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ANALYSIS OF SOCIO-ECONOMIC CHARACTERISTICS AND TECHNOLOGY ADOPTION BY CHICKPEA CULTIVATORS IN UTTAR PRADESH

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Abstract

The current study was conducted in the central plain zone of Uttar Pradesh to find out the socio-economic characteristics of chickpea production technology. There are nine agro-climate zones in the state. In this region there are sixteen districts, out of which Kanpur Dehat and Unnao was randomly selected for the present study. From each of the selected districts three blocks were randomly selected. From each of these selected blocks three villages were selected randomly and from each of the selected villages, 12 respondents were selected randomly so as a total of two hundred sixteen respondents were selected for present study. The finding revealed that the majority (20%) of the respondents were illiterate, 6 per cent of them were functional literate, 17 per cent of them had education upto high school, 8% had education up to primary school, 13% had education up to middle school, 13% had education up to intermediate school, 13 per cent were graduates, whereas only 13 per cent of them had post graduate qualification. Further majority (72.222%) of the respondents had marginal size of land holding followed by small size (13.888%), medium size (8.333%), and large size only (5.557 %)respectively and majority (60.648%) of the respondents had low annual income (Rs 83086) followed by the medium income category (29.166%) and only (10.186%) of them had high annual income (Rs 380116). Most (55.557%) of the respondents had low extension contact which limited them to get the latest technical know how about the recommended practices of chickpea.

Keyword: Socio-economic characteristics, chickpea, technology adoption.

Introduction

One of India's most popular pulse crops is chickpea, commonly known as 'Gram' or Bengal gram (Kumar and Dwivedi, 2018a; Kumar *et al*., 2018b; Kumar *et al*., 2018c; Kumar and Dwivedi, 2018d; Kumar and Purnima *et al*., 2018e; Kumar and Pathak, (2019f), Kumar *et al*., 2019g). In India, chickpea is a major pulse that contributed about 35% of the pulse production area. Chickpea's area production, and productivity have fluctuated widely over the past four decades. Some of the states like Punjab, Haryana, Uttar Pradesh, and Bihar have lost significant chickpea ground, while other states like Andhra Pradesh, Maharashtra, and Karnataka have brought extra area (Siddique and Kumar, 2018h; Siddique *et al.*, 2018i; Pathak *et al.*, 2017j; Prakash *et al.*, 2017k; Kumar and Mandal, 2014L; Kumar *et al.*, 2014m; Kumar *et al.*, 2014n; Kumar, 2013o; Kumar and Dwivedi, 2015p; Gogia *et al.*, 2014q). Chickpea is a significant and valuable source of protein in the diets of poor people. Chickpea is grown in the subcontinent of India, Australia, the Mediterranean, Western Asia and the Palouse region. India is the world leader in chickpea (Bengal gram) production of 8,832,500 metric tonnes, the second-largest producer, Australia 813,300 metric tonnes stands at second position (Kumar, 2014r; Kumar *et al.*, 2012s; Mishra *et al.*, 2012t; Kumar *et al.*, 2011u; Kumar *et al.*, 2011v). Other key producers are Pakistan (751,000 metric tones) at third position. Other chickpea producers include Turkey, Burma, Ethiopia, Iran, Mexico, Canada, and United States of America. (Anonymous, 2015). India ranksfirst in area 99.27 Lakh ha with a total of 71.95 percent of global production (98.80 Lakh tones). Followed by Israel, the Republic of Modova and Bosnia & Herzegovina, China has the highest productivity (3759 kg/ha). India has 995 kg/ha chickpea production (GOI, 2017). Madhya Pradesh is the country's largest single producer with more than 40% of total output, while Rajasthan, Maharashtra, Uttar Pradesh and Andhra Pradesh contribute about 14%, 10%, 9% and 7% respectively. Andhra Pradesh and Karnataka's share has gradually increased over the past ten years. In addition, states such as Jharkhand and Chhattisgarh are increasing their region and chickpea production (Dixit, 2014-15).

