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Demographic and socioeconomic determinants of youth migration from farming households in Punjab

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Abstract
This paper looks into the socio economic and demographic factors that are causing migration of youths out of Punjab farming families in India. Punjab as the land of agricultural prosperity is experiencing a drop in the number of young people willing to do the traditional farming. A primary survey was carried out on 60 farming families in seven villages in the Fatehgarh Sahib district to learn about this change. Structured interviews and direct observations were done to collect data of age, education, land holding, type of family, availability of technology and involvement in related industries. Findings revealed that 47 percent of the farmers were within the 40-60 years range and 70 percent of the farmers were heads of their families. The nuclear families had majority (75) and only 18% respondents were graduates. Three-quarters had smartphones, and 61.67% obtained access to the internet to provide agricultural services. Over half (52%) held medium-sized farms, and 75% engaged in livestock-based income activities. The findings reveal that limited financial returns, low digital literacy, and urban employment prospects are major causes of youth migration. Strengthening rural education, technology adoption, and policy support is vital to attract youth back to agriculture.

Keywords: youth migration, socioeconomic factors, Punjab agriculture, rural livelihoods, technology adoption

Introduction
The land where green revolution was first accepted Punjab and the land of great potential in agriculture and allied sector. It is also called the land of rivers as it is surrounded by 5 rivers, Ravi, Sutlej, Chenab, Jhelum and Beas river. A great history of agriculture and social reforms is held in Punjab as the farmers and native people have been contributing in various reforms and were socially much more active in terms of agriculture reformation schemes. Punjab stands in the front row in case of producing rice, wheat and any other agricultural revolution. The state of art is contributing almost 40% rice and 70 - 80% of wheat for all of the India so Punjab is also called the food basket of India [1]. The socio-economic profile of Punjab farmers and local are so enriched that it stands at a position of nation's pride. The socio-economic profile also affects the knowledge, perception, approachability of the people in Punjab resulting in the influence of Indian economy. Farming is the backbone of Punjab people but the youth from sometimes have seen as going out for their income source leaving the agricultural practice which was well established, we can see the great influence in Punjab rural and village youth having more concern in western culture this is also a major reason for gradual demolition of youth taking them apart from traditional income source as farming towards the corporate world. During this present scenario we know, have taken turn towards technology driven work and artificial intelligence compilation in agriculture as well as its allied sector [2]. These Socioeconomic surveys include agricultural monthly income, demographic data, and expenditures, information about the cultivation profile of the inhabitants and the habitation patterns. Based on these variables/dimensions, policies can be developed and improved keeping focused on the location as the major factor [3].

Problem Statement
Although Punjab remains an agricultural leader, farming communities are struggling with

income stagnation, limited modernization, and a steady decline in youth involvement. These challenges threaten the long-term sustainability of rural livelihoods and agricultural productivity.

Research Gap

While previous studies have examined farmer livelihoods and agricultural productivity in Punjab[4]. Previous studies have described the socioeconomic conditions of farmers in Punjab, but little attention has been given to how demographic and economic variables directly influence the migration of rural youth[5]. Identifying these determinants is crucial for developing policies that can retain young people in the agricultural sector[6].

Objectives of the Study

1. To describe the socioeconomic and demographic characteristics of farming households in selected areas of Punjab.
2. To assess the extent and nature of youth migration from agricultural families.
3. To identify the main socioeconomic and demographic factors influencing migration decisions.
4. To recommend strategies that could encourage youth participation and long-term engagement in agriculture.

Materials and Methods

The research was carried out to examine the socio-economic background and demographic status of farmers in the state of Punjab; a total of 60 farmers were surveyed to know the actual status as well as demographic data of farmers. The villages that are covered are Barouli, Choti Ghandua, Fatehpur Jattan, Thablan, Doomcheri, Nagauan, dholan Majra all together they come under different tehsil and maximum cover the area of Bassi pathana, district Fathegarh sahib Punjab. The study relies on the primary data obtained from field survey. For the survey, a question and answer based primary survey was conducted which made us prepare the graphical assumption of the farmers data. To carry forward the research we had taken the support of the census data available by the government of these villages by the Punjab government. The collection and interpretation of data was done as a result of census of total villages. A number of total 100 household which included farmers, Government employee and self-owned business man were involved. The full fledge and extended method of questions and answers was conducted from door-to-door interview which gathered a lot of information for the data preparation. A very keen observation was conducted primarily focusing on individual interview, group discussion, and a community-based interview with the village people for a quick part of evaluation process of data compilation. Personal interview was also conducted by nearby villages to collect the qualitative data of farmers. Below table will make you understand the parameters of survey.

