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Factors Influencing Cropping Pattern in Bulandshahr District-With Special Reference to the Size of Land Holding

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Abstract- The adoption of cropping pattern in any region is an outcome of varied factors, which plays important role i.e. physical, social and economic factors. Some of these are changeable like prices, government policies, technology etc. and have operated very variously at different times. These factors have a combined impact on the decision making process of the farmer. Those which are not subject to much change as soil conditions, climate etc., have varied from region to region, giving rise to a land use pattern which has persisted through time. The cropping pattern and the level of crop production of a region is influenced by capital, marketing, labour, transport, economic condition of the farmer, institutional facilities etc. agriculture is an economic activity from which farmers earn their livelihood. Therefore, they first look for the economic viability of a crop within their socio-physical and political environment. In this paper an attempt has been made to analyze that which factors promote a farmer to grow any crop according to size of land holding in district Bulandshahr of western Uttar Pradesh.

Index Terms- Cropping pattern, varied factors, land holding, rabi, kharif, tehsil.

I. INTRODUCTION

The cropping pattern means the proportion of area under various crops at a point of time or regional allocation of land among different crops. An ideal crops plan should not only fulfill requirement of the local people or food for the farmers and their families, but also to meet fodder requirement of the farm animals. The choice of crops, their variety and the area under different crops obviously depend upon a number of factors, such as soil conditions, temperature and rainfall, economic factors such as price structure of different crops, availability of labour, capital marketing, transport facility, nearness of the market etc. are the factors which determines the choices of the crop grown.
In the developed countries, agriculture is largely commercial, cultivated for profit. Whereas in developing countries like India, the objective for practicing agriculture is to maximize the production to meet the food requirements as well as to cater other financial obligations of the farmer's family.

There is a close relationship between the size of land holding and cropping pattern. Farmers like to introduce such type of cropping pattern in their field which can raise their income from their limited holding. How the size of land holding in combination with other factors determines the crop choice can be seen clearly in the area. An exhaustive list of factors including cropping pattern of the Bulandshahr district, have been discussed in this paper.

II. AVAILABLE LITERATURE

As ***Shrestha*** **(2006)** explained that due to expansion of urbanization, introduction of advanced technology in agriculture and low returns from traditional farming system, farmers were compelled to switch over to professions other than agriculture. Farmers those, who were still engaged in agriculture, had to change their tradition farming system to moderns system for their existence.
Matsuda **(1994)** proposed a hypothesis on the relationship between irrigation freedom (degree of water control by farmers) and crop grown.
Besides water conditions, ***Seetisarn*** **(1977**), pointed out that farm size would also influence cropping pattern. Moreover, market and desire for higher income among farmers were also important determining factor of cropping pattern.
Rajput Ram **(1979**), in his study technological Determinant and Agricultural Development, Studied the cropping pattern and productivity with special reference to technological determinants like irrigation, mechanization and High Yielding Varieties of seeds.

III. OBJECTIVES

The major objectives are

- To see the cropping pattern of the district
- To search the factors of choosing a certain cropping pattern
- To find out the behavior of the farmers according to their land holding for choosing a certain cropping pattern
- To search the choice of crops of the farmers according to their size of land holding.
- To find out the dominance factors of crop grown according to the size of land holdings.
- To find out whether the present cropping pattern or the choices of crops are in the best possible manner or not.

