flow	lift	canal	diversion scheme	tank	others
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Jammu & Kashmir	3950	4157	2198	3680	2173	2084	89	660	183	-	1241
Haryana	7781	28118	19835	26902	15984	7306	8678	7247	-	-	59
Himachal Pradesh	1815	2517	897	1877	817	771	46	2	560	2	207
Punjab	8171	29730	25478	28426	24512	7535	16977	7473	14	1	47
Rajasthan	21691	71547	32136	62141	25945	10566	15379	9423	79	1023	41
Uttar Pradesh	32079	131457	105201	121633	83870	21354	62516	20599	570	73	112

Table (A) contd. :

state	net area irrigated by lift					net area irrigated by lift using					gross area under crop	gross area irrigated		
						electricity		by ownership of lifting equipment				total	by flow	by lift
	well	tube-well	river	tank	others	& diesel	others	Joint	single	others				
(0)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Jammu & Kashmir	17	1	69	-	2	81	8	-	20	69	4556	2787	2584	203
Haryana	483	8059	-	2	134	8179	499	2882	5565	231	38683	20527	9106	11421
Himachal Pradesh	1	44	-	-	1	45	1	16	11	19	3299	1396	1308	88
Punjab	466	16421	75	-	15	16465	512	3956	12861	160	45929	39381	10814	28567
Rajasthan	13812	1238	190	24	115	5695	9684	6212	9101	66	75687	27884	11426	16458
Uttar Pradesh	12485	43219	1308	3955	1549	45567	16949	7728	48003	6785	180862	13530	28501	75029

Appendix - I

List of Tables and the Tables

table number	description of table	page number					
		Jammu & Kashmir	Haryana	Himachal Pradesh	Punjab	Rajasthan	Uttar Pradesh
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
0	Number of sample village allotted and number surveyed, number of households surveyed for schedule 22.1, estimated number of total households and estimated number of cultivator households (1) usually using irrigation and (1.1) usually not using irrigation	6	24	42	60	78	98
1	Estimates of number of households usually using irrigation, area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of holding	7	25	43	61	79	99
2	Estimates of number of households reporting area irrigated in 1975-76 and net area irrigated by size class of holding and type of irrigation	8	26	44	62	80	100
3	Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power	9	27	45	63	81	101
4	Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation	10	28	46	64	82	102
5	Estimates of net area irrigated by ownership of lifting equipment and by source of power	11	29	47	65	83	103
6	Estimates of area having irrigation facility not irrigated by size class of holding and reason for not irrigating	11	29	47	65	84	103

table number	description of table	page number					
		Jammu & Kashmir	Haryana	Himachal Pradesh	Punjab	Rajasthan	Uttar Pradesh
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
7	Estimates of number of parcels of irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels	12	30	48	66	85	104
8	Estimates of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure, (iv) affected by pests & diseases, (v) sprayed with pesticides, (vi) of crops finally damaged and value of (i) fertiliser used, (ii) manure used and (iii) pesticides sprayed separately for irrigated and un-irrigated crops	13	31	49	67	86	105
9	Estimates of area under crop, area applied with fertiliser and manure and area affected by pests and diseases for irrigated and unirrigated crops by crop/crop group separately for ordinary and improved variety of seed	14	32	50	68	87	106
10	Estimates of area under crop applied with fertiliser having nutrients N only, NP only, NPK only and others separately for irrigated and unirrigated crops by crop/crop group	15	33	51	69	88	107
11	Estimates of area under irrigated crops by crop/crop group and type of irrigation	16	34	52	70	89	108
12	Estimates of area under irrigated crops by crop/crop group and number of times irrigated	17	35	53	71	90	109

table number	description of table	page number					
		Jammu & Kashmir	Haryana	Himachal Pradesh	Punjab	Rajasthan	Uttar Pradesh
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
13	Estimates of area under irrigated crop with subsidiary irrigation and without subsidiary irrigation by crop/crop group	17	35	53	71	91	109
14	Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes - 3 years or more) owned by households by size class of holding	18	36	54	72	92	110
	Estimates of number of households reporting pump sets and number of pump sets possessed by size class of holding	19	37	55	73	93	111
16	Estimates of number of pump sets possessed by source of power and by horse-power	20	38	56	74	94	112
17	Estimates of number of pump sets and household share of value of owned equipments by type of possession and source of power	21	39	57	75	95	113
18	Estimates of number of pump sets reporting area irrigated by source of power and source of water separately by possession type	22	40	58	76	96	114
19	Estimates of expenses for irrigation on other than capital account by items of expenditure	23	41	59	77	97	115

Table 1 to relate to households usually using irrigation

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976. - JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation.

General sample .	Jammu & Kashmir
item	number
1. number of sample villages allotted for survey	440
2. number of sample villages actually surveyed	440
3. number of sample households surveyed for Schedule 22.1	4477
4. estimated number of total households (00)	7130
5. estimated number of cultivating households (00)	6400
i) usually using irrigation	3950
ii) usually not using irrigation	2450

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 - Draft Report No. 312

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) Estimates of number of households usually using irrigation and area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of holding

General Sample		Jammu & Kashmir											
size class of holding (hectare)	no. of households with irrigable land (00)	irrigable area (hectares 00)						area without irrigation facility (hectares 00)					
		area possessed			net area sown	area cropped more than once	gross cropped area	area possessed			net area sown	area cropped more than once	gross cropped area
		owned	leased - in	total				owned	leased - in	total			
(3)	(4)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
less than 0.5	1099	211	12	223	221	55	276	100	1	101	69	2	71
0.5 - 1.0	1249	526	32	558	554	138	692	334	10	344	263	20	285
1.0 - 2.0	1145	824	42	866	863	293	1156	689	35	724	570	59	629
2.0 - 4.0	397	419	36	455	454	193	647	570	26	596	460	57	517
4.0 - 10.0	60	92	4	96	95	42	137	176	18	194	131	17	148
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-	-
all classes	3950	2072	126	2198	2187	721	2908	1869	90	1959	1493	155	1648

Table (2) : Estimates of number of households reporting area irrigated and net area irrigated by size class of holding and type of irrigation

General Sample		Jammu & Kashmir										
size class of holding (hectare)	f l o w					l i f t					flow & lift combined	
	canal scheme	diversion tank	others	all well flow	tube well	river	tank	others	all lift			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<u>number of households reporting area irrigated (00)</u>												
less than 0.5	217	73	-	797	1050	10	-	20	-	24	52	1099
0.5 - 1.0	243	153	-	848	1195	17	1	39	-	13	66	1244
1.0 - 2.0	288	214	-	626	1079	21	-	46	-	9	71	1143
2.0 - 4.0	110	122	-	153	375	9	-	4	-	3	24	397
4.0 - 10.0	14	24	-	20	58	-	-	2	-	-	2	60
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a l l	872	586	-	2444	3757	57	1	121	-	49	215	3943
<u>net area irrigated (hectare 00)</u>												
less than 0.5	49	9	-	158	216	-	-	4	-	1	5	221
0.5 - 1.0	123	27	-	384	534	1	1	15	-	1	18	552
1.0 - 2.0	278	68	-	477	823	4	-	30	-	-	34	857
2.0 - 4.0	177	62	-	180	419	12	-	18	-	-	30	449
4.0 - 10.0	33	17	-	42	92	-	-	2	-	-	2	94
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a l l	660	183	-	1241	2084	17	1	69	-	2	89	2173

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (3) : Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power

General Sample	Jammu & Kashmir											
	size class of holding (hectare)	no. of households (00) of reporting lift/ irrigation using					net area irrigated (hectares 00) by lift using					
		electricity	diesel	windmill	ani- mal	human	all	electricity	diesel	windmill	animal	human
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	19	-	-	-	33	52	4	-	-	-	1	5
0.5 - 1.0	38	-	-	-	28	66	17	-	-	-	1	18
1.0 - 2.0	43	-	-	1	27	71	29	-	-	3	2	34
2.0 - 4.0	13	4	-	-	7	24	17	12	-	-	1	30
4.0 - 10.0	2	-	-	-	-	2	2	-	-	-	-	2
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a l l	115	4	-	1	95	215	69	12	-	3	5	89

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (4): Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

General Sample

Jammu & Kashmir

ownership of source of water for irrigation	net area irrigated (hectares 00) by type of irrigation											flow & lift combined
	f l o w					l i f t						
	canal	diversion scheme	tank	others	all flow	well	tubewell	river	tank	others		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	656	15	-	1224	1895	-	1	69	-	1	71	1966
Co-Operative	-	-	-	-	-	-	-	-	-	-	-	-
Private-Joint	4	159	-	7	170	-	-	-	-	-	-	170
Private-Single	-	9	-	10	19	17	-	-	-	1	18	37
a l l	660	183	-	1241	2084	17	1	69	-	2	89	2173

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (5): Estimates of net area irrigated by ownership of lifting equipment and by source of power.

General Sample		Jammu & Kashmir				
ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	electricity	diesel	windmill	animal	human	all
	(0)	(1)	(2)	(3)	(4)	(5)
Government	69	-	-	-	-	69
Co-operative	-	-	-	-	-	-
Private joint	-	-	-	-	-	-
Private single	-	12	-	3	5	20
a 11	69	12	-	3	5	89

Table (6): Estimates of area having irrigation facility sown but not irrigated by size class of holding and reason for not irrigating

General Sample		Jammu & Kashmir			
size class of holding (hectare)	area (hectares 00) by reason for not irrigating				
	adequate rainfall	n.n-availability of water	other reasons	all reasons	
	(0)	(1)	(2)	(3)	(4)
less than 0.5	-	-	-	-	-
0.5 - 1.0	-	2	-	-	2
1.0 - 2.0	2	4	-	-	6
2.0 - 4.0	3	2	-	-	5
4.0 - 10.0	-	1	-	-	1
10.0 & above	-	-	-	-	-
a 11	5	9	-	-	14

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (7): Estimates of number of parcels^{of} irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels

General Sample

Jammu & Kashmir

Size class of parcels (hectare)	number of parcels (00)	area (hectares 00)			
		total irriga- ble land	net area irrigated	net area not irrigated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	2174	45	41	-	41
0.05 - 0.1	2146	126	125	1	126
0.1 - 0.2	2953	374	372	2	374
0.2 - 0.3	1681	374	371	1	372
0.3 - 0.4	830	267	265	1	266
0.4 - 0.5	519	215	214	1	215
0.5 - 1.0	747	475	473	2	475
1.0 - 2.0	179	224	220	3	223
2.0 & above	37	98	92	3	95
a 1 1	11265	2198	2173	14	2187

Parcel : A plot or contiguously located plots having a common source of irrigation facility possessed by the household was treated as a parcel.

Table (8): Estimates of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure, (iv) affected by pests and diseases, (v) sprayed with pesticides and (vi) of crops finally damaged and value of (i) fertiliser used, (ii) manure used and (iii) pesticides sprayed for irrigated and unirrigated crops by crop/crop group.

General Sample						Jammu & Kashmir			
crop/ crop group	area (hectares 00)					value			
	under crop	applied with fertiliser	with manure	affected by pests & diseases	sprayed with pesti- cides	of crops finally damaged	ferti- liser used	manure used	pesticides sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Irrigated crops</u>									
paddy 1956	1484	1441	11	1	1	25892	28659	4	
maize 102	4	90	1	-	-	43	1726	-	
wheat 413	277	169	1	-	-	4357	1258	-	
all cereals	2477	1765	1701	13	1	30296	31736	4	
all pulses	10	1	6	-	-	23	131	-	
all oil seeds	145	5	38	-	-	83	638	-	
other crop commo- dities	155	44	106	5	4	921	7233	343	
all other crops	-	-	-	-	-	12	15	-	
all crops	2787	1815	1851	18	5	31335	39753	347	
<u>Unirrigated crops</u>									
paddy 29	3	13	-	-	-	25	212	36	
maize 893	34	510	28	-	-	389	9370	16	
wheat 335	72	157	4	-	-	1008	1618	-	
all cereals	1311	112	705	32	-	1456	11515	52	
all pulses	162	1	23	-	-	11	518	2	
all oil seeds	75	1	18	-	-	22	232	-	
other commo- dities	219	23	18	54	53	588	659	4272	
all other crops	2	-	1	-	-	12	94	-	
all crops	1769	137	765	86	53	2089	13018	4326	

NATIONAL SAMPLE SURVEY : 31ST ROUND : JULY 1976 - JUNE 1977

Table (9): Estimates of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure and (iv) affected by pests and diseases for irrigated crops and unirrigated crops by crop/crop group separately for ordinary and improved varieties of seed.

General Sample		Jammu & Kashmir						
crop/crop group	irrigated				unirrigated			
	total	applied with fertiliser	with manure	affected by pests & disease	total	applied with fertiliser	with manure	affected by pests & diseases
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>o r d i n a r y v a r i e t y</u>								
paddy	770	492	355	11	22	2	7	-
maize	102	4	90	1	892	34	510	28
wheat	358	230	157	1	313	64	148	3
all cereals	1236	726	603	13	1279	103	690	31
all pulses	10	1	6	-	162	1	23	-
all oil seeds	140	5	37	-	75	1	18	-
Other crop	152	44	105	4	188	19	16	36
commodities								
all other crops	-	-	-	-	2	-	1	-
all crops	1538	775	751	17	1706	124	748	67
<u>i m p r o v e d v a r i e t y</u>								
paddy	1186	992	1086	-	7	1	6	-
maize	-	-	-	-	1	-	-	-
wheat	55	47	12	-	22	8	9	1
all cereals	1241	1039	1098	-	32	9	15	1
all pulses	-	-	-	-	-	-	-	-
all oil seeds	5	-	1	-	-	-	-	-
Other crop	3	-	1	1	31	4	2	18
commodities								
all other crops	-	-	-	-	-	-	-	-
all crops	1249	1039	1100	1	63	13	17	19

Table (10): Estimates of area under crop applied with fertiliser having nutrients N only, NP only, NPK only and others by crop/crop group separately for irrigated and unirrigated crops.

General Sample Jammu & Kashmir

crop/crop group	irrigated area (hectares 00) applied with fertilisers having nutrients					unirrigated areas (hectares 00) applied with fertilisers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Paddy	1175	300	-	9	1484	3	-	-	-	3
Maize	4	-	-	-	4	32	1	1	-	34
Wheat	166	109	-	2	277	54	14	4	-	72
All cereals	1345	409	-	11	1765	92	15	5	-	112
All pulses	1	-	-	-	1	1	-	-	-	1
All oil seeds	5	-	-	-	5	1	-	-	-	1
Other crop commodities	39	5	-	-	44	21	1	-	1	23
All other crops	-	-	-	-	-	-	-	-	-	-
All crops	1390	414	-	11	1815	115	16	5	1	137

'N' only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate ammonium chloride and urea.

'NP' only means nitrogenous phosphate fertilisers like ammonium phosphate, ammonium phosphate sulphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphate, triple super phosphate and palfos in combination with nitrogenous fertilisers containing 'N' only.

'NPK' means nitrogenous phosphatic potash fertilisers like nitrophosphate and NPK complex fertilisers. It also includes potash fertilisers like sulphate of potash in combination with 'NP' fertilisers noted under 'NP' above.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (11): Estimates of area under irrigated crops by crop/crop group and type of irrigation.

crop/crop group	General Sample										Jammu & Kashmir	
	area (hectares 00) under irrigated crop by type of irrigation										flow and lift combined	
	flow					lift						
	canal scheme	diversion	tank	others	total	well	tubewell	river tank	others	total		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
paddy	612	168	-	1096	1876	13	1	66	-	-	80	1956
maize	29	10	-	63	102	-	-	-	-	-	-	102
wheat	88	141	-	70	299	45	9	60	-	-	114	413
all cereals	730	319	-	1232	2281	60	10	126	-	-	196	2477
all pulses	-	-1	-	9	10	-	-	-	-	-	-	10
all oil seeds	18	-	-	125	143	-	-	2	-	-	2	145
other crop commodities	47	-4	-	59	150	2	-	1	-	2	5	155
all other crops	-	-	-	-	-	-	-	-	-	-	-	-
all crops	795	364	-	1425	2584	62	10	129	-	2	203	2787

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (12): Estimates of area under irrigated crops by crop/crop group and number of times irrigated.

