

प्रारूप/संशोधित
DRAFT/REVISED



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

राष्ट्रीय प्रतिदर्श सर्वेक्षण संगठन

NATIONAL SAMPLE SURVEY ORGANISATION

इक्कीसवां दौर

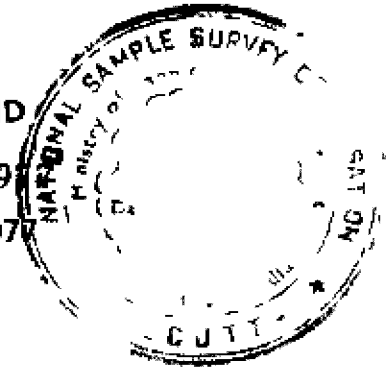
THIRTY FIRST ROUND

जुलाई 1976—जून 1977

JULY 1976—JUNE 1977

संख्या 300/6

NUMBER 300/6



पारिवारिक जोतों में सिंचाई के उपयोग के
संबंध में टिप्पणियाँ सहित तालिकाएँ
गुजरात, केरल, तमिलनाडु, दिल्ली, गोआ-
दामन और दीव तथा पॉण्डिचेरी

TABLES WITH NOTES ON USE OF IRRIGATION
IN HOUSEHOLD HOLDINGS

GUJRAT, KERALA, TAMILNADU, DELHI
GOA-DAMAN & DIU AND PONDICHERRY

एप्रिल 1985

फरवरी 1985

सांख्यिकी विभाग

DEPARTMENT OF STATISTICS

नई दिल्ली

NEW DELHI

Note of Caution

Being the scanned copy of old NSS report, this document may suffer from following limitations -

- i. Poor Quality of the Scanned images.
- ii. Page(s) missing in between.
- iii. Improper sequencing/arrangement.

NATIONAL SAMPLE SURVEY ORGANISATION

TABLES WITH NOTES

ON

USE OF IRRIGATION IN HOUSEHOLD HOLDINGS

NSS 31AT ROUND JULY 1976-JUNE 1977

GUJARAT, KERALA, TAMIL NADU, DELHI,
GOA-DAMAN & DIU AND PONDICHERRY

C O N T E N T S

	<u>p a g e</u>
Section I : Introduction & Summary	1 -3
Appendix I : list of Tables and the Tables	4 -112
Appendix II : Concepts and Definitions	113 -114
Appendix III : Sample Design and Estimation Procedure	115 -117

NATIONAL SAMPLE SURVEY

TABLES WITH NOTES

ON

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

GUJARAT, KERALA, TAMILNADU, DELHI,
GOA, DAMAN & DIU AND PONDICHERY

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 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/ 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.

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

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 un-irrigated household holding 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/Union Territories namely, Gujarat, Kerala, Tamil Nadu, Delhi, Goa-Daman & Diu and Pondicherry. 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 these States and Union Territories 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.

^{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/union territories.

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

state/ union territory	no. of households (00) 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)
Gujarat	10585	35233	17917	34066	11038	1562	9476	1313	230	12	7
Kerala	11551	7991	4188	7222	2969	1071	1398	619	260	63	129
Tamil Nadu	30654	42230	25610	34462	20284	9759	10525	5790	41	3874	54
Delhi	378	749	610	717	558	55	503	51	3	-	1
Goa, Daman & Diu	217	163	87	147	78	66	12	-	27	1	38
Pondicherry	167	158	147	147	135	53	82	51	-	2	-

Table (A) contd.

state/ union territory	net area irrigated by lift					net area irrigated by lift					gross area irrigated			
	well	tube-well	river tank	others	others	electricity	others	others	others	others	gross area under crop	total	by flow	by lift
(0)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Gujarat	8430	762	105	148	31	3256	6220	3292	6002	182	40603	12209	2012	10197
Kerala	1090	-	179	357	272	312	1586	41	1788	69	9147	3853	1659	2194
Tamil Nadu	8749	1430	86	105	155	6775	3750	2635	7830	60	43613	25761	11752	14009
Delhi	33	469	-	-	1	208	295	69	423	11	1188	829	73	756
Goa, Daman & Diu	10	-	-	-	2	-	12	7	5	-	187	78	66	12
Pondicherry	12	70	-	-	-	78	4	6	76	-	210	180	74	106

Appendix - I

List of tables in the tables

table number	description of table	page number					
		Gujarat	Kerala	Karni Nadu	Loihi Coa, Pondi-Diu	Cherry	
(2)	(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 (i) usually using irrigation and (ii) usually not using irrigation	7	24	42	58	76	94
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	8	25	43	59	77	95
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		26	44	60	78	96
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	10	27	45	61	79	97
4	Estimates of net area irrigated by type of irrigation and ownership of the source of water for irrigation	11	28	455	62	80	98
5	Estimates of net area irrigated by ownership of lifting equipment and by source of power	12	29	46	63	81	99
6	Estimates of area having irrigation facility not irrigated by size class of holding and reasons for not irrigating	12	29	46	63	81	100

Table number	Description of table	Page number					
		Gujarat	Kerala	Tamil Nadu	Madhya Pradesh	Goa, Karnataka	Andhra Pradesh
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7	Estimates of number of parcels of irrigable land possessed, total area of plots, net area irrigated, net area not irrigated and net area sown by size class of parcels	13	30	47	64	82	101
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 unirrigated crops	14	31	48	65	83	102
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	15	32	49	66	84	103
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	16	33	50	67	85	104
11	Estimates of area under irrigated crops by crop/crop group and type of irrigation	17	34	51	68	86	105
12	Estimates of area under irrigated crops by crop/crop group and number of times irrigated	18	35	52	69	87	106

table number	description of table	page number					
		Gujarat	Kerala	Tamil Nadu	Delhi	Goa, Daman & Diu	Pondicherry
(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	18	35	52	69	87	106
14	Estimates of value of agricultural implements, irrigation equipments and draught animals (adult cattle and buffaloes - 5 years or more) owned by households by size class of holding	19	36	53	70	88	107
15	Estimates of number of households reporting pump sets and number of pump sets possessed by size class of holding	20	37	54	71	89	108
16	Estimates of number of pump sets possessed by source of power and by horse-power	20	38	54	72	90	109
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	55	73	91	110
18	Estimates of number of pump sets reporting area irrigated by source of power and source of water separately by possession type	22	40	56	74	92	111
19	Estimates of expenses for irrigation on other than capital account by items of expenditure	23	41	57	75	93	112

Tables 1 to 19 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	Gujarat
item	number
1. number of sample villages allotted for survey	312
2. number of sample villages actually surveyed	312
3. number of sample households surveyed for Schedule 22.1	3184
4. estimated number of total households (00) <u>a/</u>	35014
5. estimated number of cultivating households (00)	24070
i) usually using irrigation	10585
ii) usually not using irrigation <u>b/</u>	13485

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								Gujarat					
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			not 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	943	277	2	279	275	177	454	30	2	32	23	2	25
0.5 - 1.0	1388	830	6	836	819	494	1326	211	5	216	193	19	220
1.0 - 2.0	2436	2493	5	2498	2445	1202	3676	1087	13	1100	1021	36	1070
2.0 - 4.0	2845	4921	86	5007	4880	1746	6685	3105	32	3137	2979	80	3097
4.0 - 10.0	2481	7114	63	7177	6948	1642	8629	8302	49	8351	8035	222	8361
10.0 & above	492	2110	10	2120	2083	415	2514	4444	36	4480	4365	125	4546
all	10585	17745	172	17917	17450	5676	23284	17179	137	17316	16616	484	17319

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

Gujarat

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
(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	196	9	-	-	205	565	110	6	7	-	688	872
0.5 - 1.0	174	-	-	3	177	970	173	9	13	3	1168	1314
1.0 - 2.0	296	17	-	3	316	1771	221	37	24	3	2056	2317
2.0 - 4.0	280	17	3	3	303	2200	214	36	31	12	2493	2732
4.0 - 10.0	161	52	-	-	213	2118	89	16	20	5	2248	2404
10.0 & above	23	10	3	-	36	413	6	23	3	-	445	470
a l l	1130	105	6	9	1250	8037	813	127	98	23	9098	10109
	<u>net area irrigated (hectares 00)</u>											
less than 0.5	50	-	-	-	50	161	36	-	4	-	201	251
0.5 - 1.0	89	-	-	-	89	457	104	2	9	2	574	663
1.0 - 2.0	241	18	-	5	264	1284	207	19	34	5	1549	1813
2.0 - 4.0	444	46	7	2	499	2308	256	23	47	17	2651	3150
4.0 - 10.0	408	108	-	-	516	3305	153	8	51	7	3524	4040
10.0 & above	81	58	5	-	144	915	6	53	3	-	977	1121
a l l	1313	230	12	7	1562	8430	762	105	148	31	9476	11038

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						Gujarat					
	no. of households (00) reporting lift irrigation using						net area irrigated (hectares00) by lift using					
	electricity	diesel	wind-mill	animal	human	all	electricity	diesel	wind-mill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	490	137	-	58	3	688	142	45	-	13	1	201
0.5 - 1.0	504	341	3	309	11	1168	282	174	2	114	2	574
1.0 - 2.0	715	869	-	445	29	2056	670	646	-	228	5	1549
2.0 - 4.0	809	1347	-	324	13	2493	1014	1443	-	191	3	2651
4.0 - 10.0	464	1640	-	138	6	2248	957	2423	-	143	1	3524
10.0 & above	46	375	-	24	-	445	191	762	-	24	-	977
a l l	3026	4709	3	1298	62	9098	3256	5493	2	713	12	9476

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		Gujarat										
		net area irrigated (hectares 00) by type of irrigation										
ownership of source of water for irrigation	flow					lift						flow and 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)
Government	1313	230	-	5	1548	12	62	50	144	31	299	1847
Co-operative	-	-	-	-	-	4	7	24	-	-	35	35
Private-Joint	-	-	6	2	8	2647	509	9	4	-	3169	3177
Private-single	-	-	6	-	6	5767	184	22	-	-	5973	5979
a 1 1	1313	230	12	7	1562	8430	762	105	148	31	9476	11038

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

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

General Sample		Gujarat				
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	77	16	-	-	-	93
Co-operative	28	60	1	-	-	89
Private joint	1174	1931	-	184	3	3292
Private single	1977	3486	1	59	9	6002
All	3256	5	2	73	12	9476

Table (6) : Estimates of area irrigated by size class of holding and reason for not irrigating

General Sample		Gujarat		
size class of holding (hectares)	area (hectares 00)		reason for not irrigating	
	adequate	non-available	other reasons	all reasons
(0)	(1)	(2)	(3)	(4)
less than 0.5	3	12	10	25
0.5 - 1.0	48	54	62	164
1.0 - 2.0	85	251	301	637
2.0 - 4.0	164	897	690	1751
4.0 - 10.0	101	2096	691	2888
10.0 & above	78	690	179	947
All	479	4000	1933	6412