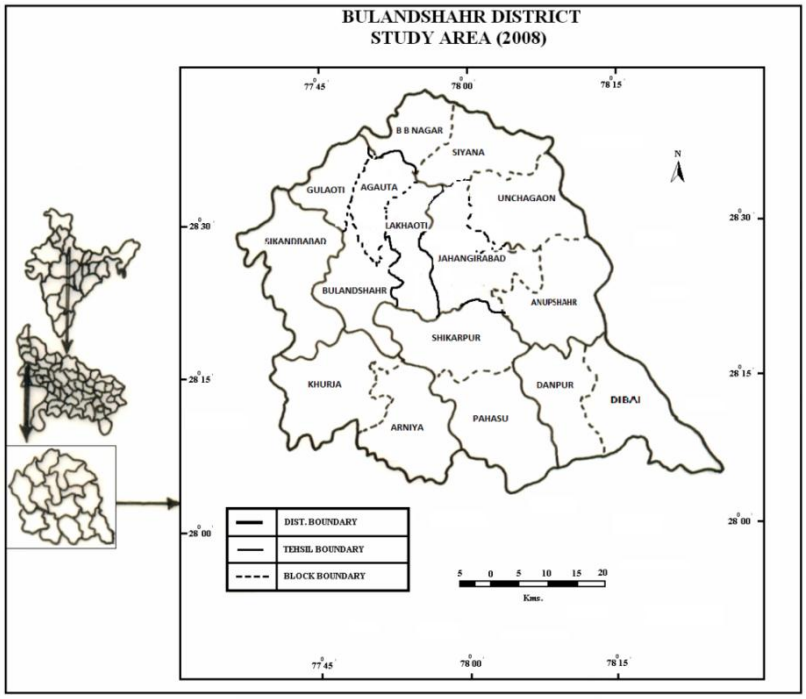
IV. DATA BASE AND METHODOLOGY

The data for the study gathered from secondary sources as well as from a purposeful and well structured field survey. The survey was conducted during August 2010 and February and March 2011. The sample was based on stratified random sampling and two stage sample design adopted for the purpose. In the first stage, selection of villages from the Bulandshahr district of the study area was made and eleven villages were selected. In the second stage, selections of 115 farmers were made according to their size of land holding and are as follows.

- Fifteen farmers came under the category of large holding, the total operated area was 165.99 in rabi (winter season) and 185.38 hectare in kharif (summer season), and the average size of holding was 12.36 hectare.
- Twenty farmers came under the category of medium holding, the total area was about 73.16 hectare and the average size of land holding is 3.67 hectares.
- Twenty eight farmers came under the semi medium category, and the total area was about 78.70 hectare and the average size of land holding is 2.79hectare.
- Twenty farmers came under the category of small farmers, the total area was about 38.69 hectares and the average size of land holding was 1.93 hectare.
- Thirty two farmers came under the category of marginal farmers, the total area was about 28.9 hectare and the average size of holding was 0.88 hectares.

V. STUDY AREA

Bulandshahr, one of the important district of western Uttar Pradesh(India), lies between 28°4' to 28° 12' north latitude and between 77° 0' to 78° 0' east longitude and located in upper Ganga –Yamuna Doab (fig 1). The river Ganga separates it from Jyoti Ba Phule Nagar and Badaun districts in east. The district is bounded by Aligarh in south, Gautam Budh Nagar in west and Ghaziabad in the north. The district has 7 tehsils, 15 blocks, and covers an area of 4353 Sq. Kms. with a population **34,98,507(2011).** The north to south length of the district is 84 km. while east to west width is 62 kms. Wheat, rice, sugarcane, maize and potato are the major crops which are grown in plenty



VI. DISCUSSION

First of all the cropping pattern of the study area has been discussed in different crop seasons and than what factors promote the farmer to chose a certain crop according to their size of land holding has been find out.

Table 1: Distribution of land holding in bulandshahr district

SIZE OF LAND HOLDING	NUMBER OF LAND HOLDING				AREA OF LAND HOLDING(hectare)			
	2000-01	%age of total	2010-11	%age of total	2000-01	%age of total	2010-11	%age of total

< 0.5	130626	42.4	129441	44.6	33182	9.33	32236	11
0.5 - 1	70920	23.02	69115	23.9	50456	11.19	48867	16.8
1 – 2	58480	18.99	52856	18.2	95042	26.97	74661	25.6
2 – 4	35240	11.44	28379	9.7	99636	28.01	78256	26.9
4 – 10	12129	3.94	9627	3.3	67492	18.98	51994	17.8
>10	619	0,20	362	0.12	8986	2.58	4797	1.6
total	308014	100	289780	100	355664	100	290911	100