Results and Discussion

The below mentioned topics are examined for the data of socioeconomic survey.

Age distribution

Approximately 47% of farmers were aged 40-60, while only 37% were between 20-40. The aging farmer demographic signals declining youth interest in agriculture, aligning with similar observations in Uttarakhand and Tripura[1][2]. Aging populations in farming communities often lead to reduced innovation and adoption of new technologies. Taking in account of the age and qualification are the major category to look in for the development and acceptance of occupation in the rural areas. So, by understanding the table we can say that 47% of the farmers lie between 40 - 60 age group followed by 37% lies in 20 - 40 age group, 13% of farmer les in 60 - 80 age groups and almost 3% of farmers are in 80 - 100 age group as shown in Table - 1 and Fig 1 of Age data.

Table 1: Age range of the farmers

Serial	Age Range	Total count
a	20-40	22
b	40-60	28
c	60-80	8
d	80-100	2

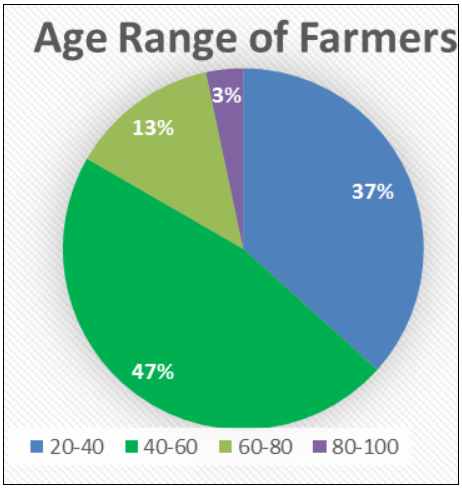

Fig 1: Age range of the farmers

Head of the Family

In an agricultural household, the head of the family holds a central role in making decision, allocation of resources, and overseeing management of the farm, influencing the family's economic stability. Seventy percent of households were headed by the farmers themselves, while 75% lived in nuclear families. The decline of joint family systems limits traditional farm labor sharing and knowledge transfer[5]. Among the 60 families, 70% had the farmer itself as the head of the family, followed by 27% headed by the father and 3% had the mother as the head of the family as detailed in Table-2 and illustrated in fig-2.

Table 2: Head of the Family

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n=4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Self	9	2	8	3	10	7	3	42 (70%)
2	Father	3	3	2	1	3	1	3	16 (27%)
3	Mother	1	0	0	0	1	0	0	2 (3%)

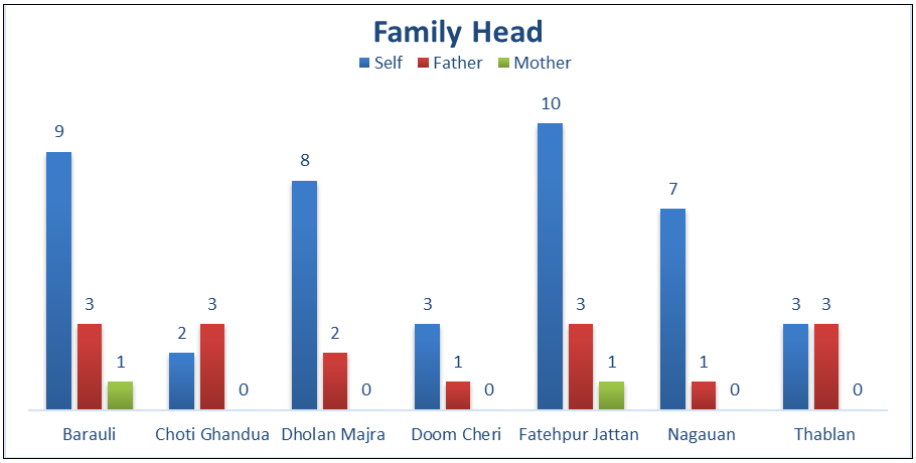

Fig 2: Family Head

Technological connectivity of farmers: [phone, smart phone, internet]

The below Table-3 shows the distribution of mobile connectivity of farmers along with usage of internet in agriculture and other related activity. Through this data we can understand the distribution percentage of farmers those are aware of technology driven utilization and those who are still stuck to age old practice.

