Cropping Pattern of Farm Families in Five Agro-Climatic Zones of Punjab

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ABSTRACT

In Punjab, majority of the population lives in villages where main occupation is agriculture or its allied occupation. The present study was conducted in Punjab state to analyse the cropping pattern of 200 farm families representing five agro climatic zones of Punjab namely zone I (sub - mountain undulating zone), zone II (undulating plain zone). Zone III (central plain zone), Zone IV (western plain zone) and zone V (western zone) through structured interview schedule. Crops ranged between one to six crops with majority (65.5%) of farmers cultivating one to two crops. Prevalence of monocropping pattern was observed with vast majority growing wheat and paddy. All crops except fruits, sugarcane and trees (agro-forestry) were sold in the nearest Mandi (market.) Sugarcane was directly sold to the nearest sugar mill. Agro forestry mainly comprised of poplar trees which were auctioned in the fields to contractors/ commission agents. Produce was mostly sold in raw form without processing with negligible percentage of those processing mustard. Farming families should be motivated to work together in small groups for sometimes and then move them to form FPO's. Extension workers should guide and facilitate farmers in producing and marketing high value crop.

Keywords: Farm families, Monocropping, Mandi, Raw and Agro-climatic zones.

INTRODUCTION:

Agriculture plays a significant role in the Indian economy. Over 70.0 per cent of the rural families bank on agriculture. It plays a significant role in Indian economy as it contributes about 17% to the total GDP (Shagun 2021) and provides livelihood to over 60% of the population (Kant 2019). In Punjab, majority of the population lives in villages where main occupation is agriculture or its allied occupation. These sectors play a pivotal role in the economy of Punjab. The Punjab state in India has, in the last three decades, been one of the world's most marvellous paradigms of agricultural prosperity. Agricultural success in Punjab has been closely linked with the renowned "Green Revolution", which resulted in the development and adoption of new, high-yielding varieties of rice, wheat and other food crops. However, present decade was a witness to decreasing percentage contribution of agriculture to the state income and increasing farmers' suicides (Sharma 2007).

Farming can also be a lucrative option. Organic agriculture is economically viable (Bowman and Zilberman 2013). By marketing the organic products, cost go down and profits increase. Multi-storey cropping is also a promising technology and there are many benefits as profit per unit area rises considerably and assure a more even distribution of employment and income throughout the year by harvesting diverse crops in different seasons, besides minimizing possibility of crop failure. This system generate jobs and provide better labour use pattern. It helps to maximize land use by fitting different sized crops together through vertical, horizontal and underground cultivation.We can increase the income of farmers by promoting farming systems that can provide more income to farmers through horticulture, animal husbandry, agro-forestry and other mixed farming systems involving high value crops. Precision farming techniques also help to enhance productivity and reduce the cost of production. It provides opportunities for attracting and retaining youth in farming. It can be adopted by a group of farmers who can organise themselves into a precision farming group. This would help to reduce expenditure and enhance productivity and profitability. Keeping this in view, the study was conducted to know the cropping pattern of farmers in Punjab.

MATERIAL AND METHODS

The study was conducted in Punjab state represented by all the five agro climatic zones of Punjab. Punjab has 23 districts. Out of these, two districts were selected randomly from each zone, thus total ten districts were selected for the study. From each selected districts, one block in which main city or some other main city is situated and second block away from the district headquarters was selected. Hence, twenty blocks were selected for the study.

Selection of districts:

Selected Zones	Selected Districts
Sub – mountain undulating zone	Gurdaspur, Hoshiarpur
Undulating plain zone	Rupnagar, SBS Nagar
Central plain zone	Tarn Taran , Ludhiana
Western plain zone	Faridkot, Ferozpur
Western zone	Bhatinda, Sri Muktsar Sahib

Ten farm families actively engaged in farming as their major family occupation were selected from each block through proportionate random sampling on the basis of operational landholding in Punjab. Data was collected from active farmer who represented the farm family as respondent.

1. CROPPING PATTERN FOR COMMERCIAL PURPOSES

Number of crops cultivated : Data given in table 1 recorded number of crops cultivated annually and types of crops cultivated since last three years by the family. Crops ranged between one to six crops with majority (65.5%) of farmers cultivating one to two crops, nearly one third (32.5%) of sample families cultivated three to four crops and only 2.0 percent were cultivating five to six crops.

Zone wise cropping pattern indicated that a large majority in zone III (65.0 %), zone IV (75.0 %) and V (95.0 %) were growing one to two crops. In zone I (40.0%) and zone II (52.5%) the percentage was lesser. More than half of the families of zone I (57.5%) and 40.0 percent in zone II were cultivating 3-4 crops. Five

to six crops were cultivated by only 2.5 percent families in zone I and 7.5 percent in zone II. Data clearly pointed towards mono cropping system pursued by the majority.

