

**LAND USE AND CROPPING PATTERN IN VILLAGE BHAINI BADSHAH PUR, DIST.
HISAR, HARYANA (INDIA)**

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Abstract

About two-thirds population of India resides in rural areas which are heavily dependent on agriculture. The diversity of cropping patterns has been one of the important characteristics of Indian agriculture. It is dynamic and influenced by various socio-economic factors, technological advancement and infrastructure facilities. The size of landholding is also closely associated with cropping patterns and production levels. However, land size is very small in developing countries such as Haryana because of the density of population. Hence, the current investigation tries to examine the cropping pattern with reference to landholding size in the village namely Bhaini Badshah Pur, Hisar dist. in Haryana (India). This study will assist in answering the numerous questions such as the existing usage of land and the cropping system of the village? Moreover, this would also help to know how cropping patterns influenced the socio-economic status of the study village? The results indicate that the cropping pattern has changed after the successful implementation of the green revolution but its impact varied in terms of land, social and economic status of the farmers. Moreover, factors such as land size, less skilled labour, technology, irrigation facilities and government policies have the major influence on production and cropping pattern.

Keywords- Diversification, land-use, cropping pattern, technology, agriculture, socio-economic status

Introduction

About two-thirds population of India resides in rural areas and the majority population are dependent on the primary sector i.e. agriculture. Since independence, several policies have been launched by the Indian government in order to achieve economic development. Economic development is mainly associated with the diversification from the primary sector toward secondary and tertiary sectors. Hence, the contribution of the agriculture sector to the Gross Domestic Product (GDP) of the country was 54 per cent in 1950-51 but it has decreased to 15 per cent in 2020-21 and the share of the non-agriculture sector has improved to around 85 per cent of GSDP (statisticstimes.com). Further, after the green revolution, the diversity of cropping patterns has been one of the important characteristics of Indian agriculture. Land use patterns refer to the spatial distribution of human activities i.e. what kinds of activities are located where? Secondly, we also discussed cropping patterns, which means the nature of crops and the proportion of crop areas at a point in time. Cropping patterns are dynamic over the time period and influenced by various socio-economic factors, technological advancement and infrastructure facilities (Jagdeep, 2022). Moreover, the size of landholding is also closely associated with cropping patterns and production levels. For instance, the greater the size of landholding associated with greater capacity of the owner to take risks and vice versa. This, in turn, would affect the extent of specialization and also usage of technology and equipment. However, cultivated land size is very small in developing countries such as Haryana because of the density of population (Kavita, 2013). The agriculture system of J&K followed the traditions of the region which fulfill only basic requirements. Green revolution makes a big difference in state agriculture, now farmers grow crops according to market value and try to earn more and more profit (Singhal, 2015).

Hence, the current investigation tries to examine the cropping patterns of the village Bhaini Badshah Pur, Hisar district in Haryana (India) with reference to the landholding size. Although the scope of the investigation is a limited area, this study will assist in answering numerous questions such as the existing usage of land and the cropping system of the village? Moreover, this would also help to know how the cropping patterns influenced the socio-economic status of the study village? This type of information helps the government to design a policy for employment, and vocational training to enhance the living status of the people in the study village. The biggest shock to the traditional cultivation system came with the abolition of the zamindari system with the introduction of land reforms in the year 1951 (IRDP report 2012-13). As a consequence, the number of large land-owners (more than 10 hectares) has come down to 11.00 per cent by 2010-11 (IRDP Report 2012-2013). Interestingly, small size landholdings are generally practising more intensive farming besides diversifying into cash crops etc. Moreover, the government, as well as private institutions, are providing loan facilities for farm extension, seeds, and other inputs as documented by many studies.