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		Gujarat			
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	191	6	4	1	5
0.05 - 0.1	620	44	34	7	41
0.1 - 0.2	1281	180	135	38	173
0.2 - 0.3	1925	451	368	73	441
0.3 - 0.4	1550	541	396	133	529
0.4 - 0.5	2400	1056	854	193	1047
0.5 - 1.0	4918	3580	2648	845	3493
1.0 - 2.0	3291	4579	3041	1369	4410
2.0 & above	2196	7480	3558	3753	7311
a l l	18412	17917	11038	6412	17450

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

Gujarat

crop/ crop group	area (hectares 00)						value (Rs. 000) of		
	under crop	applied with ferti- liser	manure	effec- ted by pests & dis- eases	sprayed with pesti- cides	of crop finally damaged	ferti- liser used	manure used	pesti- cides sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>irrigated crops</u>									
paddy	1052	966	785	165	88	77	27150	15423	537
jowar	217	120	121	32	21	4	2640	1987	243
bajra	571	385	355	151	19	14	8232	7589	217
wheat	4245	3549	1575	753	196	20	95559	24712	906
all cereals	6442	5268	2991	1133	350	115	139137	52439	1984
all pulses	95	46	36	3	-	-	1954	585	15
all oil seeds	860	580	435	267	62	1	9622	7328	257
cotton	2730	2267	2319	949	721	80	62863	37522	23741
all other crops	2082	1659	1087	316	60	33	58780	42247	718
all crops	12209	9820	6868	2668	1193	229	281456	140121	26715
<u>unirrigated crops</u>									
Paddy	1045	313	576	61	14	2	6065	9143	172
jowar	3495	554	1645	835	139	80	8112	18954	638
bozra	6224	1072	1701	3559	3323	134	16287	54418	982
wheat	273	8	20	6	3	-	241	476	15
all cereals	12649	2167	6627	4391	307	127	34688	95097	1521
all pulses	1369	67	288	102	8	-	3438	3556	157
all oil seeds	10448	4694	6298	2546	725	21	77487	67441	2254
cotton	2790	814	1192	1166	475	59	14512	12361	11354
all other crops	1139	259	389	115	12	1	5949	10096	391
all crops	28394	8001	14794	8320	1527	208	136074	188551	15677

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

State : Gujarat

crop/crop group	irrigated crop area (hectares 00)				unirrigated crop area (hectares 00)			
	total	applied with		affected by pests & diseases	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	729	669	569	97	1017	296	564	58
jowar	199	106	111	27	3439	536	1609	819
bazra	317	176	182	80	4037	547	2113	1873
wheat	3193	2631	1281	559	272	8	19	6
all cereals	4737	3774	2284	775	10353	1586	5124	2905
all pulses	95	46	36	3	1369	67	288	102
all oil seeds	833	563	423	265	10421	4692	6288	2537
cotton	895	579	746	416	2166	520	966	780
all other crops	1332	1164	664	267	1121	244	380	105
all crops	7892	6126	4153	1726	25429	7109	13046	6429
			<u>improved variety</u>					
paddy	323	297	216	68	28	17	12	3
jowar	18	14	10	5	56	18	36	16
bazra	254	209	173	71	2187	525	1446	1450
wheat	1052	918	294	194	1	-	1	-
all cereals	1705	1494	707	358	2296	581	1503	1486
all pulses	-	-	-	-	-	-	-	-
all oil seeds	27	17	12	2	27	2	10	9
cotton	1835	1688	1573	533	624	294	226	386
all other crops	750	495	423	49	18	15	9	10
all crops	4317	3694	2715	942	2965	892	1748	1891

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	Gujarat									
	irrigated area (hectares 00) applied with fertilizer 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	829	85	1	51	966	294	16	2	1	313
jowar	94	26	-	-	120	238	229	4	83	554
bajra	275	84	3	23	385	590	291	8	183	1072
wheat	2349	821	88	291	3549	8	-	-	-	8
all cereals	3706	1103	92	372	5268	1330	551	14	272	2167
all pulses	42	3	1	-	46	62	2	-	3	67
all oil seeds	370	130	-	80	580	551	3204	249	690	4694
cotton	1516	492	43	216	2267	450	342	9	13	814
all other crops	1348	157	40	114	1659	189	49	6	15	259
all crops	6976	1885	176	783	9820	2582	4148	278	993	8001

- JR. '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 pafos 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

Gujarat

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	diver- sion scheme	tank	others	total	well	tube- well	river	tank	others	total	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
paddy	434	233	-	-	667	232	147	3	-	3	395	1052
jowar	41	-	-	-	41	131	2	28	12	3	176	217
bazra	13	-	1	-	14	490	31	4	32	-	557	571
wheat	419	4	10	3	436	3278	412	26	78	15	3809	4245
all cereals	929	237	11	3	1180	4445	595	68	132	22	5262	6442
all pulses	15	-	-	-	15	69	2	2	-	7	80	95
all oil seeds	148	-	-	-	148	608	78	12	14	-	712	860
cotton	333	-	-	3	336	2324	55	10	3	2	2394	2730
all other crops	327	-	2	4	333	1522	210	16	-	1	1749	2082
all crops	1752	237	13	10	2012		940	108	149	32	10197	12209

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 crop/crop group	Gujarat					
	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	84	205	211	534	18	1052
jowar	34	95	35	50	3	217
barra	56	119	81	300	15	571
wheat	11	74	214	3934	12	4245
all cereals	190	542	568	5091	51	6442
all pulses	3	29	18	30	15	95
all oil seeds	72	136	139	496	17	860
cotton	98	167	174	2272	19	2730
all other crops	72	50	176	1755	29	2082
all crops	435	924	1075	9644	131	12209

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

General Sample crop/crop group	Gujarat		
	area (hectares 00) under irrigated crop		
	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
paddy	3	1049	1052
jowar	-	217	217
barra	4	567	571
wheat	8	4237	4245
all cereals	15	6427	6442
all pulses	3	92	95
all oil seeds	16	844	860
cotton	72	2658	2730
all other crops	8	2074	2082
all crops	114	12095	12209

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		Gujarat					
item of asset	value (Rs.000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hañtars)						
	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	-	10500	19540	48685	105494	51513	235732
2. power tiller	-	-	-	-	2721	7561	10282
3. sprayer	-	35	1088	7524	5961	2143	16751
4. duster	-	-	166	834	1064	464	2228
5. thresher	-	-	1925	-	4700	3252	9877
6. cane crusher	-	-	-	1003	-	-	1003
7. oil crusher	-	-	1155	-	-	-	1155
8. a l l	-	10535	23874	58046	119940	64933	277328
irrigation equipments							
1. electric pumps	3500	21798	65412	114276	144305	24072	373363
2. diesel pumps	7185	32716	134297	302354	506522	161245	1144319
3. wind-mill	-	-	-	-	66	-	66
4. post	376	2574	6384	6250	4714	1316	21614
5. pèralan wheel	267	1180	257	2304	651	-	4759
6. others (animal driven)	-	154	177	260	-	-	591
7. counter poise	-	27	178	34	68	-	307
8. manual pumps	-	-	173	1092	462	320	2047
9. others	221	354	832	993	152	-	2552
10. a l l	11549	58803	207810	427563	656940	186953	1549618
draught animals							
1. cattle	24709	104113	274237	485436	611726	172737	1672958
2. buffaloes	595	2540	13890	7589	8590	-	33204
3. a l l	25304	106653	288127	493025	620316	172737	1706162
t o t a l	36853	175991	519811	978634	1397196	424623	3533108

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		Gujarat
size class of holding (hectare)	number of households reporting pump sets (00)	number of pump sets (00) possessed*
(0)	(1)	(2)
less than 0.5	60	60
0.5 - 1.0	224	227
1.0 - 2.0	749	757
2.0 - 4.0	1271	1366
4.0 - 10.0	1834	1998
10.0 & above	430	505
a l l	4568	4933

*In this and subsequent tables on number 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 number possessed, the total number possesses jointly has been counted as possessed by the sample household. Hence, the estimated number of pump sets is inflated to some extent

Table (16) : Estimates of number of pump sets possessed by source of power and horse-power

General Sample		Gujarat			
horse power	number of pumpsets (00) having source of power				total
	electricity	diesel	both electricity and diesel		
(0)	(1)	(2)	(3)	(4)	
less than 1 0	3	4	-	7	
1.0 - 2.0	4	3	-	7	
2.0 - 3.0	39	113	-	152	
3.0 - 4.0	95	25	-	120	
4.0 - 5.0	19	29	-	48	
5.0 & above	699	3739	3	4441	
M. F.	95	63	-	158	
a l l	954	3976	3	4933	

*see foot-note 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		Gujarat						
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)	hh's share of value of equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	461	268777	395	161383	98	-	954	430160
diesel	2399	915918	1559	359677	18	-	3976	1275595
both electricity & diesel	3	1155	-	-	-	-	3	1155
t o t a l	2863	1185850	1954	521060	116	-	4933	1706910

see foot note 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		Gujarat				
source of power	no of pumpsets (00) reporting area irrigated by source of water					total
	wall	tube-well	rivers & streams	others	N.R.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
<u>owned singly</u>						
1. electricity	454	7	-	-	-	461
2. diesel	2366	3	10	20	-	2399
3. both electricity & diesel	3	-	-	-	-	3
4. total	2823	10	10	20	-	2863
<u>owned jointly</u>						
1. electricity	345	39	11	-	-	395
2. diesel	1534	18	3	4	-	1559
3. both electricity & diesel	-	-	-	-	-	-
4. total	1879	57	14	4	-	1954
<u>rented</u>						
1. electricity	91	7	-	-	-	98
2. diesel	18	-	-	-	-	18
3. both electricity & diesel	-	-	-	-	-	-
4. total	109	7	-	-	-	116
<u>total</u>						
1. electricity	890	53	11	-	-	954
2. diesel	3918	21	13	24	-	3976
3. both electricity & diesel	3	-	-	-	-	3
4. total	4811	74	24	24	-	4933

* see foot note 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

<i>General</i> General Sample	Gujarat
items of expenditure	amount (in 000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	26365
water charges	143325
other expenses on independently owned lift irrigation	302533
share of expenses on joint arrangements	137827
receipt from sale of water	- 68411
t o t a l	541439

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

Table (O) : 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		Korala
i	t	number
e	m	
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	3755
4	estimated number of total households (OO) ³ a/	33043
5	estimated number of cultivating households (OO)	29451
	i) usually using irrigation	11551
	ii) usually not using irrigation b/	17900

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													Kerala	
size class of holding (hectare)	no. of households usually using irrigation (00)	irrigable land (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	7063	897	29	926	924	308	1236	301	10	311	177	40	218	
0.5 - 1.0	1996	861	38	899	892	359	1254	506	23	529	428	96	525	
1.0 - 2.0	1584	1124	26	1150	1141	442	1589	1004	42	1046	885	154	1043	
2.0 - 4.0	725	825	24	849	840	288	1130	1123	28	1151	993	92	1087	
4.0 - 10.0	165	298	12	310	307	76	384	613	13	626	518	36	554	
10.0 & above	18	54	-	54	53	10	63	140	-	140	64	-	64	
all classes	11551	4059	129	4188	4157	1483	5656	3687	116	3803	3065	418	3491	