So, we can see that out of 60 farmers those were surveyed, there are almost 96.97% of farmers using a key pad phone just for their communication with their far apart people. Now out of these there are almost 75% of farmers comprising of all village data they are using smart phone for their day-to-day use and other workloads. The actual percent of farmers that we can put in internet user those are actually taking benefits of smart phone along with availability and good connectivity of internet which is helping them in increasing their agriculture income and expansion of their farm business accounts for 61.67%.

Table 3: Technological connectivity of the farmers

Serial	Village	Total farmer	Phone User	Smartphone User	Internet User
1	Barauli	13	13	11	9
2	Choti Ghandua	14	14	12	9
3	Dholan Majra	4	4	2	2
4	Doom Cheri	6	6	4	3
5	Fatehpur Jattan	8	8	6	6
6	Nagauan	5	5	2	2
7	Thabala	10	8	8	5
Total count		60	58	45	37
Percentage		100%	96.67%	75%	61.67%

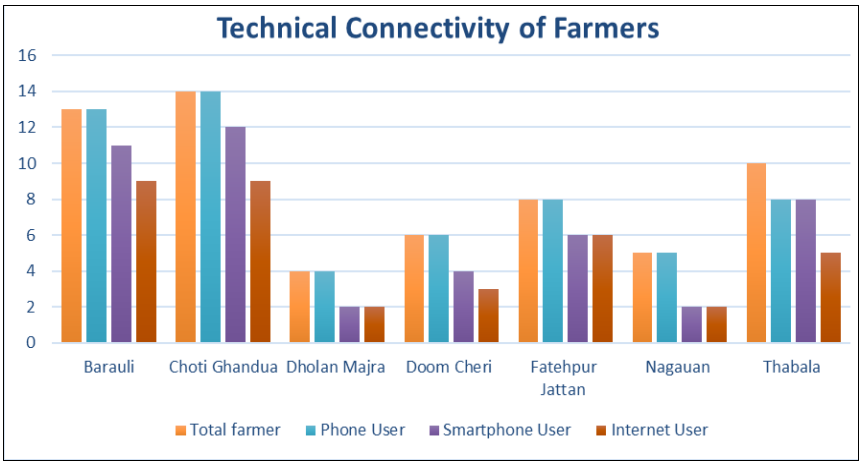

Fig 3: Technical connectivity of farmers.

Land Holding

According to the land holding capacity of the farmers, they can be classified into 4 categories of farmers. Table-4 presents a breakdown of the farmers, with 18% falling into the marginal farmer category, managing less than 1 hectare of land. Following this, 28% belong to the small category, with land holding between 1- 2 hectares. Medium category consists of 52% with a holding of land of 2-10 hectares. The final category consists of large farmers, encompassing 2% who possess more than 10 hectares of land, as depicted in Figure-4. The sample comprised 28 percent small, 18% marginal, 52 percent medium and 2 percent large holdings. The major holdings, which are predominant, enforce restrictions on scale economies in that reduces farm income opportunities and drives younger family members out of the farm employment [7].

Table 4: Land holding of Farmers

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n= 4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Marginal	4	1	1	0	3	1	1	11 (18%)
2	Small	2	0	2	2	4	3	4	17 (28%)
3	Medium	7	4	6	2	7	4	1	31 (52%)
4	Large	0	0	1	0	0	0	0	1 (2%)

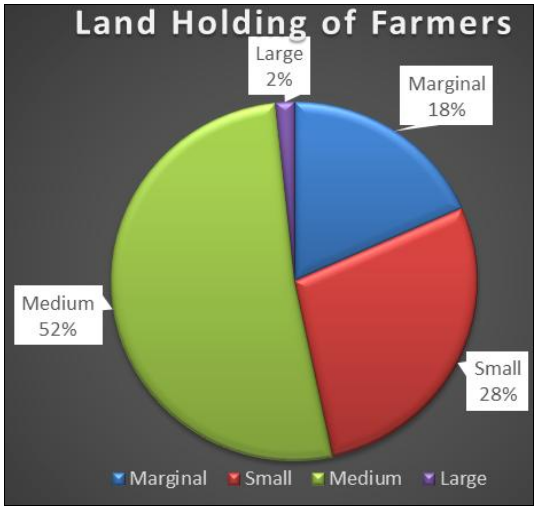

Fig 4: Land Holding of Farmers

Family Composition

According to the survey, most of the respondents received 99 percent of the selected respondents' villages, belong to the General kind. Other categories also exist in such areas though not in everyone. Large share is not constituted by landlords or farmers, rather, these entities are engaged in other activities or occupations [8]. The family types are distributed as shown in Table-5 and Fig-5. The data indicates that 75 percent of the respondents are residing in nuclear families and only 25 percent of the farmers choose joint family setups.