Literature Review

Rawat et al. (2021) worked on changing the cropping pattern of Haryana over the period from 2001-to 2018. The research highlights that after the successful implementation of the green revolution, wheat and rice are the important food crops of the Haryana because of its increment in price and production. However, the present pattern of farming in the Haryana has completely been transformed from intensive farming to market-oriented forming of the crops for profit-making business. Moreover, extensive market-oriented agriculture farming has affected soil fertility, underground water table, the nutritional value of crops and the environment as well. Shergill et al. (2018) examined the livelihood pattern of the non-farm economy and landless farmers in Khai village in the Fatehabad district in Haryana. The study covers demographic, income-expenditure patterns, occupation choices and housing conditions etc. Primary data is collected from the village with the help of personal interviews and focus group discussion with head members of the village. After analysis of data, it was found that the area has a greater literacy rate than Haryana but lower than the national literacy ratio and a positive association could be seen in the education and income level of the HH. Further, all landless belonged to schedule category HHs and do not have any kitchen facility, proper toilet, sanitation etc. however, these people have diversified their occupation pattern towards secondary or tertiary activities. Kavita (2018), examined the land-holding size and cropping pattern of Kharainti in the Rohtak district of Haryana. The study indicates that there is a significant change in the cropping pattern of the village after the green revolution. Moreover, the highest proportion of farmers belongs to small landholding size which is an indication of less commercialisation of crops. Rice and paddy were found to be more profitable food- grain for the village farmers hence; it is produced in the maximum proportion of crop area. Reddy (2017) conducted a study on 36 tribal villages in Telangana to examine the impact of land rights on agricultural productivity. Overall, the researcher found that most farmers adopted low input-output farming for sustenance purposes without the practices of modern technology and out-migration was higher. Moreover, tribals without owing land rights were not able to take benefits from various government bodies as well as private organizations in taking loan facilities for farm extension, seeds and other inputs. Chand et al. (2017) experienced that India's rural economy has changed which has not been estimated yet. On the one hand, there was a perception about the predominance of the primary sector in rural India whereas, on the other hand, rural people generated nearly two-thirds of their earnings from secondary and tertiary sectors instead of cultivation. Interestingly, it was also found that more than half of the value-added in the manufacturing sector in India is contributed by rural areas. Hence, these showed a positive approach toward the transition of the rural economy. Masudkar et al. (2017) investigated the SECs of farmers in the Latur village in the district of the Marathwada region in Maharashtra and first-hand information was collected from 75 persons through an interview method. The outcomes indicated that the maximum proportion of farmers belonged to the middle age group and these people engaged in farming activities. Further, two-thirds of respondents were associated with the general category and the least farmers belonged to the schedule category. Furthermore, around fifty per cent of respondents were educated up to the middle standard and greater proportions of respondents were marginal farmers. Nearly, two-thirds informants have low socio-economic status. At the meantime Jagdeep (2017) examined the cropping pattern in village Surah, Jhajjar, Haryana. The study was based on primary information gathered through the questionnaire from the study area. The result indicates that the cropping pattern of this area is totally based on food- grain and wheat and paddy are produced on a greater proportion of the total crop area and farming has improved because of the availability of water through the tube- well, by the use of improved fertilizer, hybrid seeds and mechanization of farming. The per acre yield of wheat, cotton, rice, pulses, fodder, & other varieties has increased 3 to 4 times. Therefore, the socio-economic status of farmers has improved. Madhusudhan (2015) examined the importance of agriculture in rural India. The author found that agriculture was the most important sector of the rural economy and the majority of rural people were engaged in agricultural activities directly or indirectly. Ajani (2013) reviewed literature in the area of occupation diversification among females in Africa. The author found that diversification had a positive impact on the household income whereas the negative impact was the withdrawal of labour from farmers' families. Moreover, she highlighted that although the government launched several programmes to reduce poverty these programmes were highly politicised to the detriment of the beneficiaries. Tyagi and Himanshu (2011) analysed some possible changes in a tenancy in Palanpur in the U.P. The researcher found that the major reason for leasing-in land among tenants was the desire to earn a higher profit, to utilize the excess family labour, and utilization of other household assets like a diesel pump set and money. The author also highlighted the major reasons for leasing out to a landlord. A majority leased out because they just did not have adequate family labour to work on the land and for the urgent cash requirement. After all, it serves as a substitute for taking loans. In this sense, the needs of landlords and tenants were complementary to each other. Further, Murthy et al. (2010) examined the livestock pattern of the randomly selected village 'Narasapura' in Karnataka state and found that the majority of the livestock farmers lived in the nuclear family as joint families are on the decline. Moreover, only 6 per cent per cent farmers belonged to large size family which indicates that they were aware of the advantages of family planning. It also found that the majority of the farmers were associated with cooperative societies and almost all the families possessed poultry