General Sample		Jammu & Kashmir				
crop/crop group	crop area (hectares 00) by number of times irrigated					total
	once	twice	thrice	more than thrice	n.r.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
paddy	6	70	126	1730	24	1956
maize	20	39	20	16	7	102
wheat	143	156	89	24	1	413
all cereals	169	265	235	1776	32	2477
all pulses	1	6	2	1	-	10
all oil seeds	31	64	42	6	2	145
other crop commodities	8	15	9	119	4	155
all other crops	-	-	-	-	-	-
All crops	209	350	288	1902	38	2787

Table (13): Estimates of area under irrigated crop with subsidiary irrigation and without subsidiary irrigation by crop/crop group.

General Sample		Jammu & Kashmir	
crop/crop group	area (hectares 00) under irrigated crop		total
	with subsidiary irrigation	without subsidiary irrigation	
(0)	(1)	(2)	(3)
paddy	171	1785	1956
maize	-	102	102
wheat	27	386	413
all cereals	198	2279	2477
all pulses	-	10	10
all oil seeds	1	144	145
other crop commodities	-	155	155
all other crops	-	-	-
All crops	199	2588	2787

Table(14) Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes - 3 years or more) owned by households by size class of holding.

General Sample		Jammu & Kashmir					
item of asset	value (Rs. 000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectare)						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 & above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor	-	-	792	-	2871	-	3663
2. power tiller	-	-	-	-	-	-	-
3. sprayer	-	92	200	201	82	-	575
4. duster	-	-	-	-	-	-	-
5. thresher	-	-	-	-	-	-	-
6. cane crusher	-	79	139	208	-	-	426
7. oil crusher	-	-	-	8	-	-	8
8. a l l	-	171	1131	417	2953	-	4672
<u>irrigation equipments</u>							
1. electric pumps	-	-	-	-	-	-	-
2. diesel pumps	-	-	416	1980	-	-	2396
3. wind mill	-	-	-	-	-	-	-
4. moat	-	-	-	-	-	-	-
5. perian wheel	-	-	198	218	-	-	416
6. others (animal driven)	-	-	-	-	-	-	-
7. counter poise	158	164	219	41	8	-	590
8. manual pumps	-	-	-	-	-	-	-
9. others	18	6	8	5	-	-	37
10. a l l	176	170	841	2244	8	-	3439
<u>draught animals</u>							
1. cattle	18814	64863	106365	51308	9982	-	251332
2. buffaloes	1027	3785	5826	3523	914	-	15075
3. a l l	19841	68648	112191	54831	10896	-	266407
4. t o t a l	20017	68989	114163	57492	13857	-	274518

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 -- JUNE 1977

Table (15): Estimates of number of households reporting pump sets and number of pump sets by size class of household holding

General Sample		Jammu & Kashmir
size class of household holding (hectare)	number of households reporting pump sets (00)	number of pump sets (00) *
(0)	(1)	(2)
less than 0.5	1	1
0.5 -1.0	-	-
1.0 -2.0	1	1
2.0 -4.0	4	4
4.0-10.0	-	-
10.0 & above	-	-
a 1 1	6	6

* In this and subsequent tables on number of pumpsets, the number includes those possessed, jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (16): Estimates of number of pumpsets possessed by source of power and by horse power.

General Sample	Jammu & Kashmir			
	number of pumpsets (00) having source of power*			
horse power	electricity	diesel	both electricity & diesel	total
(0)	(1)	(2)	(3)	(4)
less than 1.0	-	-	-	-
1.0 - 2.0	-	-	-	-
2.0 - 3.0	-	-	-	-
3.0 - 4.0	-	-	-	-
4.0 - 5.0	-	-	-	-
5.0 & above	-	5	-	5
n.r.	1	-	-	1
a 1 1	1	5	-	6

Sd

* See footnote on table (15)

Table (17) Estimates of number of pumpsets and households share of value of owned equipments by type of possession and source of power

source of power	Jammu & Kashmir							
	possession type							
	owned singly		owned jointly		rented		total	
	no of pumpsets (00)	h,h's share of value of equipments Rs. (000)	no. of pumpsets (00)	h,h's share of value of equipments Rs. (000)	no. of pumpsets (00)	h h's share of value of equipments Rs. (000)	no of pumpsets (00)	h,h's share of value of equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	-	-	-	-	1	-	1	-
diesel	5	2099	-	-	-	-	5	2099
Both electricity & diesel	-	-	-	-	-	-	-	-
t o t a l	5	2099	-	-	1	-	6	2099

* See footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (18): Estimates of number of pump sets* reporting area irrigated by source of power and source of water separately by possession type.

General Sample		Jammu & Kashmir				
source of water	no. of pump sets (00) reporting area irrigated by source of water					
	well	tube well	rivers & streams	others	N.R.	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)
<u>owned singly</u>						
1. Electricity	-	-	-	-	-	-
2. Diesel	2	-	-	3	-	5
3. Both electricity & diesel	-	-	-	-	-	-
4. total	2	-	-	3	-	5
<u>owned jointly</u>						
1. Electricity	-	-	-	-	-	-
2. Diesel	-	-	-	-	-	-
3. Both electricity & diesel	-	-	-	-	-	-
4. total	-	-	-	-	-	-
<u>rented</u>						
1. Electricity	1	-	-	-	-	1
2. Diesel	-	-	-	-	-	-
3. Both electricity & diesel	-	-	-	-	-	-
4. total	1	-	-	-	-	1
<u>total</u>						
1. Electricity	1	-	-	-	-	1
2. Diesel	2	-	-	3	-	5
3. Both electricity & diesel	-	-	-	-	-	-
4. total	3	-	-	3	-	6

* See footnote on table 15.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (19): Estimates of expenses for irrigation on other than capital account by items of expenditure.

General Sample	Jammu & Kashmir
items of expenditure	amount (Rs. 000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	5588
water Charges	4082
other expenses on independently owned lift irrigation	463
share of expenses on joint arrangements	51
receipt from sale of water	(-)155
t o t a l	10329
	10029

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976 - JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation.

General Sample	Haryana
item	number
1. number of sample villages allotted for survey	144
2. number of sample villages actually surveyed	144
3. number of sample households surveyed for Schedule 22.1	1660
4. estimated number of total households (00) <u>a/</u>	14082
5. estimated number of cultivating households (00)	9104
i) usually using irrigation	7781
ii) usually not using irrigation <u>b/</u>	1323

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 - Draft Report No. 312

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households usually using irrigation and area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of holding

General Sample								Haryana					
size class of holding (hectare)	number of households with irrigable land (00)	irrigable area (hectares 00)			net area sown	area cropped more than once	gross cropped area	land without irrigation facility (hect. 00)			net area sown	area cropped more than once	gross cropped area
		area possessed		total				area possessed		total			
(0)	(1)	owned	leased in		(4)	(5)	(6)	(7)	owned		leased in	(10)	(11)
less than 0.5	338	80	13	93	93	68	161	5	-	5	2	1	3
0.5 - 1.0	508	249	41	290	290	190	481	21	5	26	19	10	29
1.0 - 2.0	1377	1161	288	1449	1423	968	2391	258	47	305	272	135	407
2.0 - 4.0	2546	3863	818	4681	4608	2545	7153	1206	275	1481	1332	551	1883
4.0 - 10.0	2450	8361	528	8889	8727	4178	12905	2865	734	3599	3261	875	4134
10.0 & above	562	4121	312	4433	4253	1668	5921	2562	305	2867	2622	593	3215
all classes	7781	17835	2000	19835	19394	9617	29012	6917	1366	8283	7508	2163	9671

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976-JUNE 1977

Table (2): Estimates of number of households reporting area irrigated and net area irrigated by size class of holding and type of irrigation.

General Sample		Haryana										
size class of holding (hectare)	f l o w					l i f t					flow & lift combined	
	canal	diversion scheme	tank	others	all flow	well	tube well	river	tank	others		all lift
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<u>number of households (00) reporting area irrigated</u>												
less than 0.5	161	-	-	3	164	7	113	-	-	3	123	287
0.5 - 1.0	201	-	-	-	201	23	208	-	-	-	231	432
1.0 - 2.0	589	-	-	-	589	93	615	-	3	3	714	1303
2.0 - 4.0	1262	-	-	15	1277	113	1062	-	-	22	1197	2474
4.0 - 10.0	1237	-	-	6	1243	113	1103	-	-	50	1266	2509
10.0 & above	277	-	-	3	280	3	260	-	-	-	263	543
a l l	3727	-	-	27	3754	352	3361	-	3	78	3794	7548
<u>net area irrigated (hectare 00)</u>												
less than 0.5	46	-	-	1	47	3	34	-	-	1	38	85
0.5 - 1.0	119	-	-	-	119	14	138	-	-	-	152	271
1.0 - 2.0	579	-	-	-	579	101	644	-	2	2	749	1328
2.0 - 4.0	1805	-	-	23	1828	148	1816	-	-	35	1999	3827
4.0 - 10.0	3278	-	-	32	3310	204	3654	-	-	96	3954	7264
10.0 & above	1420	-	-	3	1423	13	1773	-	-	-	1786	3209
a l l	7247	-	-	59	7306	483	8059	-	2	134	8678	15984

NATIONAL SAMPLE SURVEY, 31ST ROUND JULY 1976 - JUNE 1977

Table (3) Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power

General Sample

Haryana

size class of holding (hectare)	no of households (00) reporting lift irrigation using						net area irrigated (hectares 00) by lift using					
	elec- tri- city	diesel	wind mill	animal	human	all	elec- tri- city	diesel	wind mill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	74	43	-	6	-	123	25	11	-	2	-	38
0.5 - 1.0	156	60	-	15	-	231	103	38	-	11	-	152
1.0 - 2.0	436	197	-	81	-	714	408	250	-	91	-	749
2.0 - 4.0	719	371	-	107	-	1197	1199	671	-	129	-	1999
4.0 - 10.0	694	437	-	135	-	1266	2257	1449	-	248	-	3954
10.0 & above	168	77	-	18	-	263	1243	525	-	18	-	1786
a 1 1	2247	1185	-	362	-	3794	5235	2944	-	499	-	8678

Table(4); Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

ownership of source of water for irrigation	General Sample											Haryana
	net area irrigated (hectares 00) by type of irrigation											
	canal	diver- sion sche- me	tank	others	all flow	well	tube- well	river	tank	others	all lift	flow and lift com- bined
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
government	7247	-	-	10	7257	-	178	-	-	10	188	7445
co-operative	-	-	-	-	-	-	1	-	-	-	1	1
private-joint	-	-	-	1	1	241	2243	-	2	95	2581	2582
private-single	-	-	-	48	48	242	5637	-	-	29	5908	5956
a l l	7247	-	-	59	7306	483	8059	-	2	134	8678	15984

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(5) : Estimates of net area irrigated by ownership of lifting equipment and by source of power

General Sample		Haryana				
ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	electricity	diesel	windmill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)
government	176	-	-	-	-	176
co-operative	1	54	-	-	-	55
private joint	1576	1027	-	279	-	2882
private single	3482	1863	-	220	-	5565
a 1 1	5235	2944	-	499	-	8678

Table (6) : Estimates of area having irrigation facility sown but not irrigated by size class of holding and reason for not irrigating

General Sample		Haryana			
size class of holding (hectare)	area (hectares 00) by reason for not irrigating				
	adequate rainfall	non-availability of water	other reasons	all reasons	
(0)	(1)	(2)	(3)	(4)	
less than 0.5	-	3	6	9	
0.5 - 1.0	5	2	7	14	
1.0 - 2.0	41	77	94	212	
2.0 - 4.0	148	344	226	718	
4.0 - 10.0	255	835	361	1451	
10.0 & above	215	680	111	1006	
a 1 1	664	1941	805	3410	

NATIONAL SAMPLE SURVEY, 31ST ROUND JULY 1976 - JUNE 1977

Table (7) : Estimates of number of parcels/irrigable land possessed, total area of the plots, net area irrigated net area not irrigated and net area sown by size class of parcels

General Sample		Haryana			
size class of parcels (hectare)	number of parcels (0)	area (hectares 00)			
		total irrigable land	net area irrigated	net area not irrigated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	8				-
0.05 - 0.1	44	3	3	1	4
0.1 - 0.2	170	22	18	4	22
0.2 - 0.3	574	122	109	11	120
0.3 - 0.4	289	90	67	19	86
0.4 - 0.5	1439	585	492	74	573
0.5 - 1.0	2718	1968	1638	291	1929
1.0 - 2.0	3283	4433	3706	677	4383
2.0 & above	3377	12612	9944	2335	12277
a 1 1	11902	19835	15984	3410	19394

Parcel A plot or contiguous located plots having a common source of irrigation facility possessed by the household was treated as a parcel

NATIONAL SAMPLE SURVEY 31ST ROUND JULY 1976 - JUNE 1977

Table (8) Estimates of area (i) under crop (ii) applied with fertiliser (iii) applied with manure, (iv) affected by pests and diseases, (v) sprayed with pesticides and (vi)* of crops finally damaged and value of (i) fertiliser used, (ii) manure used and (iii) pesticides sprayed separately for irrigated and unirrigated crops by crop/crop group.

