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Socio-economic Determinants of training need of pulse farmers: A study of Bundelkhand region of Uttar Pradesh

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Abstract

The study was conducted to assess the socio economic profile of pulse growers and analysing its association with training needs of farmers. The study was carried out in 10 villages, randomly selected, from two blocks of Banda district of Bundelkhand region of Uttar Pradesh where pulse was the major crop. A sample of 120 farmers was randomly selected from selected villages. A semi structured interview schedule was administered for data collection through personal interview method. Further, the data was analyzed by using appropriate statistical methods. It was observed that the majority of pulse growers were male, middle aged, possessed medium level of education and having joint and large family. Majority of respondents had kuccha house, small land holdings and farming as a sole profession. The average annual income of majority of pulse growers was recorded between Rs. 60,001/- to Rs. 1,50,000/-. The study reveals that the social participation of pulse growers was very low, while extension contact was found at medium level. Majority of pulse growers exhibited medium level of mass media exposure and scientific orientation as well. Study also depicts that majority of the pulse growers had not attended any type of training for scientific cultivation of pulses. Age and farming experiences were found negative and significantly correlated with training needs, while education, land holding, material possession, social participation, extension contact, mass media exposure and scientific orientation were positive and significantly correlated with training need of pulse growers.

Keywords: pulse farmers, Bundelkhand, SES, sustainable development

Introduction

Pulses have been grown since millennia and have been a vital ingredient of the human diet in India. Even “balanced food” as defined over 1000 years ago, consisted of pulses, besides cereals, vegetables, fruits, and milk products (Ayachit, 2002) [2]. Pulse or grain legumes from the rich and cheap source of protein for both vegetarian and non-vegetarians and particularly for the poor people, not only in India but also throughout the world (Majumdar, 2011) [16]. Legumes are referred as powerhouse of nutrients. They are not only rich source protein but also dietary fibre, complex carbohydrate, resistant starch, and a bevy of vitamins and minerals such as folate, potassium, selenium and zinc. They are low in fat and, being a plant food, contain no cholesterol (Patterson *et al.* 2009) [26]. Grain legumes play an important nutritional role in the diet of millions of people in the developing countries and are, thus, sometimes referred to as the poor man’s meat (Merga and Haji, 2019) [19]. In India, total pulses area is 283.4 lakh hectare(Lha) with a total production of 231.5 lakh tonnes (Lt) and productivity is 817 kg/ha. As per the annual report of Directorate of Economics and Statistics (2018), Government of India, India shares 35.58 percent of area and 25.79 percent of total pulse production in the world. According to FAO, India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world (FAO, 2020) [39]. In India pulses are mainly grown in Rajasthan (22.36%), Maharashtra (16.70%), Madhya Pradesh (15.48%), Karnataka (11.51%), and Uttar Pradesh (8.36%). Uttar Pradesh is the fifth largest state in terms of area under pulses cultivation and fourth largest state in pulses production. It accounts for nearly 23.7 Lha areas and 24.5 Lt pulses production (DES, 2020). The Bundelkhand region is comprised of 13 districts including 7 districts from Uttar Pradesh and 6 districts from Madhya Pradesh. In Uttar Pradesh, Bundelkhand region covers districts of Chitrakoot, Banda, Mahoba, Hamirpur, Jalaun, Jhansi and Lalitpur.

The region is well suited for pulses especially chickpea production due to its unique agro-climatic condition and that is why this region is also known as bowl of pulses (Narain *et al.*, 2014) [21]. This region contributes about 53 percent of total pulse area and 43 percent of the total pulse production of Uttar Pradesh.

It is evident from various reports that the pulse productivity in India is low (817 kg/ha) in comparison to the world average of 929 kg/ha (FAO, 2019). It may be low, due to low area coverage, non-adoption of DAP spraying and excessive weed growth (Amutha, 2011) [1]. Lack of knowledge and skill; and poor technical guidance are some of the major constraints in low productivity of pulses (Burman *et al.*, 2008; Kumar *et al.*, 2010) [4, 13]. Keeping the above problem in view, the present study was undertaken in the pulse dominant district of Banda in the Bundelkhand region of Uttar Pradesh in order to know the socio-economic profile of pulse growers and their correlation with training need of pulse farmers.

Methodology

Locale of study

The study was conducted in Bundelkhand region of Uttar Pradesh which comprises seven districts namely Chitrakoot, Banda, Mahoba, Hamirpur, Jalaun, Jhansi and Lalitpur. The region is known for cultivation of various important pulse crops. Bundelkhand contributes about 53 percent of total pulse area and 43 percent of the total pulse production of Uttar Pradesh.