Table 5: Family composition of farmers

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n= 4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Joint	3	0	1	1	5	3	2	15 (25%)
2	Nuclear	10	5	9	3	9	5	4	45 (75%)

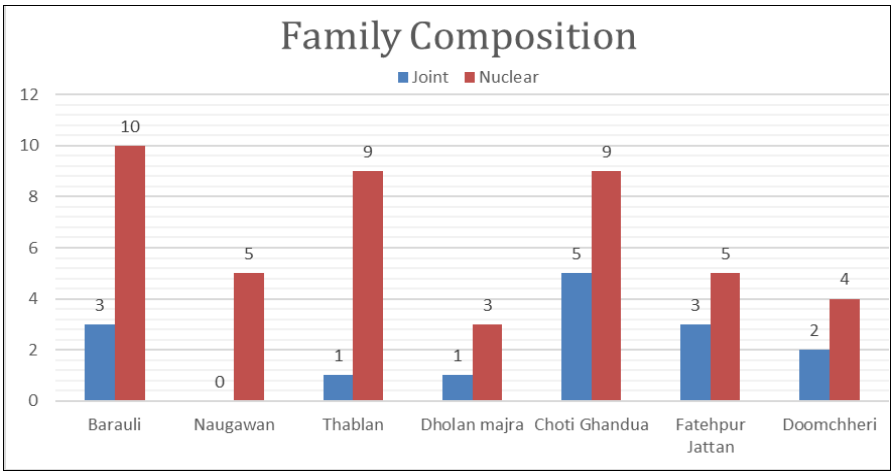

Fig 5: Family composition of farmers

Education

Among the 60 farmers of the seven villages revealed that a quarter of 23% had obtained primary school education, 25 per cent had secondary or metric school education. It has been found that 15% were at Metric level of education and 5% were at higher secondary school. Fig-6 shows education in the way it is represented. Only 18% of farmers were graduates, and 23% had only primary education. Education influences not only farm management efficiency but also career aspirations[9]. The proportion of illiterate farmers was minimal. Conversely, the number of farmers who were graduates remained low that is 18%. Investment in vocational training and agri-entrepreneurship can help reposition agriculture as a viable career for educated youth [10]. They attributed their limited

education to a previous undervaluing of its importance. However, over time, they came to understand its importance and actively supporting their children's education by enrolling them in colleges and universities for higher studies.

Table 6: Education level of farmers

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n=4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Primary	4	1	3	1	3	1	1	14
2	Metric	3	1	2	0	4	3	2	15
3	Higher Secondary	4	1	3	2	5	4	1	20
4	Graduate	2	2	2	1	2	0	2	11

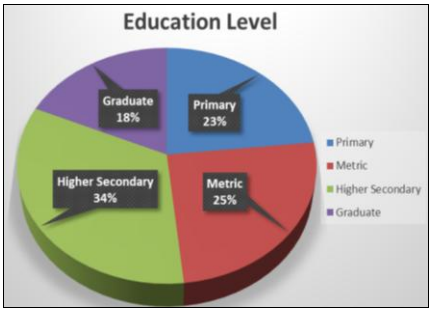

Fig 6: Education level of Farmers

Information sources

Each respondent relies on various extension contacts and information sources. Approximately 18% of the total respondents maintain contact with progressive farmers, serving as valuable sources of information on farming methods, agro-chemicals and new seeds[11]. A vast majority of farmers seek information from campaigns (25%), friends and relatives (17%), and Kisan melas, with field visits contributing to skill enhancement of respondents attending events in their nearby areas. Furthermore, young farmers utilize agricultural apps and groups on their phones for information[12].

