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A socio-economic evaluation of the area profile in the context of agriculture sector of Jammu district of J&K state

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Abstract

An investigation entitled, "A socio-economic evaluation of Agriculture sector and the area profile of Jammu district of J&K state" was conducted in Jammu district of J&K state with the objective of studying the area profile of the district in context of Agriculture sector during the year 2015-16. The secondary data was collected from different authentic published sources pertaining to different variables of Agriculture sector like land use classification, area under different crops etc. The collected data was further analyzed and results were obtained in order to achieve the objectives of the study. Tabular analysis method was used for the working out the averages and percentages. It was found that among different components of occupational patterns, the majority (82 per cent) of the population was engaged in 'Others' sector followed by around 11 per cent population in agriculture sector. Around 93 per cent of the holdings were of the size of below 2 hectares. The net sown area for the year 2015-16 stood 103366 hectares which was around 43 per cent of the total reported area of the district. Out of total area sown, the highest area cultivated was under wheat crop followed by paddy crop. The paddy crop shared the highest area out of total irrigated area which stood around 53 per cent. Overall, the results showed that the farmers practiced the traditional paddy-wheat or maize-wheat based cropping systems.

Keywords: Cultivated area, irrigation, land use patterns, occupation, tubewell

Introduction

India is still largely a rural economy with 66 percent of the country's population living in rural areas (World Bank, 2019) and agriculture continues to be the mainstay of a large segment of this section of the population. Agriculture, with its allied sectors, is the largest source of livelihoods in India wherein 70 percent of its rural households still depend primarily on agriculture for their livelihood. Around 82 percent of farmers are small and marginal having operational land holding of less than 2 hectares. The small operational land area along with the fragmentation of land holding and above all the falling land productivity are compelling most of the rural population to take up non-farming sources of livelihood. The saga of agricultural development in India since Independence (1947) is inspiring one as it has been witnessing a continuous slow and gradual transformation from a subsistence based and labour-intensive system to a modernized, capital and knowledge intensive one due to development through planning and adoption of different strategies. However, this development has been accompanied by a sharp decline in its contribution towards the national GDP (from 30 percent in 1981 to 16.5 percent in 2019). But still Agriculture sector remains the largest employer of rural population in India as well as in J&K state. Hence, the present study was undertaken with the objective of studying the area profile of Jammu district of J&K state in context of Agriculture sector as the area profile of any study area comprises of many physical as well as economic factors. The physical factors consists of the components like soil, climate etc. and the economic factors include the factors like infrastructure, population etc. The evaluation of area profile forms a sound base for understanding the different parameters of the study area, which further help in policy formulations.

Materials and Methods

The Jammu district of J&K state was purposively selected for the present study. The secondary data issued by different authentic published sources was used for studying the area profile of Jammu district and the results so obtained were presented in different tables.

Tabular analysis method was used for the purpose of study.

Results and Discussion

The Jammu district derives its name from the city of Jammu which in turn, as per local traditions, is named after its founder, Raja Jambu Lochan, who is believed to have ruled the area somewhere in the 9th century A.D.

Location & Topography

Jammu district is located at 32.73°N and 74.87°E. It has an average elevation of 300 m (980 ft) a total geographical area of 2,342 km² including 2,089.87 km² rural area and 252.13 km² urban area. Jammu district falls in the submountaneous regions at the foothills of the Himalayas. It lies at uneven ridges of low heights at the Shivalik hills and is surrounded by the Shivalik range to the north, east and southeast while the Trikuta range of hills surrounds it in the northwest direction.

In Jammu district mainly alluvial soils are found, which are loamy with little clay content and contain small quantity of lime with high magnesium content.

The entire district could be divided into two regions:

- i). Area forming north side of Jammu-Khour-Chamb road (Chamb is occupied by Pakistan) and Jammu-Pathankot road)
- ii). Area falling on the south side side of Jammu-Khour-Chamb road (Chamb is occupied by Pakistan) and Jammu-Pathankot road)

The area lying in the northern part of the road is called '*Kandi*' area which is comparatively underdeveloped and is mostly rainfed. '*Nallahs*' arise criss-crossing the '*kandi*' area which are non fleshy and are quickly drained.

The area lying in the South side of the above mentioned roads is largely fed with canals and irrigated by the tubewells and is

more prosperous.

Climate and rainfall

Jammu district has a sub-tropical climate with hot and dry climate during summer and cold in winter. It experiences the extreme summer highs reaching 46 °C (115 °F), and temperatures in the winter months occasionally falling below 4 °C (39 °F). June is the hottest month while January is the coldest month. The monsoon starts towards the beginning of July and lasts till end of September. Average yearly precipitation is about 42 inches (1,100 mm).