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

Kerala

size class of holding (hectares)	type of irrigation										flow & lift combined	
	flow irrigation					lift irrigation						
	canal	diversion	tank	others	total	well	tube- well	river	tank	others		total
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
number of households (00) reporting area irrigated												
below 0.5	457	116	45	187	802	4812	-	267	1212	729	6439	6925
0.5 - 1.0	414	245	51	131	839	999	-	137	267	205	1448	1928
1.0 - 2.0	402	236	36	107	775	756	-	113 255	205 255	150	1100	1515
2.0 - 4.0	129	186	39	42	390	227	-	73	88	97	421	700
4.0 - 10.0	54	30	12	9	104	27	-	24	33	12	82	165
10.0 & above	3	3	3	-	9	12	-	3	-	-	12	18
all classes	1459	816	186	476	2919	6833	-	617	1855	1193	9502	11251
net area irrigated (hectares 00)												
below 0.5	72	15	5	24	116	414	-	23	100	68	605	721
0.5 - 1.0	118	51	15	46	230	253	-	39	79	60	431	661
1.0 - 2.0	229	79	9	38	355	286	-	45	86	53	470	825
2.0 - 4.0	115	78	21	20	234	111	-	50	63	78	302	536
4.0 - 10.0	82	25	13	1	121	22	-	20	29	13	84	205
10.0 & above	3	12	-	-	15	4	-	2	-	-	6	21
all classes	619	260	63	129	1071	1090	-	179	357	272	1898	2969

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 household holding and by source of power

General Sample

Kerala

size class of holding (hectare)	no. of households (00) reporting lift irrigation using						net area irrigated (hectares 00) by lift using					
	elec- tricity		wind- mill		animal human all		elec- tricity		wind- mill		animal human all	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	280	334		107	5820	6439	35	51	-	14	508	605
0.5 - 1.0	156	152	-	67	1147	148	54	56	-	16	305	431
1.0 - 2.0	178	187	-	64	765	1100	96	97	-	25	252	470
2.0 - 4.0	104	125	-	3	251	421	105	90	-	-	107	302
4.0 - 10.0	21	30	-	-	51	82	22	37	-	-	25	84
10.0 & above	-	3	-	-	9	12	-	2	-	-	4	6
a l l	739	831	-	241	8043	9502	312	333	-	52	1201	1898

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

Kerala

ownership of source of water by irrigation	net area irrigated (hectares 00) by type of irrigation											flow & lift comb.
	flow					lift					all lift	
	canal	diversion scheme	tank	others	all flow	well	tube well	river	tank	others		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	609	140	20	62	831	7	-	161	19	80	267	1098
Co-operative	1	1	3	-	5	1	-	-	-	13	14	19
Private joint	0	25	-	-	25	14	-	1	13	4	32	57
Private joint	9	94	40	67	210	1068	-	17	325	175	1585	1795
all	619	260	63	129	1071	1090	-	179	357	272	1898	2969

Table 5 : Estimates of net area irrigated by ownership of lifting equipment and by source of ~~water~~ ^{Power}

General Sample

Kerala

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	6	7	-	-	-	13
Co-operative	51	5	-	-	-	56
Private joint	38	2	-	-	1	41
Private single	217	319	-	52	1200	1788
a l l	312	333	-	52	1201	1898

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 size class of holding (hectare)	Kerala area (hectares 00) by reason for not irrigating			
	adequate rainfall	non-avail- ability of water	other reasons	all reasons.
(0)	(1)	(2)	(3)	(4)
less than 0.5	17	43	143	203
0.5 - 1.0	39	51	141	231
1.0 - 2.0	54	92	170	316
2.0 - 4.0	60	64	180	304
4.0 - 10.0	11	19	72	102
10.0 & above	28	4	-	32
a l l	209	273	706	1188

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 size class of parcels (hectare.)	number of parcels (00)	Kerala 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	3194	86	72	12	84
0.05 - 0.10	3215	228	189	36	225
0.10 - 0.20	4273	602	494	107	601
0.20 - 0.30	2454	582	462	112	574
0.30 - 0.40	1362	467	342	122	464
0.40 - 0.50	857	372	266	106	372
0.50 - 1.00	1426	980	1689	281	970
1.00 - 2.00	396	533	304	225	529
2.00 & above	119	338	151	187	338
a l l	17296	4188	2969	1188	4157

Parcel : A plot or contiguously located plots having a common source of irrigation facility possessed by the sample 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 crop 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

Kerala

crop/crop group	area (hectares 00)						value (Rs. 000) of			
	under crop	applied with fertiliser	applied with manure	affected by pests & disease	sprayed with pesticides	of crop finally damaged	fertiliser used	manure used	pesticides sprayed	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<u>irrigated crop</u>										
Paddy	2387	2029	2108	1651	1670	89	82228	75002	21992	
all cereals	2393	2031	2111	1653	1672	89	82341	75148	22043	
all pulses	3	-	-	-	-	-	20	62	3	
all oil seeds	-	-	-	-	-	-	-	28	-	
other crop commodity	1406	195	1305	488	171	6	7562	82185	3826	
all other crop	51	8	45	23	-	-	392	1831	67	
all crops	3853	2234	3461	2164	1843	95	90315	159254	25939	
<u>unirrigated crops</u>										
paddy	1085	687	1022	496	435	33	23732	37721	3775	
all cereals	1120	689	1044	519	438	33	23800	37869	3787	
all pulses	81	2	32	7	24	1191	38	529	3	
all oil seeds	68	16	52	14	-	7	60	775	14	
other crop commodity	3788	562	1784	625	257	5	17290	58888	4142	
all other crop	237	19	67	91	20	-	1466	4087	122	
all crops	5294	1288	2979	1256	739	1235	42654	102120	8068	

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

Table (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 varieties of seed.

General Sample

Kerala

crop/crop group	irrigated crop area(hectares 00)				unirrigated crop area(hectares 00)			
	under crop	applied with fertiliser	applied with manure	affected by pests & diseases	under crop	applied with fertiliser	applied with manure	affected by pests & diseases
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			<u>ordinary variety</u>					
paddy	1206	896	1119	688	772	409	726	305
all cereals	1212	898	1122	690	809	411	748	328
all pulses	3	-	-	-	30	1	31	6
all oil seeds	-	-	-	-	68	16	52	14
other crop commodity	1384	186	1284	475	3661	477	1731	595
all other crops	51	8	45	23	237	19	67	91
all crops	2650	1092	2451	1188	4855	924	2629	1034
			<u>improved variety</u>					
paddy	1181	1133	989	963	311	278	296	191
all cereals	1181	1133	989	963	311	278	296	191
all pulses					1	1	1	1
all oil seeds								
other crop commodity	22	9	21	3	127	85	53	30
all other crops								
all crops	1203	1142	1010	976	439	364	350	222

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

Table 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.

General Sample

Kerala

crop/crop group (0)	irrigated area (hectares 00) applied with fertilisers having nutrients					unirrigated area (hectares 00) applied with fertilisers having nutrients.				
	N only (1)	NP only (2)	NPL only (3)	others (4)	total (5)	N only (6)	NP only (7)	NPK only (8)	others (9)	total (10)
Paddy	369	550	831	279	2029	172	226	203	86	687
all cereals	369	550	833	279	2031	172	228	203	86	689
all pulses									2	2
all oil seeds									16	16
other crop commodity	9	7	130	49	195	11	26	352	173	562
all other crops			8		8	2		12	5	19
all crops	378	557	971	328	2234	185	254	567	282	1288

'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 pafos 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 and crop group and type of irrigation

General Sample

Kerala

crop/cro group	area under irrigated crops (hectares 00) by type of irrigation											flow & lift comb.
	f l o w					l i f t						
	canal	diver- sion scheme	tank	others	total	well	tube well	river	tank	others		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
paddy	923	393	61	219	1596	220 222	-	179	201 203	191	791 795	2387
all cereals	923	393	63	219	1598	228	-	179	203	191	799	2393
all pulses	-	1	2	-	3	-	-	-	-	-	-	3
all oil seeds	-	-	-	-	-	-	-	-	-	-	-	-
other crop commodity	34	5	16	1	56	920 923	-	60	220	147	1347 1350	1406
all other crops	-	-	1	1	2	-	-	1	-	-	49 48	51
all crops	957	399	82	221	1659	1193	-	240	423	338	2194	3853

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		Kerala			
crop/crop group	crop area (hectares 00) by number of times irrigated				
	once	twice	thrice	more than thrice	total
(0)	(1)	(2)	(3)	(4)	(5)
paddy	6	37	51	2293	2387
all cereals	6	37	51	2299	2393
all pulses	-	-	-	3	3
all oil seeds	-	-	-	-	-
other crop commodity	-	22	40	1344	1406
all other crops	1	4	8	38	51
all crops	7	63	99	3684	3853

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

General Sample		Kerala		
crop/crop group	area (hectares 00) under irrigated crops			
	with subsidiary irrigation	without subsidiary irrigation	total	
(0)	(1)	(2)	(3)	
paddy	74	2313	2387	
all cereals	74	2319	2393	
all pulses	2	1	3	
all oil seeds	-	-	-	
other crop commodity	15	1391	1406	
all other crops	-	51	51	
all crops	91	3762	3853	

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

adult

Table 14 : Estimates of value of agricultural implements, irrigation equipments and/cattle and buffaloes owned by households by size class of household holding

General Sample

Kerala

Items of assets	value (Rs.000) of agricultural implements, irrigation equipments and cattle and buffaloes 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 class
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor		16324					16324
2. power tiller				1632	6776		8408
3. sprayer	100	532	1418	2902	710	62	5724
4. duster					136		136
5. thresher							
6. cane crusher							
7. oil crusher							
8. total	100	16856	1418	4534	7622	62	30592
<u>irrigation equipments</u>							
1. electric pumps	9375	22020	24205	23507	5136		84243
2. diesel pumps	3661	12215	26104	23053	10229	921	76183
3. wind mill	706						706
4. moat	685	613	762	66			2126
5. persian wheel	18	163	77	570			828
6. others (animal driven)	26	32	108	108			274
7. counter poise	964	877	1033	774	90	9	3747
8. manual pumps	236			154			390
9. others	4993	2833	2746	1534	1220	11	13337
10. total	20664	38753	55035	49766	16675	941	181834
<u>cattle and buffaloes</u>							
1. cattle	5677	14057	29650	21022	7068	1996	79470
2. buffaloes	2252	6848	16550	9005	5605	1842	42102
3. total	7929	20905	46200	30027	12673	3838	121572
grand total	28693	76514	102653	84327	36970	4841	333998

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

Kerala

class size/of household holding (hectare)	number of house- holds reporting pumpsets (00)	number of pumpsets (00)
(0)	(1)	(2)
below - 0.5	248	251
0.5 - 1.0	224	227
1.0 - 2.0	285	311
2.0 - 4.0	178	200
4.0 - 10.0	42	46
10.0 & above	3	3
all classes	980	1038

* 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

Kerala

horse power (0.0)	number of pumpsets(00) having source of power*			
	elec- tricity	diesel	both elec- tricity & diesel	total
(1)	(2)	(3)	(4)	(5)
below 1.0	3	6		9
1.0 - 2.0	77	80		157
2.0 - 3.0	12	101		113
3.0 - 4.0	194	129	3	326
4.0 - 5.0	3	3		6
5.0 & above	86	160		246
n. r.	40	138	3	181
t o t a l	415	617	6	1038

