Impact of Interventions on Knowledge and Adoption of Improved Technologies in Ber (*Ziziphus mauritiana)* Cultivation

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ABSTRACT

The present study was conducted to ascertain the knowledge gain and adoption level of ten specific technologies demonstrated through various interventions during earlier years by the KVK. Barmer, chohtan, Baytoo, Balotra, and Gudamalani blocks of Barmer District were taken for study and 20 beneficiary farmers were randomly selected from each block. The data were collected through personal interview with well-designed questionnaire. The data revealed that the gain in knowledge was more than 50 per cent for technologies *viz.,* time and method of pruning of Ber (72 %), use of micronutrient (68%), plant protection techniques and time of planting (65%), method of manure and fertilizer application (58%), drip irrigation (54%) and recommended dose of fertilizer (51%). Similarly, time and method of pruning, plant protection techniques and recommended dose of fertilizer recorded the highest extent of adoption as 63, 56 and 19 per cent, respectively. This could be due to the easiness and effectiveness of technologies at field level application and yield enhancement. Though the acquisition of knowledge for the technologies like value addition (58%), use of micronutrient (68%) and drip irrigation (62 %) was high, the number of farmers adopting these technologies were very low *i.e.,* 31, 25 and 13 per cent, respectively.

Key Words: Adoption, Ber, Dissemination, Knowledge, Pruning, Technology, Time.

INTRODUCTION

Barmer district is located in extreme arid zone of Thar Desert in western part of Rajasthan which has the potential of cultivating greengram, mothbean, pearlmillet and cluster bean are the major rainfed crops raised in sandy loam soils during monsoon season. Cumin and Isbgol are the major irrigated crops while ber, pomegranate, date palm and lasora (Gunda) are the important arid fruit crops. The literacy level of farmers and the technical know-how on advanced crop production practices was observed to be poor. Indian ber or jujube (*Ziziphus mauritiana* Lam.) is mainly cultivated in 5 blocks of Barmer district *viz.,* Barmer, Chohata, Baytoo, Sindhari and Gudamalani. The important varieties under cultivation are Gola, CAZRI Gola, seb, Umran Tikadi, Illaichi, Chuhara, Mundia, Aliganj and Jogiya for domestic use and also for export purposes. The farmers were less assured of their crop due to the socio economic factors *viz.,* less affordability towards high cost of inputs, biotic and abiotic stresses.

The KVK focused its extension activities in the five ber growing blocks of Barmer from2014 to 2016 to improve the knowledge level of farmers and adoption of advanced production technologies pertaining to ber cultivation. The KVK demonstrated various technologies through series of interventions in the form of trainings, front line demonstrations, on farm trials, exposure visits etc. The present study was undertaken to ascertain the gain in knowledge level and the adoption level of various interventions on ber cultivation.

MATERIALS AND METHODS

Most of the interventions were carried out in 15 blocks of Barmer district, but only five blocks *viz.,* Barmer, chohtan, Baytoo, Sindhari, and

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Gudamalani were selected for the study. For the selection of respondents, a list of beneficiaries of various programmes of KVK during last three years (2014-15 to 2017-18) was prepared. Out of 245 beneficiaries, randomly 20 farmers were selected from each block thus making a total sample of 100 farmers. A questionnaire was prepared and the data were collected through personal interviews with the respondents. The data were processed, tabulated, classified and analyzed in terms of percentage. Total ten package practices were selected to evaluate the farmers' extent of knowledge gained and adoption of ber production technologies as a result of various intervention *viz.,* trainings, method demonstrations, front line demonstrations (FLDs), diagnostic visits, advisory services and exposure visits etc.

RESULTS AND DISCUSSION

Gain in knowledge

The data (Table 1) reveal the highest gain of 72 per cent observed in time and method of pruning to improve the yield and quality of Ber fruit. This could be due to the frequent trainings and demonstrations conducted by the KVK and because of the easiness of technology at field application. This was in consonance with the findings of Singh *et al* (2014) with respect to adoption due to conductance of the

trainings and FLDs. Use of micronutrient recorded the knowledge gain to the tune of 68 per cent. Sixty five per cent gain in knowledge was observed towards use of plant protection techniques (spray of insecticide to manage fruit fly) to improve the quality of fruit .This was in agreement with De Groote *et al* (2014) and Alagukannan *et al* (2015). Method of fertilizer application along with FYM to the ber plants recorded the knowledge gain of 58 per cent. Gain in knowledge regarding drip irrigation, recommended dose of fertilizers, value addition such as grading, selection of variety and planning and layout of orchard was observed to be 54, 51, 48, 42 and 38 per cent, respectively. The least gain in knowledge was observed for time of planting. These observations were in agreement with Alagukannan *et al* (2015) for banana crop and Joseph (2008) who reported that the knowledge levels were found to be increased for weeding, fertilizer application, plant protection measures and harvesting practices of maize after attending the training programmes.