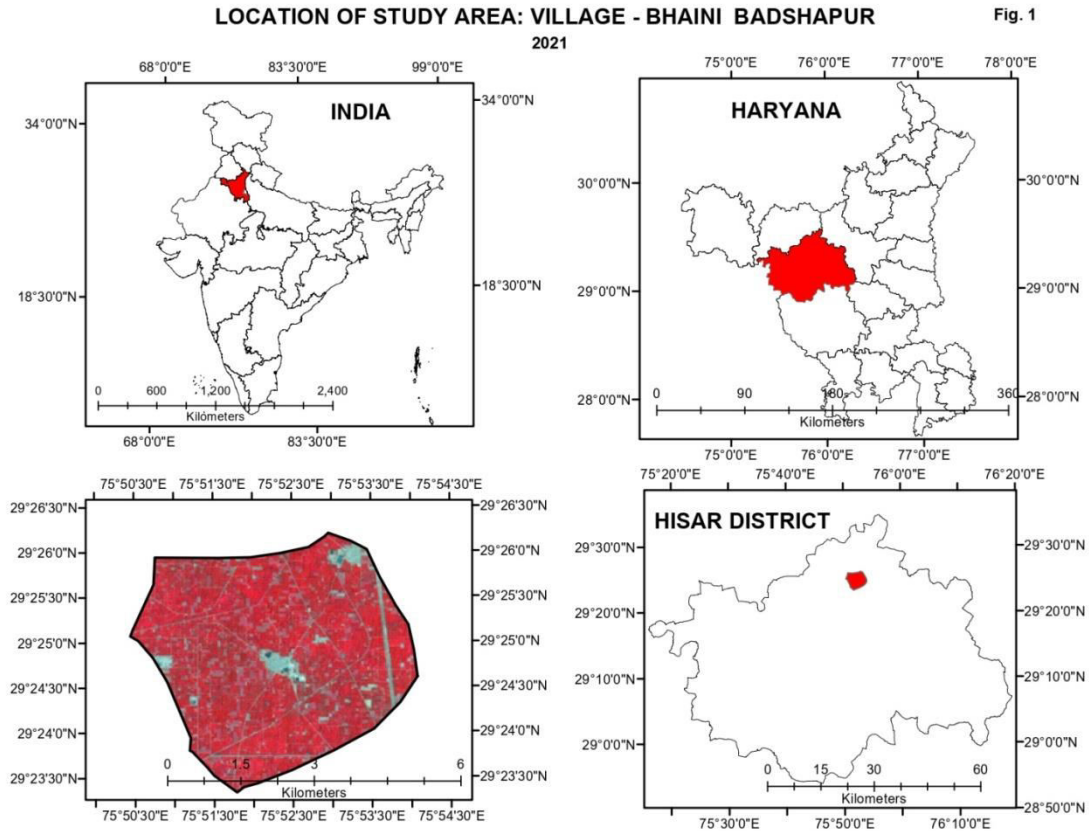
but the sizes of their holding were medium due to unavailability of labour, poor veterinary facility and unfair price of their produce. Osgupta (2009) worked on various issues related to the size of land and its holdings and found that in order to remain competitive and for good price realization; it was highly recommended for the farmers to come together up through online alliances. Rajuladevi (2000) found that the largest proportion of land ownership belonged to higher castes i.e. general category and there was no ploughing with animals, only tractors were used. As a matter of prestige, backward category people except among the poorest engaged in only transplanting and weeding and not in harvesting activities. Laxminarayan (1990) highlighted the changes in the socio-economic status of agricultural labourers in three states; Punjab, Haryana, and Eastern Uttar Pradesh, and found that this study was particularly significant as they were based on the study of only those families which have been in these states throughout the study. In this way, this gave a static picture. Some of the changes are in the matter of spreading literacy and cultivating families' land rather than being agricultural labourer. The radical change has come in the category called pure agricultural labourers as income from agricultural labour was only a fraction of the total income of agricultural labour households. Further, the Green Revolution appears to have contributed to an increase in wage income and income from cultivation and this income has increased faster than prices, thereby real income has also increased.

