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Association of Socio-economic Attributes with Adoption of Clusterbean Technologies

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ABSTRACT

The study was conducted to determine the personal. Socio-economic and psychological characteristics of clusterbean grower and to explore the relationships between selected characteristics of the farmers and extent of adoption. Data were collected through interviewing during the year 2008 from randomly selected of Bikaner and Churu districts of Rajasthan with the sample size of 316 respondents they were cultivating clusterbean for last 5 years. Results indicated that more than half of the respondents were in age group from 31 to above 50 years. Medium level of land holding, social participation, farm assets, achievement motivation and annual income group whereas about half of the respondents were found literate upto middle schooling, credit behaviour and economic motivation. About two-third of respondents were observed in medium level i.e. risk orientation, progressiveness, source of information utilized and extension participation and relatively higher proportion of the respondents had to prefer training medium to high level of received, while majority of the farmers were found in medium level of socio-economic status and partial farming situations respectively. The results of correlation coefficient and multiple regression analysis clearly indicated that the independent variables namely, credit behaviour and economic motivation are essential in making the farmers more adopters because, the two variables affects the adoption process steps.

Key words: *Clusterbean; Credit behaviour; Economic motivation; Risk orientation; Extension participation;*

Clusterbean is a multipurpose arid legume grown for vegetable, grain, fodder and green manuring. It has also attained the status of commercial arid legume crop as green guar seeds are the source of high quality glactomannan gum and protein rich (40-45%) guar meal as a animal feed. India is the major producer of guar gum in the world and enabling its export to more than 65 countries. It has been cultivated in India Pakistan for generations. In India clusterbean grown in 24.0 lakh hectare area, produces 9.6 lakh tonnes with productivity of 402 kg/ha with major share of Rajasthan with 82.1 per cent followed by Haryana (8.5%), Gujrat (8.3%) and Punjab (1.0%) which farm producing 64, 22, 12 and 2 per cent of clusterbean seed. In Rajasthan during 2007-08, 29.09 lakh hectare area was occupied by clusterbean with 12.43 lakh tonnes production and with a productivity level of 427 kg ha-1 in Rajasthan, arid region accounts for 96 per cent area of the crop and 82 per cent of the guar seed production with a productivity of 220.2 kg/ha against 257.3 kg/ha of the state (2000-05). Guar consumption at various level, food industry (30%), oil and petroleum industry (20%), textile industry (18%), paper industry (12%), pharmaceutical industry (10%) and other industry (10%). Clusterbean being a legume, is also valuable as a crop rotation crop. It an absorb atmospheric nitrogen and thereby improve soil fertility. It also check soil erosion as cover crop to the soil and finds place in the strip cropping. Considering the importance of groundnut crop, an attempt has been made to study with the following specific objective:

(1)   To study the personal socio-economic and psychological characteristic of clusterbean growers.

(2)   To explore the relationship between adoption of clusterbean production technology and characteristic of clusterbean grower.

METHODOLOGY

Rajasthan state comprises ten agro-climatic zones and the Zone-Ic was selected purposely for the study. As this zone is comprised of three district, out of these, Bikaner and Churu districts were selected randomly. From the selected districts 50 per cent panchayat samities were selected randomly (total number of four panchayat samities were selected from eight panchayat samities). Ten per cent gram panchayats were selected from selected panachayat samities and hence, 19 gram panchayats were also randomly selected. One village was randomly selected from each gram panchayat. A list of all the farmers who were growing clusterbean crop for last 5 years was prepared from each selected village. From this list 40 per cent respondents were selected randomly. Making of total sample of the 316 respondents were selected for the study purpose.

The selected farmer were interviewed with a help of a specially structured schedule. the statistical tests like, mean, standard deviation, correlation, coefficient and multiple regression analysis were used to analyse the data.

RESULTS AND DISCUSSION

Personal socio-economic and psychological characteristic of clusterbean growers: Table 1 reveals that 53.16 per cent of total respondents were in middle group of 31 to 50 years, 30.38 per cent farmers were in the old age group of above 50 years, while 16.46 per cent respondents were in the age group of 22 to 30 years. Whereas, more than half of the respondents (52.22%) were literate and they could read and write and upto middle schooling, 26.26 per cent farmers belonged to the literate level of education who could neither read and write, while 21.52 per cent farmers had formal schooling. From this educated group, 11.07 per cent farmers were educated upto graduation level.

The table also reveals that 55.07 per cent farmers had medium size of land holding, 30.37 per cent farmers were having big size of land holding and 14.56 per cent farmers were having small size of land holding whereas, 49.68 per cent respondents had medium social participation followed by low (37.97%) and high (12.35%) level of social participation. It can be seen from the table that more than 58.23 per cent of the respondents had medium level of farm assets followed by low (24.37%) and high (17.40%) level of farm assets. However, 50.63 per cent of the respondents had medium level of credit behaviour followed by low (37.02%) and high (12.35%) level of credit behaviour.