Table 7: Source of Information

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n=4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Radio	2	1	2	1	3	2	1	12
2	TV	2	1	1	0	4	1	0	9
3	Social media	1	0	1	0	0	0	0	2
4	Campaign	3	0	4		4	2	2	15
5	Friends & relatives	2	2	0	2	1	2	1	10
6	Progressive farmers	3	1	2	1	2	1	1	11

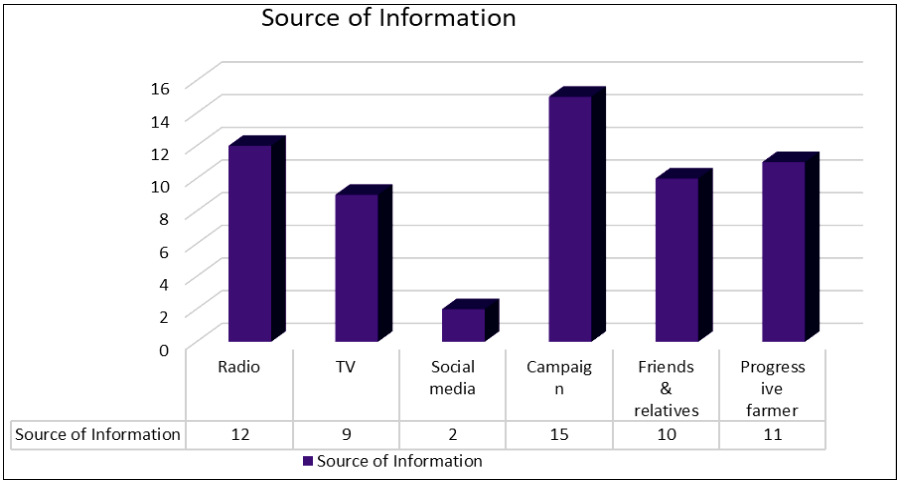

Fig 7: Source of information

Extension Contact

In the agricultural industry, extension contacts are essential because they give farmers access to critical information, cutting-edge methods, and best practices that increase crop yields and efficiency[13]. According to the data collected, 30% gathers information from State agricultural universities, 8% from the Department of Agriculture. Private agencies manage to provide 34% extension contact to the farmer, whereas Krishi Vigyan Kendra had a participation of 28% among the farmers, as showcased in the Table-8 and represented in Fig-8.

Table 8: Extension contact of the farmers

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n= 4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	KVK	5	1	3	1	3	3	1	17
2	SAU	4	3	2	2	4	1	2	18
3	Private agency	2	1	3	1	7	4	2	20
4	Department of Agriculture	2	0	2	0	0	0	1	5

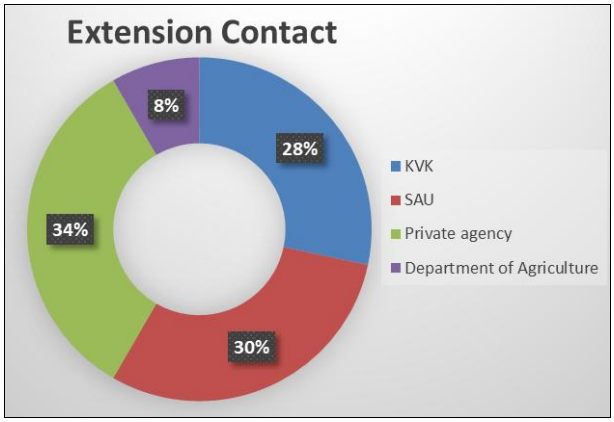

Fig 8: Extension contact of the farmers

Allied Sectors

The farmers highlighted that the allied sectors play a vital role in their rural communities by broadening farmers' income streams[3]. As illustrated in the table-9 and fig-9, all over the five villages 75% of farmers maintain livestock and associated with it, 53.3% farmers produce manure. Poultry is maintained by 13.3% of the lot.

Table 9: Allied sectors

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n= 4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Livestock	8	1	5	3	9	3	3	32
2	Poultry	4	3	2	1	4	1	2	17
3	Manure	1	1	3	0	0	4	1	10