Source: District Statistical Handbook of Bulandshahr District.2010-2011

Table 1 exhibit the distribution profile of land holding in 2000-01 and 2010-11, by size ,which shows that in 2001, 42 percent of land holding fall under the category of less than 0.5 hectare, covering an area of 9.33 percent, while in 2010-11, number of holding increased up to 43 percent and cover 11 percent of an area. Hence, the numbers of marginal farmers are increasing day by day.

In case of land holding between 0.5 hectare to one hectare, the status of holding remain almost the same, but the percentage increase is there from 14.19 percent to 16.8 percent. If we sum up the percentage of marginal farmers in the district, we can see that 68.5 percent farmers come under the category of the marginal farmers.

In case of the number of small farmers (1-2 hectare), the percentage of the numbers of holders slightly changed .The percentage slightly decreased from 26.9 percent to 25.6 percent in 2010-11 under this category.

So in 2010-11, the total percentage of the number of small and marginal farmers in the district was 86 percent, which is almost equal to the national average. The rest of the 13 percent of the holdings cover medium and large farmers in the district.

If we compare the data of the year 2000-01 and 2010-11, we can find out that major changes have been recorded in the last decade in the category of marginal farmers, their numbers and the area both registered a substantial increase during this period.

Cropping Pattern Adopted By the Sampled Farmers-

Field survey shows that there are vast differences in the cropping pattern adopted by the sample farmers (table 2 and 3). The farmers whether small or large they always try to make best use of their land according to their own ability and judgment. There are two main agricultural season namely, rabi and kharif. Rabi season pertain to winter season, marked by dry weather with very little rainfall in month of January through western disturbances. Wheat is the main crop of this season. The second is the kharif season, or rainy season, marked by high temperature with lot of rain and humidity and rice is the main crop. A large variety of food and non food crops are grown in both seasons. The cropping of this district is largely traditional or subsistence type. Food grain accounts for over 85 percent area in rabi season and over 60 percent area during the kharif season. As the study shows that the cropping pattern is dominated by the food grains but there is certain variation in the adoption of food grains according to the size of land holding of the sampled farmers.

Large Farmers

During the rabi season, the entire land was under cultivation. Large farmers devote more than seventy percent area to food grain and 30 percent under non food grains. Wheat was the most favoured crop (62.3 percent of the total cropped area). Other crops like Potato covered about 16.4 %, Mustard (12.7%), barley (5.6%), and fodder (1.7 %) were grown in rabi season. During the kharif season about 96.4 percent of the total cultivated area was under cultivation and about 56% area was devoted to the cultivation of food grains, rice covered the largest area, i.e. about 47%, followed by sugarcane 41.34% area maize (5.2%), bajra/fodder (2.1%), arhar (3.5%) and other vegetables (0.76%) and other pulses respectively.

It was seen that the large farmers were devoting substantial area to food grains in which the proportion of wheat and rice was greater than other food grains, but they also devote a fairly large proportion of their land under cultivation to cash crops in which sugarcane and potato are main. Most of the large farmers concentrated more on the cultivation of food grain, while some of the large farmers engaged full time with the farming activities and devoted a large proportion of their land to cash crops i.e. sugarcane, potato, other vegetables, oilseeds, madua etc. In general, area shared by vegetables among this category is negligible. Cropping pattern of the area is partly dominated by traditional approach and partly influenced by commercial approach to fetch a better return from the market.

