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Socio-economic and psychological status of farmers with reference to changing cropping pattern for sustainable future in Muzaffarnagar district of Uttar Pradesh

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Abstract
This paper presents a comprehensive analysis of the socio-economic and psychological profile of farmers in the Muzaffarnagar District of Uttar Pradesh, with a focus on the shifting cropping patterns. The study delves into the economic backgrounds, educational levels, landholding sizes, and access to resources among farmers. Additionally, it explores the psychological factors influencing decision-making and adaptation to changing cropping patterns. The Changing of cropping pattern in any region is an outcome of varied factors, which plays important role i.e., psychological and socio-economic factors. The result also found that the majority of the respondents had medium level of availability of labour (60.00%), followed by high level (19.33%) and low level (6.67%) of availability of labour. The result also found that the majority of the respondents had medium level of Availability of Processing facilities (65.00%), followed by high level (28.33%) and low level (6.67%) of Availability of Processing facilities. The result also found that the majority of the respondents had medium level of Availability of H.Y.V seeds and Fertilizers (55.00%), followed by high level (23.33%) and low level (21.67%) of Availability of H.Y.V seeds and Fertilizers. The Changing cropping pattern and the level of crop production of a region is influenced by capital, marketing, labour, transport, economic condition of the farmer, risk aversion, traditional practices, institutional facilities etc. It can be concluded that there is a need to develop farmers' competencies on the consequences of changes in cropping patterns for a sustainable future.

Keywords: Cropping pattern, sustainable future, psycho-cultural factors

Introduction
Agriculture plays a very important role in the economic development of the country where 70% of the population is directly or indirectly depends on agriculture for their survival. The Cropping pattern means the proportion of area under different crops at a time or the regional allocation of land among different crops. An ideal crop plan should not only meet the food requirement of the local people or farmers and their families but also meet the fodder requirement of the farm animals. The choice of crops, their diversity and the area covered under different crops obviously depends on many factors, such as soil conditions, temperature and rainfall, economic factors such as price structure of different crops, availability of labour, capital marketing, transportation. Convenience, proximity to market etc. are the factors that determine the choices of crop to be grown.
Agriculture in developed countries is largely commercial, cultivated for profit. Whereas in developing countries like India, the objective of agriculture is to maximize production to meet food requirements as well as other financial obligations of the farmer's family. There is a close relationship between the size of land ownership and cropping patterns. Farmers like to adopt this type of cropping system in their fields so that their income can increase even from limited land holdings. How land size in combination with other factors determines crop choice can be clearly seen in the field.

Methodology
In this study, the investigator has attempted to describe the socio-economic and psychological variables of the farmers. The study was conducted in Muzaffarnagar District

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of Uttar Pradesh. Among two blocks of Muzaffarnagar and Purkaji were selected purposively based on the maximum specialized cropping pattern area. Two villages from each block were selected, randomly. A total number of 120 respondents were selected for the present study by using proportionate random sampling. The frequency of the respondents was ascertained and expressed in percentage and based on the range created by the maximum and minimum scores the respondents were given categories into low, medium and high, allocating them into the continuum.

Table 1: Distribution of respondents according to the socio-economic and psychological characteristics (N = 120)

S. No.	Variables	Categories	Frequency	Percentage
1.	Age	Young (Up to 30 years)	23	19.16
		Middle (31 - 60 years)	82	68.33
		Old (Above 61 years)	15	04.16
2.	Gender	Male	109	90.83
		Female	11	9.16
3.	Family size	Small (up to 4 members)	65	55.00
		Medium (5– 8 members)	45	37.00
		Large (above 8 members)	10	08.33
4.	Education	Illiterate	16	13.33
		Primary	27	22.50
		Secondary	24	20.00
		High school	23	19.16
		Intermediate	17	14.16
		Graduate	13	10.83
5.	Farming experience	Low (Up to 10 years)	27	22.50
		Medium (11 - 20 years)	73	60.83
		High (Above 20 years)	20	16.67
6.	Income	Low (Up to Rs. 50,000)	76	63.33
		Medium (Rs 50,001 – Rs 2,00,000)	26	21.67
		High (Above Rs 2,00,000)	18	15.00
7.	Operational Land holding	Marginal (up to 1 ha)	26	21.66
		Small (1.01-2 ha)	51	42.50
		Semi-medium (2.01-4 ha)	28	23.33
		Medium (4.01-10 ha)	13	10.83
		Large (above 10 ha)	2	01.67
8.	Cropping pattern	below average (< 2.32 score)	23	19.16
		Average (2.32 -5.20 score)	83	69.16
		Good (> 5.20 score)	14	11.66
9.	Irrigations Facilities	Tube Well	48	40.00
		Submersible	41	34.16
		Canal	18	10.59
		Other	13	10.83
10.	Farm Power and Implements	Low (.Up to 5 score)	39	32.50
		Medium (6-9 score)	57	47.50
		High (Above 9 score)	24	20.00
11.	Price	Low (Up to 10 score)	29	27.50
		Medium (11-20 score)	66	55.00
		High (Above 20 score)	25	20.83
12.	Yield	Low (up to 5 score)	30	25.00
		Medium (5-10 score)	67	44.67
		High (above 10 score)	23	19.16
13.	Crop Prospects	Low (up to 20 score)	29	17.06
		Medium(21- 28 score)	54	45.00
		High (above 28 score)	37	30.83
14.	Economic motivation	Low (up to 13 score)	39	32.50
		Medium(14- 22 score)	68	56.67
		High (above 22 score)	13	10.83
15.	Innovative proneness	Low (up to 10 score)	18	15.00
		Medium(11-18 score)	75	62.50
		High (above 18 score)	27	22.50
16.	Availability of labour	Low (up to 7 score)	19	15.83
		Medium(6 to 14 score)	72	60.00
		High (above 14 score)	29	19.33
17.	Availability of Processing facilities	Low (6-14 score)	08	6.67
		Medium (15-22 score)	78	65.00
		High (23-30 score)	34	28.33
18.	Availability of H.Y.V seeds and Fertilizers	Low (10-23 score)	26	21.67
		Medium (24-36 score)	66	55.00
		High (37-50 score)	28	23.33