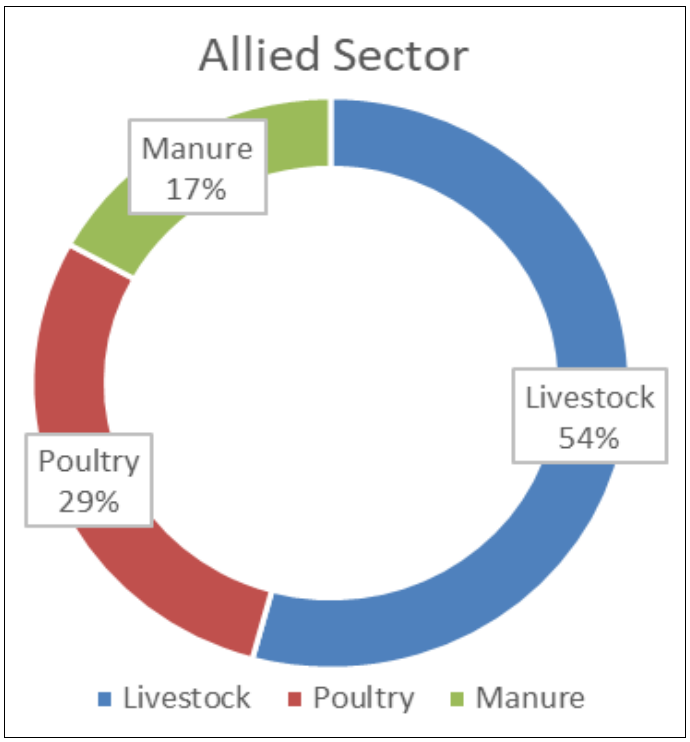

Fig 9: Allied Sector

Livestock

Since livestock occupies a large part of agricultural households, we gathered that 65% of the families have milch animals. On the other hand, only 10% maintains draught animals as shown below in the table-10 and Fig-10.

Table 10: Demonstrates Livestock

Serial	Parameter	Barauli n=13	Naugawan n= 5	Thablan n= 10	Dholan majra n= 4	Choti Ghandua n=14	Fatehpur Jattan n= 8	Doomchheri n=6	Overall N=60
1	Milch	7	2	6	3	7	3	4	32
2	Drought	4	2	2	1	3	2	1	15

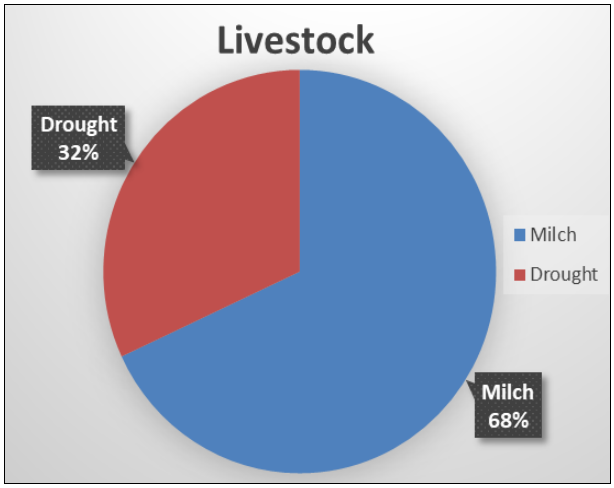

Fig 10: Livestock demonstrate

Conclusion

This paper is a comprehensive insight into the interlacing socioeconomic and the youth migration as a phenomenon is formed by the demographic dimensions' households in Punjab. The evidence proves that migration is not merely a reaction to income inequalities and a complicated response to both structural and perceptual issues-disjointed estates, poor intellectual and technical openness, and the diminishing social status related with the farm. The results indicate that the penetration of technology is on the rise. However, its effective use is not yet evenly distributed, which highlights a digital divide between access and utilization.

The rural Punjab thus finds itself stuck between its agricultural heritage as a part of India heartland and its plight to maintain the new generation of farmers. Unless decisive interventions are put in place, the sector will face the threat of an intergenerational hiccup that may be undermined national food security and rural sustainability. Youth migration is one of the symptoms of greater systemic obstacles--income insecurity, poor innovation economies, and city-focused politics.

To overcome such challenges, agricultural engagement as a paradigm shift is needed. Youth empowerment by building agri-tech incubation hubs, digital rural entrepreneurship can reposition farming as a start- up one, and literacy programs can position farming as a technology intensive, knowledge-based profession as opposed to a labor-intensive backup strategy. Further cooperation can be provided by co-operative land sharing models, crop diversification models and contract farming models enhance financial stability.

Finally, to restore farming in Punjab, economic viability, technological advances, and social desires should be harmonized. It is not just the employment of rural youth, but rather the dignity, opportunity, and restoration of rural youth that should be associated with retention and re-engagement. Innovation to a sector which has helped India to maintain food security. Such transformation will not only determine the future of rural economy of Punjab, but also the future of sustainable agricultural development in the rest of India.

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