Medium Farmers

During the rabi season the entire area was under cultivation and medium farmers devoted about 62% of their land to the cultivation of food grain and 38% to the non food grain. Wheat 59.5%, potato 25.8%, mustard 10.5%, barley2.2%, and fodder 1.4% dominate the rabi cropping pattern. During the kharif season about 97.8 % of the total area was under cultivation, of which about 51% of the land was under food grains and 49 % was under non food grain. Sugarcane 45.1%, rice 33.7%, Arhar 13.7%, maize 4.4%, was the

FARMER'S CATEGORY	TOTAL SURVEYED AREA(in hectares)	AREA UNDER RABI(in hectares)	MAJOR RABI CROPS			
			CROPS	RANK	Area shared(hectares)	Percent to total area
			Wheat	1	103.46	62.32

Table 2: Cropping pattern adopted by the sampled farmers in rabi season

Large Farmers	165.99	165.99	Potato	2	27.28	16.43
			Mustard	3	21.13	12.72
			Barley	4	9.36	5.63
			Fodder	5	2.83	1.70
			Vegetables	6	1.93	1.16
Medium Farmers	73.01	73.01	Wheat	1	43.46	59.52
			Potato	2	18.85	25.81
			Mustard	3	7.69	10.53
			Barley	4	1.63	2.23
			Fodder	5	1.04	1.42
			Vegetables	6	0.34	0.73
Semi-medium Farmers	78.75	78.75	Wheat	1	46	58.41
			Potato	2	21.36	27.12
			Barley	3	6.23	7.91
			Fodder	4	3.32	4.21
			Mustard	5	1.38	1.75
			vegetables	6	0.46	0.58
Small Farmers	38.79	38.79	Wheat	1	23.43	60.41
			Barley	2	5.24	13.51
			Mustard	3	3.51	9.05
			Fodder	4	2.96	7.63
			Vegetables	5	2.83	7.29
			potato	6	0.81	2.08
Marginal Farmers	28.99	28.99	Wheat	1	19.42	66.96
			Vegetables	2	4.76	16.41
			Barley	3	2.18	7.51
			Mustard	4	0.94	3.24
			Fodder	5	0.87	3
			Potato	6	0.83	2.86
Total Surveyed Area	4o4.87	404.87	CROP	Total area	CROP	Total area
			Wheat	235.77	Barley	24.64
Total Surveyed Farmers			Potato	69.13	Fodder	11.02
115			Mustard	35.65	Vegetables	10.32

Source- Field Survey Conducted During August 2010, and February and March 2011

Semi Medium Farmers-

The entire area was under cultivation during rabi season. About 66% area was under food grains and 34% was under non-food grains. Wheat 58.4% was the most favoured crop followed by the potato 27.1%, barley 7.9%, mustard 1.7%, and fodder 4.2% and other vegetables 0.58%. During the kharif season about 96.60 % of the total area was under cultivation of which 65%area was under food grains and 48 percent area was under non food grains. Rice 43.6%, sugarcane 30.12%, and maize 14.97%dominate the cropping pattern in kharif season which are followed by the fodder 2.8% and 6.6%, arhar and other pulses. Apart from these crops fodder, jowar, madua, and other vegetables are other crops adopted by this category of farmers.

It was observed that cropping pattern of the semi medium farmers differ a bit from the large and medium farmers. They first want to be secure by producing enough food grains for their subsistence requirement. Like the other categories of farmers, here also wheat in rabi and rice in kharif were the preferred crops. The farmers grow cereals for their requirement as well as selling. The area under commercial crops was lesser than the medium and the large farmers. These farmers prefer to grow food grain more than the category of the other farmers.

Small Farmers-

The entire area was under cultivation during rabi season, of which about 73% was under food grains and 27 % under non food grain. Wheat 60.4%, barley 13.5% and vegetables7.2% were the favored crops. Other crops grown in this season were mustard 9.05%, and fodder 7.6%. During the kharif season about 90.8%percent of the total area was under cultivation of which about 79.6% was under food grains and 21% was under non-food grain. Rice 35.9%, maize 31.3%, arhar 12.4%, sugarcane 5.6%, fodder and bajra 11.9%.vegetables 2.7% were the dominant crops.