Therefore, a close examination of studies indicates that most of the researchers evaluate the cropping pattern based on the census data over the period and very less is focused on an individual village. Hence, the current investigation is done in an attempt toward this.

Location Size and Area

The village, Bhaini Badshah Pur (Barwala) belongs to the Hisar district in Haryana. The village lies almost in the centre of the state and even in the district. According to census 2011, the location code of Bhaini Badshah Pur village is 061001. It is situated 6 kilometres away from the nearby small town *Barwala*, and 40 km away from Hisar, which is both district & sub-district of the village. Its geographical boundaries are surrounded by five neighbouring villages namely; Nayagaon, (2 km) Daultpur (3 km), Uklana (5km), Khedar (2 km), Faridpur (4km). There are two tehsils of the villages namely Uklana and Barwala (some part of the village is the falls under one tehsil and other part of the village belongs to other tehsil). It has 527 households with a population of 2774 of which 1464 are males and 1310 are females as per the primary survey during August 2021. The village is spread over 479 hectares. The village is located at 29.37 N Latitude and 75.90 E Longitude in the district.

Out of total i.e.479 land hectares area, out of which 53 hectares are used for living purposes and the remaining area are utilized for cultivation. There is no forest area in this village. However, the cattle of some households graze in open farms area. The most dominating soil is alluvial in the village. Every year people over cultivate their land but still, the fertility of the soil is maintained because of using fertilizers after the green revolution. Villagers grow many commodities in their fields the whole year in two main seasons i.e. Rabi and Kharif. Fields are usually also left vacant after both the cropping seasons to gain fertility.



Objectives:

The major objective of the study is-

1. To examine the landholding pattern among various groups of the farmers in the village.
2. To examine the cropping pattern of the village.
3. To identify the factors that influences the cropping pattern of the village.