* see foot note on Table 15

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

General Series

Kerala

source of power	possession type							
	owned singly		owned jointly		rented		total	
	no. of pumpsets* (00)	hh's share of value of Rs. (000)	no. of pumpsets* (00)	hh's share of value of Rs. (000)	no. of pumpsets* (00)	hh's share of value of Rs. (000)	no. of pumpsets* (00)	hh's share of value of Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	338	74893	22	986	5	-	415	758
diesel	261	70900	31	3230	325	-	617	74130
both electricity & diesel					6	-	6	
total	599	143	53	4	386	-		150009

* see foot note 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

Kerala

		nd. of pumpsets (00) reporting area irrigate by source of water				
source of power		open well	tube well	rivers & streams	others	total
(0)		(1)	(2)	(3)	(4)	(5)
<u>owned singly</u>						
1.	electricity	237	3	18	80	338
2.	diesel	163		43	55	261
3.	both electricity & diesel					
4.	total	400	3	61	135	599
<u>owned jointly</u>						
1.	electricity	19		3		22
2.	diesel	22		3	6	31
3.	both electricity & diesel					
4.	total	41	-	6	6	53
<u>rented</u>						
1.	electricity	31		12	12	55
2.	diesel	116		40	169	325
3.	both electricity & diesel				6	6
4.	total	147		52	187	386
<u>all</u>						
1.	electricity	287	3	33	92	415
2.	diesel	301		86	230	617
3.	both electricity & diesel				6	6
4.	total	588	3	119	328	1038

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

Kerala

item of expenditure	amount (Rs. '000)
(0)	(1)
repair and maintenance expenses on bunds and field channels	20495
water charges	12665
other expenses on independently owned lift irrigation	49490
share of expenses on joint arrangements	866
receipt from sale of water	(-) 805
t o t a l	62711

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

Table (C) : 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	Tamil Nadu
Item	Number
1. number of sample villages allotted for survey	672
2. number of sample villages actually surveyed	672
3. number of sample households surveyed for Schedule 22.1	8235
4. estimated number of total households (00) <u>a/</u>	69015
5. estimated number of cultivating households (00)	42803
i) usually using irrigation	30654
ii) usually not using irrigation <u>b/</u>	12149

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 holding

General Sample

Tamil Nadu

size class of holding (hectare)	no. of households usually using irrigation (00)	irrigable land (hectares 00)						land without irrigation facility (hect. 00)					
		area possessed		not area sown	area cropped more than once	gross cropped area	area possessed		net area sown	area cropped more than once	gross cropped area		
(0)	(1)	(2)	(3)				(4)	(5)				(6)	(7)
less than 0.5	10500	1673	459	2332	2301	823	3155	410	25	435	270	17	290
0.5 - 1.0	7623	3386	784	4170	3884	1245	5184	1325	76	1401	1132	65	1235
1.0 - 2.0	6936	5344	1021	6365	5819	2130	8032	3163	147	3310	2682	122	2819
2.0 - 4.0	3776	5408	747	6155	5551	1843	7468	4934	1421	6355	3153	220	3624
4.0 - 10.0	1632	4875	371	5246	4603	1665	6268	3765	118	3803	3142	169	3332
10.0 & above	187	1244	98	1342	1079	193	1272	1189	47	1236	846	14	879
all classes	30654	22130	3480	25610	23237	7099	31429	14786	1034	16620	11225	615	12184

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

General Sample											Pamil Nadu	
size class of holding	type of irrigation											flow and lift combined
	flow irrigation					lift irrigation						
	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)
no. of households (00) reporting area irrigated												
below 0.5	2103	47	2993	69	5199	3514	803	178	217	571	5249	10323
0.5 - 1.0	1431	19	1859	25	3321	3845	461	53	86	117	4520	7588
1.0 - 2.0	1338	22	1306	9	2745	4140	337	56	101	102	4665	6927
2.0 - 4.0	720	13	825	16	1567	2306	202	19	47	67	2595	3768
4.0 - 10.0	360	13	355	6	732	1068	108	22	32	27	1212	1629
10.0 & above	42	-	56	-	98	123	5	-	3	-	123	107
all classes	5994	114	7474	116	13662	14996	1916	320	406	804	18364	30422
net area irrigated (hectares 00)'												
below 0.5	472	6	638	15	1131	736	184	15	19	28	982	2113
0.5 - 1.0	805	9	834	8	1656	1535	258	12	22	43	1870	3526
1.0 - 2.0	1346	9	890	6	2257	2276	327	27	40	10	2600	4931
2.0 - 4.0	1514	10	816	14	2354	2199	330	11	11	44	2595	4949
4.0 - 10.0	1347	7	548	11	1913	1696	315	21	12	30	2074	3907
10.0 & above	306	-	148	-	454	77	16	-	1	-	324	770
all classes	5790	41	3074	54	9759	8749	1430	86	105	155	10525	20204

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

General Sample							Tamil Nadu					
size class of holding	no. of hhs (00) reporting lift irrigation						net area irrigated (hectares 00) by lift irrigation					
	city	diesel	wind mill	animal	human	all	city	diesel	windmill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	1557	284	-	205	1393	5249	399	52	-	433	98	902
0.5 - 1.0	1675	378	-	2077	790	4520	933	163	-	714	60	1870
1.0 - 2.0	2173	479	-	1597	416	4665	1640	316	-	646	78	2680
2.0 - 4.0	1434	306	3	634	218	2595	1866	296	26	347	60	2595
4.0 - 10.0	718	201	-	206	87	1218	1646	1250	-	141	37	2074
10.0 & above	90	17	-	10	6	123	291	29	-	3	1	324
all	7647	1665	3	6539	2510	10364	6772	1106	26	2284	334	10525

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

General Sample						Tamil Nadu						
ownership of source of water for irrigation	net area irrigated (hectares 00) by type of irrigation										lift & flow combined	
	flow					lift						
	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	5777	41	3868	34	9720	26	1	73	87	59	246	9966
co-operative	-	-	-	1	-	-	-	-	-	-	-	-
private joint	2	-	3	1	6	3070	111	10	1	1	3193	3199
private single	11	-	3	119	33	5693	1318	3	17	95	7086	7119
all	5790	41	3874	54	9759	16749	1430	86	105	155	10525	20284

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	Tamil Nadu					
	net area irrigated (in '00) by source of power					
	electricity	diesel	wind-mill	animal	human	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)
government	30	1	-	1	25	57
co-operative	1	2	-	-	-	3
private joint	1036	290	26	472	3	2635
private single	4908	805	-	1011	306	7830
all	6775	1106	26	2284	334	10525

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

General Sample	Tamil Nadu			
	area (hectares '00) by reason for not irrigating			
	adequate rain fall	non availability of water	other reasons	all reasons
(0)	(1)	(2)	(3)	(4)
less than 0.5	4	166	10	180 ⁺
0.5 - 1.0	2	302	54	358
1.0 - 2.0	9	809	70	888
2.0 - 4.0	5	371	226	602
4.0 - 10.0	1	562	53	616
10.0 & above	-	301	-	301
all	21	2511	421	2953

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.

Tamil Nadu

General sample

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	5316	126	114	9	123
0.05 - 0.10	6064	441	304	29	413
0.10 - 0.20	11624	1636	1444	140	1584
0.20 - 0.30	10957	2604	2335	166	2501
0.30 - 0.40	4230	1428	1235	108	1343
0.40 - 0.50	7636	3199	2760	337	3097
0.50 - 1.00	9645	7967	6548	625	7173
1.00 - 2.00	3981	4109	2961	796	3757
2.00 & above	1277	4100	2503	743	3246
a 1 1	60738	25610	20284	2953	23237

Sd

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 (C): 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		Tamil Nadu								
Crop/ crop group	area (hectares 00)					value of (rs. 000.) of				
	under crop	applied with manure	affected by pests and diseases	sprayed with pesticides	of crops finally damaged	fertiliser used	manure used	pesticides sprayed		
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<u>irrigated crops</u>										
paddy	10700	17.5	15675	11117	11547	023	744452	315656	93726	
jowar	1029	1.5	591	209	106	20	0744	16544	1430	
all cereals	21490	10269	17477	11627	11993	005	776093	359193	97690	
all pulses	102	5	16	60	67	-	329	396	223	
all oilseeds	1622	67.1	934	403	409	37	19527	21012	4963	
sugar cane	560	513	393	129	114	5	53040	14707	2232	
cotton	51	1.4	206	379	309	27	34490	0631	34090	
other crop/ commodity	957	392	560	191	170	24	17560	23979	4574	
all other crops	499	352	404	252	255	52	10600	14202	3059	
all crops	25761	20669	20070	13129	13405	1030	920627	442200	147639	
<u>unirrigated crops</u>										
paddy	1321	522	1040	301	106	20	0605	10705	1245	
jowar	3119	152	1363	305	90	40	920	16650	444	
all cereals	0553	090	4324	750	360	93	12152	65910	2453	
all pulses	2331	7	232	77	9	3	07	2727	50	
all oilseeds	4495	304	3001	720	352	25	7157	42009	2537	
sugar cane	96	90	27	21	21	-	329	005	16	
cotton	494	50	243	50	52	5	992	3350	2355	
other crop/ commodity	1610	02	367	71	70	14	2606	10172	1106	
all other crops	264	75	132	30	25	12	1200	2562	604	
all crops	17002	1570	0326	1743	309	152	24611	120435	9201	

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		Tamil Nadu							
crop/crop group	irrigated crop area (hectares 00)				unirrigated crop area (hectares 00)				
	total	applied with fertiliser man- ure	applied with man- ure	affected by pests & diseases	total	applied with fertiliser man- ure	applied with man- ure	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	8109	6000	7250	3445	1022	452	016	246	
jowar	936	269	565	177	3029	139	1330	203	
all cereals	10500	7077	8959	3067	8113	008	4030	600	
all pulses	99	2	14	67	2324	7	232	77	
all oil seeds	1547	650	882	443	4373	303	2933	707	
sugar cane	423	374	306	101	00	74	26	20	
cotton	175	127	120	93	408	7	213	22	
other crop/ commodities	950	305	551	109	1617	01	367	70	
all other crops	499	362	404	252	250	74	131	30	
all crops	14201	9777	11244	5012	17173	1434	7940	1514	
<u>i m p r o v e d v a r i e t y</u>									
paddy	10679	10247	8477	7671	299	60	232	55	
jowar	93	56	26	32	90	13	25	22	
all cereals	10910	10392	8510	7760	440	02	206	70	
all pulses	3	3	2	1	7	-	-	-	
all oil seeds	75	24	52	40	123	1	60	21	
sugar cane	145	139	87	20	16	16	1	1	
cotton	330	327	150	206	06	43	30	20	
other crop / commodities	9	7	9	2	1	1	-	1	
all other crops	-	-	-	-	6	1	1	-	
all crops	11400	10092	8026	8117	679	144	306	129	

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

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

General sample

Tamil Nadu

crop/crop group	irrigated crop area (hectares 00) applied with fertilisers having nutrients					unirrigated crop area (hectares 00) applied with fertilisers having nutrients				
	N only	NP only	NPK only	others	total	N only	NP only	NPK only	others	total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
paddy	5059	1500	9224	1104	17055	305	29	159	29	522
jowar	161	30	107	19	325	67	32	40	5	152
all cereals	5709	1653	9600	1299	18269	526	62	221	01	090
all pulses	-	-	5	-	5	2	1	4	-	7
all oil seeds	59	21	303	211	64	46	135	159	44	304
sugar cane	00	14	204	135	513	12	-	42	36	90
cotton	62	47	266	79	454	25	-	10	7	50
other crop commodities	154	19	155	64	392	6	2	56	10	82
all other crops	157	25	162	10	362	46	-	20	1	75
all crops	6221	1779	10063	1806	20669	663	200	520	107	1570

'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 phosphatic 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.