It was noticed that small farmers grow largely food grains for their subsistence requirements. They do not have the resources to invest for costly inputs in their farm, which are required for the cash crops. They also cannot take the risk of crop failure. They grow cash crops also for their personal requirement. The only crops which they grow for the market are vegetables. So the

cropping pattern of the small farmers is subsistence type and the farming method is traditional.

Marginal Farmers-

The entire area was under cultivation during rabi season and of this, 74 percent is under food grains and 26% under cash crops. Wheat (66.9%) and vegetables (16.4%) are the dominant crops while the mustard3.2%, barley 7.5% and pea are the other crops of rabi season. during kharif season about 99.5 percent of the total area was under cultivation, of which 56% was under food grain and 55% was under non food grains. Maize (34.9%) was the most favoured crop followed by vegetables (33.8%), rice (17.2%), bajra(7.3%), arhar(3.9%). While under the non food grain crops vegetables, sugarcane and fodder crops are the main crops.

It was noticed that because of little piece of land, most of the farmers preferred to grow the food grains crops in their field. These farmers engaged in the animal husbandry so they also grow fodder for their animals. Their methods of farming were primitive because they cannot afford the new technology so the yields obtained by these farmers were the lowest. These farmers cannot take risk of the crop failure in growing cash crops so they prefer to grow vegetables to earn their livelihood.

Table 3: Cropping pattern adopted by the sampled farmers in kharif season

FARMER'S CATEGORY	TOTAL SURVEYED AREA(in hectares)	AREA UNDER KHARIF(in hectares)	KHARIFCROPS			
			CROPS	RANK	Area shared(hectares)	Percent to total area
Large Farmers	185.38	178.7 (96.42)	Rice	1	84.03	47.00
			sugarcane	2	73.86	41.32
			Maize	3	9.38	5.24
			Arhar	4	6.31	3.53
			Bajra&fodder	5	3.81	2.13
			Other vegetables	6	1.36	0.76
Medium Farmers	73.46	71.85 (97.80)	Sugarcane	1	32.47	45.19
			Rice	2	24.28	33.79
			Arhar	3	9.86	13.72
			Maize	4	3.21	4.46
			Bajra&fodder	5	1.02	1.41
			Other vegetables	6	1.01	1.40
Semi-medium Farmers	78.38	75.72 (96.60)	Rice	1	33.02	43.60
			Sugarcane	2	22.81	30.12
			Maize	3	11.32	14.94
			Arhar	4	5.03	6.64
			Bajra$fodder	5	2.13	2.81
			Other vegetables	6	1.41	1.86
Small Farmers	38.69	35.14 (90.82)	Rice	1	12.62	35.91
			Maize	2	11	31.30
			Arhar	3	4.36	12.40
			Bajra$fodder	4	4.21	11.98
			Sugarcane	5	2.00	5.69
			Other vegetables	6	0.95	2.70
Marginal Farmers	28.96	28.818 (99.50)	Maize	1	10.058	34.91
			Other vegetables	2	9.74	33.80
			Rice	3	4.97	17.25
			Bajra&fodder	4	2.13	7.39
			Arhar	5	1.14	3.95
			sugarcane	6	0.78	2.70
Total Surveyrd Area	404.87	390.22 (96.38)	CROP	Total Area	CROP	Total area
			Rice	158.96	Arahr	26.72
Total farmers			Sugarcane	131.19	Vegetables	14.47
115			Maize	44.96	Bajra/fodder	13.3

Source- Field Survey Conducted During August 2010, and February and March 2011

The cropping pattern adopted by the farmers of the study region shows that that it is influenced by the subsistence farming. Technology is not very high. Degree of commercialization is greater only in large and medium farmers but they also prefer to grow food grains. The farmers from large to semi-medium holdings specialized in wheat, rice and sugarcane. The area under pulses and oilseeds was very less and in vegetables was negligible. Small and marginal farmers prefer to grow food grains for their family requirement and the vegetables for earning money and fodder for their cattle. On the other hand the farmers from the large to the semi medium holdings prefer to grow sugarcane, potato, madua and fodder for selling or for getting quick money