EXTENT OF ADOPTION

The data (Table 2) revealed that change in the adoption level was found to be 63 per cent by the farmers for time and method of pruning in ber followed by integrated pest management approach for management of fruit fly (56.0%), recommended

Table 1. Gain in knowledge due to intervention of KVK.   **(N=100)**

Sr. No.	Name of Technology	Knowledge level (%)		
		Before KVK intervention	After KVK intervention	Gain in Knowledge
1.	Time and method of pruning	08	80	72
2.	Use of micronutrients	00	68	68
3.	Plant protection measures	26	91	65
4.	Method of fertilizer application	18	76	58
5.	Drip irrigation	08	62	54
6.	Recommended dose of fertilizer	20	71	51
7.	Value addition such as grading	10	58	48
8.	Selection of varieties	38	80	42
9.	Planning and layout of orchard	30	68	38
10.	Time of planting (June-July)	61	84	23

Table 2.Change in adoption level due to the intervention of KVK. (N =100)

Sr. No.	Name of Technology	Adoption level (%)		
		Before KVK intervention	After KVK Intervention	Change in Adoption
1.	Time and method of pruning	05	68	63
2.	Plant protection measures	21	77	56
3.	Recommended of fertilizer Dose	17	69	52
4.	Selection of varieties	17	72	45
5.	Method of fertilizer application	11	52	41
6	Planning and layout of orchard	23	59	36
7.	Time of planting (June-July)	51	77	26
8.	Use of micronutrients	00	25	25
9.	Value addition such as grading	08	31	23
10.	Drip irrigation	04	13	09

dose of fertilizer (52.0%), selection of improved cultivars of ber (45.0%), method of fertilizer and manure application (41.0%), planning and layout of orchard (36%), time of planting season (26.0%), use of micronutrients (25.0%), value addition (23.0%) and least adoption for drip irrigation (9.0% of farmers. These findings were in agreement of Meena and Gupta (2013),Tandel *et al* (2015) and Borate *et al* (2012).

Knowledge Acquisition Vs Extent of adoption

The gain in knowledge depends on various factors like easiness of technologies, educational background of the participating farmers, extension approaches handled in technology transfer, farmers' attitude, ability of extension personnel, teaching and learning situation etc. Likewise the extent of adoption of a particular technology relies mainly on easiness and usefulness of the technology besides the socio-economic status, access to the technological inputs etc. Fig.1 reveals the percentage of respondents acquired knowledge on different technologies after KVK intervention and percentage of adoption of ten specific technologies taken for the present study. About plant protection, 91 per cent of the

respondents gained knowledge on advantage of management of fruit fly and was adopted by 77 per cent of the respondents. The similar trend was also noticed in the case of proper time of planting where the knowledge gain and extent of adoption was 84 and 77 per cent, respectively. From the data it was evident that the farmers realized the importance of plant protection and time of planting. Alagukannan *et al* (2015) also reported the same trend.

In contrary to that gain in knowledge for selection of varieties and extent of adoption was 80 and 72 per cent, respectively. Similarly, the gain in knowledge with respect to time and method of pruning was high (80%) but only 68 per cent of farmers applied this knowledge for pruning of ber orchard. Therefore, gain in knowledge acquired by the beneficiary farmers was high but its adoption was less for the technologies. This implies that still more awareness has to be created amongst farmers to make use of technology learnt during training courses, FLDs , seminars, group discussions etc.

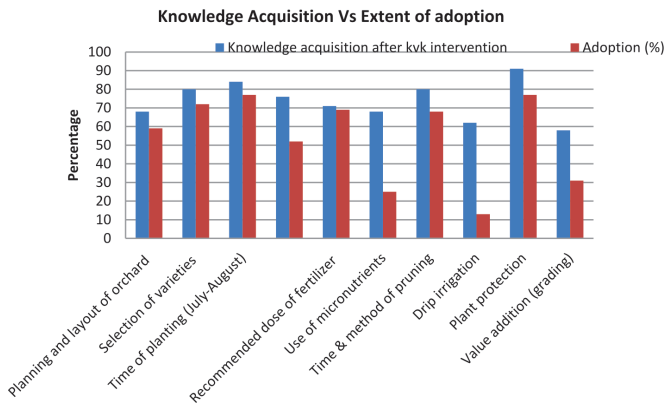## Knowledge with Adoption of Technologies in Ber Cultivation

Knowledge Acquisition Vs Extent of adoption

Fig 1. Knowledge acquisition and adoption level of technologies due to the interventions of KVK.

CONCLUSION

The findings of the present study reveals that the interventions of KVK certainly facilitated the knowledge acquisition by the farmers and adoption at higher level in ber cultivation with respect to the technologies *viz.,* proper time of planting, selection of planting material, method of manure and fertilizer application, recommended doses of fertilizer, use of micro nutrient application, time and method of pruning, drip irrigation, plant protection and value addition such as grading in ber orchard, The present study also suggests the need for further refinement for the technologies like time and method of pruning and use of micronutrient. Likewise, some more awareness needs to be created regarding production techniques.

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