Table 1: Distribution of farm families according to their cropping pattern for commercial purposes (last 3 years), (n=200)

Cropping pattern (last03 years)	Agro climatic zones					Total
	Zone I $(n_1=40)$	Zone II $(n_2=40)$	Zone III $(n_3=40)$	Zone IV $(n_4=40)$	Zone V $(n_5=40)$	
	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
No. of crops cultivated						
1-2	16(40.0)	21(52.5)	26(65.0)	30(75.0)	38(95.0)	13(65.5)
3-4	23(57.5)	16(40.0)	14(35.0)	10(25.0)	2(5.0)	65(32.5)
5-6	1(2.5)	3(7.5)	0	0	0	4(2.0)
Crops cultivated						
Paddy	23(57.5)	30(75.0)	38(95.0)	37(92.5)	37(92.5)	165(82.5)
Wheat	38(95.0)	39(97.5)	39(97.5)	37(92.5)	40(100)	193(96.5)
Maize	15(37.5)	15(37.5)	3(7.5)	4(10.0)	0	37(18.5)
Barley	2(5.0)	0	0	0	0	2(1.0)
Pulses	0	1(2.5)	6(15.0)	0	0	7(3.5)
Cotton	1(2.5)	0	0	0	16(40.0)	17(8.5)
Sugarcane	8(20.0)	6(15.0)	6(15.0)	0	0	20(10.0)
Mustard	1(2.5)	1(2.5)	7(17.5)	0	3(7.5)	12(6.0)
Vegetables	10(25.0)	7(17.5)	6(15.0)	0	0	23(11.5)
Fruits	0	0	1(2.5)	7(17.5)	0	8(4.0)
Barseem	3(7.5)	7(17.5)	2(5.0)	0	3(7.5)	15(7.5)
Agro forestry	6(15.0)	4(10.0)	3(7.5)	0	0	13(6.5)

Crops cultivated: The prevalence of monocropping pattern of wheat and paddy was evident from the data given in table 1 with 96.5 percent families growing wheat and 82.5 percent growing paddy. More than 92.0 percent families in all zones were growing wheat and paddy was grown by more than 90.0 percent families in zone III, zone IV and zone V and by 75.0 percent in zone II. Maize was grown by 18.5 percent of the families with their largest concentration (37.5%) in zone I and zone II.Barley was only grown by 2.0 percent of the families with all of them in zone I, Pulses by only 3.5 percent with none in zone I, zone IV and zone V.

The other crops grown by the selected families were cotton (8.5%), sugarcane (10.0%), vegetables (11.5%), fruits (4.0%), Even barseem and trees for agro forestry were cultivated by 7.5 percent and 6.5 percent of the families respectively. Cotton was grown mostly in zone V (40.0%) and by very few families (2.5%) in zone I. Sugarcane, vegetables and agro forest trees were not grown by any family in zone IV and zone V.

Agro-climatic conditions can be the reason for this trend. However, vegetables and agro-forestry can be cultivated across the states. The highest growers of sugarcane (20.0%), vegetables (25.0%), trees for agro forestry (15.0%) were found in zone I, followed by zone II and zone III whereas 15.0 percent of the farmers in zone III were growing sugarcane and vegetables.

Data in Statistical Abstract of Punjab (2014) indicated that wheat was cultivated by 44.4 percent farm families and paddy was cultivated by 36.0 percent families, cotton (6.0%) maize (1.0%) and pulses (0.24%) out of total cropped area in Punjab. Rice and wheat occupied 90.1% of the area in Punjab and contributed 76.9 percent towards production in 2014-15. According to Punjab State Agriculture Profile (2016), Punjab had paddy-wheat cropping system which may be attributed to effective implementation of agricultural price policy with minimum support price (MSP) and relative profitability of these crops as compared to other crops.

2. MARKETING PATTERN OF THE PRODUCE

Data given in table 2 revealed the marketing pattern of crops produced by farm families, place of marketing and form of produce sold. It was found that all the crops except fruits, sugarcane and trees (agro-forestry) were sold in the nearest Mandi. Sugarcane was directly sold to the nearest sugar mill. All these crops were sold in raw form except mustard which was processed but only by 8.33 percent of the farm families.

Table 2: Distribution of farm families according to marketing pattern of their produce (last 3 years)

Crops	Place of marketing			Form in which produce sold	
	In field	Nearest *Mandi* within the District	Other District *Mandi*	Raw	Both raw and processed
	f (%)	f (%)	f (%)	f (%)	f (%)
Cereals					
Paddy (n=165)	0	165(100)	0	165(100)	0
Wheat (n=193)	0	193(100)	0	193(100)	0
Maize (n=37)	0	37(100)	0	37(100)	0
Barley (n=2)	0	2(100)	0	2(100)	0
Pulses (n=7)	0	7(100)	0	7(100)	0
Cotton (n=17)	0	17(100)	0	17(100)	0
Sugarcane (n=20) At sugarmill	0	20(100)	0	20(100)	0
Mustard (n=12)	0	12(100)	0	11(91.66)	1(8.33)
Vegetables (n=23)	0	23(100)	0	23(100)	0
Fruits (n=8)	0	4(50.0)	4(50.0)	8 (100)	0
Barseem (n=15)	0	15(100)	0	15(100)	0
Agroforestry (n=13)	13(100)	0	0	13(100)	0

Half of the families growing fruits (n=8) were selling them locally and other half in other Mandi of other district where they could fetch better price. Barseem was sold in the village by the farmers mainly to the dairy owners or families who owned animals but had no land to grow it. Agro forestry mainly comprised of poplar trees which were auctioned in the fields to contractors/ commission agents.Data indicated that farm families prefer to sell the produce without adding any value to it. This may be done because of convenience, lack of motivation and knowledge to process and lesser risk taking ability. Even the traditional processing of sugarcane into jaggery was no longer done at the village level. Processing of mustard was also done for family use.

CONCLUSION

Mono-cropping pattern is followed with produce from the farm mostly sold in the nearest Mandi within the district in raw form without processing.

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