Material and Methods

The current study was conducted in Uttar Pradesh in Central Plain Zone. There are nine agro-climate zones in the state. Out of sixteen districts in this region, Kanpur Dehat and Unnao was randomly selected for the present study. Three blocks were randomly selected from each of the selected districts and three villages were selected at random from each of the selected blocks. Finally, 12 respondents were selected randomly from each of the selected villages, so that a total of 216 respondents were selected for this study. The extent of socio-economic characteristics of chickpea cultivators was studied. The data was obtained by conducting a personal interview through a pre-tested schedule of interviews (Kumar and Pathak, 2016w; Pathak *et al*. 2016x; Kumar *et al.*, 2018y; Kumar *et al*., 2018z; Kumar *et al*., 2018aa; Kumar *et al*., 2018bb; Kumar *et al*., 2018cc)

Results and Discussion

The chickpea growers socio-economic characteristics Age

Table 1 It was shown that the majority of respondents (69.444%) were 36-50 years of age. Followed by 16.203% and 14.353% belonging to the over 50 age group and the under 18-35 age group, respectively. It was found that 36-50-year-old respondents were the single largest group. This may be attributed to the fact that most of the respondents in this age group were quite active and experienced in chickpea cultivation.

Education

Table 1 showed that the majority of respondents (20 percent) were illiterate, 6 per cent of them were functional literate, 8 per cent had education upto primary school, 13 % of them had education upto middle school, 17 % of them had high school education and 13 % of them had education upto Intermediate, 13 % were also graduate, whereas only 13 % of them had post graduate qualification.

Family size

Table 1 showed that the majority of respondents (64.815 per cent) had small family family size followed by medium family size (22.685 per cent) and large family size (12.5 per cent) of respondents. It was observed that respondents belonging to small sized families were more involved in chickpea cultivation.

Social participation

Table 1 showed that only 1.388% of respondents had a high level of social participation, while only 21.296% had a medium level of social involvement and a majority (77.316%) had a low level of social involvement. This result was consistent with Shakya's (2007) results, which indicated that the majority of gram growers (44.17 percent) had low social participation. Consequently, it can be assumed that most respondents are not interested in social involvement.

Size of land holding

Table 1 shows that the majority of respondents (72.222%) had large land holdings followed by small holdings (13.888%), medium size (8.333%) and large size (5.557%) collectively. It was observed that majority of the respondents were marginal chick pea farmers who had less than one ha size of land holding.

Annual income from other sources

Table 1 showed that the majority (60.648%) of respondents had low annual income (Rs 83086) supported by medium income (29.166%) and only (10.186%) had high annual income (Rs 380116). It was found that the mean annual income was Rs148514. These results are consistent with the findings of Prajapati (2006), which showed that a greater percentage of respondents (51.66%) belonged to the low-income group.

Income from the agriculture

Table 1 showed that the greater part of respondents (87.962%) had medium agricultural income levels followed by low agricultural income levels (6.944%) and only 5.092% had high agricultural income levels. It can be inferred that most respondents had medium income from agriculture (Rs 24325 to 204095).

Attitude

Table 1 showed that the majority (68.055 percent) of respondents had a favorable attitude, followed by the most favorable (30.094 percent) and the least favorable (1.851 percent) attitude. In implementing the recommended chick pea production technology, it can be concluded that a favorable attitude of farmers can be beneficial. This observation was consistent with Prodhan *et al.* (2017) findings.

Table 1: Distribution of chickpea cultivators according to their socio-economic characteristics (N=216)

SN	Variable	Category	Frequency	Percentage	Mean	SD
1	Age	18-35 years	31	14.353	50.995	13.564
		36-50 years	150	69.444		
		> 50 years	35	16.203		
2.	Education	Illiterate	44	20.370	3.143	2.276
		Functional literate	15	6.944		
		Primary school	18	8.338		
		Middle school	30	13.888		
		High school	37	17.129		
		Inter mediate	30	13.888		
		Graduation	29	13.425		
		Post-graduation	13	6.018		
3	Family size	Small (up to 4)	140	64.815	10.990	5.636
		Medium (5-8)	49	22.685		
		Large(8)	2	12.500		
4	Social Participation	Low (01)	167	77.316	0.236	0.457
		Medium (2)	46	21.296		
		High (above 3)	3	1.388		
5	Size of land holding	Marginal (< 1 ha)	156	72.222	4.096	5.224
		Small (1-2 ha)	30	13.888		
		Medium(2-4 ha)	18	8.333		
6	Annual income from all the sources	Large (> 4 ha)	12	5.557	148514	121200
		Low (<Rs 83086)	131	60.648		
		Medium (Rs 83086-380116)	63	29.166		
		High (>Rs 380116)	22	10.186		
7	Income from agriculture	(< Rs 24325)	15	6.944	89885	71421
		(Rs 24325-204095)	190	87.964		
		(>Rs 204095)	11	5.092		