Table 4: Ranking of the Factors Influencing the Cropping Pattern of the Sampled Farmers According to the Size of Land Holding (2010-11)

Large farmers			Medium farmers			Semi-medium farmers			Small farmers			Marginal farmers		
rank	factors	Number of farmers	rank	factors	Number of farmers	rank	factors	Number of farmers	rank	factors	Number of farmers	rank	factors	Number of farmers
1	Price	13 (86%)	1	Price	14 (70%)	1	Price	18 (64%)	1	Persional requirement	18 (90%)	1	Persional requirement/tradition	21 (65.6 %)
2	Yield	11 (73 %)	2	Yield	12 (60%)	2	Tradition	14 (50%)	1	Financial problems	18 (90%)	2	Crop prospect	18 (56.2 %)
2	Personal requirement/tradition	11 (73%)	2	Personal requirement/tradition	12 (60%)	2	Crop prospect	14 (50%)	2	Crop prospect	15 (75%)	2	Irrigation	18 (56.2 %)
3	Crop prospect	9 (60%)	2	Irrigation facilities	12 (60%)	2	Irrigation	14 (50%)	3	Irrigation facilities	13 (65%)	2	Prices	18 (56.2)
4	Irrigation facilities	7 (46%)	3	Crop prospects	9 (45%)	3	Yield	10 (35%)	4	prices	10 (50%)	3	Financial problem	15 (56.2 %)
5	Governmen t policies	6 (40%)	4	Physical factors	7 (35%)	4	Availability of H.Y.V. seed	9 (32%)	5	Yield	9 (45%)	4	Yield	9 (28.1 %)
6	Physical factors	4 (26.6%)	5	Financial problems	6 (28%)	5	Financial problem	6 (21%)	5	Availability of H.Y.V seeds and fertilizers	9 (45%)	5	Physical factors	7 (21.8 %)
7	labour	3 (20%)	6	Labour	4 (20%)	6	Labour	5 (17%)	6	Physical factors	6 (30%)	6	Availability of H.Y.V. seeds and fertilizer	4 (12.5 %)
8	Availability of H.Y.V seeds and Fertilizers	1 (6.6%)	7	Availability of H.Y.V seeda and fertilizers	3 (15%)	7	Physical factors	3 (!0.70 %)	7	Government policies	3 (15%)	7	Govrnment policies	1 (3%)
8	Financial problems	1 (6.6%)	8	Government policies	1 (5%)	8	Government policies	1 (3.5%)	8	Labour	1 (5%)	8	labour	1 (3%)
	Total surveyed	15 (100)			20 (100)			28 (100)			20 (100)			32 (100)

Source- Field Survey Conducted During August 2010, and February and March 2011

Table 5: Factors Influencing the Total Numbers of Farmers

Factors	Prices	Yield	Irrigation	Crop prospect	Availability of HYV and fertilizers	Labour	Govern-ment policies	Physi-cal factors	Financial problems	Personal require-ements

Total Number /percentage	73 (65.1)	51 (45.5)	64 (57.1)	65 (58.0)	26 (23.2)	14 (12.5)	12 (10.7)	27 (24.1)	46 (41.0)	76 (67.8)

Source- Field Survey Conducted During August 2010, and February and March 2011

VII. DISCUSSION

Several factors influences the decision making process of the farmers in the selection of crop grown by them. but some factors may be more dominating than others in a particular region. it varies from region to region, from farm to farm and even from farmer to farmer. the author is trying to investigate the important factors influencing the cropping pattern of the sample farmers in the study area.most of the farmers insisted that only only factor is not responsible but more than one factors are responsible for the adoption of cropping pattern by the farmer. these factors have been discussed below—

