

KNOWLEDGE AND ADOPTION LEVEL OF CLUSTERBEAN TECHNOLOGY IN WESTERN RAJASTHAN

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ABSTRACT

Present study was conducted in western zone of Rajasthan in Bikaner and Churu districts. A sample size of 300 farmers who were cultivating clusterbean for last five years was drawn for the present investigation. The study highlighted that majority of farmers had medium knowledge as well as medium level of adoption of clusterbean production technology. Further the gap between knowledge possessed and extent of adoption of clusterbean technology by the farmers was found out. Maximum gap was observed in 'irrigation management technology' followed by 'seed rate', 'plant protection measures' and 'sowing time, Very little gap was also observed in 'use of improved seed'. The results of Correlation Coefficient and Multiple Regression Analysis clearly indicated that 17 independent variables accounted for about 87 per cent variation of knowledge level. However, 71 percent variation was found in adoption of clusterbean production technology. Only two variables namely 'credit behaviour' and 'economic motivation' could not exert influence over knowledge and adoption significantly.

INTRODUCTION

Guar or Clusterbean {(*Cyamopsis tetragonoloba*(L.) Taub.)} is mainly grown in North-Western states of India. It is grown for feed and fodder purposes for livestock. In world scenario, India contributes about 75 percent guar seed production. This crop has recently been recognized as cash crop in desert region owing to its increasing industrial importance i.e., presence of guar in endosperm of its seeds. In India Clusterbean is grown on 240 lakh hectare area with the production of 9.6 lakh tones and productivity 402 kg/ha. The share of Rajasthan in clusterbean production is 82.1 percent followed by Haryana (8.5%), Gujarat (8.3%) and Panjab (1.0%). In Rajasthan 30 lakh hectare area was covered by clusterbean with 15.46 lakh tones production and productivity level of 515 kg/ha (Anonymous 2010). The western arid region of Rajasthan accounts for 96 percent area of the crop and 82 percent of the production with the productivity of 220.2 kg/ha. The area, production and productivity of guar is greatly dependent on monsoon pattern. Whenever, timely rains occur the sowing was done by farmers in larger area and when monsoon delayed or very less rains received the area of cluster bean crop is squeezed.

The yield potential of the improved Clusterbean varieties is about 1600 to 1800 kg/ha. This indicates that clusterbean production technology have tremendous potential for higher yield in the state. Hence, it is felt necessary to undertake the study with following objectives:-

- (i). To study the knowledge and adoption level of Clusterbean growers.
- (ii). To find out the gap between knowledge possessed and extent of adoption of recommended production technology of Clusterbean by the growers.
- (iii). To ascertain the association between personal socio-economic and socio-psychological characteristics with the knowledge and adoption level of Cluster bean growers.

RESEARCH METHODOLOGY

Rajasthan state comprises of ten agro-climatic zones. Out of these Zone-IC (Hyper Arid Partially Irrigated Western Plain) was selected purposely for the study. This zone is comprised of three districts. Out of these, Bikaner and Churu districts were selected randomly. From the selected districts five

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panchayat samities were selected randomly i.e., Bikaner, Kolayat, Dungargarh, Sardarshahar and Rajgarh. Two gram panchayats were selected randomly from each selected panachayat samities and hence, 10 gram panchayats were selected. One village was selected randomly from each gram panchayat. A list of all the farmers who were growing Cluster bean crop since last 5 years was prepared from each selected village. Out of the list of farmers so prepared 50 per cent respondents were selected randomly making a total sample of 300 respondents for the study purpose. The information was collected from the respondents with the help of a structured interview schedule by personally interviewing the respondents. The knowledge and extent of adoption was measured by using Rating Scale which was developed by the investigator himself. The statistical tests like Mean, Mean Percent Score, Coefficient of Correlation and Multiple Regression were used to analyse the data. The study was conducted during the year 2011-12.

Table 2: Gap between knowledge and adoption level

S.No.	Recommended technologies	Knowledge (MPS)	Extent of adoption (MPS)	Gap	Rank order
1.	Field Preparation and soil analysis	68.47	49.78	18.69	VI
2.	Use of improved seed	78.42	73.45	4.97	XIII
3.	Seed rate	79.75	56.0	23.75	III
4.	Sowing time	86.08	63.71	22.37	IV
5.	Spacing and method of sowing	51.96	37.59	14.37	IX
6.	Seed treatment	27.97	22.27	05.70	XII
7.	Application of culture	25.57	17.66	07.91	XI
8.	Application of fertilizers	57.29	42.72	14.57	VIII
9.	Weed management	36.39	22.29	14.10	X
10.	Irrigation & water conservation practices management	86.79	49.85	36.94	I
11.	Plant protection measures	56.99	30.10	26.89	II
12.	Harvesting and Marketing	68.89	47.83	21.06	V
13.	Crop rotation	59.95	45.04	14.91	VII
	Total	60.34	42.94	17.40	

RESULTS AND DISCUSSION

Knowledge and Adoption level

The data in Table-1 reveals that Clusterbean growers can be classified into three categories viz high, medium and low level of knowledge. Majority (71.00%) of them had medium level of knowledge. It is also clear from the table that more than half (62.67%) of the Clusterbean growers had medium level of adoption, followed by high and low categories.