'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.

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

General Sample

Tamil Nadu

crop/crop group	Irrigated crop area (hectares 00) by type of irrigation											
	flow type					lift type						flow & lift combined
	canal	diver- sion scheme	tank	others	total	well	tube well	river	tank	others	total	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
paddy	6538	55	4361	56	11010	6295	1264	70	72	77	7778	18788
jowar	56	-	5	30	91	932	3	1	-	2	938	1029
all cereals	6683	57	4446	87	11273	6570	1402	82	78	85	10217	21490
all pulses	7	-	8	-	15	46	5	-	10	26	87	102
all oil seeds	213	-	21	9	249	1049	271	17	13	26	1373	1622
sugar cane	52	-	7	-	59	426	77	6	-	-	509	568
cotton	54	-	6	-	60	415	38	-	-	-	453	513
other crop commo- dities	38	-	22	-	60	765	05	9	8	25	892	952
all other crops	6	-	30	-	36	463	4	5	2	4	478	514
all crops	7059	57	4540	96	11752	11734	1882	116	111	166	14009	25761

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

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

General Sample

Tamil Nadu

crop/crop group	crop area (hectares 00) by number of times irrigated				
	once	twice	thrice	more than thrice	total
(0)	(1)	(2)	(3)	(4)	(5)
paddy	155	140	143	18350	18788
jowar	20	78	48	883	1029
all cereals	203	278	255	20754	21490
all pulses	9	3	-	90	102
all oil seeds	25	105	109	1383	1622
sugar cane	1	5	1	561	568
cotton	9	5	9	490	513
other crop commodities	8	19	33	709	769
all other crops	13	48	29	607	697
all crops	268	463	436	24594	25761

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

General Sample

Tamil Nadu

	irrigated crop area (hectares 00)		
	with subsidiary irrigation	without subsidiary irrigation	total
	(1)	(2)	(3)
paddy	2621	16167	18788
jowar	18	1011	1029
all cereals	2772	18718	21490
all pulses	67	35	102
all oil seeds	124	1498	1622
sugar cane	105	463	568
cotton	74	439	513
other crop commodities	44	906	950
all other crops	18	498	516
all crops	3204	22557	25761

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

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

General Sample

State - Tamil Nadu

Items of asset	value of (Rs.000) of agricultural implements, irrigation equipments and cattle & buffaloes by size class of holding						
	less than 0.5	0.5 to 1.0	1.0 to 2.0	2.0 to 4.0	4.0 to 10.0	10.0 & above	all classes
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor	9500			44549	112545	30107	196701
2. power tiller			3190	3469	26840	1595	35094
3. sprayer	112	255	798	2857	4041	3048	11111
4. duster		105		399	80	103	767
5. thresher					26		26
6. cane crusher			2273	2239	4943	2233	11688
7. oil crusher			336				336
8. total	9612	360	6597	53513	148475	37166	255723
<u>irrigation equipments</u>							
1. electric pumps	90954	250218	511658	495927	355315	74095	1786167
2. diesel pumps	18843	58444	112585	110931	86851	11361	390955
3. wind mill							
4. moat	16933	23940	21128	11040	5291	729	79061
5. persion wheel	47	383		585	710		1725
6. other (animal drawn)	2293	1799	1089	342	374	64	5961
7. countar poise	1907	806	1853	1405	1085	141	7297
8. manual pumps	834	95	476	168	92		1665
9. others	1375	639	539	554	312		3419
total	141186	336424	649320	620952	1450030	86330	2284250
<u>Adult cattle and buffaloes</u>							
1. cattle	134127	230346	310000	270040	204404	56572	1205505
2. buffaloes	3774	9376	8515	5731	3042	798	31236
total	137901	239722	318515	275779	207446	57370	1236741
grand total	280699	576506	974448	950244	805951	180866	3776714

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

State : Tamil Nadu

size class of household holding (hectare)	number of households reporting pumpsets (00)	number of pumpsets
(0)	(1)	(2)
below 0.5	1071	1090
0.5 - 1.0	1900	2150
1.0 - 2.0	2820	3244
2.0 - 4.0	1973	2534
4.0 - 10.0	1090	1790
10.0 & above	120	200
all classes	9070	11096

* In this and subsequent tables on number of pumpsets, the number includes those possessed jointly as well as on rest. In the case of jointly possessed, instead of the household share of the number possessed the total number possessed jointly has less 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 horse power

General Sample

horse power	number of pumpsets (00) having source of power*			
	electricity	diesel	both electricity & diesel	total
(0)	(1)	(2)	(3)	(4)
below 1.0	70	30	26	134
1.0 - 2.0	0			0
2.0 - 3.0		41		41
3.0 - 4.0	3640	206	6	3852
4.0 - 5.0		32		32
5.0 and above	5395	1615	19	7029
all classes	9121	1924	51	11096

* see footnote in table (15).

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

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

General Sample

Tamil Nadu

source of power	owned singly		owned jointly		rented		total	
	no. of pump-sets (00)	h.h. share of value of equipments (Rs.000)	no. of pump sets (00)	h.h. share of value of equipments	no. of pump sets (00)	h.h. share of value of equipments (Rs.000)	no. of pump sets (00)	h.h. share of value of equipments (Rs.000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	4209	1225012	4703	540395	208	--	9121	1765407
diesel	1054	315042	820	94832	50	-	1924	409874
both electricity & diesel	20	1910	23	1414	8	--	51	3324
total	5283	1541964	55466	636641	267	-	11096	2178605

* see footnote in table (15).

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

Table (10) : Estimates of number of pumpsets reporting area irrigated by source of power and source of water separately by possession type

General Sample

Tamil Nadu

source of power	number of the pumpsets (00) reporting area irrigated by source of water.				
	well	tube-well	divers and streams	others	total
(0)	(1)	(2)	(3)	(4)	(5)
	<u>owned singly</u>				
electricity	3869	403	8	29	4209
diesel	854	154	25	21	1054
electricity and diesel	13	5		2	20
total	4556	642	33	52	5283
	<u>owned jointly</u>				
electricity	4501	129		73	4703
diesel	730	24	45	21	820
electricity and diesel	14	8		1	23
total	5245	161	45	95	5546
	<u>rented</u>				
electricity	201	5		3	209
diesel	25	10	6	9	50
electricity and diesel	0				0
total	234		6	12	267
	<u>total</u>				
electricity	8391	617	8	105	9121
diesel	1609	183	76	51	1924
electricity and diesel	35	13		3	51
total	10035	810	84	159	11096

* see footnote in 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		Tamil Nadu
items of expenditure		amount (Rs.000)
(0)		(1)
repair and maintenance expenses of on bunds and field channels		115376
water charges		112005
other expences on independently owned lift irrigation		121191
share of expenses on joint arrangements		169207
receipt from sale of water	(-)	18103
total		499676

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	Delhi
item	number
1. number of sample villages allotted for survey	24
2. number of sample villages actually surveyed	24
3. number of sample households surveyed for Schedule 22.1	355
4. estimated number of total households (00) <u>a/</u>	1110
5. estimated number of cultivating households (00)	434
i) usually using irrigation	378
ii) usually not using irrigation <u>b/</u>	56

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

Delhi

size class of holding (hectare)	no. of house-holds (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
(1)	(2)	owned	leased in	total				(6)	(7)	(8)			
less than 0.5	92	19	5	24	24	20	44	5	-	5	3	1	4
0.5 - 1.0	61	33	2	35	34	25	59	7	-	7	6	1	7
1.0 - 2.0	92	104	5	109	109	76	185	18	2	20	17	7	24
2.0 - 4.0	74	156	11	167	162	101	263	41	-	41	35	9	44
4.0 - 10.0	55	210	-	210	205	152	357	66	-	66	57	26	83
10.0 & above	4	61	4	65	65	53	118	-	-	-	-	-	-
all	378	583	27	610	599	427	1026	137	2	139	118	44	162

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

Delhi

size class of holding (hectare)	f l o w				l i f t				flow & lift comb.			
	canal	diversion scheme	tank	others	all flow	tube well	river	tank		others	all lift	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
number of households (00) reporting area irrigated												
less than 0.5	3	-		1	4	14	74			1	86	90
0.5 - 1.0	7	-		1	8	9	47			-	56	60
1.0 - 2.0	24	-		1	25	13	64			-	77	92
2.0 - 4.0	16	1		-	17	7	55			-	62	73
4.0 - 10.0	9	-		1	10	6	45			-	50	55
10.0 & above	1	-		-	1	-	3			-	3	4
a l l	60	1		4	65	49	288			1	334	374
net area irrigated (hectare 00)												
less than 0.5	-	-		1	1	2	20			1	23	24
0.5 - 1.0	1	-		-	1	2	28			-	30	31
1.0 - 2.0	16	-		-	16	11	73			-	84	100
2.0 - 4.0	17	3		-	20	10	117			-	127	147
4.0 - 10.0	12	-		-	12	8	173			-	181	193
10.0 & above	5	-		-	5	-	58			-	58	63
a l l	51	3		1	55	33	469			1	503	558

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

Delhi

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	humal	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
less than 0.5	62	18		2	4	86	17	4		1	1	23
0.5 - 1.0	29	22		5	-	56	18	11		1	-	30
1.0 - 2.0	25	41		9	2	77	28	48		7	1	84
2.0 - 4.0	19	37		6	-	62	44	75		8	-	127
4.0 - 10.0	14	32		4	-	50	63	112		6	-	181
10.0 & above	1	2		-	-	3	38	20		-	-	58
a l l	150	152		26	6	334	208	270		23	2	503

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

National Sample

Delhi

ownership of water	net area irrigated (hectares 00) by type of irrigation											
	flow					lift						
	canal	diversion	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)
Government	51	-	-	-	51		10	-	-	-	10	61
Co-operative												
Private-joint	-	-	3	-	3	15	55	-	-	-	70	73
Private-single				1	1	18	404	-	-	1	423	424
a l l	51	-	3	1	55	33	469	-	-	1	503	558

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

Delhi

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	11	-	-	-	-	11
Co-operative	-	-	-	-	-	-
Private joint	31	29	-	9	-	69
Private single	166	241	-	14	2	423
a l l	208	270	-	23	2	503