General Sample

State : Haryana

crop/ crop group	area (hectares 00)					value (Rs. 0.00) of			
	under crop	applied ferti- liser	with man- ure	affected by pests & diseases	spray- ed with pesti- cides	of crops fin- ally dama- ged	fertiliser used	manure used	pesti- cides
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>irrigated crops</u>									
Paddy	1997	1690	435	423	298	19	59484	31585	1744
Bazra	829	164	54	260	-	-	2032	766	-
Wheat	9015	6738	1405	4805	104	-	180600	18590	601
All Cereals	13058	8985	2072	1207	402	19	248961	24999	2345
All pulses	1815	28	56	334	11	3	661	726	48
All oil seeds	307	88	28	153	60	18	1603	208	419
Sugar cane	1446	1070	702	328	149	1	40410	18335	1022
Cotton	1746	829	323	1224	829	13	17978	6681	9565
Other crop commodities	2052	548	331	127	7	-	17070	9282	1360
All other crops	103	80	11	39	37	-	2943	238	429
All crops	20527	11628	3523	3421	1495	54	329626	60469	15186
<u>unirrigated crops</u>									
Paddy	186	99	9	8	-	-	12082	76	-
Bazra	6176	108	285	2725	7	3	1193	3718	24
Wheat	728	131	46	8	-	-	2334	449	-
All cereals	9039	589	611	2792	20	3	10827	8299	57
All pulses	5813	5	117	1354	-	-	461	632	-
All oil seeds	389	44	15	115	2	2	677	262	10
Sugar cane	47	19	17	1	-	-	590	349	-
Cotton	37	6	-	6	3	-	16	7	22
Other crop commodities	2828	57	94	167	-	-	1538	776	-
All other crops	3	-	-	-	-	-	-	2	-
All crops	18156	720	854	4435	25	5	14110	10320	89

NATIONAL SAMPLE SURVEY, 31st ROUND JULY 1976 - JUNE 1977

Table (9) Estimates of area (i) under crop, (ii) applied with fertilizer, (iii) applied with manure and (iv) affected by pests and diseases, for irrigated crops and unirrigated crops by crop/crop group separately for ordinary and improved varieties of seed

General Sample

Haryana

crop/crop group	irrigated crops (hectares 00)			unirrigated crops (hectares 00)				
	total	applied with fertilizer	affected by pests & diseases	total	applied with fertilizer	affected by pests & diseases		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>o r d i n a r y v a r i e t y</u>								
paddy	1076	825	383	245	150	82	9	6
bazra	699	113	52	196	5780	73	259	2493
wheat	3583	2326	862	210	552	93	39	7
all cereals	6565	3647	1475	689	8402	476	562	2557
all pulses	1808	28	56	334	5811	5	117	1354
all oil seeds	268	82	24	139	379	36	13	108
sugarcane	693	468	399	81	29	6	14	-
cotton	816	178	103	406	37	6	-	6
other crop commodities	2022	528	316	125	2797	33	94	167
all other crops	103	80	11	38	8	-	-	-
all crops	12275	5011	2384	1812	17458	562	800	4192
<u>i m p r o v e d v a r i e t y</u>								
paddy	921	865	52	178	36	17	-	2
bazra	130	51	2	64	396	35	26	232
wheat	5432	4412	543	270	176	38	13	4
all cereals	6493	5338	597	518	637	113	49	235
all pulses	7	-	-	-	2	-	-	-
all oil seeds	39	6	4	24	10	8	2	7
sugarcane	753	602	303	247	18	13	3	1
cotton	930	651	220	818	-	-	-	-
other crop commodities	30	20	15	2	31	24	-	-
all other crops	-	-	-	-	-	-	-	-
all crops	8252	6617	1139	1609	698	158	54	243

Table (10) Estimates of area under crops applied with fertilizers having nutrients N only, NP only, NPK only and others by crop/crop group separately for irrigated and unirrigated crops

General Sample		Haryana									
crop/crop group		irrigated area (hectares 00) applied with fertilizers having nutrients					unirrigated area (hectares 00) applied with fertilizers having nutrients				
		N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
paddy	(1)	1488	115	40	55	1690	99	-	-	-	99
bazra	(3)	103	-	-	61	164	53	47	6	2	108
wheat	(6)	4299	1709	417	313	6738	95	24	12	-	131
all cereals	(1-8)	6142	1936	461	446	8985	478	91	18	2	589
all pulses	(9-11)	19	9	-	-	28	2	-	3	-	5
all oilseeds	(16-19)	86	2	-	-	88	41	2	-	1	44
sugarcane	(12)	775	149	80	66	1070	16	-	3	-	19
cotton	(13)	821	6	-	2	829	6	-	-	-	6
other crop commodities	(22)	445	12	13	78	548	28	3	26	-	57
all other crops	(14, 15, 20, 21)	67	10	2	1	80	-	-	-	-	-
all crops		8355	2124	556	593	11628	571	96	50	3	720

'N' only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate, ammonium and urea.

Ashim/ 'NP' only means nitrogenous phosphate fertilisers like ammonium phosphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphate, triple super phosphate and palfos in combination with nitrogenous fertilisers contained

'NPK' means nitrogenous phosphatic potash fertilisers like nitro phosphate and NPK compound potash fertilisers like sulphate of potash in combination with

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (11) : Estimates of area under irrigated crops by crop/crop group and type of irrigation.

General Sample

Haryana

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation											flow and lift combined
	f l o w					l i f t						
	canal	diversion scheme	tank	others	total	well	tube-well	river	tank	others		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Paddy	478	-	-	32	510	19	1462	-	-	6	1487	1997
Bazra	590	-	-	7	597	14	212	-	-	6	232	829
Wheat	3174	-	-	23	3197	327	5463	-	-	28	5818	9015
All cereals	4523	-	-	62	4585	468	7958	-	-	47	8473	13058
All pulses:	1445	-	-	-	1445	21	331	-	-	18	370	1815
All oil seeds	131	-	-	-	131	6	157	-	-	13	176	307
Sugarcane	642	-	-	2	644	24	772	-	-	6	802	1446
Cotton	1300	-	-	-	1300	2	442	-	-	2	446	1746
Other crop commodities	995	-	-	1	996	43	1012	-	-	1	1056	2052
All other crops	5	-	-	-	5	-	98	-	-	-	98	103
All crops	9041	-	-	65	9106	564	10770	-	-	87	11421	20527

Table (12):- Estimates of area under irrigated crops by crop/crop group and number of times irrigated

General Sample		Haryana				
crop/crop group	crop area (hectares 00) by number of itimes irrigated					total
	once	twice	thrice	more than thrice	n.r.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
paddy	115	202	221	1453	6	1997
bazra	574	162	62	27	4	829
wheat	373	815	1769	6039	17	9013
all cereals	1473	1448	2262	7842	33	13058
all pulses	1390	296	38	63	28	1815
all oil seeds	110	118	47	30	2	307
sugar cane	69	115	163	1094	5	1446
cotton	122	323	493	805	3	1746
other crop commodities	588	354	235	863	12	2052
all other crops	1	3	1	98	-	103
all crops	3753	2657	3239	10795	83	20527

Table (13): Estimates of area under irrigated crops with subsidiary irrigation and without subsidiary irrigation by crop/crop group

General Sample		Haryana	
crop/crop group	area (hectares 00) under irrigated crop		
	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
paddy	242	1755	1997
bazra	26	803	829
wheat	863	8152	9015
all cereals	1179	11879	13058
all pulses	14	1801	1815
all oil seeds	20	287	307
sugar cane	59	1387	1446
cotton	269	1477	1746
other crop commodities	191	1861	2052
all other crops	14	89	103
all crops	1746	18781	20527

Table (14): Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes 3 years or more) owned by households by size class of holding

General Sample		Haryana					
item of asset	value (Rs.000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectare)						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 & above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor	-	-	-	7259	277864	476254	761377
2. power tiller	-	-	-	1044	3207	7561	11812
3. sprayer	-	-	-	17	1186	402	1605
4. duster	-	-	-	-	369	-	369
5. thresher	-	213	1764	3026	23945	18496	47444
6. cane crusher	-	-	118	325	5144	2171	7758
7. oil crusher	-	-	-	-	-	-	-
8. a l l	-	213	1882	11671	311715	504884	830365
<u>irrigation equipments</u>							
1. electric pumps	3060	12516	43155	159391	329531	134393	682046
2. diesel pumps	-	6005	38739	107910	210094	71739	434487
3. wind mill	-	-	-	17	16	-	33
4. moat	-	-	52	-	99	-	151
5. persian wheel	10	124	6225	8756	18039	2682	35836
6. others (animal driven)	99	376	1846	3343	1717	199	7580
7. counter poise	-	-	-	-	-	-	-
8. manual pumps	-	-	-	-	-	-	-
9. others	-	-	-	-	-	-	-
10. a l l	3169	19021	90017	279417	559496	209013	1160133
<u>draught animals</u>							
1. cattle	2564	13870	102508	301840	345279	84844	850905
2. buffaloes	-	448	1281	3999	10027	6033	21788
3. all	2564	14318	103789	305839	355306	90877	872693
t o t a l	5733	33552	195688	596927	1226517	804774	2863191

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (15): Estimates of number of households reporting pumpsets and number of pumpsets possessed by size class of household holding

General Sample		Haryana	
size class of household holding (hectare)	number of households reporting pumpsets (00)	number of pumpsets (00) *	
(0)	(1)	(2)	
less than 0.5	32	32	
0.5 - 1.0	99	99	
1.0 - 2.0	347	371	
2.0 - 4.0	728	795	
4.0 - 10.0	996	1221	
10.0 & above	237	396	
a 1 1	2439	2914	

* In this and subsequent tables on number of pumpsets, the number includes those possessed, jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (16): Estimates of number of pumpsets possessed by source of power and by horse power

General Sample		Haryana			
horse power	number of pumpsets (00) having source of power*				
	electricity	diesel	both electricity & diesel	total	
(0)	(1)	(2)	(3)	(4)	
less than 1.0	-	-	-	-	
1.0 - 2.0	-	-	-	-	
2.0 - 3.0	-	-	-	-	
3.0 - 4.0	204	4	-	208	
4.0 - 5.0	-	4	-	4	
5.0 & above	1499	1026	36	2561	
n. r.	52	84	5	141	
t o t a l	1755	1118	41	2914	

* See footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (17): Estimates of number of pumpsets and households share of value of owned equipments by type of possession and source of power

General Sample

Haryana

source of power	possession type							
	owned singly		owned jointly		rented		total	
	n. of pumpsets (00)	hh's share of value of equipments Rs. (000)	no. of pumpsets (00)	hh's share of value of equipments Rs. (000)	no. of pumpsets (00)	hh's share of value of equipments Rs. (000)	no. of pumpsets (00)	hh's share of value of equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	829	489025	855	189497	71	-	1755	678522
diesel	588	308039	463	113491	67	-	1118	421530
both electricity & diesel	20	16548	21	3020	-	-	41	19568
t o t a l	1437	813612	1339	306008	138	-	2914	1119620

* See footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Die (18): Estimates of number of pumpsets* reporting area irrigated by source of power and source of water separately by possession type

General Sample

Haryana

source of power	no. of pumpsets (00) reporting area irrigated by source of water					total
	well	tube well	rivere & streams	others -	n.r	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
<u>owned singly</u>						
1. electricity	8	821	-	-	-	829
2. diesel	-	588	-	-	-	588
3. both elec. & diesel	-	20	-	-	-	20
4. total	8	1429	-	-	-	1437
<u>owned jointly</u>						
1. electricity	55	800	-	-	-	855
2. diesel	-	459	-	4	-	463
3. both elec. & diesel	-	21	-	-	-	21
4. total	55	1280	-	4	-	1339
<u>r e n t e d</u>						
1. electricity	4	67	-	-	-	71
2. diesel	-	59	4	4	-	67
3. both elec. & diesel	-	-	-	-	-	-
4. total	4	126	-	4	-	138
<u>t o t a l</u>						
1. electricity	67	1688	-	-	-	1755
2. diesel	-	1106	4	8	-	1118
3. both elec. & diesel	-	41	-	-	-	41
4. total	67	2835	4	8	-	2914

* see footnote on table 15

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (19): Estimates of expenses for irrigation on other than capital account by items of expenditure

General Sample		Haryana
items of expenditure	amount (Rs. 000)	
(0)	(1)	
repair and maintenance expenses of bunds and field channels	7668	
water charges	107490	
other expenses on independently owned lift irrigation	257954	
share of expenses on joint arrangements	59203	
receipt from sale of water	4405	
t o t a l	427910	

NATIONAL SAMPLE SURVEY, 31ST ROUND, JULY 1976 - JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation.

General Sample	Himachal Pradesh
item	number
1. number of sample villages allotted for survey	248
2. number of sample villages actually surveyed	248
3. number of sample households surveyed for Schedule 22.1	1451
4. estimated number of total households (00) a/	6262
5. estimated number of cultivating households (00)	5657
i) usually using irrigation	1875
ii) usually not using irrigation b/	3642

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 - Draft Report No. 312

Table (1) : Estimates of number of households usually using irrigation and area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of household holding

General Sample

Himachal Pradesh

size class of holding (hectare)	no. of households with irrigable land (00)	irrigable area (hectares 00)						land without irrigation facility (hectare 00)					
		area possessed			net area sown	area cropped more than once	gross cropped area	area possessed			net area sown	area cropped more than once	gross cropped area
		owned	leased in	total				owned	leased in	total			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
less than 0.5	448	85	33	118	114	92	209	52	2	54	34	25	59
0.5 - 1.0	538	186	20	206	200	170	375	196	3	199	142	115	258
1.0 - 2.0	478	264	16	280	273	167	450	424	8	432	297	231	528
2.0 - 4.0	282	211	-	211	205	144	354	555	4	559	367	257	624
4.0 - 10.0	65	69	5	74	70	63	141	321		321	152	110	262
10.0 & above	4	7	1	8	7	5	12	55		55	16	11	27
a l l	1815	822	75	897	869	641	1541	1603	17	1620	1008	749	1758

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) : Estimates of number of households reporting area irrigated and net area irrigated by size class of holding and type of irrigation

General Sample

Himachal Pradesh

size class of holding (hectare)	f l o w					l i f t					flow & lift comb.	
	canal scheme	diversion	tank	others	all flow	well	tube well	river	tank	others		all lift
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<u>number of households (00) reporting area irrigated</u>												
less than 0.5	1	347	9	95	438	-	10	-	-	-	10	445
0.5 - 1.0	-	430	5	102	521	-	14	-	-	3	17	533
1.0 - 2.0	1	341	1	119	448	-	28	-	-	2	30	444
2.0 - 4.0	-	191	-	78	261	1	17	-	-	3	21	278
4.0 - 10.0	-	20	-	37	55	-	7	-	-	3	10	64
10.0 & above	-	2	-	2	4	-	-	-	-	-	-	4
a l l	2	1331	15	433	1727	1	76	-	-	11	88	1795
<u>net area irrigated (hectare 00)</u>												
less than 0.5	1	64	1	20	86	-	-	-	-	-	-	86
0.5 - 1.0	-	161	1	36	198	-	2	-	-	-	2	200
1.0 - 2.0	1	181	-	63	245	-	11	-	-	-	11	256
2.0 - 4.0	-	128	-	54	182	1	20	-	-	-	21	303
4.0 - 10.0	-	23	-	31	54	-	11	-	-	1	12	66
10.0 & above	-	3	-	3	6	-	-	-	-	-	-	6
a l l	2	560	2	207	771	1	44	-	-	1	46	817

National Sample Survey, 31st Round : July 1976 - June 1977

Table (3) : Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power

General Sample		Himachal Pradesh											
		no. of households (00) reporting lift irrigation using						net area irrigated (hectares 00) by lift using					
size class of holding (hectare)		elec- tricity	diesel	wind mill	animal	human	all	elec- tricity	diesel	wind mill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
less than 0.5	10	-	-	-	-	10	-	-	-	-	-	-	
0.5 - 1.0	17	-	-	-	-	17	2	-	-	-	-	2	
1.0 - 2.0	30	-	-	-	-	30	11	-	-	-	-	11	
2.0 - 4.0	18	2	-	1	-	21	18	2	-	1	-	21	
4.0 - 10.0	10	-	-	-	-	10	12	-	-	-	-	12	
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-	
a l l	85	2	-	1	-	88	43	2	-	1	-	46	

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977.

Table (4) : Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

General Sample

Himachal Pradesh

ownership of source of water for irri- gation	net area irrigated (hectares. 00) by type of irrigation											
	f l o w					l i f t					flow & lift comb.	
	canal	diversion scheme	tank	others	all flow	well	tube well	river	tank	others		all lift
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	-	89	-	105	195	-	18	-	-	1	19	214
Co-operative	-	12	-	-	12	-	-	-	-	-	-	12
Private - joint	-	299	-	39	338	-	16	-	-	-	16	354
Private - single	2	160	2	62	226	1	10	-	-	-	11	237
TOTAL	2	560	2	207	771	1	44	-	-	1	46	817

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (5) : Estimates of net area irrigated by ownership of lifting equipment and by source of power

General Sample

Himachal Pradesh

ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	elec- tricity	diesel	wind mill	animal	human	all
	(1)	(2)	(3)	(4)	(5)	(6)
Government	19					19
Co-operative						
Private joint	16					16
Private single	8	2		1		11
a l l	43	2		1		46

Table (6) : Estimates of area having irrigation facility sown but not irrigated by size class of holding and reason for not irrigating

General Sample

Himachal Pradesh

size class of holding (hectare)	area (hectares 00) by reason for not irrigating			
	adequate rain fall	non-availa- bility of water	other reasons	all reasons
	(1)	(2)	(3)	(4)
less than 0.5	-	1	-	1
0.5 - 4.0	-	8	1	9
1.0 -- 2.0	-	25	1	26
2.0 - 4.0	-	7	-	7
4.0 - 10.0	-	-	9	9
10.0 & above	-	-	-	-
a l l	-	41	11	52

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (7) : Estimates of number of parcels^{of}/irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels

General Sample

Himachal Pradesh

size class of parcels (hectare)	area (hectares 00)				
	no. of parcels (00)	total irriga- ble land	net area irrigated	net area not irri- gated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	849	25	22	2	24
0.05 - 0.1	1068	80	70	6	76
0.1 - 0.2	1318	183	165	13	178
0.2 - 0.3	766	181	167	11	178
0.3 - 0.4	308	101	95	4	99
0.4 - 0.5	249	109	97	6	103
0.5 - 1.	207	114	135	5	140
1.0 - 2.0	46	56	48	5	53
2.0 & above	7	18	18	-	18
a l l	4817	897	817	52	869

Parcel : A plot or contiguously located plots having a common source of irrigation facility possessed by the household was treated as a parcel

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (8) : Estimates of area (i) under crop (ii) applied with fertilizer (iii) applied with manure (iv) affected by pests and diseases (v) sprayed with pesticides and (vi) of crops finally damaged and value of (i) fertilizer used (ii) manure used and (iii) pesticides sprayed separately for irrigated and unirrigated crops by crop/crop group.