Sampling procedure

Badokhar Khurd and Tindwari blocks of Banda district were selected purposively having maximum area under pulse cultivation among all blocks. Five villages from each block were selected randomly. In each village about 12 farmers were selected there by making a sample of 120 respondents. The data was collected with the help of pre tested semi structured interview schedule. Personal interview method was used for recording the responses.

Data analysis

The data were tabulated and analyzed the statistical methods such as percentage (%), mean, standard deviation and Karl Pearson's coefficient of correlation were used to analyse the data.

Results and Discussion

It is important to examine the characteristics of farmers in social science study, which will provide a simple and clear understanding of farmers' backgrounds. The findings on major socio-economic characteristics of pulse growers are discussed in this section.

Sex

It is indicated that majority of the pulse growers are male i.e. 89.17 percent and the remaining 10.83 percent were female. The findings are in line with Vijay *et al.* (2020) [37]. This gender imbalance, in fact, is the result of male dominant society. Despite having no recognition, almost 80 percent of the farm work is undertaken by women.

Table 1: Distribution of pulse farmers based on sex

S. No.	Category	Frequency	Percentage
1.	Male	107	89.17
2.	Female	13	10.83

Age

The data presented in Table 2 indicates that majority of the pulse growers (66.67%) were in middle age group, 20.00 percent of pulse growers belonged to old age group & 13.33 percent pulse growers were in young age group. The similar findings were reported by Sharma *et al.* (2018) [32]. The reason for such finding might be the ancestral forwarded farming which were related to culture of the society, that is why the majority of respondents were found belonging to middle age group. Very less involvement of youths was observed due to low return from agriculture.

Table 2: Distribution of pulse farmers based on age group

Sl. No.	Category	Frequency	Percentage
1.	Young (Below 32)	16	13.33
2.	Middle Age (32 to 56)	80	66.67
3.	Old Age (Above 56)	24	20.00

(Mean=44.45; SD=12.01)

Education

It can be observed from Table 3 that 13.33 percent of respondents were illiterate. Approximately, one-fourth of the pulse growers (24.17%) attained middle school education, while 18.33 percent were educated upto college level. Around 42.50 percent respondents belonged to Middle School, High School and Intermediate level, together. The findings were in line with Reddy *et al.* (2017) [29].

Table 3: Distribution of pulse farmers based on education level

Sl. No.	Category	Frequency	Percentage
1.	Illiterate	16	13.33
2.	Primary School	20	16.67
3.	Middle School	29	24.17
4.	High School	18	15.00
5.	Intermediate	15	12.50
6.	College Education	22	18.33

Caste Category

Table 4 depicts that majority of pulse growers (55.00%) belonged to OBC caste category, followed by General (33.33%) and SC (11.67%). This finding is in line with findings of Singh (2018) [15].

Table 4: Distribution of pulse farmers based on caste category

Sl. No.	Category	Frequency	Percentage
1.	General	40	33.33
2.	OBC	66	55.00
3.	SC	14	11.67

Family Type and Family Size

It is evident from table 5, that majority of pulse growers (54.17%) were having joint families and 45.83 percent were belonged to nuclear families. In case of family size, Table 5

shows that majority of pulse growers (66.67%) had large family size, having more than 5 members, while 33.33 percent

pulse growers belonged to small family size. The findings are in line with Kumari *et al.* (2018) [15].

Table 5: Distribution of pulse farmers based on family size and family type

Sl. No.	Category	Frequency	Percentage
Family Type			
1.	Nuclear	55	45.83
2.	Joint	65	54.17
Family Size			
1.	Small (Upto 5 Members)	40	33.33
2.	Large (More than 5 members)	80	66.67

Land Holding

The data presented in Table 6 shows that 27.50 percent of pulse growers belonged to small farmers' category, pulse growers belonged to marginal and medium categories were found equal i.e. 20.83 percent and semi medium and large category pulse grower had 19.17 percent and 11.67 percent respectively. Subdivision and fragmentation of family might be attribute as a major reason behind this phenomenon. The findings of the study were supported by Pandey *et al.* (2019) [29].

Table 6: Distribution of pulse farmers based on land holding

Sl. No.	Category	Frequency	Percentage
1.	Marginal (below 1 ha.)	25	20.83
2.	Small (1.0 to 2.0 ha.)	33	27.50
3.	Semi-Medium (2.0 to 3.0 ha.)	23	19.17
4.	Medium (4.0 ha to 10.0 ha)	25	20.83
5.	Large (more than 10.0 ha.)	14	11.67

Occupation

Table 7 indicates that out of 120 farmers, 87 (72.50%) were dependent upon only farming, while farming & wage earning and farming & business share equal percentage i.e. 11.67 percent pulse growers. Only 4.16 percent farmers fell in category of farming and service. This finding is in line with findings of Choudhary *et al.* (2019) [6].

