

STATUS OF AGRICULTURE IN DISTRICT DEHRADUN: A MICRO LEVEL STUDY OF PURKAL GRAM PANCHAYAT, SAHASPUR

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ABSTRACT

Uttarakhand state has a hilly terrain with about 90% of the area lying in the Himalayan region. More than three-fourths (78 percent) of its. Total population lives in rural areas with agriculture as their main source of livelihood, the economy of Uttarahand is predominantly dependent on mountain agriculture. However, the scope for agricultural policies based on modern input-intensive agriculture is severely constrained in the hilly regions of this state due to various physical, geographical and environmental problems. This has resulted in the majority of the rural population in the hills either surviving on subsistence agriculture or migrating to other parts of the country for employment. This research paper aims to study the present position of agriculture in Purkal Gram Panchayat of Sahaspur Block of Dehradun district. This study will also attempt to throw light on the various aspects of the present position of agriculture such as main crops, purpose of agriculture, sources of irrigation, use of manure, fertilizers and other techniques, animal husbandry, types of animals reared, sources of finance etc on the basis of primary data collection through pre-designed research schedule for this study.

KEY WORDS: Male, Female, Agriculture, Participation, Workforce, Comparison.

INTRODUCTION

Agriculture in Doon valley is carried on in the same way as in the plains, but in the hill areas, it requires hard labour and skill. Sources of irrigation are limited, but this does not have much negative impact as Dehradun district is blessed with abundant rains from both the summer and winter monsoon. Cultivation in the hill tract of Dehradun tehsil is of two descriptions, regular and intermittent. In the district there are two harvests, the Kharif sown in June or little earlier in the hills and reaped in September and October, and the Rabi sown in October-November and reaped in March in the plains and in April and May in the hills. Dehradun has traditionally been famous for its Basmati rice, which was introduced by the Afghan King in the 19th century, and litchi and mangoes, which grew very well in the local climate. However, in the last two decades, both litchi and basmati rice have now become almost extinct due to urbanization and environmental degradation.

REVIEW OF LITERATURE

Sati (2005) has highlighted that inspite of feasible climatic conditions, agricultural dominant society and availability of all types of crops, the production and productivity of these crops is very low, even they are unable to meet the grain need of the people in Uttaranchal. Javed (2006) pointed out the significance of farming in employment generation in rural areas. His research shows that majority of population residing in rural areas depends directly or indirectly on agriculture sector for their livelihood. Farooquee (2009) has pinpointed that traditional agro biodiversity management plays a key role in coping with the uncertainties prevailing in the Himalaya. He has emphasized on the urgent need of policy making to bring desirable changes in agricultural policy, research and development, land use and breeding approaches to mountain regions to improve the productivity. Rais (2009) has investigated food production and agro diversity in the Tarikhet and Ukhimath blocks in Uttarakhand. He has pointed out that only small patches of terraced land is available to average household in these areas and the output of the average farm provides only about half of the household energy requirements, forcing most of the families to resort to off farm activities to support a large proportion of their food & other requirements.

OBJECTIVE OF THE STUDY

The present study has been designed to find out the present position of agriculture in Purkal Gram Panchayat of sahaspur Block in district Dehradun. This study will emphasize on the various aspects of agriculture like major crops, hybrid seeds, irrigation facilities, agricultural credit, animal husbandry and use of modern technique etc.

RESEARCH METHODOLOGY

Introduction of Study Area: Dehradun comprises of six developmental blocks, viz., Raipur, Doiwala, Sahaspur, Vikas Nagar, Kalsi and Chakrata. For the present study, Purkal village of Sahaspur block, district Dehradun has been selected. (Table 1)

Table -1: Purkal village details

Area details	
Area of village (in hectares)	126
Number of households	65
Population data	
Total population – Persons	311
Total population – Males	157
Total population – Females	154

Source: 2001 census

Sampling method and sample size: For the present study, purposive sampling method has been used. There are a total of 65 households out of these, 50 households were selected as sample. From each household one male & one female was selected & interviewed for this study.

Data collection method: The instrument used for primary data collection is structured interview schedule. Secondary data was collected from various surveys and studies conducted by government and non-government organizations.

PRESENT POSITION OF AGRICULTURE IN PURKAL GRAM PANCHAYAT

Main crops and agriculture: Paddy is one of the most important Kharif food crops in the district. The district is famous for its basmati rice. Wheat is the principal crop of Rabi and is grown in almost all the parts of the district. The important fruits grown in the district are the mango, guava, peach, grape, strawberry, pear, lemon and litchi. Dehradun is famous for its litchi. Among vegetables, potato is the most important crop. Besides, catering to the needs of the town of the district, a considerable proportion of the production of potato is exported to other district of the state. (Table 2).