General Sample

Himachal Pradesh

crop/crop group	area (hectares 00)				value (Rs.000) of				
	under crop	applied with fertilizer	manure	affected by pests & diseases	sprayed with pesticides	of crops finally damaged	fertilizer used	manure used	pesticides sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Irrigated crops</u>									
paddy	456	145	403	68	2	-	1440	5886	4
maize	134	55	120	17	-	1	809	1638	-
wheat	540	230	403	71	-	-	2759	6018	-
all cereals	1228	450	1003	159	2	1	5205	14845	4
all pulses	23	3	14	1	-	-	85	258	-
all oil seeds	31	2	26	1	-	-	21	319	-
other crop commodities	104	19	78	10	2	2	320	1081	4
all other crops	10	2	9	-	-	-	51	267	-
all crops	1396	476	1133	171	4	3	5682	16770	8
<u>unirrigated crops</u>									
paddy	115	19	76	6	-	-	129	810	-
maize	644	189	573	42	-	-	1445	6857	-
wheat	768	92	540	61	-	-	834	6469	-
all cereals	1680	301	1284	119	-	-	2412	15367	-
all pulses	79	5	57	4	-	-	47	581	-
all oil seeds	21	2	15	-	-	-	8	165	-
other crop commodities	114	17	83	4	-	-	386	879	-
all other crops	9	1	3	1	-	-	13	145	-
all crops	1903	326	1442	128	-	-	2866	17137	-

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (10) : Estimates of area under crop applied with fertilizer having nutrients N only, NP only, NPK only, and others by crop/crop group separately for irrigated and unirrigated crops

General Sample

Himachal Pradesh

crop/crop group	irrigated area (hectares 00) applied with fertilisers having nutrients					unirrigated area (hectares 00) applied with fertilisers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
paddy	102	4	39	-	145	11	-	8	-	19
maize	36	4	15	-	55	120	11	58	-	189
wheat	137	1	92	-	230	53	1	38	-	92
all cereals	292	9	149	-	450	186	12	103	-	301
all pulses	3	-	-	-	3	3	-	2	-	5
all oil seeds	1	-	1	-	2	2	-	-	-	2
other crop commodities	16	-	3	-	19	13	3	1	-	17
all other crops	1	-	1	-	2	1	-	-	-	1
all crops	313	9	154	-	476	205	15	106	-	326

'N' only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate, ammonium chloride and urea.

'NP' only means nitrogenous phosphate fertilisers like ammonium phosphate, ammonium phosphate sulphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphate, triple super phosphate and palfos in combination with nitrogenous fertilisers containing 'N' only.

'NPK' means nitrogenous phosphatic potash fertilisers like nitrophosphate and NPK complex fertilisers. It also includes potash fertilisers like sulphate of potash in combination with 'NP' fertilisers noted under 'NP' above.

National Sample Survey, 31st Round : July 1976 - June 1977

Table (11) : Estimates of area under irrigated crops by crop/crop group and type of irrigation

General Sample

Himachal Pradesh

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation											flow and lift
	f l o w					l i f t					comb.	
	canal	diver- sion scheme	tank	others	total	well	tube well	river	tank	others		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
paddy	-	380	1	58	439	-	16	-	-	1	17	456
maize	2	61	-	55	118	1	15	-	-	-	16	134
wheat	2	384	-	115	501	1	38	-	-	-	39	540
all cereals	5	899	1	251	1156	2	69	-	-	1	72	1228
all pulses	-	14	1	7	22	-	1	-	-	-	1	23
all oil seeds	-	25	-	4	29	-	2	-	-	-	2	31
other crop commodities	1	27	-	66	94	-	10	-	-	-	10	104
all other crops	-	3	-	4	7	-	3	-	-	-	3	10
all crops	6	968	2	332	1308	2	85	-	-	1	88	1396

National Sample Survey, 31st Round : July 1976 - June 1977

Table (12) : Estimates of area under irrigated crops by crop/crop group and number of times irrigated

General Sample

Himachal Pradesh

crop/crop group	crop area (hectares 00) by number of times irrigated					
	once	twice	thrice	more than thrice	n.r.	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)
paddy	59	50	15	330	2	456
maize	80	17	7	27	3	134
wheat	210	162	80	77	11	540
all cereals	368	233	120	491	16	1228
all pulses	2	3	8	10	-	23
all oil seeds	9	12	8	2	-	31
other crop commodities	8	12	15	65	4	104
all other crops	2	3	1	4	-	10
all crops	389	263	152	572	20	1396

Table (13) : Estimates of area under irrigated crops with subsidiary irrigation and without subsidiary irrigation by crop/crop group

General Sample

Himachal Pradesh

crop/crop group	area (hectares 00) under irrigated crop		
	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
paddy	1	455	456
maize	2	132	134
wheat	4	536	540
all cereals	8	1220	1228
all pulses	1	22	23
all oil seeds	-	31	31
other crop commodities	2	102	104
all other crops	-	10	10
all crops	11	1385	1396

National Sample Survey, 31st Round : July 1976 - June 1977

Table (1.4) : Estimates of value of agricultural implements irrigation equipments and draught animals (adult cattle and buffaloes-3 years or more) owned by households by size class of holding

General Sample

Himachal Pradesh

item of asset	value (Rs. 000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectar)						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 & above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implement</u>							
1. Tractor				6171	3630	-	9801
2. Power tiller				242	424	-	666
3. Sprayer				-	-	-	-
4. duster				-	-	-	-
5. thresher	-	557	172	927	895	-	2551
6. cane crusher	-	44	-	103	520	-	667
7. oil crusher	-	1035	-	30	-	-	1065
8. a l l	-	1636	172	7473	5469	-	14750
<u>irrigation equipments</u>							
1. electric pumps		109	460	1633	1694	-	3896
2. diesel pumps		-	-	278	-	-	278
3. wind mill	-	-	-	-	-	-	-
4. meat	-	-	-	-	-	-	-
5. persian wheel	-	-	-	-	-	-	-
6. others (animal driven)	-	-	-	-	-	-	-
7. counter poise	-	-	-	-	-	-	-
8. manual pumps	-	-	-	-	-	-	-
9. others	-	-	-	212	-	-	212
10. a l l	-	109	460	2123	1694	-	4386
<u>draught animals</u>							
1. cattle	11618	21485	20610	12825	3963	131	70632
2. buffaloes			52	26	-	-	78
3. a l l	11618	21485	20662	12851	3963	131	70710
t o t a l	11618	23230	21294	22447	17126	131	89846

National Sample Survey, 31st Round : July 1976 - June 1977

Table (15) : Estimates of number of households reporting pump sets and number of pump sets possessed by size class of household holding

General Sample

Himachal Pradesh

size class of household holding (hectare)	number of households reporting pump sets (00)	number of pump sets (00)
---	---	--------------------------

(0)

(1)

(2)

less than 0.5

0.5 - 1.0

1

1

1.0 - 2.0

7

7

2.0 - 4.0

9

10

4.0 - 10.0

3

3

10.0 & above

Total

20

21

* In this and subsequent tables on number of pumpsets, the number includes those possessed jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

National Sample Survey, 31st Round : July 1976 - June 1977

Table(16) : Estimates of number of pumsets possessed by source of power and by horse power

General Sample	Himachal Pradesh			
	no. of pump sets (00) having source of* power			
horse power	elec- tricity	diesel	both electricity & diesel	total
(0)	(1)	(2)	(3)	(4)
less than 1.0				
1.0 - 2.0				
2.0 - 3.0				
3.0 - 4.0				
4.0 - 5.0				
5.0 & above	15	2		17
n. r.	4			4
a l l	19	2		21

* See footnote on table (15)

National Sample Survey, 31st Round . July 1976 - June 1977

Table (17) Estimates of number of pumpsets and households share of value of owned equipments by type of possession and source of power

General Sample

Himachal Pradesh

source of power	possession type							
	own singly		own jointly		rented		total	
	no. of pump-sets (00)	hhs share of value of equipments Rs (000)	no. of pump-sets (00)	hhs share of value of equipments Rs. (000)	no. of pump-sets (00)	hhs share of value of equipments Rs. (000)	no. of pump-sets (00)	hhs share of value of equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	4	196	10	3301	5	-	19	3497
diesel	1	301	1	79	-	-	2	380
both electricity & diesel	-	-	-	-	-	-	-	-
t o t a l		497	11	3380	5	-	21	3877

* See footnote on table (15)

National Sample Survey, 31st Round : July 1976 - June 1977

Table (18) : Estimates of number of pump sets reporting area irrigated by source of power and source of water separately by possession type

General Sample

Himachal Pradesh

source of power	no. of pump sets (00) reporting area irrigated by source of water					total
	well	tube well	rivers & streams	others	net	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
<u>owned singly</u>						
1. electricity		4				4
2. diesel		1				1
3. both electricity & diesel						
4. total		5				5
<u>owned jointly</u>						
1. electricity		10				10
2. diesel		1				1
3. both electricity & diesel						
4. total		11				11
<u>rented</u>						
1. electricity		5				5
2. diesel						
3. both electricity & diesel						
4. total		5				5
<u>total</u>						
1. electricity		19				19
2. diesel		2				2
3. both electricity & diesel						
4. total		21				21

National Sample Survey, 31st Round : July 1976 - June 1977

Table (19) : Estimates of expenses for irrigation on other than capital account by item of expenditure

General Sample	Himachal Pradesh
items of expenditure	amount (Rs. 000)
(0)	(1)
repair and maintenance expenses of bunds and field channals	3423
water charges	366
other expenses on independently owned lift irrigation	246
share of expenses on joint arrangements	14
receipt from sale of water	-
t o t a l	4049

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976 - JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation

General Sample	Punjab
item	number
1. number of sample villages allotted for survey	344
2. number of sample villages actually surveyed	342
3. number of sample households surveyed for Schedule 22.1	4842
4. estimated number of total households (00) <u>a/</u>	20502
5. estimated number of cultivating households (00)	8684
i) usually using irrigation	8143
ii) usually not using irrigation <u>b/</u>	515

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 - Draft Report No. 312

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households usually using irrigation and area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of household holding

General Sample

Punjab

size class of holding (hectare)	no. of households (00) with irrigable land	Irrigable area (hectares 00)					Land without irrigation facility (hectares 00)						
		area possessed			net area sown	area cropped more than once	gross cropped area	area possessed			net area sown	area cropped more than once	gross cropped area
		owned	leased in	total				owned	leased in	total			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
less than 0.5	577	128	7	165	161	124	288 870	11	1	12	2	2	5
0.5 - 1.0	691	365	125	490	472	396	875	39	5	44	25	9	34
1.0 - 2.0	1522	1660	32	2012	1955	1617	3588	191	27	218	152	34	186
2.0 - 4.0	2746	6014	832	6846	6700	5106	11813	672	170	842	690	173	863
4.0 - 10.0	2213	9445	1596	11041	10809	7418	18237	1480	385	1865	1558	202	1761
10.0 & above	422	3519	1405	4924	4824	2302	7128	1156	115	1271	1078	77	1156
all	8171	21131	4347	25478	24921	16963	41924	3549	703	4252	3505	497	4005

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) : Estimates of number of households reporting area irrigated and not area irrigated by size class of holding and type of irrigation

Size class of holding (hectare)	General Sample							Punjab				
	flow				lift			flow & lift combined				
	canal	diversion scheme	tank	others	all	well	tube	river	tank	others	all lift	lift combined
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<u>number of households (00) reporting area irrigated</u>												
less than 0.5	176	-	-	3	179	14	386	-	-	5	405	514
0.5 - 1.0	218	-	1	-	219	44	462	-	-	1	507	639
1.0 - 2.0	421	-	-	3	424	128	1144	6	-	2	1276	1492
2.0 - 4.0	805	1	-	8	814	158	2140	7	-	3	2298	2728
4.0 - 10.0	849	1	-	12	862	75	1727	16	-	8	1821	2319
10.0 & above	221	-	-	-	221	2	265	2	-	3	292	454
all	2690	2	1	26	2719	421	6144	31	-	22	6599	8146
<u>net area irrigated (1 hectare 00)</u>												
less than 0.5	46	-	-	1	47	3	108	-	-	-	111	158
0.5 - 1.0	144	-	1	-	145	22	311	-	-	1	334	479
1.0 - 2.0	471	-	-	2	473	110	1389	5	-	3	1507	1980
2.0 - 4.0	1632	6	-	7	1645	184	4618	12	-	3	4817	6462
4.0 - 10.0	3175	8	-	37	3220	141	7264	53	-	7	7465	10685
10.0 & above	2005	-	-	-	2005	6	2731	5	-	1	2743	4748
all	7473	14	1	47	7535	466	16421	75	-	15	16977	24512

Table (3) : Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power

General Sample

Punjab

size class of holding (hectare)		no. of households (00) reporting lift irrigation using					net area irrigated (hectares 00) by lift using						
		elec- tricity	diesel	wind- mill	animal	human	all	elec- tricity	diesel	wind- mill	animal	human	all
(0)		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than	0.5	183	203		12	7	405	45	63		3	-	111
0.5	- 1.0	187	278		42		507	118	195		21	-	334
1.0	- 2.0	431	716		129	-	1276	523	870		114	-	1507
2.0	- 4.0	740	1403		154	1	2208	1368	3258		189	2	4817
4.0	- 10.0	586	1161		74	-	1821	2353	4938		174	-	7465
10.0	& above	85	203		4	-	292	1005	1729		9	-	2743
all		2212	3964		415	8	6599	5412	11053		510	2	16977

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (4) : Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

General Sample

Punjab

ownership of source of water for irrigation	net area irrigated (hectares 00) by type of irrigation											
	flow					lift					flow and lift com- bined	
	canal	river- sich scheme	tank	others	all	well	tube well	river	tank	others		all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	7473	-	-	4	7477	-	147	45	-	4	196	7673
Co-operative	-	-	-	-	-	-	3	-	-	-	3	3
Private-joint	-	8	1	36	45	255	4339	6	-	2	4602	547
Private-single	-	6	-	7	13	211	11922	24	-	9	12176	12189
all	7473	14	1	47	7535	466	16421	75	-	15	16977	24512

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (5) : Estimates of net area irrigated by ownership of lifting equipment and by source of power

General Sample

Punjab

ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	elec- tricity	diesel	windmill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)
Government	135	2	-	-	-	137
Co-operative	4	19	-	-	-	23
Private joint	1227	2427	-	300	2	3956
Private single	4046	8605	-	210	-	12861
all	5412	11053	-	510	2	16977