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

General Sample

Delhi

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	-	-	-	-
0.5 - 1.0	-	-	2	2
1.0 - 2.0	-	5	3	8
2.0 - 4.0	-	3	13	16
4.0 - 10.0	-	6	9	15
10.0 & above	-	-	-	-
a l l	-	14	27	41

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

of

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

Delhi

size class of parcels (hectare)	number of parcels (00)	area (hectares 00)			
		total irrigable land	net area irrigated	net area not irri- gated	net area sown
(0)	(1)	(2)	(3)	(4)	(5)
less than 0.05	8	-	-	-	-
0.05 - 0.1	23	2	2	-	2
0.1 - 0.2	77	11	10	1	11
0.2 - 0.3	93	21	18	3	21
0.3 - 0.4	43	14	12	2	14
0.4 - 0.5	111	46	41	5	46
0.5 - 1.0	135	95	82	11	93
1.0 - 2.0	100	135	117	15	132
2.0 & above	71	286	276	4	280
a l l	661	610	558	41	599

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 disease (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

Delhi

crop/ crop group	area (hectares 00)					value (Rs. 0.00) of			
	under/crop	applied ferti- liser	with manure	affected by pests and disease	sprayed with pesti- cides	crop finally dama- ged	ferti- liser used	mani- ure used	pesti- cides sprayed
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>irrigated crops</u>									
bajra	169	10	73	-	-	123	364		
wheat	488	410	278	2	-	8043	2926		
all cereals	685	423	363	3	-	8238	3345		
all pulses	33	4	27			34	231		
all oil seeds	-	-				13			
other crop commodities	99	7	8	-	-	257	221	9	
all other crops	12	5	4	-	-	109	97	-	
all crops	829	439	402	3	-	8651	3894	9	
<u>unirrigated crops</u>									
bajra	126	16	30	10		240	432		
wheat	70	2	14			29	138		
all cereals	237	18	45	11		269	599		
all pulses	33		1	2			16		
all oil seeds									
other crop commodities	89	2	5			32	48		
all other crops	-	-	-	-		-	-		
all crops	359	20	51	13		301	663		

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/group separately for ordinary and improved varieties of seed.

General Sample

Delhi

crop/crop group	irrigated crop area (hectares 00)				unirrigated crop area (hectares 00)			
	total	applied with		affected by pests & dis- eases	total	applied with		affected by pests & dis- eases
		ferti- liser	manure			ferti- liser	manure	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ordinary variety								
bazra	119	5	51	-	84	8	22	8
wheat	78	40	25	1	42	2	3	-
all cereals	220	48	88	2	167	10	26	9
all pulses	33	4	27	-	33	-	9	2
all oil seeds	-	-	-	-	-	-	-	-
other crop commodities	99	7	6	-	89	2	5	-
all other crops	7	3	4	-	-	-	-	-
all crops	359	62	127	2	289	12	32	11
improved variety								
bazra	50	5	22	-	42	8	8	2
wheat	410	370	253	1	28	-	11	-
all cereals	465	375	275	1	70	8	19	2
all pulses	-	-	-	-	-	-	-	-
all oil seeds	-	-	-	-	-	-	-	-
other crop commodities	-	-	-	-	-	-	-	-
all other crops	5	2	-	-	-	-	-	-
all crops	470	377	275	1	70	8	19	2

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

Delhi

crop/crop groups	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)
barza	10	-	-	-	10	13	3	-	-	16
wheat	300	104	1	5	410	2	-	-	-	2
all cereals	312	105	1	5	423	15	3	-	-	18
all pulses	4	-	-	-	4	-	-	-	-	-
all oil seeds	-	-	-	-	-	-	-	-	-	-
other crop commodities	6	1	-	-	7	2	-	-	-	2
all other crops	3	1	-	1	5	-	-	-	-	-
all crops	325	107	1	6	439	17	3	-	-	20

'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 pafos 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.

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

General Sample

Delhi

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation											flow & lift combi- ned
	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)
bazra	9	-			9		160				160	169
wheat	39			1	40	27	421				448	488
all cereals	54	2		1	57	32	596				628	685
all pulses	6	1			7	-	26				26	33
all oil seeds							-				-	-
other crop commodities	7	-		-	7	1	90			1	92	99
all other crops	2				2	2	8				10	12
all crops	69	3		1	73	35	720			1	756	829

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

Delhi

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)
bazra	167	2	-	-	-	169
wheat	7	25	39	417	-	488
all cereals	191	31	42	418	3	685
all pulses	33	-	-	-	-	33
all oil seeds	-	-	-	-	-	-
other crop commodities	67	7	3	16	6	99
all other crops	-	-	1	10	1	12
all crops	291	38	46	444	10	829

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

General Sample

Delhi

crop/crop group	area (hectares 00) under irrigated crops			total
	with subsidiary irrigation	without subsidiary irrigation		
(0)	(1)	(2)	(3)	
bazra	-	169	169	
wheat	20	468	488	
all cereals	20	665	685	
all pulses	-	33	33	
all oil seeds	-	-	-	
other crop commodities	1	98	99	
all other crops	-	12	12	
all crops	21	808	829	

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 buffalo - 3 years or more) owned by households by size class of holding

General Sample

Delhi

value (Rs. 000) of agricultural implements, irrigation equipments and draught animals by size class of holding (hectare)

item of asset	less than 0.5	0.5-1.0	1.0-2.0	2.0-4.0	4.0-10.0	10.0& above	all
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor	-	-	-	13451	38716	9360	61527
2. power tiller	-	-	-	426	1238	-	166
3. sprayer	-	-	-	-	78	-	7
4. duster	-	-	-	-	14	-	7
5. thresher	-	52	103	1456	2064	728	440
6. cane crusher	-	-	23	-	-	-	2
7. oil crusher	-	-	-	-	-	-	-
8. all	-	52	126	15333	42110	10088	67709
<u>irrigation equipments</u>							
1. electric pumps	2129	1513	6512	5843	7614	2704	26315
2. diesel pumps	166	1633	5054	8193	9524	1872	26442
3. wind mill	-	-	-	-	-	-	-
4. moat	-	-	-	-	-	-	-
5. persian wheel	12	117	517	632	145	-	1423
6. others (animal driven)	-	359	829	1616	790	-	3594
7. counter poise	-	-	-	-	-	-	-
8. manual pumps	-	-	14	29	-	-	43
9. others	154	369	854	1062	623	-	3062
10. all	2461	3991	13780	17375	18696	4576	60879
<u>draught animals</u>							
1. cattle	520	1695	5574	9131	6985	520	24425
2. buffaloes	83	-	-	-	385	-	468
3. all	603	1695	5574	9131	7370	520	24893
total	3064	5738	19480	41839	68176	15184	153488

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	Delhi	
size class of household holding (hectare)	number of house-holds reporting pump sets (00)	number of pump sets (00)
(0)	(1)	(2)
less than 0.5	20	23
0.5 - 1.0	20	25
1.0 - 2.0	33	37
2.0 - 4.0	44	52
4.0 - 10.0	42	60
10.0 & above	3	9
a l l	162	206

* In this and subsequent tables on number 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 pump sets is inflated to some extent.

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

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

General Sample

Delhi

horse power	number of pump sets (00) of having source of power *			
	electricity	diesel	both elec- tricity & diesel	total
(0)	(1)	(2)	(3)	(4)
less than 1.0				
1.0 - 2.0				
2.0 - 3.0	1			1
3.0 - 4.0	65	3		68
4.0 - 5.0				
5.0 & above	41	86		127
n. r.		10		10
a l l	107	99		206

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

General Sample

Delhi

source of power :	possession type							
	owned singly		owned jointly		rented		total	
	no. of pump sets (00)	hh's share of value of equipments Rs. (000)	no. of pump sets (00)	hh's share of value of equipments Rs. (000)	no. of pump sets (00)	hh's share of value of equipments Rs. (000)	no. of pump sets (00)	hh's share of value of equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	47	19551	60	6718			107	26269
diesel	60	23273	26	3411			86	26684
both electricity & diesel	-	-	-	-			13	4
t o t a l	107	42824	86	10129	13		206	42918

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		Delhi				
source of water		no. of pump sets (00) reporting area irrigated by source of water				
		well	tube well	rivers & streams	others	n.r.
(0)	(1)	(2)	(3)	(4)	(5)	(6)
owned singly						
1. electricity	2	45				47
2. diesel	3	57				60
3. both electricity & diesel						
4. total	5	102				107
owned jointly						
1. electricity	15	45				60
2. diesel		25				26
3. both electricity & diesel						
4. total	15	70				86
rented						
1. electricity						
2. diesel		13				13
3. both electricity & diesel						
4. total		13				13
total						
1. electricity	17	90				107
2. diesel	3	95		1		99
3. both electricity & diesel						
4. total	20	185		1		206

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

General Sample

Delhi

items of expenditure	amount (Rs. 000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	1190
water charges	4703
other expenses on independently owned lift irrigation	9715
share of expenses on joint arrangements	2057
receipt from sale of water	-4046
t o t a l	13619

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	Goa, Daman & Diu
item	number
1. number of sample villages allotted for survey	40
2. number of sample villages actually surveyed	40
3. number of sample households surveyed for Schedule 22.1	322
4. estimated number of total households (00)	1221
5. estimated number of cultivating households (00)	616
i) usually using irrigation	217
ii) usually not using irrigation	399

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 by size class of household holding.

General Sample													Goa, Daman & Diu	
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	119	18	4	22	22	16	38	6	2	8	7	-	7	
0.5 - 1.0	51	14	7	21	20	12	32	14	3	17	16	-	16	
1.0 - 2.0	33	15	11	26	25	8	33	14	8	22	21	1	22	
2.0 - 4.0	10	10	6	16	15	2	17	11	2	13	12	1	13	
4.0 -10.0	4	2	-	2	2	-	2	10	11	21	7	-	7	
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-	-	
a 1 1	217	59	28	87	84	38	122	55	26	81	63	2	65	

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			Goa, Daman & Diu									
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)
number of households (00) reporting area irrigated												
less than 0.5	1	46	4	27	78	34	-	-	-	4	38	116
0.5 - 1.0	-	21	3	22	45	5	-	-	-	1	6	51
1.0 - 2.0	-	9	-	20	29	-	-	-	-	4	4	33
2.0 - 4.0	-	-	-	7	7	3	-	-	-	-	3	10
4.0 - 10.0	-	-	-	3	3	-	-	-	-	-	-	3
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a 1 1	1	76	7	79	162	42				9	51	213
net area irrigated (hectare 00)												
less than 0.5	-	9	1	5	15	5	-	-	-	-	5	20
0.5 - 1.0	-	9	-	8	17	2	-	-	-	-	2	19
1.0 - 2.0	-	8	-	13	21	-	-	-	-	2	2	23
2.0 - 4.0	-	1	-	11	12	3	-	-	-	-	3	15
4.0 - 10.0	-	-	-	1	1	-	-	-	-	-	-	1
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a 1 1	-	27	1	38	66	10				2	12	78

kcr.