Table -2: Distribution of households involved in the production of major crops in Purkal Gram Panchayat

Production of crops	Wheat		Rice		Pulses		Potato	
	No. of house holds	%	No. of households	%	No. of households	%	No. of households	%
Yes	40	80	50	100	28	56	38	76
No	10	20	0	0	22	44	12	24
Total	50	100	25	100	50	100	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Irrigation and agriculture : Prosperous agriculture is possible only when it gets sufficient water. Unfortunately in India rainfall is inadequate and unequally distributed. In some places it rains heavily while in other places, the drought conditions persists. Rainfall is not only scarce but also uncertain.

The crops thus become the play-things in the hands of nature.

There are three hamlets in Purkal Gram Panchayat. Of these, Jaspur is well irrigated by a network of pipes which are fed by hydrams. These are pumps which do not run on electricity, and use the energy in the flow of water. The other two, Purkal and Khairani, are irrigated by non-perennial canals which are fed by monsoons. Thus, there is a vast difference in productivity of the farms in these villages. While farms in Jaspur are well-irrigated throughout the year, those in Purkal and Khairani are monsoon-dependent, and if rains are delayed, crop productivity drops significantly.

Table 3 shows the extent of availability of irrigation facilities in Purkal Gram Panchayat. This clearly shows that 56% of the agricultural households are dependent on rainfall which is uncertain and on canals which are seasonal, and thus cannot be said to have a proper and reliable source of irrigation. This shows the lack of irrigation facility in Purkal Gram Panchayat.

Table -3: Sources of irrigation in Purkal Gram Panchayat

Sources of irrigation	No. of agricultural households	Percentage (%)
Rainfall	0	0
Tube well / well	0	0
Canal	0	0
Hydram	22	44
Rainfall and Canal	28	56
TOTAL	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Hybrid seeds and agriculture: In agriculture and gardening, hybrid seed is produced by cross-pollinated plants. In hybrid seed production, the crosses are specific and controlled. Hybrids are bred to improve the characteristics of the resulting plants, such as better yield, greater uniformity, improved colour, disease resistance, and so forth.

Table 4 shows the use of hybrid seeds in Purkal Gram Panchayat and Table 5 shows the comparison between the three villages (Purkal, Jaspur, and Khairani) with respect to use of hybrid seeds. This also shows that use of hybrid seeds is very limited in Purkal. In both Purkal and Khairani, irrigation is rain-dependent and any irregularity in the monsoon significantly hampers production. Thus, cultivators feel that investing in hybrid seeds is not justified, as the yield may be low in case there is a dry spell, even if they are used. Even in Jaspur, where hydrams provide reliable and ample water, cultivators are reluctant to use hybrid seeds. This is because of the fact that pests like monkeys and wild boar cause heavy damage to crops, and there is little that they can do to curb this menace. Thus, they too feel that investing in hybrid seeds may not be worthwhile. Purkal and Khairani also fall prey to the crop damage caused by these animals.

TABLE -4: Use of hybrid seeds in Purkal Gram Panchayat

USE OF HYBRID SEEDS	No. of agricultural households	PERCENTAGE (%)
YES	14	28
NO	36	72
TOTAL	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Table -5: Comparison between the three villages with respect to use of hybrid seeds

Villages	Number of sampled households	Number of households using hybrid seeds	Percentage (%)
Purkal	18	2	11.11
Khairani	10	0	0
Jaspur	22	12	54.55

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Forms of agriculture and animal husbandry: Depending upon the purpose for which food is produced and livestock is raised; agriculture can be divided into two groups. These two are: subsistence agriculture and commercial agriculture.

Subsistence agriculture: This form of agriculture can be defined as production of a certain amount of food that is enough to sustain the family producing food.

Commercial agriculture: The practice of producing crops and raising livestock for the purpose of selling the end products in the market is termed as commercial agriculture.

Table 6 shows that 92% of the people survey used agricultural produce for self consumption only, while only 8% used part of it for commercial purposes and the rest for self consumption. This shows that subsistence farming is the prevalent form of agriculture in Purkal Gram Panchayat, and very little commercial agriculture is practiced.

Table -6: Use of agricultural produce in Purkal Gram Panchayat

Basis	Number of agricultural households	Percentage (%)
FOR SELF CONSUMPTION	46	92
FOR COMMERCIAL PURPOSE AND SELF CONSUMPTION	4	8
FOR COMMERCIAL PURPOSE	0	0
TOTAL	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Table 7 shows that 96% of the people in Purkal Gram Panchayat practice animal husbandry, and that this is an important part of their lives. Animal husbandry has increased significance

as bullocks are used to till the lands. Table 8 shows the variety of animals reared by the people in Purkal Gram Panchayat.