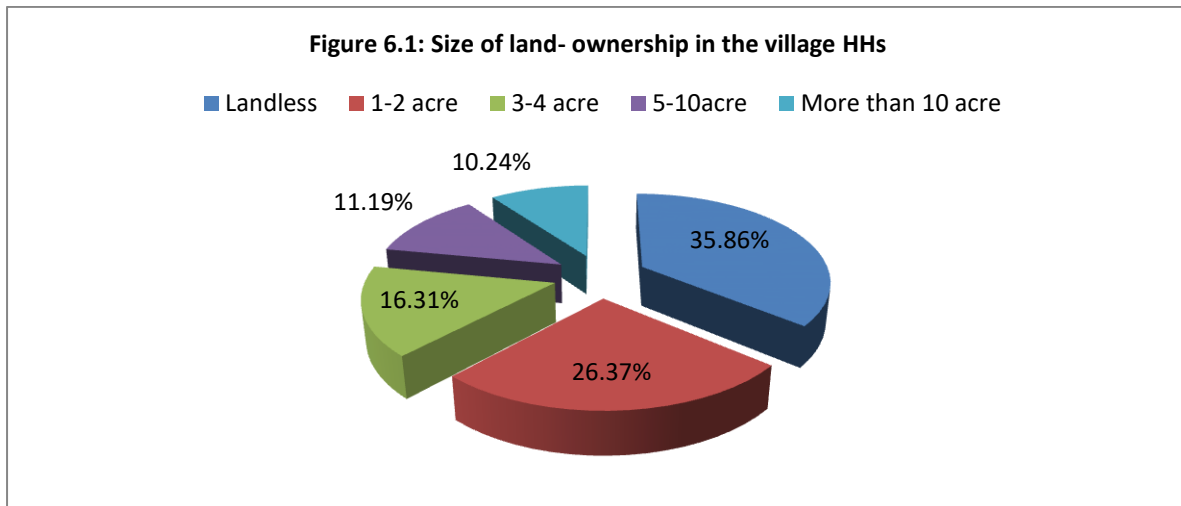
Research Methodology

The entire study is based on primary data from a particular village Bhaini Badshah Pur, Hisar, Haryana. However, some information is also collected from the official record of revenue from Patwari of the village. The questionnaire is used for the collection of information regarding landholding size, cropping pattern and how this pattern influenced the socio-economic status of the village? After the collection of information, it has been arranged, analysed thoroughly by using descriptive statistical tools such as average, and presented through tables, diagrams and maps. Moreover, secondary data is also extracted from Agricultural Statistical Abstract Haryana (2001-2018). Apart from this, different other sources like the district statistical office, economic survey and government publications and report has been used to supplement our analysis.

Table 1: Land- holding size and its pattern in the village

| Land ownership | Number of HHs | Percentage |
|-----------------------|----------------------|-------------------|
| Landless | 189 | 35.86 |
| 1-2 acre | 139 | 26.37 |
| 3-4 acre | 86 | 16.31 |
| 5-10acre | 59 | 11.19 |
| More than 10 acre | 54 | 10.24 |
| Total HHs | 527 | 100.00 |

(Source: Field survey, December 2021)



The Land is an important asset for rural masses. Therefore, land-holding size is also analysed and presented in table 6.3 and graph 6.1 which reveals that the maximum number of households are landless (35.86 per cent). Such landless people are engaged either in agricultural labour or other occupations to maintain their livelihood. Small farmers with 1.2 acres (26.37 per cent) landholding size are also present in the village in large numbers. These people are engaged in agriculture as well as in non-agriculture for their survival. The households having land between 3-4 acres (16.31 per cent) use the land appropriately for cultivation because the land are limited and most of the members are engaged in agriculture. Nearly ten per cent of households are having land of more than 10 acres. Thus, we can say that around fifty per cent of households are marginal and small farmers.

Social category- wise landholding pattern

Table 2: Social category- wise landholding pattern

| Size of land | Social category | | | Total (%) |
|-------------------|---------------------|--------------------|---------------------|---------------------|
| | GC category (%) | OBC category (%) | SC category (%) | |
| Landless | 32 (9.90) | 39 (48.14) | 117 (95.12) | 189 (35.86) |
| 1-2 acre | 100 (30.58) | 35 (43.75) | 4 (3.33) | 139 (26.37) |
| 3-4 acre | 79 (24.15) | 6 (7.50) | 1 (0.83) | 86 (16.31) |
| 5-10 acre | 58 (17.73) | 1 (1.25) | 0 (0.00) | 59 (11.19) |
| More than 10 acre | 54 (16.51) | 0 (0.00) | 0 (0.00) | 54 (10.24) |
| Total | 323 (100.00) | 81 (100.00) | 123 (100.00) | 527 (100.00) |

(Source: Field survey, December 2021)

(*Note: Figures in the parenthesis represent the per cent of the respective category)

The landholding pattern among different social categories is represented in table 2 shows that a significant proportion of SC category HHs are landless (95.12 per cent). On the other hand, none of the general category households is landless. In 'the other backward category, slightly less than fifty per cent households are landless and the majority of having land up to 2 acres. It is clear from the above table that the maximum proportion of land-ownership is possessed by the general category (89 per cent), followed by other backward category households (52 per cent) and the least percentage by the schedule category (4 per cent). So, the distribution of land is widely skewed among different social categories. It is also argued by people that 16.51 per cent households possess land ownership of more than 10 acres but the majority of these families do not practicing on that land rather they give it on lease out and engaged themselves in service sector.