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						Goa, Daman & Diu					
	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		34			4	38		5			-	5
0.5 - 1.0		5			1	6		2			-	2
1.0 - 2.0		-			4	4		-			2	2
2.0 (-) 4.0		2			1	3		2			1	3
4.0 - 10.0		-			-	-		-			-	-
10.0 & above		-			-	-		-			-	-
a 1 1		41			10	51		9			3	12

NATIO. AL 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

Goa, Daman & Diu

ownership of source of water for irrigation	net area irrigated (hectares 00) by type of irrigation											
	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)
government	-	8	4	38	46	-	-	-	-	0	6	46
co-operative	-	1	1	-	2	-	-	-	-	-	-	2
private - joint	-	18	-	-	18	7	-	-	-	-	7	25
private - single	-	-	-	-	-	3	-	-	-	2	5	5
a l l	-	27	5	38	66	10	-	-	-	2	12	78

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

Goa, Daman & Diu

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						
co-operative						
private joint		7				7
private single		2			3	5
a 1 1		9			3	12

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

General Sample

Goa, Daman & Diu

size class of holding (hectare)	area (hectares 00) by reason for not irrigating			
	adequate rainfall	non-availabi- lity of water	other reasons	all reasons
(0)	(1)	(2)	(3)	(4)
less than 0.5	-	1	-	1
0.5 - 1.0	-	1	-	1
1.0 - 2.0	-	1	3	4
2.0 - 4.0	-	-	-	-
4.0 - 10.0	-	-	-	-
10.0 & above	-	-	-	-
a 1 1	-	3	3	6

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, net area sown by size class of parcels

General Sample		Goa, Daman & Diu			
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	34	1	1	-	1
0.05 - 0.1	50	4	3	-	3
0.1 - 0.2	114	16	15	1	16
0.2 - 0.3	83	19	18	1	19
0.3 - 0.4	16	5	5	-	5
0.4 - 0.5	18	7	7	-	7
0.5 - 1.0	30	20	17	2	19
1.0 - 2.0	10	12	9	2	11
2.0 & above	2	3	3	-	3
a 1 1	357	87	78	6	84

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) 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 : Goa, Daman & Diu

crop/ crop group	area (hectares 00)						value (Rs.000) of			
	under crop	applied with		affec- ted by pests & disea- ses	sprayed with pesti- cides	of crops finally dama- ged	fertili- ser used	manure used	pesti- cides sprayed	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		<u>i r r i g a t e d c r o p s</u>								
paddy	51	51	45	30	28	6	3060	781	120	
all cereals	58	53	45	30	28	6	3143	798	122	
all pulses										
all oil seeds										
other crop com- modities	17	1	14	-	-	-	49	347	-	
all other crops	3	3	2	-	-	-	375	48	-	
all crops	78	57	61	30	28	6	3567	1193	122	
		<u>u n i r r i g a t e d c r o p s</u>								
paddy	63	32	42	9	4	4	1004	569	11	
all cereals	80	38	47	9	4	4	1107	697	11	
all pulses	2	-	1	1			6	8		
all oil seeds	-		-					2		
other crop commodities	27	5	5	-			76	102		
all other crops	6	-	-	-			1	3		
all crops	109	43	53	10	4	4	1190	812	11	

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 : Goa, Daman & Diu

crop/crop group	irrigated crop area (hectares 00)				unirrigated crop area (hectares 00)			
	total	applied with		affected by pests & diseases.	total	applied with		affected by pests diseases
		ferti- liser	manure			ferti- liser	manure	
(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>			
paddy	4	4	3	-	55	27	35	6
all cereals	9	6	3	-	72	33	40	6
all pulses					2	-	1	1
all oil seeds					-		-	
other crop commodities	17	1	14	-	27	5	5	-
all other crops	2	2	2	-	-	-	-	-
all crops	28	9	19	-	101	38	46	7
		<u>i m p r o v e d</u>			<u>v a r i e t y</u>			
Paddy	47	47	42	30	8	5	7	3
all cereals	49	47	42	30	8	5	7	3
all pulses								
all oil seeds								
other crop commodities								
all other crops	1	1	-	-	-	-	-	-
all crops	50	48	42	30	8	5	7	3

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

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

Goa, Daman & Diu

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	2	-	47	2	51	7	-	25	-	32
all cereals	2	-	47	4	53	9	-	29	-	38
all pulses	-	-	-	-	-	-	-	-	-	-
all oil seeds	-	-	-	-	-	-	-	-	-	-
other crop commodities	-	-	1	-	1	-	-	1	4	5
all other crops	-	-	2	-1	3	-	-	-	-	-
all crops	2	-	50	5	57	9	-	30	4	43

'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

Goa, Daman & Diu

crop/crop group	area (hectares 00) under irrigated crop by type of irrigation											
	f l o w					l i f t					flow and lift combined	
	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)
paddy		19	1	31	51	-		-		-	-	51
all cereals		19	1	32	52	5		-		1	6	58
all pulses												
all oilseeds												
other crop commodities		8	-	4	12	4				1	5	17
all other crops				2	2	1					1	3
all crops		27	1	38	66	10		4	-	2	12	78

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

Goa, Daman & Diu

crop/crop group	crop area(hectares 00)by number of times irrigated					
	once	twice	thrice	more than thrice	n.r.	total
	(1)	(2)	(3)	(4)	(5)	(6)
paddy	-	-	-	50	1	51
all cereals	-	-	-	57	1	58
all pulses						
all oilseeds						
other crop commodities	-	-	-	17	-	17
all other crops	-	-	-	3	-	3
all crops		-		77	1	78

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

General Sample

State : Goa, Daman & Diu

crop/crop group	area (hectares 00) under irrigated crop		
	with subsidiary irrigation	without subsi- diary irrigation	total
	(1)	(2)	(3)
paddy	1	50	51
all cereals	1	57	58
all pulses			
all oil seeds			
other crop commodities	1	16	17
all other crops	-	3	3
all crops	2	76	78

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

General Sample

State : Goa, Daman & Diu

Item of asset	value(%.000)of agricultural impelments,irrigation equipments and draught animals 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)
<u>agricultural implements</u>							
1. tractor	-	-	-	-	-	-	-
2. power tiller	-	-	-	-	-	-	-
3. sprayer	-	-	-	-	-	-	-
4. duster	-	-	-	-	-	-	-
5. thresher	-	-	-	-	-	-	-
6. cane crusher	-	-	-	-	-	-	-
7. oil crusher	-	-	-	-	-	-	-
8. all	-	-	-	-	-	-	-
<u>irrigation equipments</u>							
1. electric pumps	-	-	-	-	104	-	104
2. diesel pumps	3052	992	-	720	-	-	4764
3. wind mill	-	-	-	-	-	-	-
4. moat	-	-	-	-	-	-	-
5. persian wheel	248	88	-	-	-	-	336
6. others (animal driven)	-	-	-	-	-	-	-
7. counter poise	14	-	-	-	-	-	14
8. manual pumps	-	-	-	-	-	-	-
9. others	-	1	32	36	1	-	70
10. all	3314	1081	32	756	105	-	5288
<u>draught animals</u>							
1. cattle	3815	2717	1668	672	96	-	8968
2. buffaloes	642	184	540	133	-	-	1499
3. all	4457	2901	2208	805	96	-	10467
total	7771	3982	2240	1561	201	-	15755

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			Goa, Daman & Diu	
size class of household holding (hectare)			number of households reporting pumpsets (00)	number of pumpsets (00)*
(0)			(1)	(2)
less than	0.5		21	21
0.5	-	1.0	5	5
1.0	-	2.0		
2.0	-	4.0	3	3
4.0	-	10.0	1	1
10.0	&	above		
a	1	1	30	30

* 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.

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

General Sample			Goa, Daman & Diu			
number of pumpsets (00) having source of power*						
horse power			electricity	diesel	both electricity and diesel	total
(0)			(1)	(2)	(3)	(4)
less than	1.0					
1.0	-	2.0				
2.0	-	3.0	1			1
3.0	-	4.0				
4.0	-	5.0				
5.0	&	above	1	28		29
n.	r.					●
a	1	1	2	28		30

* see footnote in 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.

	General Sample				Goa, Daman & Diu			
	possession type							
	owned singly		owned jointly		rented		total	
source of power	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 equipments Rs. (000)
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
electricity	1	88	1	112	-	-	2	200
diesel	5	1760	22	2892	1	-	28	4652
both electricity & diesel	-	-	-	-	-	-	-	-
total	6	1848	23	3004	1	-	30	4852

see footnote in 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	Goa, Daman & Diu					total
	no. of pumpsets (00) reporting area irrigated by source of water					
source of water	open well	tube well	rivers & streams	others	N.R.	
(0)	(1)	(2)	(3)	(4)	(5)	(6)
owned singly						
electricity	1					1
diesel	5					5
both electricity & diesel						
t o t a l	6					6
owned jointly						
electricity	1					1
diesel	22					22
both electricity & diesel						
total	23					23
rented						
electricity						
diesel				1		1
both electricity & diesel						
t o t a l				1		1
total						
electricity	2					2
diesel	27			1		28
both electricity & diesel						
t o t a l	29			1		30

* see foot note 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

Goa, Daman & Diu

items of expenditure	amount (Rs.000)
(0)	(1)
repair and maintenance expenses of bunds and field channels	37
water charges	118
other expenses on independently owned lift irrigation	243
share of expenses on joint arrangements	308
receipt from sale of water	- 8
t o t a l	698

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

Table (c) : 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 i t e m	Pondicherry number
1. number of sample villages allotted for survey	40
2. number of sample villages actually surveyed	40
3. number of sample households surveyed for Schedule 22.1	270
4. estimated number of total households (00) <u>a/</u>	624
5. estimated number of cultivating households (00)	243
i) usually using irrigation	167
ii) usually not using irrigation <u>b/</u>	76

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

Pondicherry

size class of holding (hectare)	no. of households usually using irrigation (00)	irrigable land (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	84	11	4	15	15	5	20	2	-	2	1	-	1
0.5 - 1.0	34	14	7	21	19	7	26	2	1	3	2	-	2
1.0 - 2.0	26	19	15	34	33	15	49	1	1	2	1	-	1
2.0 - 4.0	15	21	15	36	33	16	49	3	-	3	3	-	3
4.0 - 10.0	8	31	10	41	40	18	59	1	-	1	-	-	-
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-	-
all classes	167	96	51	147	140	61	203	9	2	11	7	-	7

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

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

General Sample		Pondicherry										
size class of holding (hectare)	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)
no. of households (00) reporting area irrigated												
less than 0.5	5	-	3	-	8	10	45	1	10	9	74	81
0.5 - 1.0	7	-	4	-	10	3	21	-	-	1	24	34
1.0 - 2.0	9	-	-	-	9	3	14	-	-	-	17	25
2.0 - 4.0	6	-	-	-	6	1	7	-	-	1	9	15
4.0 - 10.0	4	-	-	-	4	1	5	-	-	1	6	8
10.0 & above												
a l l	31	-	7	-	37	18	92	1	10	12	130	163
net area irrigated (hectares 00)												
less than 0.5	1	-	1	-	2	2	10	-	-	-	12	14
0.5 - 1.0	5	-	1	-	6	1	11	-	-	-	12	18
1.0 - 2.0	12	-	-	-	12	3	18	-	-	-	21	33
2.0 - 4.0	14	-	-	-	14	1	16	-	-	-	17	31
4.0 - 10.0	19	-	-	-	19	5	15	-	-	-	20	39
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a l l	51	-	2	-	53	12	70	-	-	-	82	135