Table 7: Distribution of pulse farmers based on occupation

Sl. No.	Category	Frequency	Percentage
1.	Farming and wage earning	14	11.67
2.	Farming and business	14	11.67
3.	Farming and service	5	4.16
4.	Farming as a sole profession	87	72.50

Annual Income

The Table 8 reveals that the of majority of the pulse growers (45.00%) belonging to small and marginal category were found in the medium level with the annual income between ₹60,001 to ₹1,50,000 followed by 38.33 percent pulse growers in low income category (up to ₹60,000). Whereas, only 16.67 percent respondents reported annual income above ₹1,50,000. Sangode *et al.* (2019) [30] also reported the similar findings.

Table 8: Distribution of pulse farmers based on annual income

Sl. No.	Category	Frequency	Percentage
1.	Upto Rs. 60,000/-	46	38.33
2.	60,001/- to 1,50,000/-	54	45.00
3.	More than 150,001/-	20	16.67

Social Participation: The table 9 reveals that social participation of majority (66.67%) of pulse growers was poor as they were not the member of any social organization. Only one third respondents showed their association with one or two social organizations as a member. Among them, 17.50 percent of the pulse growers were the member in one organization, 10.00 percent farmers were the member of two organizations and only 5.83 percent farmers were having the membership of more than two organizations. These findings were in line with the results of Meena (2010) [18].

Table 9: Distribution of pulse farmers based on social participation

Sl. No.	Category	Frequency	Percentage
1.	Not a member of any organization	80	66.67
2.	Members of one organization	21	17.50
3.	Member of two organizations	12	10.00
4.	Member of more than two organizations or office bearer	07	5.83

Farming Experience

The farming experience was conceptualized as the number of years a farmer has spent in the cultivation of pulse crops. It indicates the practical knowledge how a farmer can overcome certain inherent farm production and adoption problems. It was found that majority of farmers (46.66%) had high level of farming experience followed by medium level (40.84%) and low level (12.50%). This is in conformity with the results of Mishra and Ghadei (2015) [20] (Table 10).

Table 10: Distribution of pulse farmers based on farming experience

Sl. No.	Category	Frequency	Percentage
1.	Low (Below 14 years)	15	12.50
2.	Medium (14 to 26 years)	49	40.84
3.	High (Above 26 years)	56	46.66

26.53; SD=12.18

Extension contact, mass media exposure and scientific orientation:

Table 11 demonstrates that majority of pulse growers (60.83%) had medium level of extension contact, while 26.67 percent of pulse growers had high level extension contact. Out of the total pulse growers 12.50 percent of pulse growers had low level of extension contact. The results are in line with Verma *et al.* (2016) [36] and Prasad *et al.* (2018) [37].

Mass Media Exposures: Table 11 indicates that majority of the farmers 64.16 percent had medium level of mass media exposures followed by high (26.67 percent) and low (9.17%) level of mass media exposure. Supported findings were reported by Verma *et al.* (2016) [36].

Scientific Orientation: It was observed that majority of the

farmers 65.83 percent had medium level of scientific orientation. Whereas, 21.67 and 12.50 percent of them had high and low level of scientific orientation, respectively, (Table-11). Palaniswamy & Sriram (2001) [22] and Masudkar *et al.* (2017) [17] also reported the similar results.

Table 11: Distribution of pulse farmers based on extension contact, mass media exposure and scientific orientation

S. No.	Category	Frequency	Percentage	Mean	SD
Extension Contact					
1.	Low (below 3)	15	12.50	6.40	3.07
2.	Medium (3 to 9)	73	60.83		
3.	High (more than 9)	32	26.67		
Mass Media Exposures					
1.	Low (below 3)	11	9.17	4.80	1.84
2.	Medium (3 to 6)	77	64.16		
3.	High (more than 6)	32	26.67		
Scientific Orientation					
1.	Low (below 13)	15	12.50	15.57	2.24
2.	Medium (13 to 18)	79	65.83		
3.	High (more than 18)	26	21.67		
Training Undergone					
1.	Participated in trainings	19	15.83		
2	Never participated in any type of training	101	84.17		

Table 12: Correlation between selected independent variable and training needs of farmers in pulse production.