Landholding pattern as per monthly HH income

Table 3: Landholding pattern among different income groups in the village

| HHs income (monthly) | No. of HHs (%) | | | | | | No. of HHs (%) | | | |
|----------------------|---------------------|------------|------------|------------|----------|---------------------|----------------|-----------|-------------|----------|
| | Landless | 1-2 acre | 3-4 acre | 5-10 acre | <10 acre | Total HHs | Lease-in | Lease-out | Own | Partly |
| Less than 10000 | 48 (88.88) | 6 (11.11) | 0 (0.00) | 0 (0.00) | 0 (0.00) | 54 (100.00) | 16 (26.62) | 0 (0.00) | 38 (70.37) | 0 (0.00) |
| 10000-30000 | 121 (43.21) | 84 (30.10) | 47 (16.84) | 28 (10.03) | 0 (0.00) | 280 (100.00) | 33 (11.78) | 17 (6.07) | 230 (82.14) | 0 (0.00) |
| 30000-50000 | 22 | 29 | 23 | 22 | 10 | 106 | 12 | 14 | 80 | 0 |

| | | | | | | | | | | |
|--|---------|---------|---------|---------|---------|-----------------|---------|---------|---------|--------|
| | (20.56) | (27.10) | (21.49) | (20.56) | (10.28) | (100.00) | (11.32) | (13.21) | (75.47) | (0.00) |
|--|---------|---------|---------|---------|---------|-----------------|---------|---------|---------|--------|

(Source: Field survey, December 2021)

(*Note: Figures in the parenthesis represent the per cent of the respective category)

Table 3 shows the result of variation in landholding among different income groups and found that the maximum proportion of households is landless (88.88 per cent) in the lowest income slab. However, there is approximately nine per cent of landless households earn a monthly income above Rs 50000. This clearly indicates that opportunity for landless are also available and the enterprising ones are leaping up them. Further, more than 90 per cent of households with monthly income above Rs 50000 are engaged in jobs (government/private sector) along with farming. In the income slab Rs 10000-30000, approximately forty per cent (43.21) of households are landless, followed by marginal farmers (30.10 per cent) and none of the families possesses the land of more than 10 acres. So, it reflects that there is a positive relationship between the size of land and level of income. Furthermore, questions are also asked regards the lease of land and found that majority of households give their land on lease whose income is more than Rs50000. Interestingly it is also argued by many landless people that they do not take land on lease-in as it is not profitable for them because of heavy expenditure incurred on cultivation and harvesting etc. which is another reflection of major change in agriculture. Therefore, landless people also prefer to engage themselves in diverse economic activities.

Major crops and cropping pattern

Wheat, bajra, cotton, Paddy, and mustard are the major crops of the village. These varieties of crops could be categorized into two main divisions- the Rabi season (July to October) and the Kharif season (November to February). The main crop of the Rabi season is wheat and of the Kharif season is paddy. The success of crops mainly depends upon the rainwater. Sometimes due to natural calamities, farmers have to bear heavy losses. Moreover, wheat, bajra, and vegetables are grown by village people for their self-consumption and the surpluses are disposed of for commercial purposes however; other crops such as paddy, cotton and gram are grown for completely commercial purposes. A cropping pattern means the proportion of area under various crops at a point in time. However, it is a dynamic concept as it changes over space and time. The existent cropping pattern is a cumulative result of the entire village. During the survey, it is reported by farmers that the cropping pattern mainly depends on experience, expected profit, personal preferences and resources, political pressures, and so on.

Table 5: Cropping pattern for 2020-21 in the village

| Crops | Area (acres) | Proportion |
|--------------------------|--------------|------------|
| Wheat | 530 | 49.76 |
| Pulses | 25 | 2.34 |
| Vegetables, Flowers etc. | 32 | 3.00 |
| Mustard | 132 | 12.39 |
| Bajra | 48 | 4.50 |
| Cotton | 209 | 19.62 |
| Paddy | 26 | 2.24 |
| Rice | 34 | 3.19 |
| Sugarcane | 29 | 2.72 |
| Total | 1065 | 100.00 |

(Source: Field survey, December 2021)

The cropping pattern of the village is represented in table 5 and found that wheat, cotton, mustard, and pulses are the major crops grown in the study area. Moreover, vegetables and flowers are also another important farming activity. It is reported that a significant proportion of land is occupied by wheat, cotton and mustard i.e. 49.76 per cent, 19.62 per cent and 12.39 per cent respectively and there is vast potential for raising these crops in the future forms one of the major sources of income. However, paddy and sugarcane crops are the least grown by people in the village.

