Agriculture Update
Volume 7 | Issue 3 & 4 | August & November, 2012 |199-202

Research Article

Impact and yield crack analysis of trainings and FLDs regarding scientific practices of gram

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ARTICLE CHRONICLE :
Received:
17.04.2012;
Revised :
24.07.2012;
Accepted:
22.08.2012

SUMMARY : To support rural development programmes, the ability of farmers should be increased through systematic training so that they may understand each component of the recommended technologies. In Tapi district farmers were obtaining very low yield in gram. Low productivity of gram was due to lack of knowledge about scientific cultivation, poor nutrient management and lack of knowledge in IPDM. The gram cultivation is highly profitable in tribal dominated areas of the Surat and Tapi district. This crop is also advisable to the farmers for improvement of the soil physical, chemical and biological health. The human health point of view this crop is highly advisable to the people of the tribal region to control the diseases related to the mal nutrition and deficiency syndromes. The study was undertaken in Tapi district of South Gujarat. The results regarding overall knowledge of gram indicated that the low, medium and high level of knowledge before contact with KVK was 78.00 per cent, 16.00 per cent and 06.00 per cent, respectively and it was increased up to 08.00 per cent, 10.00 per cent and 82.00 per cent after contact with KVK. In case of knowledge regarding selected scientific innovations for gram high knowledge regarding selected scientific innovations were found *viz.*, 87.00 per cent regarding new high yielding varieties, 83.00 per cent for integrated nutrient management, 81.00 per cent land configuration and 78.00 per cent seed rate, respectively. Majority of the farmer had low level of knowledge (76.00 per cent) before contact with KVK. After contact with KVK, 84.00 per cent of the farmers had high level of knowledge. 89.00 per cent of the farmer had adopted new high yielding variety fallowed by land configuration (85.00 per cent), INM (83.00 per cent), seed rate (82.00per cent) and so on. From the above discussion, it could be inferred that after imparting training and other intensive approach by KVK, Tapi, majority (82.00 per cent) of the tribal farmers of these area had high knowledge level and majority (84.00 per cent) of the tribal farmers of these area had high adoption level about package of practices of gram crop. At the end it can be suggested this crop in the region is an important for increasing the income, improving the soil health, fertility and productivity and also to raise the standard of living of the tribes. The technology index indicates the feasibility of evolved technology at the farmer's field. Lower the value of technology index, more is the feasibility of the technology demonstrated. As such reduction of technology index from 48.92 per cent (2008-09) to 45.00 per cent (2010-11) exhibited the feasibility of technology demonstrated.

KEY WORDS:
Scientific innovation, Technology index, FLD

How to cite this article : Chauhan, Nikulsinh M. and Pandya, C.D. (2012). Impact and yield crack analysis of trainings and FLDs regarding scientific practices of Gram. *Agric. Update*, **7**(3&4): 199-202.

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BACKGROUND AND OBJECTIVES

A number of agricultural improvement programmes have been introduced in India to increase the agricultural production and income of the farming communities. But the outcomes of these programmes are not satisfactory in terms of achieving higher agricultural production. The most important factor responsible for this poor outcome was lack of understanding of various technological recommendations by the farmers (Singh, 2002). Recognizing the importance of technical recommendation as necessary condition for rural development, more emphasis on farmers training activities has been placed in different five year plans. It is now widely accepted fact that training to farmers increases the technical and allocative efficiencies with the farming business as a whole. Tribal area of Tapi district grow gram on moisture conserve or in light irrigation, but they

get very low yield due to use of low yielding variety, poor knowledge about scientific cultivation of gram. KVK, Tapi had done intensive effort on training about scientific cultivation, demonstration on new variety and land configuration. KVK conducted 7 on campus and 7 off campus trainings, total number of beneficiaries of FLD is 112 covering 20 villages of Tapi district and other extension activities during last three years. To find out the impact and yield gap of the same this study was conducted in Tapi District. The objectives of the study were to know the overall knowledge of scientific package of practices of gram, to study the Knowledge regarding selected scientific innovations for gram cultivation, to study the overall adoption of scientific package of practices of gram, To know the extent of adoption of scientific practices of gram cultivation (%) and to find out the yield gap analysis of gram production technology.

RESOURCES AND METHODS

Five villages were selected purposively for the study. Among each village 20 farmers were selected randomly. So, total sample size was 100 tribal farmers. The data were collected through personal interview. The interview schedule was prepared by keeping the objectives of the study in mind. The necessary care was taken to collect the unbiased and correct data. The data were collected, tabulated and analyzed to find out the findings and drawing the conclusion. The statistical tools like frequency and percentage were employed to analyze the data. The extension gap, technology gap and the technology index were worked out with the help of formulas given by the Samui *et al.* (2005) as mentioned below:

Extension gap = Demonstration yield- Farmers yield

Technology gap = Potential yield – Demonstration yield

$$\text{Technology index} = \frac{\text{(Potential yield – Demonstration yield)}}{\text{Potential yield}} \times 100$$

OBSERVATIONS AND ANALYSIS

Data depicted in Table 1 indicated that 78.00 per cent of the farmers had low level of knowledge which was increased (82.00 %) after contact with KVK. Das *et al.* (2010) reported the same results.

Data shown in the Table 2 indicated that 87.00 per cent of the farmers had knowledge about new high yielding varieties followed by Integrated nutrient management (83.00 %), land configuration (81.00 %) and bio fertilizer (75.00 %). Das *et al.* (2010) reported the same results.