Table -7: Animal husbandry in Purkal Gram Panchayat

Animal husbandry	Number of agricultural households	Percentage (%)
YES	48	96
NO	2	4
TOTAL	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

All households in Purkal that practice animal husbandry own a cow. Cows act as important sources of milk, and this milk is almost wholly for the family's consumption, and is not sold commercially. Bullocks are also commonly reared as they are used to plough the fields.

Table 8: Type of animal reared in Purkal Gram Panchayat

Type of animals reared	Number of agricultural households	Percentage (%)
Milk-yielding animals	20	40
Bullocks	0	0
Goats	2	4
Milk-yielding animals and bullocks	28	56
Calves	26	52
None	2	4

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

FERTILIZERS AND AGRICULTURE

Fertilizers are substances used to replenish the depleted nutrients in soil. They can be classified into two broad categories—organic and inorganic. Organic fertilizers include naturally occurring organic materials such as compost, manure, weeds or any other form of biomass. They enrich the soil with micronutrients, promote the growth of soil organisms and increase the long-term productivity of soil. The primary source of organic fertilizer in Purkal is manure.

Table 9 shows that 100% of the households in Purkal Gram Panchayat use manure as a fertilizer. As most families practice animal husbandry, manure is easily available at no extra cost, and in abundance.

Table -9: Use of manure as fertilizer in Purkal Gram Panchayat

Use of manure	Number of agricultural households	Percentage (%)
YES	50	100
NO	0	0
TOTAL	25	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Chemical fertilizers are synthetic fertilizers which provide macronutrients (mainly Nitrogen, Potassium and Phosphorus) and can dramatically improve crop yields. In the long term, they adversely affect soil chemistry, but have a magical effect in the short run.

Table 10 shows that 56% of the homes in Purkal use chemical fertilizers. Urea and dye are the main fertilizers that are used. The people believe that their use is necessary for increased soil productivity.

Table -10: Use of chemical fertilizers in Purkal Gram Panchayat

Use of chemical fertilizers	Number of agricultural households	Percentage (%)
YES	28	56
YES	28	56
TOTAL	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

Table 11 compares the use of chemical fertilizers across the three villages under Purkal Gram Panchayat, and once again Jaspur has the highest proportion of cultivators using chemical fertilizers. This is because they have a reliable source of irrigation which permits them to invest in chemical fertilizers.

Table -11: Comparison between different villages in purkal gram panchayat

Village	Number of sampled households	Number of households using chemical fertilizers	Percentage
Purkal	18	8	44.44
Khairani	10	2	20.00
Jaspur	22	18	81.81

Modern technology and agriculture: Even in today's world, which is swamped by technological advances, cultivators in Purkal Gram Panchayat make very little use of it.

96% of the households said that they did not employ any technological equipment, as shown in Table 12. Almost all the work is still done by hand, and new technology has not been adopted by the people yet. Even tractors cannot be used in these parts, as step farming is practiced on the hill sides.

Table -12: Use of Modern Technology in Purkal Gram Panchayat

Use of modern technology	Number of agricultural households	Percentage (%)
Yes	2	4
No	48	96
Total	50	100

1.7 Agricultural credit: Credit plays an important part in any economy, and especially in agricultural economy. Interestingly, credit is almost non-existent in Purkal Gram Panchayat.

Table 13 shows that only 4% of the households in Purkal Gram Panchayat avail credit. Since subsistence farming is the dominant form of agriculture, and income from agriculture is non-existent, people invest their own money in agriculture, and prefer not to take loans for the purpose.

Table -13: Use of credit for agriculture in Purkal Gram Panchayat

Use of credit	Number of agricultural households	Percentage (%)
Yes	2	4
No	48	96
Total	50	100

SOURCE: PRIMARY SURVEY, Aug-Dec, 2012

CONCLUSION

It is evident from this study that agriculture is a way of life for most people in Purkal. All 50 households sampled practiced agriculture to some degree, although, the practice is on the decline due to low returns and the fact that most people have sought alternate sources of income. Nonetheless, 92% of the sampled households practice subsistence agriculture, while only 8% practice agriculture for commercial purposes. The main crops sown are wheat and rice, along with pulses and vegetables. Only 28% of the households use hybrid seeds, 56% use chemical fertilizers and 100% use organic manure. 96% of the households practice animal husbandry. The animals being reared are either draught animals, who are used to plough the fields, or cows for milk production. Use of modern technology and agricultural credit is almost non-existent as only 4% people claimed to use each of them. Another striking feature is the difference between Jaspur and the other two villages in Purkal Gram Panchayat. Agriculture is practiced much more intensively in Jaspur, and the main reason behind this seems to be the existence of a reliable and efficient irrigation system. Thus, it can be seen that,

while agriculture is on the decline, small-scale agriculture is still practiced widely in Purkal Gram Panchayat.

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