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

General Sample

Pondicherry

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)
less than 0.5	47	-	-	-	27	74	11	-	-	-	1	12
0.5 - 1.0	20	2	-	-	2	24	11	17	-	-	1	12
1.0 - 2.0	12	4	-	-	1	17	19	2	-	-	1	21
2.0 - 4.0	7	-	-	-	2	9	17	-	-	-	-	17
4.0 - 10.0	6	-	-	-	-	6	20	-	-	-	1	20
10.0 & above	-	-	-	-	-	-	-	-	-	-	-	-
a l l	92	6	-	-	32	130	78	3	-	-	1	82

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

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

General Sample

Pondicherry

ownership of source of water for irrigation	net area irrigated (hectares '00) by type of irrigation											
	canal	diversion scheme	tank	others	all flow	well	tube well	river	tank	others	all lift	flow & lift comb.
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Government	51	2	-	-	53	-	1	-	-	-	1	54
Co-operative	-	-	-	-	-	-	-	-	-	-	-	-
Private joint	-	-	-	-	-	-	5	-	-	-	5	5
Private single	-	-	-	-	-	12	64	-	-	-	76	76
a 1 1	51	2	-	-	53	12	70	-	-	-	82	135

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

General Sample

Pondicherry

ownership of lifting equipment	net area irrigated (hectares 00) by source of power					
	elec- tricity	diesel	wind mill	animal drawn	human drawn	all
(0)	(1)	(2)	(3)	(4)	(5)	(6)
Government	-	-	-	-	-	-
Co-operative	-	-	-	-	-	-
Private joint	6	-	-	-	-	6
Private single	72	3	-	-	1	76
a 1 1	78	3	-	-	1	82

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

Pondicherry

size class of holding (hectare)	area (hectares 00) by reason for not irrigating			
	adequate rainfall	non-availa- bility of water	other rea- sons	all rea- sons
(0)	(1)	(2)	(3)	(4)
less than 0.5		-	1	1
0.5 - 1.0		1	-	1
1.0 - 2.0		-	1	1
2.0 - 4.0		-	2	2
4.0 - 10.0		-	-	-
10.0 & above		-	-	-
all		1	4	5

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

General Sample		Pondicherry			
		area (hectares 00)			
size class of parcels (hectare)	number of parcels (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	27	1	-	-	-
0.05 - 0.1	18	1	1	-	1
0.1 - 0.2	46	6	6	-	6
0.2 - 0.3	46	12	11	1	12
0.3 - 0.4	7	2	2	-	2
0.4 - 0.5	28	12	10	-	10
0.5 - 1.0	50	35	32	1	33
1.0 - 2.0	35	45	43	1	44
2.0 & above	13	33	30	2	32
all classes	272	147	135	5	140

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) : Estimate of area (i) under crop (ii) applied with fertiliser, (iii) applied with manure, (iv) affected by pests & 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

Pondicherry

crop/crop group	area hectares (00)						value (Rs. 000) by			
	under crop	applied with fertilizer	applied with manure	affected by pest & diseased	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>										
1. paddy	146	140	120	121	113	5	6402	1572	791	102
2. all cereals	155	147	128	125	117	5	6768	1754	811	
3. all pulses	-	-	-	-	-	-	-	1	-	
4. all oil seeds	10	8	8	5	5	1	249	167	34	
5. all other crops	15	13	10	2	2	1	1903	492	51	
6. all crops	180	168	146	132	124	7	8920	2414	896	
<u>unirrigated crops</u>										
1. paddy	1	1	1	1	-	-	31	45	-	
2. all cereals	4	1	3	1	-	-	31	65	-	
3. all pulses	1	-	-	-	-	-	-	-	-	
4. all oil seeds	3	1	3	1	1	-	17	75	4	
5. all other crops	12	-	3	-	-	-	-	55	3	
6. all crops	30	2	9	2	1	-	48	195	7	

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

General Sample

Pondicherry

crop/crop group	irrigated crop area (hectares 00)				unirrigated crop area (hectares 00)			
	total area	applied with fertilizer	applied with manure	affected by pests & diseases	total area	applied with fertilizer	applied with manure	affected by pests & diseases
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>ordinary variety</u>								
1. paddy	52	49	48	39	1	1	1	1
2. all cereals	59	55	54	43	4	1	3	1
3. all pulses	-	-	-	-	11	-	-	-
4. all oil seeds	10	7	8	5	3	1	3	1
5. all other crops	12	10	9	2	12	-	2	-
6. all crops	81	72	71	50	30	2	8	2
<u>improved variety</u>								
1. paddy	94	91	72	81	-	-	1	-
2. all cereals	96	93	74	81	-	-	1	-
3. all pulses	-	-	-	-	-	-	-	-
4. all oil seeds	-	-	-	-	-	-	-	-
5. all other crops	3	3	1	1	-	-	-	-
6. all crops	99	96	75	82	-	-	1	-

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

Table (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

General Sample

Pondicherry

crop/crop group	irrigated area (hectares 00) applied with fertiliser having nutrients					unirrigated area (hectares 00) applied with fertiliser 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	140	-	-	-	140	-	-	-	1	1	104
all cereals	145	-	2	-	147	-	-	-	1	1	
all pulses	-	-	-	-	-	-	-	-	-	-	
all oil seeds	8	-	-	-	8	-	-	-	-	1	
all other crops	5	8	-	-	13	-	-	-	-	-	
all crops	158	8	2	-	168	168	-	-	1	2	

'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

Pondicherry

crop/crop group	area under irrigated crops (hectares 00) by type of irrigation											flow & lift comb.
	flow					lift					total	
	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	71	-	3	-	74	10	62	-	-	-	72	146
all cereals	71	-	3	-	74	10	71	-	-	-	81	155
all pulses	-	-	-	-	-	-	-	-	-	-	-	-
all oil seeds	-	-	-	-	-	1	5	-	-	-	10	10
all other crops	-	-	-	-	-	2	12	-	-	1	15	15
all crops	71	-	3	-	74	13	92	-	-	1	106	180

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

General Sample

Pondicherry

crop/crop group	crop area (hectares 00) by number of times irrigated				
	once	twice	thrice	more than thrice	total
(0)	(1)	(2)	(3)	(4)	(5)
paddy	-	-	-	146	146
all cereals	-	-	-	155	155
all pulses	-	-	-	-	-
all oil seeds	-	-	-	10	10
all other crops	-	-	-	15	15
all crops	-	-	-	180	180

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

General Sample

Pondicherry

crop/crop group	area (hectares 00) under irrigated crops		
	with subsidiary irrigation	without subsidiary irrigation	total
(0)	(1)	(2)	(3)
paddy	22	124	146
all cereals	22	133	155
all pulses	-	-	-
all oil seeds	-	10	10
all other crops	1	14	15
all crops	23	157	180

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 household holding

General Sample

Pondicherry

item of asset	value (Rs. 000) of agricultural implements, irrigation equipments and adult cattle and buffaloes						
	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 & all above classes	
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>agricultural implements</u>							
1. tractor				3441	2480	-	5921
2. power tiller							
3. sprayer							
4. duster			6	37	-	-	43
5. thresher			2	-	-	-	2
6. cane crusher							
7. oil crusher							
8. total			8	3478	2480	-	5966
<u>irrigation equipments</u>							
1. electric pump	1021	1148	9508	2096	2058	-	7831
2. diesel pump	47	114	465	-	-	-	626
3. wind-mill							
4. moat							
5. persian wheel							
6. others (animal driven)							
7. counter poise	3						3
8. manual pumps							
9. others	10	0	1				11
10. total	1081	1262	1974	2096	2058		8471
<u>adult cattle and buffaloes</u>							
1. cattle	307	625	288	991	660	-	2871
2. buffaloes	4	-	78	19	198	-	299
3. total	311	625	366	1010	858		3170
Grand total	1392	1887	2348	6584	5396	-	17607

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

Pondicherry

size class of holding (hectare)	no. of households reporting pumpsets (00)	no. of pumpsets (00) possessed
(0)	(1)	(2)
below 0.5	7	7
0.5 - 1.0	6	6
1.0 - 2.0	12	12
2.0 - 4.0	7	10
4.0 - 10.0	4	7
10.0 & above	-	-
a 1-1	36	42

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 horse power

General Sample

Pondicherry

horse-power	no. of pumpsets (00) having source of power*			
	elec- tricity	diesel	both electricity & diesel	total
(0)	(1)	(2)	(3)	(4)
below 1.0	-	-	-	-
1.0 - 2.0	-	-	-	-
2.0 - 3.0	-	-	-	-
3.0 - 4.0	-	-	-	-
4.0 - 5.0	-	-	-	-
5.0 & above	38	4	-	42
t o t a l	38	4	-	42

* see foot note on table 15

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

Table (17) : Estimates of number of pumpsets* (00) and household share of value of owned equipments (Rs.000) by type of possession and source of power

General Sample

Pondicherry

source of power	owned singly		possession type owned jointly		rented		total	
	no. of pump- sets	hh. share of value of equip- ments	no. of pump- sets	hh. share of value of equip- ments	no. of pump- sets	hh. share of value of equip- ments	no. of pump- sets	hh. share of value of equip- ments
	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
electricity	28	6564	9	1051	1	-	38	7615
diesel	2	540	1	52	1	-	4	592
electricity & diesel	-	-	-	-	-	-	-	-
t o t a l	30	7104	10	1103	2	-	42	8207

* see foot note 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

Pondicherry

source of power		no. of pumpsets (00) reporting area irrigated by source of water				total
		open-well	tube-well	rivers & streams	others	
(0)		(1)	(2)	(3)	(4)	(5)
<u>owned singly</u>						
1.	electricity	2	25	-	-	27
2.	diesel	-	2	-	-	2
3.	both electricity & diesel	-	-	-	-	-
4.	total	2	27	-	-	29
<u>owned jointly</u>						
1.	electricity	-	9	-	-	9
2.	diesel	1	-	-	-	1
3.	both electricity & diesel	-	-	-	-	-
4.	total	1	9	-	-	10
<u>rented</u>						
1.	electricity	1	-	-	-	1
2.	diesel	-	1	-	-	1
3.	both electricity & diesel	-	-	-	-	-
4.	total	1	1	-	-	2
<u>all</u>						
1.	electricity	3	34	-	-	37
2.	diesel	1	3	-	-	4
3.	both electricity & diesel	-	-	-	-	-
4.	total	4	37	-	-	41

* 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 item of expenditure

General Sample

Pondicherry

item of expenditure	amount (Rs. 000)
(0)	(1)
1. repair and maintenance expenditure on bunds and field channels.	625
2. water charges	2194
3. other expenses on independently owned lift irrigation	1347
4. share of expenses on joint arrangements	289
5. receipt from sale of water	(-) 257
6. t o t a l	4196

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 ~~aways~~ 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.

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 State 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 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 determined at the regional level was initially selected circular 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.
- p : 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 $\hat{Y}_r = M_r \sum_s \sum_j^{mrs} Y_{rsij}$

where \sum_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

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

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

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