Impact and Yield Gap Analysis of Trainings and FLD's Regarding Scientific Practices of Chick Pea *(Cicer Arietinum)*

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ABSTRACT

To shore up rural development programmes, the ability of farmers should be increased through systematic training with the intention that they may understand each component of the recommended technologies. In Tapi district farmers were obtaining very low yield in Chick pea. Low productivity of Chick pea was due to lack of knowledge about scientific cultivation, poor nutrient management and lack of knowledge in IPDM. The Chick pea 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 Chick pea indicated that the low, medium and high level of knowledge before contact with KVK was 78.00, 16.00 & 06.00 per cent, respectively and it was changed up to 08.00 , 10.00 and 82.00 per cent , respectively after contact with KVK .

In case of Knowledge regarding selected scientific innovations for Chick pea 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 %) before contact with KVK. After contact with KVK, 84.00 per cent of the farmers had high level of knowledge. The 89.00 per cent of the farmer had adopted new high yielding variety fallowed by land configuration (85.00 %), INM (83.00 %), seed rate (82.00 %) and so on. From the above discussion, it could be inferred that after imparting training and other intensive approaches by KVK, Tapi, majority (82.00 %) of the tribal farmers of these area had high the knowledge level and majority (84.00 %) of the tribal farmers of these area had high adoption level about package of practices of Chick pea crop. At the end we can suggest 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, (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 demonstrated technologies.

Key Words : *Impact ; Yield gap ; Training ; FLD's*

Series 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 feature answerable for this poor outcome was lack of understanding of various technological recommendations by the farmers (P.K. 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. In tribal area of Tapi district Chick pea is grown on conserved moisture and sometimes with light irrigation, but they get very low yield due to use of low yielding variety and poor knowledge about scientific cultivation of Chick pea. KVK, Tapi had done intensive efforts on training about scientific cultivation, demonstration on new variety & 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 year. To find out the impact and yield gap of the same this study was conducted in Tapi District. The objectives of the study were (1) To know the Overall knowledge of scientific package of practices of Chick pea. (2) To study the Knowledge regarding selected scientific innovations for Chick pea cultivation (3) To study the Overall adoption of scientific package of practices of Chick pea. (4) To know the extent of adoption of scientific practices of Chick pea cultivation (%). (5) To find out the yield gap analysis of Chick pea production technology.

METHODOLOGY

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

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

RESULTS AND DISCUSSION

Table 1. Overall knowledge of package of practices of Chick pea. **(N=100)**

Sr. No.	Category	Before contact with KVK (%)	After contact with KVK (%)
1.	Low level of knowledge	78.00	08.00
2.	Medium level of knowledge	16.00	10.00
3.	High level of knowledge	06.00	82.00

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, D. Uma et al, (2010) also reported the same results.

Table 2. Knowledge regarding selected scientific innovations for Chick pea crop **(N=100)**

Sr. No.	Selected scientific innovation	Low (%)	Medium (%)	High (%)
1	New high yielding varieties	08.00	05.00	87.00
2	Land configuration	06.00	13.00	81.00
3	Seed rate	14.00	08.00	78.00
4	Bio fertilizer	19.00	06.00	75.00
5	Weeding	17.00	12.00	71.00
6	Integrated Nutrient Management	07.00	10.00	83.00

Data show 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%). Kale and Priti M. (2010) reported the results on same trend.

Table 3. Overall adoption of scientific cultivation of Chickpea **(N=100)**

Sr. No.	Category	Before contact with KVK (%)	After contact with KVK (%)
1.	Low level of adoption	76.00	04.00
2.	Medium level of adoption	18.00	12.00
3.	High level of adoption	06.00	84.00

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 and Dheeraj Singh (2011) reported the same results.

Table 4. Adoption of critical Chick pea production technology (%). **(N = 100)**

Sr. No.	Name of technology	Adoption (%)
1	New high yielding varieties	89.00
2	Land configuration	85.00
3	Seed rate	82.00
4	Bio fertilizer	78.00
5	Weeding	72.00
6	Integrated Nutrient Management	76.00

The data show 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 %) and so on. Bhagwan Singh and Chauhan, (2010) also reported the same.

From the above discussion, it could be said that overall knowledge level and adoption level of the tribal farmers about package of practices of Chick pea 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 same..

Yield gap analysis of Chick pea cultivation

The results obtained during three years are presented in Table 6. 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 Chick pea under demonstration ranged between 17.46 qt to 21.10 qt/ha over observation period. The results clearly showed that due to knowledge and adoption of scientific practices, the yield of Chick pea could be increased by 36.72 per cent, 45.78 per cent and 46.19 per cent over the yield obtained under farmers practices for successive three years. 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 FLDs. The technology gap was ranged between 11.25 qt/ha and 12.23 qt/ha. The average technology gap less than three years of FLD programme was 11.66 qt/ha. The technology gap observed may be attributed due to 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. The details of Chick pea growing practices under FLD and traditional practices.

Particular Variety	Demonstration practices GG-2 Deshi Variety	Farmer's practices Deshi
Fertilizer	Bio-compost – 6 ton/ha Chemical Fertilizer – 20 + 40 + 00	Basal – None Chemical Fertilizer -
Seed treatment	*PSB* and *Rhizobium* – 2 lit/2 kg/ha	-- Nil --

Table 6. Exploitable productivity, extension gap, technology gap and technology index of Chick pea as grown under FLD's and existing package of practices.

Year	Area	No. of Demo.	Yield q ha			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

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 and variety in Chick pea at farmer's fields in Tapi district of Gujarat revealed that the farmers could increase Chick pea production significantly. In demonstration the Integrated Nutrient Management and high yielding variety of Chick pea performed better than control plots. 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 chick pea 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 Chick pea growers for higher production of Chick pea and to get higher net return on sustainable basis.

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