Population

As per 2011 census the total population of the district (as per new demarcation) is 1529958 persons out of which the rural population is 764945 and the urban is 765013. The total number of males and females stood at 813821 & 716137 respectively. The district recorded population growth rate of 12.74 per cent which was far less than that of the J&K UT (23.71) during the decade 2001-2011.

The literacy level, as per 2011 census was 83.77 for the whole district out of which the same for males & females stood at 90.00 & 76.76 per cent respectively.

Working Force (Occupation pattern)

The results presented in the Table 1 showed the occupation patterns in study area of the working force. According to census 2011 the number of 410344 main worker in the district which stood at 251473 and 455685 during the census 1981 and 2001 respectively. The number of workers in the others category stood at 339588 (census, 2011). There were 47745 cultivators, 16414 agricultural labourers and 6597 persons were engaged in house hold industry (census, 2011).

Table 1: Occupation patterns (working force) in Jammu district

Sr. No.	Category	Census, 1981		Census, 2001		Census, 2011	
		Number	% age	Number	% age	Number	% age
1.	Cultivator	105684	42.03	113922	25.00	47745	11.64
2.	Agriculture Labour	13738	5.46	24724	5.43	16414	4.01
3.	Livestock/hunting/forestry	5983	2.38	-	-	-	-
4.	Mining & Quarrying	443	0.18	-	-	-	-
5.	*Manufacturing & processing other than household section	19047	7.57	-	-	-	-
6.	House Hold Industry	3884	1.54	6423	1.41	6597	1.61
7.	Construction	11864	4.72	-	-	-	-
8.	Trade & Commerce	24306	9.67	-	-	-	-
9.	Transport Storage & Communication	17186	6.83	-	-	-	-
10.	Others	49338	19.62	310616	68.16	339588	82.76
	Total	251473	100.00	455685	100.00	410344	100.00

Source: District Statistical Handbook, 2016-17, Govt. of J&K

Land holding according to different size classes

The number of area of operational holdings according to different size classes were presented in Table 2 which reflected that according to agriculture census, 2010-11, number of holdings below 01 hectare (marginal) stood at 110304 which occupied 41846.99 hectares of the total reported area with an average holding size of 0.38 hectares. The small category consisted of land holdings between 01 and 02 hectares of land. Wherein the total number of holdings was to the extent of 20890 with the area under holdings of 30744.29 hectares, with an average holding size of 1.47 hectares. The semi-medium category comprised of holdings

between the size of 02 hectares and 4 hectares was 7899 which held the total area under them of around 20885.40 hectares with an average area of around 2.64 hectares. The medium category of cultivators were having land holdings size between 04 and 10 hectares had 1097 number of holdings containing 5578.01 hectares of land with an average land holding size of 5.08 hectares. The large sized holdings having holding size of above 10 hectares were only 56 in number with area under them of around 2693.28 hectares and their average size holding stood at 48.09 hectares. The average holding size of all the classes was to the tune of 0.73 hectares.

Table 2: Land holding according to different size classes and holding sizes in Jammu district

Sr. No.	Size Class (hectares)	Holdings		Average holding size (hect.)	As %age of total	
		Number	Area (hect.)		Holding	Area
1.	Below 0.5	79562	19459.73	0.25	56.73	19.13
2.	0.5 – 1.0	30742	22387.26	0.73	21.92	22.00
3.	1.0 – 2.0	20890	30744.29	1.47	14.90	30.22
4.	2.0 – 3.0	5814	13839.70	2.38	4.15	13.60
5.	3.0 – 4.0	2085	7045.70	3.38	1.49	6.92
6.	4.0 – 5.0	667	2932.60	4.40	0.48	2.88
7.	5.0 – 7.5	376	2210.99	5.88	0.27	2.17
8.	7.5 – 10.0	54	434.42	8.04	0.04	0.43
9.	10.0 – 20.0	35	478.02	13.66	0.02	0.47
10.	20.0 & above	21	2215.26	105.49	0.01	2.18
All size classes		140246	101748	0.73	100.00	100.00

Source: District Statistical Handbook, 2016-17, Govt. of J&K

Land utilization patterns

The data related to total area and its classification in Jammu district was presented in Table 4.5. It was brought out from the table that the total area according to village papers stood

to the magnitude of 23783 hectares during the years 2017-2018. The area under forests other than the demarcated forests. It stood at 29793, 29912 and 30112 hectares respectively.