Production and income from agriculture

Table 6: Production and income from sale of produce of major crops

| Crop | Area (acres) | Production on quintals | Average Income | % of income |
|---------------------|--------------|------------------------|----------------|-------------|
| Wheat | 530 | 18.00 | 44100 | 7.59 |
| Cotton | 209 | 7.5 | 70,050 | 12.06 |
| Mustard | 132 | 12.00 | 84,300 | 14.51 |
| Bajra | 48 | 10.00 | 17,800 | 3.06 |
| Vegetables/ Flowers | 32 | 16.00 | 282500 | 48.64 |
| Rice | 34 | 20.00 | 82,000 | 14.11 |
| Total | 985 | 343.75 | 5,80,750 | 100.00 |

(Source: Field survey, December 2021)

Further, the production of different crops is also collected from the farmers of the village and it is based on the memory capacity of the respondents. The result indicates that rice and wheat are the important crops from a production point of view however; a significant improvement in income is noticed from the vegetables and flowers cultivation (48.64 per cent) because of their high price. So, farmers should focus on flowers or vegetable crops in order to increase the income of the family.

Soil and sources of irrigation facility in the village

The land of the area is rich in red and black soil. In the lower portion of land alluvial soil is also found which is used for paddy cultivation. Farmers are using tube-well and river water along with rainfall for irrigation purposes whereas, some large- landowners are also having pumps set in their fields for irrigation which is another indication of modern cultivation.

Table 7: Source of irrigation as per land-ownership

| Source of water | 1-2 acre | 3-4 acre | 5-10 acre | More than 10 acre |
|-------------------------|----------|----------|-----------|-------------------|
| Tube-well | 32.25% | 37.23% | 95.15% | 100.00% |
| River | 67.00% | 71.96% | 80.00% | 95.00% |
| Water storage pit | 12.90% | 30.00% | 41.10% | 72.23% |
| Motor pump- set | 5.12% | 16.15% | 37.00% | 60.92% |
| No source of irrigation | 3.30% | 0.00 % | 0.00 % | 0.00 % |

(Source: Field survey, December 2021)

The result clearly shows that river water for irrigation is found common among all sizes of landholding whereas, uses of the tube- wells as per their land- ownership 32.25 per cent, 37.23 per cent, 95.15 per cent and 100 per cent respectively. Moreover, very rare people are using pump set water below land size 2 acre (5.12 per cent) while its proportion is considerably significant who have possession of landownership more than 10 acres (60.92 per cent). The result also reflects that still around three per cent small farmers do not have any irrigation facility and the village farmers are totally unaware of sprinkler/ drip systems for irrigation.

Agriculture implements and machinery

The uses of farm equipment have a close relationship to the cultivation. Farming activities such as cultivation, tilling, harvesting, irrigation, etc. are depending on the different types of equipment and machinery. Major implements in Haryana are ploughs for ploughing, seeds driller for sowing seeds, hoes for inter culture, carts for transportation, and using of tractors for many activities in cultivation. Out of these, traditional ploughing made of iron and wooden, electric pump sets, cultivating machines, hoes, drillers, and other machinery is widely used in the study village. However, there is the wide variation that can be observed with reference to the uses of these implements among different sizes of landholding households.

Table 8: HH's percentage of using farm machines and other implements as per land- holdings

| Machinery | 1-2 acre | 3-4 acre | 5-10 acre | More than 10 acre |
|-----------------------|----------|----------|-----------|-------------------|
| Farm implement | 62.20% | 92.00% | 95.00% | 98.28% |
| Traditional ploughing | 70.00% | 50.00% | 69.23% | 14.00% |
| Tractor- trolley | 5.12% | 24.50% | 51.00% | 72.25% |
| Power sprayer | 3.62% | 8.00% | 31.00% | 47.68% |
| Thresher | 2.01% | 2.08% | 22.15% | 32.00% |
| Farm electricity | 5.00% | 13.00% | 42.00% | 53.42% |
| Cultivating machine | 3.35% | 9.00% | 36.23% | 50.00% |