S. No.	Independent Variable	Correlation Coefficient ('r' value)
1.	Age	-0.344**
2.	Education	0.913**
3.	Caste Category	-0.122
4.	Land Holding	0.212*
5.	Occupation	-0.054
6.	Annual Income	0.143
7.	Material possession	0.199*
8.	Social Participation	0.186*
9.	Farming experiences	-0.358**
10.	Extension contact	0.915**
11.	Mass media exposure	0.265**
12.	Scientific Orientation	0.207*

** Significant at the 0.01 level of significance

* Significant at the 0.05 level of significance

The results in Table 12 indicate that the variable; age was found negative and highly significantly related with training need of the respondents with the calculated value of coefficient of correlation ('r' = -0.344). Chawang and Jha (2010) [5], Jha (2015) [12], Patel *et al.* (2016) [25], Shahjar *et al.*, (2018) [31] observed the similar findings. It was further stated the pulse growers of old age group differ in knowledge acquisition behaviour in comparison to the young respondents. Whereas, the young age group pulse growers in general have higher curiosity levels.

Table 12 clearly indicates that education was found positive and highly significantly related with training need of the pulse growers. The calculated value of 'r' was 0.913. Hence, null hypothesis was rejected and empirical hypothesis was accepted. It could be inferred that education enables the people to explore new ideas to solve their problems. Hence, they become more aware about their training needs Yeasmin *et al.* (2013) [38], Patel *et al.* (2016) [25].

Above the table 12 it was revealed that, the computed coefficient of correlation of value ('r' = -0.122) of caste was

negatively and non-significantly related with training need of the respondents. Therefore, the findings accept the null hypothesis. Garg (2014) [10] also observed that caste and training needs of chickpea growers were not associated with each other.

Table 12 reveals that, the land holding was positively and significantly correlated with training need of the pulse growers. The 'r' value of 0.212 was found to be significant at 5% level of probability. The result was in line with Rajput *et al.* (2007) [28] and Jha (2015) [12].

Table 12 it was depicted that occupation was negatively and non-significantly correlated with training need of the pulse growers ('r' = -.054). The similar result was reported by Garg (2014) [10].

Table 12 revealed that the calculated coefficient of correlation value ('r' = 0.143) of annual income of the pulse growers was positive and non-significant in association with training need of the pulse growers. Hence, it may be inferred that there was no relationship between annual income and training needs of pulse growers. Bhagavanji (2012) [3] also revealed that there was no relationship between the annual income and training need of groundnut growers.

The material possession of the pulse growers was found positive and significantly associated with training needs of pulse growers of Bundelkhand region with computed valued ('r' = 0.199) of coefficient of correlation (table 12). The observations were in line with the findings reported by Bhagavanji (2012) [3] and Patel (2012) [11].

Table 12 it was observed that, the computed coefficient of correlation value ('r' = 0.186*) of social participation of farmers was positive and significant associated with training need of the farmers. Social participation provides a good exposure to farmers which in turn, develop their learning habits. It arouses their interest to learn new skills. This might be reason for such association. Lahoti and Chole (2010) [14] and Patel *et al.* (2016) [25] reported the similar observations in their studies.

Table 12 indicates the negative and highly significant correlation between farming experience and training need of the pulse growers, where 'r' value was -0.358. Chawang and Jha (2010) [5] described the same association. It may be due to reason that more experienced farmers, generally, go with their traditional ways. Their mindset is so strongly built that it cannot accept changes easily.

The computed value of coefficient of correlation ('r' = 0.915) of extension contact clearly shows the positive and highly significant association between extension contact and training needs of the pulse growers. Upadhyaya (2010) [35], Invati (2012) [24] and Garg (2014) [10] also quoted the similar result. During the survey it was observed that farmers with good extension contact were aware of new technologies and schemes provided by different agencies. So, they were very clear in identifying their training needs.

It is clear from table 12 that mass media exposure of farmers was found positive and highly significant in correlation with training needs of the pulse growers ('r' = 0.265). Higher mass media exposure provides latest information about farm innovations, thus increased the training needs of the farmers to learn new skills.

The scientific orientation of the pulse growers had shown positive and highly significant correlation with their training needs in pulse production technology. The calculated 'r' value was found as 0.207 (table 12). This might be because farmers

had scientific bent of mind towards latest technology and are getting information regarding cultivation practices through mass media, extension agencies and informal sources. They might have felt more needs for training in the main areas of pulse cultivation.

Conclusion

One of the major goals of agricultural development in hills is to persuade farmers to adopt new profitable technologies. An analysis of the socio-economic status will help in improving the effectiveness of transfer of technology activities, further resulting in accelerated adoption of new agricultural technologies. This study put forth an understanding of socio-economic profile pulse growers of Bundelkhand region of Uttar Pradesh. On the basis of the results, the socio-economic status of farmers can be improved by providing technical knowledge/training to pulses growers, increasing their level of education and increasing their social participation.

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