Table 1: Distribution of cluster bean growers according to their knowledge and adoption level.

n= 300			
S.No.	Categories	Knowledge	Extent of adoption
1.	High	58 (19.33)	55 (18.33)
2.	Medium	203 (67.67)	188 (62.67)
3.	Low	39 (13.00)	57 (19.00)
	Mean Score	32.63	37.43
	S D Score	8.01	9.05

Figures in the parenthesis indicates percentage.

These findings are similar with the findings of Patel et.al. (1994), Meti (1997), Geengar (2006), Jaitawat (2006), and Singh et al. (2012).

Gap between knowledge and adoption level

The data presented in Table-2 shows that the overall gap between knowledge level and extent of adoption of the respondents with regards to improved cultivation practices was 17.40 MPS, which clearly indicated that still there had been a considerable gap between the knowledge possessed by them and extent of adoption of recommended production technologies of Clusterbean cultivation. Further, analysis of data in Table-2 reveals that respondents had high knowledge with 86.79 MPS about recommended 'irrigation & water conservation practices'

It may be inferred from the table that maximum gap between knowledge possessed & extent of adoption was found in the practice of 'irrigation & water conservation practices'. This might be due to the fact that most of the farmers were affected by failure of supply of electric power, uncertain supply of canal water, unavailability of underground water & erratic rainfall required in the study area. Least gap was found in 'use of improved seed'. This might be due to the fact that all the Clusterbean growers had good knowledge about improved seed that is why their extent of adoption was also high. The findings are in accordance with the findings of Patel et al (1994), Meti et al (1997), Chaudhary (1999), Patodia (2002) and Singh et al. (2012).

Table 3: Multiple regression analysis between knowledge level and adoption of clusterbean cultivators with independent variables

S.N.	Variables	Byx	Knowledge Standard Error	t calculated	Byx	Adoption Standard Error	t calculated
X1	Age	2.0978	0.6660	3.6056*	1.2504	0.3997	2.3781*
X2	Education	1.1788	0.3364	3.5116*	1.2952	0.2569	5.0412*
X3	Size of land holding	1.7578	0.4736	5.3650*	1.2672	0.5323	2.3865*
X4	Social participation	1.3201	0.2909	3.3760*	1.3868	0.3209	4.0110*
X5	Farm assets	0.4470	0.1602	4.4168*	0.3246	0.0769	4.7201*
X6	Credit behaviour	0.6414	0.9825	0.6578NS	2.0138	1.9987	1.0075 NS
X7	Information seeking behaviour	1.6943	0.3395	4.3510*	0.4436	0.1410	3.0804*
X8	Risk orientation	0.1506	0.0429	3.7262*	0.1119	0.0583	2.8216*
X9	Training received	1.5225	0.4066	3.7445*	1.1799	0.7746	3.1497*
X10	Extension participation	0.2302	0.0583	5.3864*	0.1739	0.0695	3.1854 *
X11	Economic motivation	0.1956	0.9085	0.2152NS	0.0801	0.1203	0.6653 NS
X12	Progressiveness	1.0011	0.3065	3.2668*	0.6243	0.1414	4.5960*
X13	Cosmopolitaness	0.4319	0.1565	3.2068*	0.3204	0.1206	2.7008*
X14	Socio economic status	0.1594	0.0187	8.5240*	0.1380	0.0214	6.4331*
X15	Extent of adoption	0.3462	0.0474	7.3038*	---	---	---
X16	Knowledge level	---	---	---	0.4198	0.0574	7.3135*
X17	Marketing orientation	0.1756	0.4276	4.4953*	1.3672	0.5773	2.4315*

Knowledge = R2 = 0.8746 F value = 150.67 a value -69.8987 : **Adoption =** R2 = 0.7176 F value = 36.2927 a value -28.09

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

In multiple regression analysis 17 independent variables were fitted to explain variation in knowledge possessed and extent of adoption of Clusterbean production technology by the farmers. It may be seen from Table-3 that the 17 selected independent variables explained 87.46 and 71.76 per cent variation in the knowledge level and extent of adoption respectively regarding Clusterbean technology by the farmers. The data revealed that out of 17 variables only two variables namely credit behavior and economic motivation had non significant effect on the knowledge level and extent of adoption. Similar findings have been reported by Jaitwat(2006) Singh et al. (2011) and Singh et al. (2012).

CONCLUSION

From the above explanation it can be concluded that the knowledge level and extent of adoption of Clusterbean growers were found dependent. Maximum gap was observed in 'irrigation & water conservation practices', followed by 'plant protection measures', 'seed rate' and 'sowing time'. It was also concluded that least gap was observed in 'use of improved seed'. Further, it was observed that the personal socio-economic and socio-psychological traits of Clusterbean growers were found to have highly significantly associated with knowledge possessed and extent of adoption of clusterbean growers viz. age, education, size of land holding, social participation, farm assets, achievement motivation, risk orientation, training received, Information seeking behaviour, progressiveness, cosmopolitaness, marketing orientation & socio-economic status. Only two variables i.e., credit behavior and economic motivation were found non-significantly associated with the knowledge and extent of adoption of Clusterbean growers. It was also observed that the psychological characteristics were the important variables that exerted influence on knowledge and adoption behaviour of Clusterbean growers.

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