8	Attitude	Less favorable	04	01.851	24.27	3.75
		Favorable	147	68.055		
		Most favorable	65	30.094		
9	Extension contact	Low	120	55.557	0.740	1.046
		Medium	68	31.481		
		High	28	12.962		
10	Mass media sources utilization	Low	40	18.518	4.037	2.332
		Medium	151	69.907		
		High	25	11.575		
11	Formal information source utilization	Low	138	63.888	0.541	1.033
		Medium	56	25.927		
		High	22	10.185		
12	Utilization Informal information sources	Low	30	13.888	4.929	1.562
		Medium	145	67.129		
		High	41	18.983		
13	Experience in chickpea cultivation	Low	18	08.333	24.134	11.249
		Medium	183	84.722		
		High	15	06.945		
14	Livestock possession	Small(< 3)	20	9.259	3.060	2.274
		Medium (4-6)	187	86.575		
		High (> 6)	09	4.166		
15	Training exposure	Low	137	63.425	0.435	0.848
		Medium	70	32.407		
		High	9	4.629		
16	Occupation	Agriculture	113	52.315	1.675	0.622
		Non- agriculture	53	24.537		
		Labour	50	23.148		
17	Type of house	Pakka	100	46.296	1.800	0.710
		Kaccha	79	36.575		
		Mixed	37	17.129		

Extension contact

Table 1 shows that most respondents (55.557 percent) were followed by low extension contact by moderate extension contact (31.481%) and only 12.96% had high extension contact categories. Mohanty *et al*. (2013) in their study also had similar findings and indicated that most (46.67%) of respondents had low extension agency contact.

Mass - media sources utilization

Table 1 showed that the majority (69.907%) of respondents had a moderate level of use of mass media sources accompanied by a low level of use (18.518%) and a high level of use of mass media sources (11.575%).

Formal information source utilization

From Table 1 it was observed that the majority (63.888%) of respondents had a low category of use of formal information sources, 25.927% had a medium category of formal information sources. Only 10.185% of them had a high category of formal information sources.

Utilization of Informal information sources

It was find from Table 1 that the majority (67.129%) of respondents had a medium category of use of informal information sources followed by a high level (18.888%) and only 13.888% had a low category of use of informal sources of information.

Experience in chickpea cultivation

Table 1 revealed that majority (84.722%) of the respondents had medium level of experience in chickpea cultivation, 8.333 % and 6.945 percentage of chickpea growers had low and high experience, respectively. The cumulative chickpea cultivation experience of the respondents was found to be 24.134 years.

Livestock possession

Table 1 showed that the majority (86.575 per cent) of respondents had medium livestock possession categories followed by small (9.259 per cent) and large (4.166 per cent) livestock possession categories.

Training exposure

Table 1 find that majority (63.425%) of the respondents had low training exposure followed by medium exposure (32.407%) and high level (4.629%) of training exposure programme in chickpea production technology.

Occupation

Table 1 revealed that majority (52.314%) of the respondents had main occupation of agriculture followed by non-agriculture (24.537%) and labor categories (23.148%) among the chickpea growers.

Types of house

Table 1 revealed that majority (46.296%) of the respondents had pakka house followed by kaccha (36.575%) and mixed (17.129%) type of houses among the chickpea growers.

Level of technology adoption

Table 2 showed that the majority (72.685 percent) of respondents had a medium adoption rate, followed by 16.204 percent who had a low adoption level and 11.111 percent

who had a high technology adoption level. Prashanth *et al*. (2018) in their study also reported that majority (50.83%) of the respondents had moderate level of technology adoption.

The medium level of adoption might be attributed to fairly good number of literate farmers having small family, favorable attitude towards adoption; however due to evident low extension contact and low training exposure farmers might have found it difficult to adopt the technology up to the full extent. Periodic training and regular visit of extension agents may be helpful in increasing overall technology adoption by chickpea growers.

Table : 2 Distribution of the respondents based on the overall adoption (N=216).

S.N.	Level of technology adoption	No of Respondents	%	Mean	SD
1.	Low	35	16.204	38.861	8.398
2.	Medium	157	72.685		
3.	High	24	11.111		
	Total	216	100		

Conclusion

It can be concluded, based on the findings of this study, that most of the respondents were middle aged, literate, had low social participation, low annual income, and favorable attitude, and low extension contact, moderate level of utilization of information sources, very low training exposure and moderate level of livestock possession. So there is a need to focus on enhancing farmer's knowledge about recommended chickpea cultivation package and practices by conducting periodic training and regular field visit by extension functionaries.

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