Prices- generally, the sample farmers consider farm harvest prices before making any decision regarding the selection of the crops. these prices are the average whole prices at which the commodity is disposed off by the producer to the trader at the village level during the specified marketing period of the total sampled farmers *65.1* percent were influenced by the prices. large, medium and semi medium farmers were the most responsive to price and they gave first preference to it. the small and marginal farmers were were also fairly responsive to it. they put it on third and fourth rank. the farmers prefer to grow those crops which are profitable to them, which give them higher market prices and higher benefit. prices of the crops were influencing the cropping pattern of mostly those farmers who are socially and economically strong because these farmers can invest on costly inputs and thay can also take risk of changing their cropping pattern.

Yield—yield of the crop, emerged to be the other important factor influencing the cropping pattern of the 45.5 percent of the total sampled farmers. Farmers of all the categories of farm sizes were concerned; they prefer to grow those crops which gave them better yield that is why farmers do not prefer to grow pulses because of their low yield. This again shows that farmers these days try to maximize their income from their land.

Irrigation facilities--- availability of irrigation facilities, mode of irrigation, cost of irrigation, timeliness and adequate of supply of irrigation water etc. were taken into consideration.

Irrigation facilities were influencing 57.1 percent of the total sampled farmers. The cropping pattern of the all the farmers were equally affected by irrigation facilities.

Crop Prospects—the farmers generally expect that they will get a certain quantity of produce from the crops they grow. But some crops are more susceptible to pest, diseases and climatic changes and the risk of crop failure in these crops are high. So farmers prefer growing those crops in which the risk of crop failure is low.

In the selection of crops farmers kept an eye on the prospects of that particular crop and this factor was influencing 58 percent of the total sample farmers. Semi medium, small and marginal farmers are more cautious about the selection of crop for cultivation.

Availability of HYV of Seeds and Chemical Fertilizers--- timely availability of high yielding varieties of seeds and chemical fertilizers was the most important consideration for 23.2 percent of the total sampled farmers. The semi- medium and small farmers were very much influenced by this factor. Especially the small and marginal farmers do not put their attention on the HYV of seed because of their poor economic conditions they can not purchase these inputs from the market. The government gives subsidies on these inputs but it was observed that almost all these facilities were availed by the large and medium farmers because they area economically and politically strong. So the small and marginal farmers have local seeds and manure which results in low returns from their land.

Financial problems--- with the developing of new agricultural technology, indeed the cost of production has increased. But these inputs are quite expensive and apart from the economically well off farmers, it is very difficult for most of the farmers to invest heavily for their crops.

The financial problems were influencing the cropping pattern of 41 percent of the total sampled farmers. The small and marginal farmers are worst affected by it. These farmers belong to the economically backward classes of the society. They cannot provide the necessary input in their farm and cannot take the risk of crop failure, so they do not shift their agriculture toward commercialization. Large farmers are not affected by financial problems, while medium and semi-medium farmers are marginally affected by this factor.

Tradition- Indian farmers are bound with their tradition and they hesitate to make any change in their cropping pattern. Tradition and personal requirement was affecting the cropping pattern of 67.8 percent of the total sample farmers. Farmers cultivate crops according to their tradition and taste. Almost all the categories of the farmers were almost equally affected by their tradition of cropping pattern.

Physical factors- as we know that agricultural land use pattern is outcome of physical factors. In the study area physical factors affecting the cropping pattern of 24.1 percent of the total surveyed farmers. The district has best alluvial soil and good climatic factors so that is why the farmers have not given much importance to this factor. This region is favourable for wheat, sugarcane and rice cultivation. Somewhere we find the problem of salinity and alkalinity and water logging in this district.