Socio-economic and psychological status of farmers

From table 1, majority of respondents come under the middle age group (68.33%) followed by the young age group (19.16%) and old age group (04.16%). During data collection, it was observed that middle and old age group people intended to protect their natural resources and maintain their changing cropping pattern and also interested to maintain their sustainable agriculture as compared to young age group. The result found that majority of the respondent are male (90.33%) followed by the female (9.16%). The result observed that majority of the respondents belong to small family size (55.00%) followed by medium family size (37.00%) and large family size (8.33%). As found among the respondents, highest percentage of respondents passed Primary school (22.50%) followed by Secondary school (20.00%), High school (19.16%), Intermediate (14.16%) illiterate (13.33%) and Graduate (10.33%). This could reveal that the respondents were highly aware about effective use of information available to the respondent regarding cropping pattern change in the area. The result also found that the majority of the respondent comes under medium farming experience (60.83%), followed by low farming experience (22.50%) and high farming experience (16.67%). It is also observed that majority of respondents come under the low-income group (63.33%), followed by middle income group (21.67%) and high-income group (15.00%).

Operational land holding revealed that majority of respondents were small farmers (42.50%), followed by semi medium farmers (23.33%), marginal farmers (21.66%), medium farmers (10.83%) and large farmers (21.67%). During the study it was observed that agricultural land become fragmented due to increase in population; thereby the very purpose of agriculture had been diverted to other non- agricultural purposes due to different interests of the owners. It is also observed that majority of respondents come under the average Cropping pattern (69.16), followed by below average (19.16%), and good cropping pattern (11.66%). The study found that the majority of the Irrigation Facilities of the respondent comes under the Tube well (40.00%), followed by submersible (34.16%), canal (10.59%) and other (10.83%). The result also found that the majority of Farm Power and Implements of the respondent comes under medium category (47.50%), followed by low (32.50%) and High category (20.00%). Moreover, fast industrialization and urbanization enhanced usage of agricultural land for non-agricultural purposes.

The Price factors exposed that majority of respondents had medium level (55.00%), followed by low level (27.50%) and high level (20.83%). The variable exposure frequency of yield factors that majority of respondents had medium level (44.67%) followed by low level (25.00%) and high level (19.16%). More than half of respondents had medium level of (45.00%) crop prospects followed by high level (30.83%) and low level (17.06%) of crop prospects behaviour. The result also found that the majority of the respondents had medium level of economic motivation (56.67%), followed by low level (32.50%) and high level (10.83%) of economic motivation.

The result also found that the majority of the respondents had medium level of innovative proneness (62.50%), followed by high level (22.50%) and low level (15.00%) of innovative proneness. The result also found that the majority of the respondents had medium level of availability of labour (60.00%), followed by high level (19.33%) and low level (6.67%) of availability of labour. The result also found that the majority of the respondents had medium level of Availability of Processing facilities (65.00%), followed by high level (28.33%) and low level (6.67%) of Availability of Processing facilities. The result also found that the majority of the respondents had medium level of Availability of H.Y.V seeds and Fertilizers (55.00%), followed by high level (23.33%) and low level (21.67%) of Availability of H.Y.V seeds and Fertilizers.

Conclusion

From the results of the present study, The Changing cropping pattern and the level of crop production of a region is influenced by capital, marketing, labour, transport, economic condition of the farmer, risk aversion, traditional practices, institutional facilities etc. It can be concluded that there is a need to develop farmers' competencies on the consequences of changes in cropping patterns for a sustainable future.

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