Table (6) : Estimates of area having irrigation facility sown but not irrigated by size class of holding and reason for not irrigating

General Sample

Punjab

size class of holding (hectare)	area (hectares 00) by reason for not irrigating			
	adequate rainfall	non-availa- bility of water	other reasons	all reasons
(0)	(1)	(2)	(3)	(4)
less than 0.5	1	1	-	2
0.5 - 1.0	1	1	4	6
1.0 - 2.0	9	1	20	30
2.0 - 4.0	30	9	53	92
4.0 - 10.0	55	23	119	197
10.0 & above	9	14	59	82
all	105	49	255	409

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (7) : Estimates of number of parcels^{of} irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels

General Sample

Punjab

size class of parcels (hectare)	number of parcels (00)	area (hectares) 00			
		total irrigable land	net area irrigated	net area not irrigated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	55	1	1	-	1
0.05 - 0.1	138	9	8	1	9
0.1 - 0.2	465	60	57	1	58
0.2 - 0.3	645	141	133	8	141
0.3 - 0.4	410	132	125	5	130
0.4 - 0.5	1498	612	585	14	599
0.5 - 1.0	3427	2499	2446	47	2493
1.0 - 2.0	4193	5777	5319	99	5418
2.0 & above	4534	16250	15838	234	16072
all	15366	25481	24512	409	24921

Parcel : A plot or contiguously located plots having a common source of irrigation facility possessed by the household was treated as a parcel

NATIONAL SAMPLE SURVEY, 39TH ROUND : JULY 1976 - JUNE 1977

Table (8) : Estimate of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure, (iv) affected by pests and diseases, (v) sprayed with pesticides and (vi) of crops finally changed and value of (i) fertiliser used, (ii) manure used and (iii) pesticides sprayed separately for irrigated and unirrigated crops by crop/crop group

General Sample				Punjab					
crop/ crop group	area (hectares 00)			affected by pests & diseases	sprayed with pestici- des	of crops finally damaged	value (Rs.000) of		
	under crop	applied with ferti- liser	manure				ferti- liser used	manure used	pestici- sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>irrigated crops</u>									
paddy	4605	4379	1640	674	455	18	183126	28495	3574
maize	3488	2864	2237	458	170	31	79667	48699	756
wheat	17161	16517	1650	777	332	4	752357	19922	1359
all cereals	26428	24251	5700	2006	985	63	1027012	100459	5860
all pulses	897	66	50	13	1	2	1849	600	37
all oil seeds	979	425	118	118	40	13	8747	1633	342
sugarcane	826	653	459	192	131	3	26434	16333	1331
cotton	4210	3218	1217	2919	2708	1	83265	23051	41082
other crop co- modi- ties	5875	2613	1609	167	77	4	74760	44366	1610
all other crops	166	130	76	22	12	1	5138	2637	111
all crops	39381	31356	9229	5437	3954	87	1227205	189079	50373
<u>unirrigated crops</u>									
paddy	145	74	5	10	2		1647	170	25
maize	923	562	515	56	3		10848	12270	13
wheat	923	288	55	3			6716	682	
all ce- reals	2608	950	592	89	5	1	19641	13432	42
all pulses	1710	9	25	29	4	2	260	295	19
all oil seeds	767	197	50	35	9	2	3276	600	42
sugar- cane	40	10	6	1	-	-	342	165	7
cotton	59	3	3	6	3	1	52	126	25
other crop co- modi- ties	1358	82	91	29	3	2	1649	2020	14
all other crops	6	1	1	-	-	-	11	34	1
all crops	6548	1252	768	189	24	8	25231	16672	150

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (9) : Estimates of area (i) under crop, (ii) applied with fertiliser (iii) applied with manure and (iv) affected by pests and diseases for irrigated crops and unirrigated crops by crop/crop group separately for ordinary and improved varieties of seed

General Sample

State : Punjab

crop group	irrigated crop area (hectares '00)				unirrigated crop area (hectares '00)			
	total	applied with		affected by pests & disea- ses	total	applied with		affected by pests & diseases
		ferti- liser	manure			ferti- liser	manure	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>ordinary variety</u>								
paddy	674	587	356	95	68	30	4	6
maize	3271	2660	2088	383	906	545	502	53
wheat	960	917	161	37	328	58	32	-
all cereals	5959	4578	2760	588	1910	656	555	79
all pulses	890	65	49	13	1699	9	25	29
all oil seeds	959	409	113	115	734	189	50	35
sugarcane	364	260	214	78	13	3	3	-
cotton	1979	1238	658	873	54	2	3	4
other crop co- modities	5769	2512	1561	137	1355	82	91	29
all other crops	165	129	76	22	6	1	1	-
all crops	16085	9191	5431	1826	5771	942	728	176
<u>improved variety</u>								
paddy	3931	3792	1284	79	77	4	1	4
maize	217	204	149	75	17	17	13	3
wheat	16201	15600	1489	740	595	230	23	3
all ce- reals	20469	19673	2940	1418	698	294	37	10
all pul- ses	7	1	1	-	11	-	-	-
all oil- seeds	20	16	5	3	33	8	-	-
sugarcane	462	393	245	114	27	7	3	1
cotton	2231	1980	559	2046	5	1	-	2
other crop commo- dities	106	101	48	30	3	-	-	-
all other crops	1	1	-	-	-	-	-	-
all crops	23296	22165	3798	3611	777	310	40	13

Table (10) Estimates of area under crop applied with fertilisers having nutrients N only, NP only, NPK only and others by crop/crop group separately for irrigated and unirrigated crops

General Sample

Punjab

crop/crop group	irrigated area (hectares 00) applied with fertilisers having nutrients					unirrigated area (hectares 00) applied with fertilisers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
paddy	2962	1110	234	73	4379	67	4	1	2	74
maize	2290	359	136	79	2864	496	60	5	1	562
wheat	6603	7850	1866	198	16517	179	85	24	-	288
all cereals	12252	9388	2245	366	24251	766	150	30	4	950
all pulses	45	11	3	7	66	7	-	-	2	9
all oil seeds	290	49	16	70	425	87	56	3	51	197
sugarcane	590	41	8	14	653	10	-	-	-	10
cotton	2871	221	54	72	3218	2	-	-	1	3
other crop commodities	2139	256	32	186	2613	35	4	-	3	82
all other crops	121	4	2	3	130	1	-	-	-	1
all crops	18308	9970	2360	718	31356	948	210	33	61	1252

'N' only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate, ammonium chloride and urea.

'NP' only means nitrogenous phosphate fertilisers like ammonium phosphate, ammonium phosphate sulphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphate, triple super phosphate and palfos in combination with nitrogenous fertilisers containing 'N'.

'NPK' means nitrogenous phosphatic potash fertilisers like notrophosphate and NPK complex fertilisers. It also includes potash fertilisers like sulphate of potash in combination with 'NP' fertilisers noted under 'NP' above.

Table (11) : Estimates of area under irrigated crops by crop/crop group and type of irrigation

General Sample

Punjab

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation										flow and lift combined	
	flow					lift						
	canal	diversion scheme	tank	others	total	well	tube-well	river	tank	others		total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
wheat	706			1	707	37	3816	37		-8	3898	4605
maize	352	2	1	7	362	137	2987	1		1	3126	3488
barley	3800	8	1	12	3821	284	13006	39		11	13340	17161
all cereals	5403	11	2	24	5440	462	20408	98		20	20988	26428
all pulses	564			4	568	5	307	13			329	897
all oil seeds	352			1	353	1	620	5			626	979
sugarcane	102	-		1	103	29	693	1			723	826
cotton	2716	1		5	2722	11	1463	14			1488	4210
other crop commodities	1577	5		25	1608	107	4145	9		6	4267	5875
all other crops	20				20	7	139				146	166
all crops	10734	17	3	60	10814	626	2775	140		26	28567	39381

Table (12) : Estimates of area under irrigated crops by crop/crop group and number of times irrigated

General Sample

Punjab

crop/crop group	crop area (hectares 00) by number of times irrigated					total
	once	twice	thrice	more than thrice	n.r.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
paddy	113	104	177	4170	41	4605
maize	690	920	705	1113	60	3488
wheat	259	792	1626	14428	56	17168
all cereals	1350	2118	2797	19996	167	26428
all pulses	455	294	83	43	22	897
all oil seeds	369	365	149	80	16	979
sugarcane	19	29	35	740	3	826
cotton	225	477	791	2712	5	4210
other crop commodities	729	947	808	3360	31	5875
all other crops	7	7	4	148	-	166
all crops	3154	4237	4667	27079	244	39381

Table (13) : Estimates of area under irrigated crop with subsidiary irrigation and without subsidiary irrigation by crop/crop group

General Sample

Punjab

crop/crop group	area (hectares 00) under irrigated crop		
	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
paddy	1528	3077	4605
maize	445	3043	3488
wheat	3516	13645	17161
all cereals	5704	20724	26428
all pulses	73	824	897
all oil seeds	111	868	979
sugarcane	140	686	826
cotton	756	3454	4210
other crop commodities	985	890	5875
all other crops	27	139	166
all crops	7796	31585	39381

Table (14) : Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes - 3 years or more) owned by households by size class of holding

General Sample

State : Punjab

item of asset	value, (₹9,000) of agricultural implements, irrigation equipments and draught animals owned by households by size class of holding						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
agricultural implements :							
1. tractor	1650	825	10127	104438	633836	620647	1371523
2. power tiller	82	33	548	4463	21478	20442	47046
3. sprayer	-	-	34	264	1874	1802	3974
4. duster	-	-	-	-	1199	82	1281
5. thresher	984	2373	11239	54084	107838	42916	219434
6. canecrusher	39	1155	4191	13107	17590	5386	41468
7. oil crusher	-	-	418	40	442	-	900
8. all	2755	4386	26557	176396	784257	691275	1685626
irrigation equipments							
1. electric pumps	2805	7863	41962	134327	203889	64074	454920
2. diesel pumps	6930	18210	88969	337245	269418	68501	789273
3. wind mill	-	-	-	165	794	45	1004
4. moat	-	-	-	177	-	-	177
5. persian wheel	708	2802	10130	20385	16659	5322	56006
6. others (animal driven)	-	-	132	260	637	248	1277
7. counter poise	-	-	-	-	-	-	-
8. manual pumps	-	-	-	27	-	-	27
9. others	-	-	10	-	-	-	18
10. all	10443	28875	141211	492586	491397	138190	1302702
draught animals							
1. cattle	3061	21089	125059	346017	392112	85889	973227
2. buffaloes	1015	5784	15717	26715	17952	1924	69107
3. all	4076	26873	140776	372732	410064	87813	1042334
total	17274	60134	308544	1041714	1685718	917278	4030662

Table (15) : Estimates of number of households reporting pumpsets and number of pumpsets possessed by size class of household holding

General Sample		Punjab	
size class of household holding (hectare)		number of households reporting pumpsets	number of pumpsets (00)
(0)		(1)	(2)
less than	0.5	79	81
0.5	- 1.0	218	222
1.0	- 2.0	763	801
2.0	- 4.0	1800	1959
4.0	- 10.0	1642	2018
10.0	& above	288	463
all		4790	5544

* In this and subsequent tables on member of pump sets, the number includes those possessed jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

Table (16) : Estimates of number of pumpsets possessed by source of power and by horse power

General Sample

Punjab

horse power	number of pumpsets(00) having source of power			
	electricity	diesel	both elec- tricity & diesel	total
(0)	(1)	(2)	(3)	(4)
less than 1.0	2	3		5
1.0 - 2.0	5			5
2.0 - 3.0	5	2		7
3.0 - 4.0	289	18		307
4.0 - 5.0		6		6
5.0 & above	1309	3755	6	5070
n.r.	40	99	5	144
all	1650	3883	11	5544

* See footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (17) : Estimates of number of pumpsets and households share of value of owned equipments by types of possession and source of power

source of power	possession type						Punjab	
	owned singly		owned jointly		rented		total	
	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hh's share of value of equipment Rs.(000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	789	282637	817	140605	44	-	1650	423242
diesel	2440	728102	1321	208392	122		3883	936494
both electricity & diesel	3	212	4	363	4		11	575
total	3232	1010951	2142	349360	170		5544	1360311

* See footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND, JULY 1976 - JUNE 1977

Table (18) : Estimates of number of pumpsets* reporting area irrigated by source of power and source of water separately by possession type

General Sample

Punjab :

source of water	no. of pumpsets(00) reporting area irrigated by source of water					total
	open well	tube well	rivers & streams	others	N.R.	
(1)	(2)	(3)	(4)	(5)	(6)	
<u>owned singly</u>						
1. electricity	15	774				789
2. diesel	39	2393	3	5		2410
3. both electricity & diesel		3				3
4. total	54	3170	3	5		3232
<u>owned jointly</u>						
1. electricity	15	798	4			817
2. diesel	23	1296	2			1321
3. both electricity & diesel		4				4
4. total	38	2098	6			2142
<u>rented</u>						
1. electricity		44				44
2. diesel	7	115				122
3. both electricity & diesel		4				4
4. total	7	163				170
<u>total</u>						
1. electricity	30	1616	4			1650
2. diesel	69	3804	5	5		3883
3. both electricity & diesel		11				11
4. total	99	5431	9	5		5544

* See footnote on table (15)

Table (19) : Estimates of expenses for irrigation on other than capital account by items of expenditure

General Sample	Punjab
items of expenditure	amount (Rs. 000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	9150
water charges	124292
other expenses on independently owned lift irrigation	482565
share of expenses on joint arrangements	157200
receipt from sale of water	2740
total	770467

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976- JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation.

General Sample	Rajasthan
item	number
1. number of sample villages allotted for survey	360
2. number of sample villages actually surveyed	360
3. number of sample households surveyed for Schedule 22.1	4117
4. estimated number of total households (00) ^{a/}	46365
5. estimated number of cultivating households (00)	38872
i) usually using irrigation	21691
ii) usually not using irrigation	17181

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 - Draft Report No. 312

NATIONAL SAMPLE SURVEY, 31ST ROUND JULY 1976 - JUNE 1977

Table(1) : Estimates of number of households usually using irrigation and area possessed, net area shown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation by size class of household holding.