Labour- availability of labour at peak season was a major problem and affecting 12.5 percent of the total sampled farmers. Large farmers were most affected followed by the medium and semi-medium farmers. The farmer's require hired labour because they themselves are not full time associated with farm and they hold large pieces of land, their family size is not much large and also do not work in the field, so to manage their large holding, they have to depend on hired labour. On the other hand small and

marginal farmers are not at all affected by the labour because they have small piece of land but a large family size to work in the field. Every working person whether women or children, engaged in agricultural activity.

Government policies--- in the district 10.7 percent of the farmers to the total sampled farmers were influenced by the government policies. Government policies regarding distribution of loan, giving of subsidies on fertilizers and high yielding variety of crops, improving in irrigation system, land development policies etc. are for the benefit of small and marginal farmers. These policies influenced the decision of cropping in their field.

VIII. CONCLUSION

The above study of the 115 sampled farmers of all the categories and farm size shows that there is a close relationship between the socio-economic status of the farmers and cropping pattern adopted by them.

The large farmers by and large belong to the high economic status. They are strong, wealthy, educated and are politically well connected. They have a greater capacity to invest their resources, and to take risk. They are in a position to own agricultural implements, apply prescribed doses of fertilizers, high yielding varieties of seeds, pesticides, insecticides and even maintaining a permanent work force. They can take risk in changing their cropping pattern and they grow those crops which give them higher monetary benefits. Although their cropping pattern is dominated by food grains but they also specialized in the cultivation of non food grains. Wheat is the most favored food grain, which covered the bulk of the area during the rabi season, while rice and sugarcane dominated the cropping pattern during the kharif season. Apart from these crops, large farmers devote substantial area to other crops like mustard, arhar, maize etc.

The most important factor influencing the cropping pattern of the large farmers was price. The next two important factors influencing their cropping pattern were yield and tradition. Other factors which influencing the cropping pattern were crop prospects and labour. The availability of labour at peak season is very difficult.

There is not a large difference between the large and medium farmers. Medium farmers have also great invest their own resources, greater capacity to take risk, better access to credit, information, education and better wealth position. There is slight difference between the large and medium farmers. Medium farmers have greater access to technology and more concentration on their farms. The intensity of cropping is highest on these farms.

The cropping pattern of the medium farmers is also dominated by food grains. In rabi season cropping pattern of these farmers is same as the large farmers but in kharif they give priority to sugarcane than rice and arhar crops.

There is no difference between the cropping pattern of the medium and semi medium farmers. The only difference is that, there is intensive utilization of land and the family members work in the fields. They generally do not hire the labour. Again the cropping pattern is dominated by food grains. Wheat during the rabi and rice and maize during the kharif season are dominant crops. Among the non-food grains sugarcane and mustard was the preferred crops. Among this category of farmers, we find that factors like irrigation facilities, availability of High Yielding Variety of seeds and chemical fertilizers and financial problems are gaining importance which shows the difference in socio-economic status of these farmers.

The small and marginal farmers generally belong to the economically under privileged section of the society. They are socially and economically backward and belong to the category of rural poor. They do not have the access to credit, technical know-how, information, education and skills etc. they do not have their own irrigation facilities and are unable to invest on input like high yielding seeds, chemical fertilizers and pesticides etc. these farmers grow food grains basically for their self consumption. There cropping pattern also dominated by food grains. In rabi season wheat and in kharif season maize and bajra are dominant crops. The only cash crop is vegetable cultivation which provides them seasonal income for sustainability. These crops are preferred because it requires low investment and also because they are growing these crops a part of their tradition. So these farmers cultivate vegetables for the market which fetches them quick money for their daily needs.

The cropping pattern of the small and marginal farmers was influenced by financial problems. But the overall study shows that farmers understand profit, so they always to maximize their profit whether belong to the large, medium, small or marginal category of land holdings.

Finally for more judicious, proper, profitable use of land and a scientific approach is advisable. District soil mapping with its condition and characteristics is to be done and the choices of the crops should be decided in combination with other factors accordingly.

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