Data presented in Table 3 indicated that 76.00 per cent of the farmers had low level of adoption which was increased after contact with KVK (84.00 %). Meena (2010) also reported the same results.

The data shown in the Table 4 indicated that 89.00 per cent of the farmers had new high yielding varieties which were followed by land configuration (85.00 %), seed rate (82.00 %) and bio fertilizer (78.00 %). Sagar and Chandra (2004) reported the same results.

From the above discussion, it could be said that overall knowledge level and adoption level of the tribal farmers about

Table 1 : Overall knowledge of package of practices of gram crop **(n=100)**

Category	Before contact with KVK (%)	After contact with KVK (%)
Low level of knowledge	78	08
Medium level of knowledge	16	10
High level of knowledge	06	82

Table 2 : Knowledge regarding selected scientific innovations for gram crop **(n=100)**

Sr. No.	Selected scientific innovation	Low	Medium	High
1.	New high yielding varieties	08	05	87
2.	Land configuration	06	13	81
3.	Seed rate	14	08	78
4.	Bio fertilizer	19	06	75
5.	Weeding	17	12	71
6.	Integrated nutrient management	07	10	83

Table 3 : Overall adoption of scientific cultivation of gram (percentage) **(n=100)**

Category	Before contact with KVK (%)	After contact with KVK (%)
Low level of adoption	76	04
Medium level of adoption	18	12
High level of adoption	06	84

Table 4 : Adoption of critical gram production technology (%) **(n= 100)**

Sr. No.	Name of technology	Adoption (%)
1.	New high yielding varieties	89
2.	Land configuration	85
3.	Seed rate	82
4.	Bio fertilizer	78
5.	Weeding	72
6.	Integrated Nutrient management	76

Table 5 : Exploitable productivity, extension gap, technology gap and technology index of gram as grown under FLD's and existing package of practices

Year	Area	No. of Demo.	Yield q ha^{-1}			FP	% increase in yield over FP	Extension gap q ha^{-1}	Technology gap q ha^{-1}	Technology index
			Highest	Lowest	Average					
2008-09	5	39	18.78	16.10	17.46	12.77	36.72	4.69	12.23	48.92
2009-10	5	39	20.34	18.37	19.68	13.50	45.78	6.18	11.50	46.00
2010-11	5	34	22.32	19.53	20.10	13.75	46.19	6.35	11.25	45.00
		Mean	20.48	18.00	19.08	13.34	42.90	5.74	11.66	46.64

package of practices of gram had increased up to 82.00 per cent and 84.00 per cent, respectively after imparting training by KVK, Tapi. Kirar *et al.* (2005) also reported the similar trends.

Yield gap analysis of gram cultivation:

The results obtained during three years are presented in Table 5. The results indicated that the highest yield in FLD plots and farmer's plots was 22.32 qt and 13.75 qt per hectare, respectively. The yield of gram under demonstration ranged between 17.46 qt to 20.10 qt/ha over observation period. The results clearly showed that due to knowledge and adoption of scientific practices, the yield of gram could be increased by 36.72 per cent,45.78 per cent and 46.19 per cent over the yield obtained under farmers practices. The above findings are in line with the findings of Singh (2002), Dubey *et al.* (2010) and Meena (2010). Average extension gap was 5.74 q $ha^{-1,}$ which emphasized the need to educate the farmers through various extension means like FLD. The technology gap ranged between 11.25 qt/ha and 12.23 qt/ha. The average technology gap from three years of FLD programme was 11.66 qt/ha. The technology gap observed may be attributed dissimilarity in the soil fertility status, agricultural practices and local climate conditions. The technology index indicates the feasibility of evolved technology at the farmer's field. Lower the value of technology index, more is the feasibility of the technology demonstrated, (Sagar and Chandra, 2004). As such reduction of technology index from 48.92 per cent (2008-09) to 45.00 per cent (2010-11) exhibited the feasibility of technology demonstrated. The FLD obtained a significant positive result and also provided the researchers an opportunity to demonstrate the productivity potential and profitability of the integrated nutrient management under real farm situation, which they have been advocating for a long time. Similar findings were reported by Kirar *et al.* (2005) (Table 5).

Conclusion:

From the above discussion, it can be concluded that knowledge level and adoption level of the tribal farmers were amplified after imparting training and conducting FLDs by KVK scientists. KVK, Vyara is working as a knowledge hub for latest agricultural technology in Tapi district. The front line demonstration conducted on integrated nutrient management in gram at farmer's fields in Tapi district of Gujarat revealed that the farmers could increase gram production significantly. In demonstration the integrated nutrient management of gram performed better than control plots. It improves the productivity by 42.90 per cent. The productivity gain under FLD over farmer's practice created awareness and motivated the other farmers to adopt integrated nutrient management and high yielding varieties of gram in the district.

Implication :

This study paved the way for extension workers for effective and efficient TOT in the field of agricultural extension .The heartfelt efforts made by extension workers would always be resulted in good impact and feedback. The technology index indicates the feasibility of evolved technology at the farmer's field. Lower the value of technology index more is the feasibility of the technology demonstrated .This study suggest for conducting intensive trainings, FLDs and effective use of all means of extension education to educate the gram growers for higher production of gram and to get higher net return on sustainable basis.

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