Table 3: Land utilization patterns (total area and its classification) in Jammu district (area in hectares)

Sr. No.	Particulars	2015-16	2016-17	2017-18	
1.	Total area according to village papers	237024 (100.00)	237831 (100.00)	237831 (100.00)	
2.	Area under forests	29793 (12.57)	29912 (12.58)	30112 (12.66)	
3.	Area not available for cultivation	Land put to non-agricultural uses (A)	34816 (14.69)	34816 (14.64)	34816 (14.64)
4.		Barren and uncultivable land (B)	34256 (14.45)	34256 (14.40)	34256 (14.40)
5.		Land under still water (C)	98 (0.04)	98 (0.04)	98 (0.04)
6.		Total (A+B+C)	69170 (29.18)	69170 (29.08)	69170 (29.08)
7.	Other uncultivable land excluding fallows	Permanent pastures & other grazing land (D)	4152 (1.75)	3736 (1.57)	2763 (1.16)
8.		Land under social forestry & miscellaneous tree crops not included in area sown (E)	12698 (5.36)	8228 (3.46)	8005 (3.37)
9.		Cultivable waste land (F)	11844 (5.00)	15797 (6.64)	15739 (6.62)
10.		Total (D + E + F)	28694 (12.11)	27761 (11.67)	26507 (11.15)
11.	← Fallows →	Fallow land other than current fallows (G)	808 (0.34)	682 (0.29)	851 (0.36)
12.		Current fallows (H)	5291 (2.23)	3508 (1.47)	11557 (4.86)
13.		Total (G + H)	6099 (2.57)	4190 (1.76)	12408 (5.22)
14.		Net Area Sown	103366 (43.61)	106798 (44.90)	99634 (41.89)

Note: Figures in parentheses indicate the percentages

Source: Regional Digest of Statistics (Jammu Division), 2015-16, 2016-17 & 2017-18.

The total area not available for cultivation was found to be at 69170 hectares out of which the land put to non-agricultural uses was found to be at 34816 hectares followed by area under barren and uncultivable land to the extent of 34256 hectares and land under still water at 98 hectares, during all the three years i.e., 2015-16, 2016-17 and 2017-18. The area under the category of other uncultivable land excluding fallows was seen to be at 28694, 27761 and 26507 hectares respectively during the year 2015-16, 2016-17 and 2017-18. The area under the components of 'permanent pastures and other grazing land' and 'land under social forestry miscellaneous tree crops not included in area sown' and 'culturable waste land' varied every year and stood at 4152, 12698 & 11844 hectares respectively during the year 2015-16; 3736, 8228 & 15797 hectares respectively, during the year 2016-2017 and 2763, 2005 & 15739 hectares during the year 2017-18 respectively. The total area under fallows was also

changing with time and stood at 6099, 4190 and 72408 hectares respectively, for the year 2015-16, 2016-17 and 2017-18. The magnitude of area under fallow land other than current fallows stood at 800, 682 and 851 hectares for the year 2015-16, 2016-17 and 2017-18 respectively. While the area under current fallows was seen to be at 5291, 3508 and 11557 hectares respectively for the year 2015-16, 2016-17 and 2017-18. The figures for net sown area were to the extent of 103366 hectares during the year 2015-16, 106798 hectares for 2016-17 and 99634 hectares for 2017-18.

Area sown under different crops

The data regarding area sown under various crops in Jammu district over different years was presented in Table 4.6 wherein, it could be seen that the total area sown under different

Table 4: Area sown under different crops in Jammu district (in hect.)

Crop		Year								
		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Food crops	Paddy	47993	53986	55061	55553	56451	66039	65470	79153	73532
	Maize	23536	11086	9192	14451	90198	11347	10961	24213	24061
	Wheat	83005	89594	87627	87519	14316	89468	110370	80204	79936
	Gram	0	0	0	0	0	0	0	0	0
	OCM*	7798	10016	10005	10844	10905	6043	5575	2261	4935
	Pulses	4877	5579	5590	4769	4563	3077	2787	205	3456
	Total	167209	170261	167475	173136	176433	17593	195163	186036	185920
Other crops	FV**	1730	1665	1383	1256	1665	2357	2312	1386	3088
	OFC***	5	-	-	143	-	0	0	520	0
	Oilseeds	1730	1197	3041	2700	1197	1682	2445	1461	1928
	Fodders	9125	8337	5342	13441	8337	10218	9762	3418	5143
	ONFC****	47	17	-	-	68	13	36	0	0
	Spices	64	68	-	-	68	17	15	0	130
Total area sown		179910	181545	177241	190676	187768	190261	209733	192821	196209