(Source: Field survey, December 2021)

Further, the households are asked about the owned agriculture equipment as per landholding size. The study identified major seven types of equipment that are used by farmers for cultivation and classified as per land-holding size. The results clearly indicate that large landowners have invested more money in modern agriculture machines compared to marginal farmers and mechanization of cultivation is improving gradually in the village. At present, traditional cultivation such as manually and by bulls are reducing day by day and these are replaced by modern equipment. Only a few farmers are cultivating their land through traditional ploughing by the bull. Although the majority of tractors are owned by large landowners other small and marginal farmers also use them by paying rent.

Agriculture insurance

As we all know that agriculture in India is associated with uncertain income due to natural disasters like floods, drought, etc. Hence, it is a major issue to prevent the farmers from natural calamity and the government of India launched an agriculture insurance scheme. Agriculture insurance is a consistent way to mitigate all farming-related risks. However, the crop insurance scheme is not spread in the entire village area as around 62 per cent of farmers' crops are covered by the crop insurance schemes.

Table 9: Proportion of HHs covered under crop insurance scheme

| Crop insurance | 1-2 acre | 3-4 acre | 5-10 acre | More than 10 acre |
|----------------|----------|----------|-----------|-------------------|
|----------------|----------|----------|-----------|-------------------|

| | | | | |
|----------|--------|--------|--------|--------|
| % of HHs | 35.25% | 76.00% | 90.25% | 85.00% |
|----------|--------|--------|--------|--------|

(Source: Field survey, December 2021)

Furthermore, variation of crop loans among different landholding farmers is also examined in table 9, it is clear that the largest proportion of crop loans are covered by farmers whose land is between 5- 10 acres (90.25 per cent), followed by those farmers whose land possession of more than 10 acres (85 per cent), then land 3-4 acre (76 per cent) and least loans are covered by small farmers (35.25 per cent). It is worth the point that the rest farmers are not aware of this scheme.

Conclusion

In nutshell, we can conclude that agriculture playing a vital role in the economic share of the village. The cropping pattern has changed after the successful implementation of the green revolution. The present article is the collectively outcomes of all farmer`s historical experiences and existing choices. The results highlight that village has the highest percentage of small farmers (1-2 acres) i.e. 26.37 per cent which highlights that these people produce most part of the production for their self-consumption and are less associated with the commercialisation of crops. However, medium (3-4 acre) and large landowners (more than 10 acres) constitutes 16 per cent and 10 per cent respectively and these people are significantly commercial; because of their high socioeconomic status and they can use modern technology and equipment for farming. It is also evidenced that wheat, cotton and mustard has the highest cultivated land and provides s more earnings to farmers. Moreover, factors such as land size, less skilled labour, technology, irrigation facilities and government policies are major influences on production and cropping patterns. However, some problems are also reported by farmers such as soil fertility, waterlogging and natural calamity which affect the output and cropping pattern. Further, the study also found that the usage of agriculture implements also varies among different type of farmers as per their land size.

It is remarkable to note certain policy implications. Although the green revolution led to an impact on land use and cropping pattern positively and enhance their socio-economic status, however, it has more benefitted large landowners with better-endowed with regards social and economic compared to small farmers; the reason behind this is that large landholding size farmers are capable to use modern technology and equipment for cultivation which helps to increase production level and these farmers are commercial oriented. Therefore, it is positively associated with their improved income and socioeconomic condition. Therefore, the authorities should concentrated on expansion cooperative societies and subsidies that can assist especially small farmers by granting loans and other agricultural facilities. Moreover, some development programmes must also be initiated for better employment in the village so that these small farmers can also be capable to enhance their income. Further, rice and wheat are the important crops from a production point of view in the village however a significant improvement in farmer's income is noticed from the vegetables and flowers cultivation (48.64 per cent) because of their high price. So, farmers should focus on flowers or vegetable crops in order to increase the income of the family.

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