General Sample										Rajasthan			
size class of holding (hectare)	no. of households (00) with irrigable land	irrigable area (hectares 00)						land without irrigation facility (hectares 00)					
		area possessed			net area sown	area cropped more than once	gross cropped area	area possessed			net area sown	area cropped more than once	gross cropped area
		owned	leased	total				owned	leased	total			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
less than 0.5	1515	348	16	364	360	265	629	150	-	150	89	9	98
0.5 - 1.0	2843	1180	56	1236	1210	806	2035	834	20	854	585	96	681
1.0 - 2.0	5430	3991	90	4081	3963	2271	6277	3790	74	3864	2865	396	3261
2.0 - 4.0	6164	7650	329	7979	7620	3110	10811	9463	291	9754	7874	886	8760
4.0 - 10.0	4714	12097	584	12681	11836	2865	14705	15399	294	15693	13054	947	14001
10.0 & above	1025	5374	421	5795	5278	1467	6770	8928	168	9096	7407	202	7609
all	21691	30640	1496	32136	30267	10784	41277	38564	847	39411	31874	2536	34410

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(2) : Estimates of number of households reporting area irrigated and net area irrigated by size class of holding and type of irrigation

General Sample												Rajasthan
size class of holding (hectare)	f l o w					l i f t					flow & lift combined	
	canal	diver- sion scheme	tank	others	all flow	well	tube- well	river	tank	others		all lift
(3)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
number of households (00) reporting area irrigated												
less than 0.5	211	19	219	-	425	1120	17	-	4	13	1154	1470
0.5 - 1.0	334	53	237	-	585	2319	75	8	29	17	2448	2758
1.0 - 2.0	982	47	375	-	1307	4186	160	65	43	56	4500	5267
2.0 - 4.0	1106	32	399	-	1439	4840	218	21	29	27	5128	5970
4.0 - 10.0	1070	57	212	13	1261	3471	285	52	8	17	3815	4573
10.0 & above	3291	13	26	8	310	713	17	8	-	21	759	1043
a l l	3994	221	1468	21	5327	16619	772	154	113	151	17804	21090
net area irrigated (hectare 00)												
less than 0.5	56	2	40	-	98	242	3	-	0	1	246	344
0.5 - 1.0	170	5	91	-	266	796	33	7	3	2	841	1107
1.0 - 2.0	859	5	177	-	1041	2339	107	43	9	14	2512	3553
2.0 - 4.0	1952	10	306	-	2268	3927	273	23	10	14	4247	6515
4.0 - 10.0	3947	36	342	30	4355	4873	726	109	2	27	5737	10092
10.0 & above	2439	21	67	11	2538	1635	96	8	-	57	1796	4334
a l l	9423	79	1023	41	10566	13812	1238	190	24	115	15379	25945

NATIONAL SAMPLE SURVEY, 31ST ROUND . JULY 1976 - JUNE 1977

Table(3) - Estimates of number of households reporting lift irrigation and net area irrigated by lift by size class of holding and by source of power

size class of holding (hectare)	General Sample						Rajasthan					
	no. of households (00) of reporting lift irrigation using						net area irrigated (hectares 00) by lift using					
	elec- tricity	diesel	wind- mill	animal	human	all	elec- tricity	diesel	wind- mill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	112	52	-	969	21	1154	28	9	-	208	1	246
0.5 - 1.0	219	156	4	1989	80	2448	87	58	1	681	14	841
1.0 - 2.0	526	415	4	3484	71	4500	344	253	1	1904	10	2512
2.0 - 4.0	811	599	4	3680	34	5128	742	635	1	2862	7	4247
4.0 - 10.0	633	615	5	2537	25	3815	1251	1213	9	3252	13	5738
10.0 & above	134	185	-	435	5	759	410	665	-	720	-	1795
all	2435	2022	17	13094	236	17804	2862	2833	12	9627	45	15379

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(4) : Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

ownership of source of water for irrigation	General Sample					Rajasthan						
	net area irrigated (haectares 00) by type of irrigation											
	Flow					Lift						
	canal	diver- sion scheme	tank	others	all flow	well	tube- well	river	tank	others	all lift	flow & lift combined
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	9423	13	914	11	10361	13	-	179	2	108	302	10663
Co-operative	-	-	-	-	-	-	-1	-	7	-	1	1
Private-joint	-	51	103	9	163	9286	474	11	22	2	9795	9958
Private-single	-	15	6	21	42	4513	763	-	0	5	5281	5323
a 1 1	9423	79	1023	41	10566	13812	1238	190	24	115	15379	25945

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(5) : Estimates of net area irrigated by ownership of lifting equipment and by source of power

- 98 -

General Sample

Rajasthan

ownership of lifting equipment

net area irrigated (hectares 00) by source of power

electricity diesel wind-mill animal human all

(0) (1) (2) (3) (4) (5) (6)

Government	30	14	-	4	-	48
Co-operative	4	14	-	-	-	18
Private-joint	1805	1273	3	3116	15	6212
Private-single	1023	1532	9	6507	30	9101
a 1 1	2862	2833	12	9627	45	15379

- 99 -

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(6) : Estimates of area having irrigation facility sown but not irrigated by size class of holding and reason for not irrigating

General Sample

Rajasthan

area (hectares 00) by reason for not irrigating

size class of holding
(hectare)

adequate
rainfall

non-availabi-
lity of water

other
reasons

all
reasons

(0)

(1)

(2)

(3)

(4)

less than 0.5	7	1	2	10
0.5 - 1.0	44	26	38	108
1.0 - 2.0	82	118	177	377
2.0 - 4.0	442	100	174	716
4.0 - 10.0	600	834	536	1970
10.0 & above	269	495	377	1141
a l l	1444	1574	1304	4322

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(7) : Estimates of number of parcels/irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels

General Sample		Rajasthan			
size class of parcels (hectare)	number of parcels(00)	area (hectares 00)			
		total irrigable land	net area irrigated	net area not irrigated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	4017	110	99	8	107 (106)
0.05 - 0.1	3700	258	226	26	252 (251)
0.1 - 0.2	7237	1027	914	89	1003 (1000)
0.2 - 0.3	7011	1674	1506	137	1643 (1638)
0.3 - 0.4	4293	1461	1292	136	1428 (1422)
0.4 - 0.5	3644	1590	1381	164	1545 (1542)
0.5 - 1.0	8364	5712	4904	547	5451 (5440)
1.0 - 2.0	4992	6735 13569	5466 10157	976	6442 (6447)
2.0 & above	3623	(13570)	(10155)	2239	12396 (12421)
a 1 1	46881	32136 (32137)	25745 (25944)	4322	30267

Parcel : A plot or contiguously located plots having a common source of irrigation facility possessed by the household was treated as a parcel.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(8): Estimates of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure, (iv) affected by pests and diseases, (v) sprayed with pesticides and (vi) of crops finally damaged and value of (i) fertiliser used, (ii) manure used and (iii) pesticides sprayed separately for irrigated and unirrigated crops by crop/crop group.

General Sample						Rajasthan			
area (hectares 00)									
crop/ crop group	under crop	applied ferti- liser	with manure	affected by pests & deseases	sprayed with pesti- cides	of crops finally damaged	ferti- liser used	manure used	pesti- cides sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>irrigated crops</u>									
Jowar	59	9	42	4	4	4	299	749	5
bazra	351	62	94	128	23	13	1544	2122	233
maize	360	112	188	27	11	1	2465	7680	31
wheat	13104	8320	5081	3660	383	83	253705	121784	2713
barley	4770	1168	2113	1408	48	2	18084	58529	148
all cereals	19669	10567	7739	5608	733	103	332305	195558	5897
all pulses	2550	422	422	723	113	1	9379	10016	561
all oil seeds	690	301	241	244	73	20	6564	4531	469
cotton	1661	1331	614	1139	993	247	51535	21281	13390
other crop commodities	2296	819	710	394	97	8	25425	37433	694
all other crops	1018	462	426	198	37	18	16997	15915	530
all crops	27884	13902	10152	8306	2046	397	442205	284734	21541
<u>unirrigated crops</u>									
jowar	6646	277	277	1036	35	-	3520	4139	16
bazra	11175	277	3510	3482	11	-	2777	46984	67
maize	5872	995	2694	435	18	1	19193	126158	115
wheat	3149	98	598	372	8	23	470	2642	22
barley	1144	20	98	262	-	-	500	2008	-
all cereals	29121	1727	7354	5603	72	24	28995	186563	226
all pulses	10000	408	754	1706	42	14	4133	7456	297
all oil seeds	4189	617	803	713	5	1	9023	17394	42
cotton	220	8	43	130	3	-	150	1609	83
other crop commodities	3696	39	499	312	1	-	955	5199	8
all other crops	577	31	222	28	2	-	495	1766	-
all crops	47803	2830	9675	8492	125	39	43751	219987	656

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (9) : Estimates of area (i) under crop (ii) applied with fertiliser, (iii) applied with manure and (iv) affected by pests and diseases, for irrigated crops and unirrigated crops by crop/crop group separately for ordinary and improved varieties of seed.

crop/crop group	General sample				Rajasthan			
	irrigated		crop (hectares 00)		unirrigated		crop (hectares 00)	
	total	applied with fertiliser	with manure	affected by pests & diseases	total	applied with fertiliser	with manure	affected by pests & diseases
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>o r d i n a r y</u> <u>v a r i e t y</u>								
jowar	59	9	42	4	6635	268	266	1036
bajra	325	47	85	115	10800	237	3338	3255
maize	357	109	185	27	5784	922	2657	419
wheat	8528	4579	3618	2773	3061	92	587	339
barley	4755	1157	2106	1399	1144	20	98	262
all cereals	14965	6713	6238	4627	28559	1599	7123	5327
all pulses	2549	422	422	723	9999	408	753	1706
all oil seeds	661	289	241	244	4180	616	797	705
cotton	856	551	319	466	219	8	42	129
other crop commodities	2244	768	667	394	3696	39	499	312
all other crops	1008	453	417	197	577	31	222	28
all crops	22283	9196	8304	6651	47230	2701	9436	8207
<u>i m p r o v e d</u> <u>v a r i e t y</u>								
jowar	-	-	-	-	11	9	11	-
bajra	26	15	9	13	375	40	172	227
maize	3	3	3	-	88	73	37	16
wheat	4576	3741	1463	887	88	6	11	33
barley	15	11	7	9	-	-	-	-
all cereals	4704	3854	1501	981	562	128	231	276
all pulses	1	-	-	-	1	-	1	-
all oil seeds	29	12	-	-	9	1	6	8
cotton	805	780	295	673	1	-	1	1
other crop commodities	52	51	43	-	-	-	-	-
all other crops	10	9	9	1	-	-	-	-
all crops	5601	4706	1848	1655	573	129	239	285

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(10) : Estimates of area under crop applied with fertilizer having nutrients N only, NP only, NPK only and others by crop/crop group separately for irrigated and unirrigated crops.

crop/crop group	General Sample					Rajasthan				
	irrigated area (hectares 00) applied with fertilizers having nutrients					unirrigated area (hectares 00) applied with fertilizers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
jowar	5	-	-	4	9	86	189	2	-	277
bazra	55	7	-	-	62	265	5	-	7	277
maize	102	8	-	2	112	730	186	-	79	995
wheat	5299	2546	304	151	8320	80	18	-	-	98
barley	1021	101	4	44	1168	6	14	-	-	20
all cereals	6788	3270	308	201	10567	1209	431	2	85	1727
all pulses	118	257	21	26	422	67	220	2	119	408
all oil seeds	252	27	14	8	301	97	409	-	111	617
cotton	938	315	77	1	1331	8	-	-	-	8
other crop commodities	566	168	20	65	819	13	26	-	-	39
all other crops	272	153	13	24	462	27	4	-	-	31
all crops	8934	4190	453	325	13902	1421	1090	4	315	2830

'N' only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate, ammonium chloride and urea.

'NP' only means nitrogenous phosphate fertilisers like ammonium phosphate, ammonium phosphate sulphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphat triple super phosphate and palfos in combination with nitrogenous fertilisers containing 'N' only.

'NPK' means nitrogenous phosphatic potash fertilisers like nitrophosphate and NPK complex fertilisers. It also includes potash fertilisers like sulphate of potash in combination with 'NP' fertilisers noted under 'NP' above.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (11) : Estimates of area under irrigated crops by crop/crop group and type of irrigation

General Sample

Rajasthan

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation											flow and lift combined
	flow					lift						
	canal	diversion scheme	tank	others	total	well	tubewell	river	tank	others	total	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
jowar	9	-	-	-	9	49	1	-	-	-	50	59
bazra	139	1	4	-	143	198	7	1	-	3	208	351
maize	10	8	53	-	63	292	2	1	3	-	297	360
wheat	4391	26	432	12	4861	7108	915	144	15	61	8243	13104
barley	361	38	280	16	695	3937	224	5	7	2	4075	4770
all cereals	5767	69	874	28	6738	11542	1149	149	25	66	12931	19669
all pulses	1590	15	174	9	1788	627	92	13	-	30	762	2550
all oil seeds	363	-	22	-	385	228	77	-	-	-	305	690
cotton	1313	-	20	-	1333	307	-	-	2	19	328	1661
other crop commodities	1027	-	10	4	1041	1211	17	4	-	23	1255	2296
all other crops	87	2	51	1	141	85	4	31	2	4	877	1018
all crops	10147	86	1151	42	11426	14751	1339	197	29	142	16458	27884

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(12) : Estimates of area under irrigated crops by crop/crop group and number of times irrigated

General Sample

Rajasthan

crop area (hectares 00) by number of times irrigated

crop/crop group	crop area (hectares 00) by number of times irrigated					total
	once	twice	thrice	more than thrice	n.r.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
jowar	7	-	6	45	1	59
bazra	190	68	61	24	8	351
maize	203	70	23	54	10	360
wheat	490	1130	2122	9362	-	13104
barley	203	366	1094	3076	31	4770
all cereals	1216	1868	3529	12962	94	19669
all pulses	1311	634	301	278	26	2550
all oil seeds	226	89	139	228	8	690
cotton	35	137	205	1275	9	1661
other crop commodities	330	287	206	1442	31	2296
all other crops	57	69	97	754	41	1018
all crops	3175	3084	4477	16939	209	27884

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(13) : Estimates of area under irrigated crop with subsidiary irrigation and without subsidiary irrigation by crop/crop group

General Sample	Rajasthan		
	area (hectares 00) under irrigated crop		
crop/crop group	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
jowar	-	59	59
bazra	7	344	351
maize	2	358	360
wheat	167	12937	13104
barley	67	4703	4770
all cereals	259	19410	19669
all pulses	22	2528	2550
all oil seeds	-	690	690
cotton	72	1589	1661
other crop commodities	35	2261	2296
all other crops	8	1010	1018
all crops	396	27488	27884

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(14) : Estimates of value of agricultural implements irrigation equipments and draught animals- adult cattle and buffaloes (3 years or more) owned by households by size class of holding

item of asset	General Sample				Rajasthan		
	value (Rs.000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectare)						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 & above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
agricultural implements							
1. tractor	-	2973	33008	99379	332025	353789	821174
2. power tiller	-	-	682	2546	3466	5507	12201
3. sprayer	-	-	-	-	442	479	921
4. duster	-	-	-	7	402	-	409
5. thresher	-	-	104	3302	9237	21072	33715
6. cane crusher	455	1818	3129	3974	12239	869	22484
7. oil crusher	-	-	209	-	-	-	209
8. all	455	4791	37132	109208	357811	381716	891113
irrigation equipments							
1. electric pumps	6757	19250	84204	140344	179950	66302	496807
2. diesel pumps	2478	14801	50051	135136	153414	67938	423818
3. wind mill	-	-	-	669	-	-	669
4. moat	5282	16652	40445	53462	36245	8368	160454
5. persian wheel	3265	17742	26990	38765	45332	9224	141318
6. others (animal driven)	227	337	155	523	4207	4387	9836
7. counter poise	9	12	21	105	-	23	170
8. manual pumps	-	-	-	-	-	-	-
9. others	31	169	159	44	43	-	446
a l l	18049	68963	202025	369048	419191	156242	1233518
draught animals							
1. cattle	96275	248628	637837	931677	942694	295207	3152318
2. buffaloes	702	2903	8490	11047	5066	3005	31213
3. all	96977	251531	646327	942724	947760	298212	3183531
t o t a l	115481	325285	885484	1420980	1724762	836170	5308162

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 + JUNE 1977

Table (15) : Estimates of number of households reporting pumpsets and number of pumpsets possessed by size of household holding.

General Sample		Rajasthan	
size class of household holding (hectare)		number of households reporting pumpsets (00)	number of pumpsets* (00)
(0)		(1)	(2)
less than 0.5		143	147
0.5 - 1.0		251	287
1.0 - 2.0		756	796
2.0 - 4.0		1229	1394
4.0 - 10.0		1082	1253
10.0 & above		294	351
a	1 1	3755	4228

* In this and subsequent tables on number of pumpsets, the number includes those possessed jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (16) : Estimates of number of pumpsets possessed by source of power and by horse power

General Sample		Rajasthan			
horse power		number of pumpsets (00) having source of power*			
		electricity	diesel	both electricity & diesel	total
(0)	(1)	(2)	(3)	(4)	
less than 1.0	5	12	-	17	
1.0 - 2.0	-	-	-	-	
2.0 - 3.0	-	-	-	-	
3.0 - 4.0	494	19	-	513	
4.0 - 5.0	-	-	-	-	
5.0 & above	2004	1563	9	3576	
n. r.	30	92	-	122	
a 1 1	2533	1686	9	4228	

* See footnote on table 15

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(17) : Estimates of number of pumpsets and households share of value of owned equipments by type of possession and source of power.