Source: District Statistical Handbook, Jammu district, Govt. of J&K, 2016-17

OCM* = other cereals & millets; FV** = Fruits & Vegetables; OFC*** = Other food crops

ONFC**** = Other non-food crops

Crops was 179910 hectares in 2008-09 which rose to a maximum of 209733 hectares during the year 2014-15 while during 2016-17 it stood at 196209 hectares. The area under food crops stood at 167209 hectares during 2008-09 and was 185920 during 2016-17. During, the year 2016-17, the magnitude of area under paddy, maize and wheat crops was to the extent of 73532, 24061 and 79936 hectares respectively.

Gross and net area irrigated through different sources

There were three rivers namely Chenab, Tawi and Basantar in the study area and the main source of irrigation was through network of canals. In addition, there were a number of tubewells to supplement the canal system. As far as kandi area was concerned, the irrigation facilities were not much developed as the nallahs arising criss-crossing the kandi area were non-perennial, fleshy and quickly drained.

Table 5: Gross and net area irrigated through different sources in Jammu district (in hect.)

Year	Net area irrigated					Gross area irrigated				
	Canal	Spring/Tanks	Well/ Tube- well	Others	Total	Canals	Spring/Tank	Well/ Tube- well	Others	Total
2009-10	50804	7	105	4105	55021	98603	3456	5210	3473	110742
2010-11	50335	1770	2615	1616	56336	NA	NA	NA	NA	NA
2011-12	49810	1624	2400	1914	55748	99509	3216	4752	2935	110412
2012-13	49886	1627	2405	2169	56079	98605	3216	4752	4274	110847
2013-14	50560	1627	2405	2161	56753	97028	2053	4752	4274	108207
2014-15	50197	1627	2405	1971	56200	108404	8101	17678	9988	144171
2015-16	76488	1927	2645	2903	83963	101281	7532	17632	8254	134699
2016-17	50229	1517	2082	2287	66115	87852	6522	15294	7160	116828

Source: District Statistical Handbook, Jammu district, 2016-17, Govt. of J&K,

There were three main canals viz.: Ranbir canal, Partap canal and Tawi-Ranjan canal. The gross and net irrigated area have been presented in table 4.7, which showed that their magnitude respectively stood at 116828 and 66115 hectares during 2016-17, while their corresponding figures for area irrigated through canals were to the extent of 87852 and 50229 hectares, respectively.

Area irrigated under different crops

Table 4.8 showed the area irrigated under different crops in Jammu district from where it was concluded that during the year 2016-17, the area irrigated under food crops stood at 109484 hectares, out of which 56474, 4397, 43362, 43, 4786, 285 and 137 hectares were irrigated under paddy, maize, wheat, gram, other cereals & millets, pulses and other food crops, respectively.

Table 6: Area irrigated under different crops in Jammu district (in hect.)

Crop		Year								
		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Food crops	Paddy	47258	51657	52700	52173	52338	51351	51032	77354	56474
	Maize	262	407	400	31	118	78	90	6609	4397
	Wheat	46674	50688	48300	48481	49474	46361	83177	43509	43362
	Gram	0	0	0	0	0	0	0	0	43
	OCM*	86	531	700	490	558	492	457	2245	4786
	Pulses	225	232	-	328	282	154	236	148	285
	Others	-	-	-	51	47	-	0	33	137
Total	-	-	-	101554	102770	98436	134992	129898	109484	
Other crops	FV**	613	695	1000	1154	1140	1773	1698	722	1917
	OFC***	0	-	0	0	47	-	15	0	24

	Oilseeds	285	233	300	370	247	389	563	745	741
	Fodders	6449	6192	6900	7334	6643	7595	6885	3325	4662
	ONFC****	108	6	0	0	0	14	18	0	0
	Grand Total	101960	110742	110040	110412	110847	108207	144171	134690	116828

Source: District Statistical Handbook, Jammu district, Govt. of J&K, 2016-17

OCM* = Other cereals & millets; FV** = Fruits & Vegetables; OFC*** = Other food crops

ONFC**** = Other non-food crops.

The other crops which were irrigated included fruits & vegetables, other food crops, oilseeds and fodders for which the magnitude of area irrigated during the year 2016-17 stood at 1917, 24, 741, 4662 hectares, respectively during the year 2016-17. The total area irrigated for the year 2016-17 under all the crops was to the tune of 116828 hectares.

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