The table further reveals that more than half (56.33%) of the clusterbean growers had medium level of achievement motivation, whereas 30.70 per cent and 12.97 per cent of the respondents had high and low level of achievement motivation respectively. Table 1 indicated that the majority (68.99%) of the respondents were medium level of risk orientation group while, 16.77 and 14.24 per cent farmers had low and high level of risk orientation however, less than half of the respondents (39.25%) were in medium level of training received, 32.59 and 28.16 per cent farmers were having high and low level of training received, respectively. In case extension participation table further indicated that majority (71.20%) of the farmers were having medium level of extension participation however, 20.25 and 8.55 per cent respondents were high and low level of extension participation respectively. It is also apparent from the Table 1 that less than half of the respondents (41.77%) had medium level of economic motivation while 37.43 per cent and 20.89 per cent farmers had low and high level of economic motivation whenever majority of the respondents (67.41%) had medium level of progressiveness and 18.67 and 13.92 per cent farmers were having high and low level of progressiveness respectively.

The data depicts from the Table 1 that about two-third of the clusterbean growers (66.77%) had medium level of source of information utilized where 18.67 and 14.56 per cent growers had high and low level of source of information utilized at locality respectively. It is also clear from the table that majority of the respondents (74.68%) belonged to medium level of socio-economic status, 10.76 and 14.56 per cent respondents were low and high level of socio-economic status. However, 50.32 per cent clusterbean growers were found in medium level of income group while 21.52 and 28.11 per cent growers were having high and low income group respectively. It is apparent from the table that 51.88 per cent farmers possessed partial irrigated farming situations whereas, 27.21 and 22.21 per cent farmers had rainfed and irrigated farming situations respectively.

The findings get strength from the findings of *Meti et al. (1997), Sharma and Sharma (2003) and Jaitawat (2006).*

Table 1. Distribution of respondents according to their personal characteristics (N = 316)

S.No.	Socio economic features	No.	%
1.	*Age*		
	Young (up to 30 years)	52	16.46
	Middle (31 to 50 years)	168	53.16
	Old (above 50 years)	96	30.38
2.	*Education*		
	Illiterate (cannot read and write)	83	26.26
	Literate (read upto middle)	165	52.22
	Educated (above middle school)	68	21.52
3.	*Size of land holding*		
	Small (below 2.0 ha)	46	14.56
	Medium (2.0 to 6.0 ha.)	174	55.07
	Big (above 6.0 ha)	96	30.37
4.	*Social participation*		
	Low (score below 1.68)	120	37.97
	Medium (score from 1.68 to 3.88)	157	49.68
	High(score Above 3.88)	39	12.35
	Mean = 2.78	S.D.	1.10
5.	*Farm assets*		
	Low (score below 1.039)	77	24.37
	Medium (score from 1. 039 to 7.95)	184	58.23
	High (score above 7.95)	55	17.40
	Mean = 4.49	S.D.	3.46
6.	*Credit behaviour*		
	Low (score below 0.334)	117	37.02
	Medium (score from 0.334 to 1.83)	160	50.63
	High (score above 1.83)	39	12.35
	Mean = 1.08	S.D.	0.75
7.	*Achievement motivation*		
	Low (score below 2.65)	41	12.97
	Medium (score from 2.65 to 4.97)	178	56.33
	High (score above 4.97)	97	30.70
	Mean = 3.81	S.D.	1.16
8.	*Risk orientation*		
	Low (score below 76.92)	53	16.77
	Medium (score from 76.92 to 98.32)	218	68.99
	High (score above 98.32)	45	14.24
	Mean = 87.62	S.D.	10.70
9.	*Training received*		
	Low (score below 0.15)	89	28.16
	Medium (score from 0.15 to 1.85)	124	39.25
	High (score above 1.85)	103	32.59
	Mean = 1.0	S.D.	0.85

S.No.	Socio economic features	No.	%
10.	*Extension participation*		
	Low (score below 15.70)	27	8.55
	Medium (score from 15.70 to 32.24)	225	71.20
	High (score above 32.24)	64	20.25
	Mean = 23.97	S.D.	8.27
11.	*Economic motivation*		
	Low (score below 16.02)	118	37.34
	Medium (score from 16.02 to 24.62)	132	41.77
	High (score above 24.62)	66	20.89
	Mean = 20.32	S.D.	4.30
12.	*Progressiveness*		
	Low (score below 30.73)	44	13.92
	Medium (score from 30.73 to 66.17)	213	67.41
	High (score above 66.17)	59	18.67
	Mean = 48.45	S.D.	17.72
13.	*Source of information utilized*		
	Low (score below 10.17)	46	14.56
	Medium (score from 10.17 to 18.53)	211	66.77
	High (score above 18.53)	59	18.67
	Mean = 14.35	S.D.	4.18
14.	*Socio economics status*		
	Low (score below 27.18)	34	10.76
	Medium (score from 27.18 to 72.44)	236	74.68
	High (score above 72.44)	46	14.56
	Mean = 49.81	S.D.	22.63
15.	*Annual income*		
	Low (below Rs. 25000)	89	28.16
	Medium (from Rs. 25000 to 50000)	159	50.32
	High (above Rs. 50000)	68	21.52
16.	*Farming situation*		
	Rainfed	86	27.21
	Partially irrigated	163	51.58
	Irrigated	67	21.21