General Sample

Rajasthan

source of power	possession type							
	owned singly		owned jointly		rented		total	
	no. of pumpsets	hh's share of value of equipments	no. of pumpsets	hh's share of value of equipments	no. of pumpsets	hh's share of value of equipments	no. of pumpsets	hh's share of value of equipments
	(00)	(Rs. 000)	(00)	Rs. (000)	(00)	Rs. (000)	(00)	Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	444	182070	2019	245489	70	-	2533	427559
diesel	496	241518	937	151869	253	-	1686	393387
both electricity & diesel	4	1605	-	-	5	-	9	1605
t o t a l	944	425193	2956	397358	328	-	4228	822551

see footnote on table (15)

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(18) : Estimates of number of pumpsets* reporting area irrigated by source of power and source of water separately by possession type.

General Sample

Rajasthan

source of water	no. of pumpsets (00) reporting area irrigated by source of water					total
	open well	tube well	rivers & streams	others	n.r.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
owned singly						
1. electricity	400	9	35	-	-	444
2. diesel	309	187	-	-	-	496
3. both electricity & diesel	-	4	-	-	-	4
4. t o t a l	709	200	35	-	-	944
owned jointly						
1. electricity	1917	71	26	5	-	2019
2. diesel	737	187	9	4	-	937
3. both electricity & diesel	-	-	-	-	-	-
4. t o t a l	2654	258	35	9	-	2956
rented						
1. electricity	40	9	17	4	-	70
2. diesel	132	9	103	9	-	253
3. both electricity & diesel	5	-	-	-	-	5
4. t o t a l	177	18	120	13	-	328
total						
1. electricity	2357	89	78	9	-	2533
2. diesel	1178	383	112	13	-	1686
3. both electricity & diesel	5	4	-	-	-	9
4. t o t a l	3540	476	190	22	-	4228

* see footnote on table 15

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(19) : Estimates of expenses for irrigation on other than capital account by items of expenditure.

General Sample	Rajasthan
items of expenditure	amount (Rs.000)
(0)	(1)
repair and maintainance expenses on bunds and field channels	65383
water charges	91067
other expenses on independently owned lift irrigation	162291
share of expenses on joint arrangements	142802
receipt from sale of water	- 11929
t o t a l	449614

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976 - JUNE 1977

Table (0) : Number of sample villages allotted and number surveyed, number of sample households surveyed for Schedule 22.1, estimated number of total households and estimated number of cultivator households usually using irrigation and number usually not using irrigation.

General Sample	Uttar Pradesh
item	number
1. number of sample villages allotted for survey	968
2. number of sample villages actually surveyed	968
3. number of sample households surveyed for Schedule 22.1	16920
4. estimated number of total households (00) <u>a/</u>	150277
5. estimated number of cultivating households (00)	117856
i) usually using irrigation	98079
ii) usually not using irrigation <u>b/</u>	19777

a/ from listing Schedule - Draft Report No. 291, Part - I

b/ from Schedule 22.2 + Draft Report No. 312

Table (1) Estimates of number of households usually using irrigation and area possessed, net area sown, area cropped more than once and gross cropped area separately for irrigable land and land without irrigation facility by size class of household holding.

General Sample

Uttar Pradesh

Size class of household holding (hectare)	no. of households (00) with irrigable land	irrigable area (hectares 00)						land without irrigation facility (hectares 00)					
		area possessed			net area sown	area cropped more than once	gross cropped area	area possessed			net area sown	area cropped more than once	gross cropped area
		owned	leased -in	total				owned	leased -in	total			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
less than 0.5	29977	7047	223	7270	7196	5110	12356	926	49	975	533	113	646
0.5 - 1.0	24158	14776	501	15277	15186	9350	24617	2381	198	2579	1996	438	2435
1.0 - 2.0	24652	28028	821	28849	28542	14984	43664	5302	306	5608	4697	590	5287
2.0 - 4.0	13780	29294	1017	30311	25560	13826	43810	6737	348	7085	6027	641	6668
4.0 - 10.0	5020	19371	344	19712	19422	7484	26953	7344	133	7477	6693	508	7202
10.0 & above	492	3586	196	3782	3711	1398	5118	2511	21	2532	2070	36	2106
all	98079	102102	3102	105201	99617	52152	156513	25201	1055	26256	22016	2326	24344

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1997

Table (2) : Estimates of number of households reporting area irrigated and net area irrigated by size class of holding and type of irrigation

size class of holding (hectare)		General Sample						Uttar Pradesh					
		f l o w			l i f t			all		flow &			
		canal	diver- sion scheme	tank	others	all flow	well	tube well	river	tank	others	lift	lift combined
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
number of households (00) reporting area irrigated													
less than	0.5	5515	525	26	23	5640	835	13288	1044	3461	918	24435	29686
0.5 -	1.0	5761	572	39	34	5901	6658	11839	565	3063	904	19887	23923
1.0 -	2.0	6405	343	32	69	6516	6670	13582	586	2704	854	20725	24412
2.0 -	4.0	4445	122	10	31	4517	3103	8173	306	1296	414	11235	13646
4.0 -	10.0	1596	28	10	5	1598	813	3065	111	347	132	3860	4971
10.0 &	above	267	-	-	-	267	65	215	63	17	16	311	488
all		23989	1590	117	162	24439	25644	50162	2675	10888	3238	60453	97126
net area irrigated (hectare 00)													
less than	0.5	1167	98	7	6	1278	1537	2685	196	522	142	5382	6360
0.5 -	1.0	2853	135	11	10	3009	2553	5604	220	864	285	9526	12535
1.0 -	2.0	5256	113	19	41	5429	4205	11372	335	1255	454	17621	23050
2.0 -	4.0	6410	101	17	54	6582	3030	12784	305	865	342	17326	23908
4.0 -	10.0	3774	123	19	1	3917	1018	9368	161	411	261	11219	15136
10.0 &	above	1139	-	-	-	1139	142	1406	91	38	65	1742	2881
all		20599	570	73	112	21354	12485	43219	1308	3955	1549	62516	83870

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (3) : Estimates of number of households reporting lift irrigation and net area irrigated, by lift by size class of holding and by source of power

size class of holding (hectare)	General Sample						Uttar Pradesh					
	no. of households(00)			reporting lift irrigation using			net area irrigated(hectares 00) by lift using					
	elec- tricity	diesel	wind- mill	animal	human	all	elec- tricity	diesel	wind- mill	animal	human	all
(10)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	7950	5343	5	4152	6984	24434	1745	1128	1	958	1250	5082
0.5 - 1.0	5906	5523	23	3630	4805	19887	3254	2681	13	1715	1863	9526
1.0 - 2.0	6214	6680	-	4124	3708	20726	6066	5895	-	3205	2395	17621
2.0 - 4.0	3420	4280	5	2019	1510	11234	6462	6897	13	2476	1478	17326
4.0 - 10.0	1264	1722	-	506	368	3860	4154	5774	-	827	464	11219
10.0 & above	126	129	-	47	10	312	804	707	-	155	76	1742
all	24880	23677	33	14478	17385	80453	22485	23082	27	9396	7526	62516

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (4) : Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation

General Sample

Uttar Pradesh

ownership of source of water for irrigation	net area irrigated (hectares 00) by type of irrigation											
	flow:					lift						
	canal	diver- sion scheme	tank	others	all flow	well	tube well	river	tank	others	all flow	flow and lift com- bined
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	20111	38	57	46	20252	66	5979	1244	3450	1211	11950	32202
Co-operative	-	-	-	-	-	-	94	-	16	11	121	121
Private-joint	483	531	11	35	1060	1649	5766	3	195	70	7683	9743
Private-single	5	1	5	31	42	10770	31380	61	294	257	42762	42804
all	20599	570	73	112	21354	12485	43219	1308	3955	1549	62516	83870

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976-- JUNE 1977

Table (5) : Estimates of net area irrigated by ownership of lifting equipment and by source of power

General Sample		Uttar Pradesh				
ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	elec- tricity	diesel	windmill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)
Government	6300	30		30	221	6581
Co-operative	101	90		2	11	204
Private joint	2894	3269	22	1278	265	7728
Private single	13190	19693	5	8086	7029	48003
all	22485	23082	27	9396	7526	62516

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (6) : Estimates of ^{area} ~~having~~ irrigation facility sown but not irrigated by size class of holding and reasons for not irrigating

General Sample		Uttar Pradesh			
size class of holding (hectare)	area (hectares 00) by reason for not irrigating				
	adequate rainfall	non-availability of water	other reasons	all reasons	
(0)	(1)	(2)	(3)	(4)	
less than 0.5	211	105	468	784	
0.5 - 1.0	575	235	1155	1965	
1.0 - 2.0	1164	537	2425	4126	
2.0 - 4.0	1369	575	2038	4782	
4.0 - 10.0	805	379	2209	3393	
10.0 & above	60	92	545	697	
all	4184	1923	9640	15747	

NATIONAL SAMPLE SURVEY, 51ST ROUND : JULY 1976-JUNE 1977

Table (7) : Estimates of number of parcels irrigable land possessed, total area of the plots, net area irrigated, net area not irrigated and net area sown by size class of parcels

General Sample

Uttar Pradesh

size class of parcels (hectare)	number of parcels (00)	area (hectares 00)			
		total irri- gable land	net area irrigated	net area not irri- gated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	26643	735	660	52	712
0.05 - 0.1	40185	2834	2125	527	2652
0.1 - 0.2	53026	7510	5785	1293	7078
0.2 - 0.3	34071	8253	6598	1248	7846
0.3 - 0.4	22159	7645	6187	1111	7298
0.4 - 0.5	21785	10071	8128	1447	9575
0.5 - 1.0	37393	25990	20981	3689	24670
1.0 - 2.0	18436	25326	20310	3734	24044
2.0 & above	5304	16935	13096	2646	15742
all	259002	105299	83870	15747	99617

Parcel : A plot or contiguously-located plots having a common source of irrigation facility possessed by the household was treated as a parcel

Table (8) Estimates of area (i) under crop (ii) applied with fertilizer (iii) applied with manure (iv) affected by pests and diseases, (v) sprayed with pesticides and (vi) of crops finally damaged and value of (i) fertilizer used, (ii) manure used and (iii) pesticides sprayed separately for irrigated and unirrigated crops by crop/crop group

General Sample

Uttar Pradesh

crop/ crop group	area (hectares 00)						value (Rs.000) of		
	under crop	applied with		af- fec- ted by	sprayed with	of crop finally damaged	ferti- liser used	manure used	pesti- cides sprayed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<u>irrigated crops</u>									
paddy	16680	9024	8252	1779	874	120	192974	77117	2792
bazra	503	151	203	4	2		2020	3006	5
maize	2647	1704	1559	45	2	2	33154	30948	41
wheat	53725	34945	22003	4711	709	66	852500	212119	1883
all cereals	79451	47130	34047	6672	1599	190	1107038	340488	4740
all pul- ses	6326	536	1400	353	38	5	7588	11971	178
all oil- seeds	1507	529	505	80	13	8	13334	7000	56
sugarcane	10288	7464	6949	1978	1215	29	288938	132805	9832
other crop commo- dities	5502	2066	2003	0	26	9	75030	43525	1017
all other crops	456	239	134	10	11	3	13331	3226	59
all crops	103530	57964	41768	9192	2902	244	1505259	539015	15882
<u>unirrigated crops</u>									
paddy	21722	4444	3301	1586	884	163	102068	69735	1848
bazra	8612	1135	2374	265	3	14	15262	30787	2
maize	7957	1916	3286	118	12	12	38313	42399	35
wheat	4743	240	968	611	5		4747	7509	9
all ce- reals	51337	7911	17905	2996	917	196	162988	164367	1919
all pul- ses	14012	289	1750	1071	26	14	3809	15433	658
all oil seeds	3639	304	188	305	9	3	3626	7546	24
sugarcane	1374	356	31	61	11	2	9536	7272	8
other crop commodities	6695	240	183	112	40	2	2970	15990	1491
all other crops	275	3	60	-	-	-	54	561501	1
all crops	77332	9103	21117	4545	1003	217	182983	211109	4101

Table (9) : Estimates of area (i) under crop, (ii) applied with fertiliser, (iii) applied with manure and (iv) affected by pests and diseases, for irrigated crops and unirrigated crops by crop/crop group separately for ordinary and improved varieties of seed.

General Sample				State : Uttar Pradesh				
crop/crop group	irrigated crop (hectares 00)				unirrigated crop (hectares 00)			
	total	applied with		affected	total	applied with		affected
(0)	(1)	ferti- liser	manure	by pests & disea- ses	(5)	ferti- liser	manure	by pests & disea- ses
		(2)	(3)	(4)		(6)	(7)	(8)
<u>ordinary variety</u>								
paddy	12243	5277	5992	1158	19705	3339	8429	1291
bazra	502	151	203	4	8421	1019	2301	239
maize	2588	1652	1541	39	7754	1810	3184	97
wheat	18236	6917	9567	1617	3492	111	755	563
all ce- reals	39378	15259	19308	2951	47670	6455	16565	2606
all pulses	6214	507	1382	338	13924	278	1726	1059
all oil seeds	1406	484	462	80	3607	304	582	301
sugar cane	4534	2413	2961	417	1107	299	424	43
other crop commodities	4851	1568	1607	77	6571	238	1048	96
all other crops	436	236	160	5	275	3	60	-
all crops	56819	20467	25890	3868	73154	7577	20405	4105
<u>improved variety</u>								
paddy	4437	3747	2260	621	2017	1105	952	295
bazra	1	-	-	-	191	116	73	26
maize	59	52	18	6	203	106	102	21
wheat	35489	28028	12436	3094	1253	129	213	48
all cereals	40073	31871	14739	3721	3667	1456	1340	390
all pulses	112	29	18	15	88	11	24	12
all oil seeds	101	45	43	-	32	-	6	4
sugar cane	5754	5051	3988	1561	267	57	107	18
other crop commodities	651	498	396	22	124	2	35	16
all other crops	20	3	4	5	-	-	-	-
all crops	46711	37497	19188	5324	4178	1526	1512	440

Table (10) : Estimates of area under crop applied with fertiliser having nutrients N only, NP only, NPK^{only} and others by crop/crop group separately for irrigated and unirrigated crops

General Sample

Uttar Pradesh

crop/crop group	irrigated area (hectares 00) applied with fertilisers having nutrients					unirrigated area (hectares 00) applied with fertilisers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
jaddy	8333	355	278	58	9024	4290	94	47	13	4444
bagra	151	-	-	-	151	1058	63	12	2	1135
maize	1595	89	17	3	1704	1780	40	88	8	1916
wheat	27128	4512	2882	423	34945	182	13	22	23	240
all cereals	38321	5055	3263	491	47130	7475	218	172	46	7911
all pulses	454	25	19	38	536	272	7	5	5	289
all oil seeds	420	45	62	2	529	273	7	-	24	304
sugar cane	5966	1074	330	94	7464	277	74	4	1	356
other crop commodities	1838	106	79	43	2066	236	4	-	-	240
all other crops	219	16	4	-	239	3	-	-	-	3
all crops	47218	6321	3757	668	57964	8536	310	181	76	9103

N¹ only means nitrogenous fertilisers like ammonium sulphate, ammonium sulphate nitrate, calcium ammonium nitrate, ammonium chloride and urea.