Relationship between dependent and independent variables: The existence of relationship between independent and dependent variables, when tested for all the respondents farmers is given in Table 2. It was observed that 13 variables were positively and significantly related to adoption of clusterbean production technology at 1 per cent level of probability namely, education, size of land holding, farm assets, achievement motivation, training received, extension participation, progressiveness, source of information utilized, socio-economic status and knowledge level of the farmers. However, age, social participation and risk orientation were to be found positively and significantly associated at 5 per cent level of significance, while credit behaviour and economic motivation were found negatively significant.

This findings is in conformity with the findings of *Deshmukh et al. (1995), Shivrain (2002), Rathore et al. (2003), Kumawat (2005) and Jaitawat (2006).*

Table 2. Correlation between characteristics of clusterbean growers and adoption of recommended production technology of clusterbean and variables (N = 316)

S.No.	Variables	Correlation coefficient
1.	Age	0.1409*
2.	Education	0.2736**
3.	Size of land holding	0.1531**
4.	Social participation	0.2312*
5.	Farm assets	0.2318**
6.	Credit behaviour	0.1019NS
7.	Achievement motivation	0.1490**
8.	Risk orientation	0.1351*
9.	Training received	0.2409**
10.	Extension participation	0.1742**
11.	Economic motivation	0.0176NS
12.	Progressiveness	0.1477**
13.	Source of information utilized	0.1507**
14.	Socio-economic status	0.3412**
15.	Knowledge level	0.4477**

* Significant at 5 per cent level of significance
** Significant at 1 per cent level of significance
NS=Non-significant

In multiple regression analysis 15 independent variables were fitted into explain the variation in extent at adoption of clusterbean production technology of the farmers. It may be seen from the Table 3, that the selected 15 variables explained to the 67.76 per cent variation in the extent of adoption of clusterbean technology by the farmers. The 't' test of statistic showed that this was significant at 1 per cent level.

It was revealed from the data that out of 15 variables, only two variables namely, credit behaviour and economic motivation had non-significant effect on the extent of adoption of clusterbean production technology. Further, the 't' test of significance indicated that confinement regression (b value) was found positively significant at 1 per cent level of probability were, age, education, size of land holding, social participation, farm assets, achievement motivation, risk orientation, training received, extension participation, progressiveness, sources of information utilized, socio-economic status and knowledge level. Similar results were found by *Kumawat (2005).*

Table 3. Multiple regression analysis between extent of adoption of clusterbean cultivators and their independent variables (N = 316)

S. No.	Independent variables	Byx	SE byx	't' calculated
1	Age	1.1504	0.3997	2.8781***
2	Education	1.2952	0.2569	5.0412***
3	Size of land holding	1.2672	0.5323	2.3805**
4	Social participation	1.3808	0.3279	4.2110***
5	Farm assets	0.3246	0.0769	4.2221***
6	Credit behaviour	2.0138	1.9987	1.0075 NS
7	Achievement motivation	0.4436	0.1410	3.0804***
8	Risk orientation	0.1119	0.0383	2.9216***
9	Training received	1.1799	0.7746	3.1497***
10	Extension participation	0.1929	0.0615	3.1354 ***
11	Economic motivation	0.0801	0.1203	0.6653 NS
12	Progressiveness	0.6213	0.1414	4.3940***
13	Source of information utilized	0.3294	0.1220	2.7008***
14	SE status	0.1380	0.0214	6.4331***
15	Knowledge level	0.4198	0.0574	7.3135***

$R^2 = 0.6776$ F value = 39.2627 a value -28.89
*** Significant at 1 per cent level of significance
NS = Non-significant

CONCLUSION

It can be concluded that the more than half of the respondents were in age group from 31 to above 50 years. Medium level of land holding, social participation, farm assets, achievement motivation and annual income group whereas about half of the respondents were found literate upto middle schooling, credit behaviour and economic motivation. About two-third of respondents were observed in medium level i.e. risk orientation, progressiveness, source of information utilized and extension participation and relatively higher proportion of the respondents had to prefer training medium to high level of received, while majority of the farmers were found in medium level of socio-economic status and partial farming situations respectively.

The results of correlation coefficient and multiple regression analysis clearly indicated that the independent variables namely, credit behaviour and economic motivation are essential in making the farmers more adopters because, the two variables affects the adoption process steps. Therefore, need to be taken to increase

farmers credit behaviour and economic motivation in order to achieve higher adoption of clusterbean production technology by providing credit facilities and organizing special training programme for this purpose. It was also observed from the results that credit behaviour and economic motivation were most important variables affecting directly and negetively the extent of adoption of clusterbean technology special efforts need to be taken to increase credit facility in order to achieve higher adoption of clusterbean technology.

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