NP¹ only means nitrogenous phosphate fertilisers like ammonium phosphate, ammonium phosphate sulphate, diammonium phosphate, urea ammonium phosphate and ammonium nitrate phosphate. It also includes phosphate fertilisers like single super phosphate, triple super phosphate and pafos in combination with nitrogenous fertilisers containing 'N' only.

NPK¹ means nitrogenous phosphate potash fertilisers like nitrophosphate and NPK complex fertilisers. It also includes potash fertilisers like sulphate of potash in combination with 'NP' fertilisers noted under 'NP' above.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (11) : Estimates of area under irrigated crops by crop/crop group and type of irrigation

Uttar Pradesh

General Sample

crop/crop group	area (hectares '00) under irrigated crop by type of irrigation										flow and lift combined	
	flow					lift						
	canal	diver- version scheme	tank	others	total	well	tube- well	river	tank	others		total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				47	7391	1411	6523	450	620	285	9289	16680
paddy	6912	386	46	47	69	50	382		2	-	434	503
bajra	69			4	417	253	1956		6	15	2230	2647
maize	412	1		92	13554	7630	28065	881	2592	1003	40171	53725
wheat	13021	331	110	143	22404	10639	40047	1414	3506	1441	57047	79451
all cereals	21353	736	172	5	1755	1192	2875	62	363	79	4571	6326
all pulses	1698	18	34	1	613	102	715	4	59	14	894	1507
all oil seeds	610		2	6	2484	841	6618	101	149	95	7804	10288
sugar cane	2291	182	5	13	1179	866	3262	28	69	98	4323	5502
other crop commodities	1157	1	8	3	66	153	236		1	-	390	456
all other crops	63	-										
all crops	27172	937	221	171	28501	13793	53753	1609	4147	1727	75029	103530

Table (12) Estimates of area under irrigated crops by crop/crop group and number of times irrigated

General Sample

Uttar Pradesh

crop/crop group	crop area (hectares 00) by number of times irrigated					total
	once	twice	thrice	more than thrice	n r.	
(C)	(1)	(2)	(3)	(4)	(5)	(6)
paddy	5213	4516	3246	3534	171	16680
bazra	406	38	14	1	44	503
maize	1684	722	150	41	50	2647
wheat	9209	14839	13436	15915	326	53725
all cereals	18965	21888	17771	20087	740	79451
all pulses	3836	1355	557	388	190	6326
all oil seeds'	715	479	176	90	47	1507
sugar cane	1023	1396	1626	6212	31	10288
other crop commodities	1864	792	605	2103	138	5502
all other crops	98	49	34	271	4	456
all crops	26501	25959	20769	29151	1150	103530

Table (13) : Estimates of area under irrigated crop with subsidiary irrigation and without subsidiary irrigation by crop/crop group

General Sample

State : Uttar Pradesh

crop/crop group	area (hectares 00) under irrigated crop			total
	with subsidiary irrigation	without subsidiary irrigation		
(0)	(1)	(2)	(3)	
pa dy	750	15930	16680	
bazra	8	495	503	
maize	65	2582	2647	
wheat	2242	51483	53725	
all cereals	3199	76252	79451	
all pulses	99	6227	6326	
all oil seeds	22	1485	1507	
sugar cane	1168	9120	10288	
other crop commodities	334	5168	5502	
all other crops	25	431	456	
all crop	4847	98683	103530	

Table (14) : Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes - 3 years or more) owned by households by size class of holding

General Sample

State : Uttar Pradesh

item of asset	Value (Rs.000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectare)						
	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0 & above	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implement</u>							
1. tractor			97636	212930	630212	312988	1253766
2. power tiller			840	3777	18088	5043	27748
3. sprayer			685	2461	2384	149	5679
4. duster	-	234	-	1004	90	-	1328
5. thresher	784	2074	21767	39911	59592	11560	135688
6. cane crusher	8076	15103	37854	38225	27267	6166	32691
7. oil crusher	259	270	676	1594	992	-	3791
8. all	9119	17681	159458	299902	738625	335906	1560691
<u>irrigation equipments</u>							
1. electric pumps	10062	72275	255486	496778	392555	57430	1284586
2. diesel pumps	24208	139085	521371	732385	575806	71152	2064007
3. wind mill	-	-	1343	141	-	-	1484
4. moat	6489	8696	11876	5739	1492	181	34473
5. persial wheel	21740	81170	155299	136354	64127	2580	461270
6. others (animal driver)	3036	4739	9185	19318	6172	28	42478
7. counter poise	1617	2276	2350	1403	2032	56	9734
8. manual pumps	1233	742	1834	735	402	-	4946
9. others	1869	3068	6145	3902	1067	20	16071
10. all	70254	312051	964889	1396755	1043653	131447	3919049
<u>draught animals</u>							
1. cattle	612479	1180569	1940603	1608504	909992	118696	6370843
2. buffaloes	42658	108148	185217	157630	90558	6855	592066
3. all	655137	1288717	2126820	1766134	1000550	125551	6962909
total	734510	1618449	3251167	3462791	2782828	592904	12442649

NATIONAL SAMPLE SURVEY : 31ST ROUND : JULY 1978 - JUNE 1976

Table (15) : Estimates of number of households reporting pumpsets and number of pumpsets possessed by size class of household holding

General Sample

Uttar Pradesh

size class of household holding (hectare)	number of households reporting pumpsets	number of pumpsets*
(0)	(1)	(2)
less than 0.5	245	250
0.5 - 1.0	887	899
1.0 - 2.0	2292	2334
2.0 - 4.0	2854	2967
4.0 - 10.0	1919	2049
10.0 & above	211	225
all	8408	8722

* In this and subsequent tables on number of pumpsets, the number includes those possessed jointly as well as on rent. In the case of jointly possessed, instead of the household share of the number possessed, the total number possessed jointly has been counted as possessed by the sample household. Hence the estimated number of pumpsets is inflated to some extent.

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (16) : Estimates of number of pumpsets possessed by source of power and by horse power

General Sample		Uttar Pradesh			
horse power		number of pumpsets(00) having source of power *			
		electricity	diesel	both electricity & diesel	total
(0)		(1)	(2)	(3)	(4)
less than	1.0	11		6	17
1.0	- 2.0	6			6
2.0	- 3.0				
3.0	- 4.0	12			12
4.0	- 5.0		42		42
5.0	or above	2604	5833	6	8443
n.r		18	184		202
all		2651	6059	12	8722

* see foot-note in table (15).

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (17) : Estimates of number of pumpsets and households share of value of owned equipments by type of possession and source of power

General Sample

Uttar Pradesh

source of power	possession type							
	owned singly		owned jointly		rented		total	
	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hh's share of value of equipments Rs.(000)	no. of pumpsets (00)	hhs share of value of equipments Rs.(000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	1306	915989	1333	367717	12	-	2651	1283706
diesel	3472	1683342	2375	443594	212	-	6059	2126936
both electricity & diesel	12	1455	-	-	-	-	12	1455
total	4790	2600786	3708	811311	224	-	8722	3412097

see footnote on table (15).

NATIONAL SAMPLE SURVEY, 31ST ROUND, JULY 1976 - JUNE 1977

Table (18) Estimates of number of pumpsets* reporting area irrigated by source of power and source of water separately by possession type

General Sample

Uttar Pradesh

source of power	no. of pumpsets (00) reporting area irrigated by source of water					total
	well	tube well	rivers & streams	others		
(0)	(1)	(2)	(3)	(4)	(5)	(6)
<u>owned singly</u>						
1. electricity	91	1215	-	-	-	1306
2. diesel	195	3109	47	121	-	3472
3. both electricity & diesel	6	6	-	-	-	12
.. total	292	4330	47	121	-	4790
<u>owned jointly</u>						
1. electricity	63	1270	-	-	-	1333
2. diesel	104	2209	18	44	-	2375
3. both electricity & diesel	-	-	-	-	-	-
.. total	167	3479	18	44	-	3708
<u>rented</u>						
1. electricity	-	12	-	-	-	12
2. diesel	18	188	-	6	-	212
3. both electricity & diesel	-	-	-	-	-	-
.. total	18	200	-	6	-	224
<u>total</u>						
1. electricity	154	2497	-	-	-	2651
2. diesel	217	5506	65	171	-	6059
3. both electricity & diesel	6	6	-	-	-	12
.. total	377	8009	65	171	-	8722

* see footnote on table 15

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (19) : Estimates of expenses for irrigation on other than capital account by items of expenditure

General Sample

Uttar Pradesh

items of expenditure	amount (Rs.000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	55564
water charges	86877
other expenses on independently owned lift irrigation	702402
share of expenses on joint arrangements	216472
receipt from sale of water	(-) 453271
total	1679934

APPENDIX II

Concepts and Definitions

2.1 Some of the important concepts and definitions adopted in the survey are given below.

2.2 Household : A household was defined as a group of persons normally living together and taking food from a common kitchen. Thus a household was considered as constituted by normally resident members including temporary stay^a/ways but excluding temporary visitors.

2.3 Household holding : A holding was defined as constituted by all land possessed by the household. Land possessed was taken as the sum of land owned but not leased out and land taken on lease. In case of joint ownership or joint leasing in by the sample household with other households, only the sample household's share of such land was taken as the part of the household holding.

2.4 Land owned : A plot of land was considered to be owned by the household if the right of permanent heritable possession with or without right to transfer title was vested in a member or members of the household. Land owned included also land held directly from Government under a grant, lease or assignment. Land owned by a household might be leased out to another household without losing ownership right.

2.5 Irrigation : Irrigation was considered to denote the practice of purposely providing land with water by artificial means for crop production.

2.6 Types of irrigation : Irrigation was broadly grouped into two categories namely flow irrigation and lift irrigation. When irrigation did not involve any use of power for lifting of water, it was considered under the flow type. Flow irrigation covered irrigation by canal, diversion scheme, tank and others not involving any lifting of water. Irrigation from wells, tube-wells, rivers, tanks and other sources using some lift arrangement constituted lift irrigation.

2.7 Net area irrigated : When a plot of land was irrigated more than once in the same or different seasons of an agricultural year, its area was considered only once for obtaining net area irrigated. In case the plot was having irrigation facility from more than one source of flow and/or lift irrigation, the major source was treated as the type of irrigation for the plot. For deciding the major source, the gross area irrigated was taken as the base.

2.8 Net area sown : When a plot of land was sown more than once in the same or different seasons of an agricultural year, its area was considered only once for obtaining net area sown.

2.9 Gross crop area : When a plot of land was cropped more than once in an agricultural year, the area of the land was counted as many times as it was cropped in obtaining the gross cropped area for the plot.

2.10 Irrigable land : Land belonging to a household was broadly classified into two groups - land having irrigation facilities and land not having any irrigation facility. Land having irrigation facilities was considered as irrigable irrespective of whether it was irrigated or not in 1975-76.

2.11 Value of agricultural/irrigation equipments : The value of agricultural/irrigation equipment owned by the household was evaluated at the price prevailing in the local market for the item in its present condition. For items owned jointly along with other households only the share of value of the household has been presented in Table 14. Similar procedure was followed for value of draught animals owned by the households.

Appendix - III

Sample Design and Estimation Procedure

1. For the household survey on irrigation in the 31st round, there was a general sample of villages distributed all over the country. Also, there was a special sample of villages from the command areas of (i) major irrigation projects commissioned after 1947 and (ii) medium irrigation projects commissioned after 1964. The sample design and estimation procedure for the survey carried out in the general sample of villages is discussed in the following paragraphs.

2. Sample design and sample size : The design was a stratified two stage with district (or portion of district) as stratum, village as the first stage unit and household as the second stage unit. In the central sample, number of villages planned to be surveyed was 8304.

3. Stratification : There were 63 regions all over India coming under the geographical coverage of the present survey. These regions were formed during 1965 in such a way that they did not cut across the State/Union Territory boundaries. Also excepting a few regions in some States, none of the regions cut across district boundaries. Each district, contained within a region with 1971 district census rural population less than 1.5 million, formed one basic stratum by itself. Districts with more than 1.5 million 1971 census rural population were divided into two or more basic strata by grouping contiguous tehsils (or sub-divisions in the States of Bihar, Orissa and West Bengal) on consideration of homogeneity, density of rural population, crop pattern etc. so that the rural population of each basic stratum, so formed, was less than 1.5 million.

4. Determination of sample size : The sample size of the general sample in each State/Union Territory was decided taking into consideration available strength of the field staff in the State/Union Territory, resources required for special samples from the command areas of irrigation projects and other subjects of enquiry of the round.

5. Allocation of sample size : Total number of sample villages for a State was first allocated to different regions roughly in proportion to the total irrigated area in them. The regional allocation was then distributed among the constituent strata in proportion to population.

6. Selection of villages : With each stratum, allotted number of villages was selected with probability proportional to 1971 population and with replacement. The list of 1971 census villages was used as the sampling frame.

7. Revenue village : Unit of selection was ~~the~~ census village. But in cases where census village did not coincide with revenue village or census village could not be uniquely identified, the revenue village corresponding to the selected census village was surveyed.

8. Hamlet group : Sample villages with large population were divided into a number of hamlet groups having nearly equal population content. One of such hamlet groups was selected at random and the survey was confined to the selected hamlet group only.

9. Selection of a household : From each sample village, a fixed number of households remained at the regional level was initially selected circularly systematically after arranging the households in a specified order. The sample households selected from each sample village were divided into three mutually exclusive categories. Category 1 consisted of households which had cultivated land during the agricultural year 1975-76 with irrigation (or which usually used irrigation), category 2 consisted of remaining households which had cultivated land during the 1975-76 without irrigation and category 3 consisted of households which had not cultivated any land during 1975-76. For the households of category 1, particulars of irrigation etc. were collected in schedule 22.1, for the households of category 2, particulars of unirrigated household holding were collected in schedule 22.2 and for the households belonging to category 3, no schedule was canvassed.

10. Estimation procedure : The following notation are used in the formulae for obtaining various estimates :

r : subscript for r -th region of a State/Union Territory

s : subscript for s -th stratum

i : subscript for i -th surveyed village/hamlet group

j : subscript for j -th sample household

f : adjustment factor for the survey of revenue village

V : village population

m : number of surveyed villages

h : number of sample households initially selected

P : total rural population (Used for selection)

D : number of hamlet groups actually formed

y : value of the characteristic

Y : total value of the characteristic in the population

Estimates of state totals ; Estimate for a state/Union Territory is obtained as the sum of the estimates of the constituent regions. Estimate of the regional total Y_r of the characteristic y is given by $\hat{Y}_r = K_r \sum_s \sum_{i,j} \hat{y}_{rsij}$ where $\sum_{i,j}$ extends over households surveyed for schedule 22.1 and

$$M_r = \frac{\hat{H}_r}{\sum_s \sum_i h_{rsi}} ; \text{ where } \hat{H}_r \text{ is the estimate of the total rural households}$$

in the r -th region and is given by

$$\hat{H}_r = \sum_s (P_{rs}/m_{rs}) \sum_i^{m_{rs}} \frac{D_{rsi} H_{rsi}}{f_{rsi} p_{rsi}} ,$$

where H_{rsi} is total households in the sample hamlet group/village.

State level estimate \hat{Y}_s is obtained as $\hat{Y}_s = \sum_r \hat{Y}_r$, where the summation extends over all the regions.

Estimates of ratios ; Let \hat{Y}_s and \hat{X}_s be the estimates of the aggregates at the State/U.T. level of the two characteristics y and x respectively. The ratio of the aggregates of the two characteristics $R_s = \frac{Y_s}{X_s}$ is estimated by the ratio of the estimates of Y_s and X_s and is given by

$$\hat{R}_s = \frac{\hat{Y}_s}{\hat{X}_s} .$$