Int.J.Curr.Microbiol.App.Sci (2019) *8*(6): 2365-2369

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 8 Number 06 (2019)**
Journal homepage: http://www.ijcmas.com

Original Research Article https://doi.org/10.20546/ijcmas.2019.806.282

Impact Assessment of Krishi Vigyan Kendra Interventions in Adopted Villages

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Keywords

Cluster villages, Knowledge, Adoption, FLDs, OFTs, Trainings

Article Info

Accepted:
17 May 2019
Available Online:
10 June 2019

A B S T R A C T

A study was conducted to assess impact of KVK interventions in adopted villages of Krishi Vigyan Kendra, Kalikiri. The objective of the study was to ascertain knowledge and adoption level of specific crop technologies assessed/demonstrated through various interventions during 2016-17 to 2018-19 by KVK. Adopted cluster villages Addavaripalli, Mittapalli and Balamvaripalli were taken for study and 20 beneficiary farmers were selected randomly from each cluster. The data were collected through personal interview schedule. The data revealed that cent per cent knowledge was observed on use of drought resistant varieties of groundnut followed by summer ploughing and sub soil chiseling was 91.6 and 90 per cent respectively. Similarly adoption of improved varieties of groundnut, summer ploughing and seed treatment was adopted by 100, 83.3 and 60 per cent farmers respectively. This could be due to effectiveness of technologies at field level and increase in yield. In case of tomato production technologies, knowledge and adoption was high in relation to installation of pheromone traps and preventive spray of neem oil to reduce incidence of *Tuta absoluta*. Knowledge and adoption of mango fruit fly management is also found to be high with interventions of KVK like FLDs, OFTs and training programs. Non availability of critical inputs to adopt technologies and lack of confidence on some technologies were found to be constraints in adoption of critical technologies.

Introduction

The operational area of KVK, Kalikiri is located in western part of Chittoor district of Andhra Pradesh. Western part of the district is completely different from eastern mandals with respect to topography, soil type and climatic conditions. Groundnut, redgram, field bean are major rainfed crops. Among this groundnut is principle crop grown in 1,25,000 ha during *kharif* season under rainfed conditions. Tomato is major vegetable crop under irrigated dry (ID) conditions while mango is major fruit crop grown in rainfed and irrigated conditions in more than one lakh hectares. Rice is grown mainly for family consumption in small holdings.

The technical know-how of farmers on advanced production technologies was observed to be low to medium in all major crops of KVK operational area. Groundnut

and tomato are mainly cultivated in adopted clusters of KVK viz. Addavaripalli, Mittaplli and Balamvaripalli of Chittoor district. In case of groundnut abiotic factors like rainfall and distribution of rainfall are major contributing factor to yield and yield losses. Due to change in rainfall pattern and distribution crop failure become regular phenomenon in this area. Where as in tomato biotic factors like insect pests and diseases are the major problems causing yield losses.

With this back ground KVK has adopted above three cluster villages from 2016-17 to 2018-19 to improve the knowledge level and adoption rate of advanced production technologies in groundnut, tomato and other crops of the villages and rainfed technologies. The KVK organized interventions like OFTs, FLDs trainings, group discussions, method demonstrations and field days to show the need and importance of technologies to improve yield and reduce cost of cultivation. The present study was undertaken to ascertain gain in knowledge and adoption level of interventions on above crop technologies.

Materials and Methods

Study was conducted in adopted cluster villages viz. Addavaripalli, Mittapalli and Balamvariapllli of Kalikiri, Madanapalli and Piler mandals. Respondents were listed from the pool of beneficiaries in each cluster during all the three years *i.e*. 2016-17 to 2018-19 and 20 farmers were selected randomly from each three clusters thus making a total of 60 farmers. Interview schedule was prepared and data were collected through personal interview with respondents. The data were processed, tabulated, classified and analyzed in terms of percentage. Selected technologies were evaluated in terms of knowledge gained and extent of adoption of groundnut, tomato and crop technologies as result of OFTs, FLDs, Trainings, method demonstrations, group discussions and field days and field visits.

Results and Discussion

From the data (Table 1) it was revealed that cent per cent of knowledge was observed in use of drought resistant varieties like Dharani, Narayani and K-6 in groundnut. This is due to demonstrations and trainings conducted by KVK and seed multiplication by beneficiary farmers. Summer ploughing and sub soil chiseling recorded 91.6 and 90 per cent respectively to improve the soil moisture conservation. These results were due to on farm demonstrations in cluster villages. Gain in knowledge with regard to application of gypsum @ 500 Kg/ha during peg formation stage, management of wild boars by tying GI wire around field and spraying of urea @ 2% during prolonged dry spells was observed to be 75, 75 and 70 per cent respectively. Gain in knowledge regarding maintenance of optimum plant population in rainfed groundnut *i.e*. 33 plants/sqm was observed to be 63.3 per cent followed by seed treatment with imidacloprid + Mancozeb, inter cropping with redgram 7:1/11:1, soil test based fertilizer application was 66.6, 50.0 and 50.0 per cent respectively. This is mainly due to method demonstrations, FLDs and training programmes. Less knowledge was observed in case of border crop with jowar/bajra to control spread of viral diseases.

With regard to extent of adoption of improved technologies of groundut the data (Table 1) revealed that adoption of use of improved drought resistant varieties Dharani, Narayani & K-6 was found to be cent per cent followed by summer ploughing (63.3%), seed treatment (60 %), sub soiling (50%), application of gypsum (41.6%), maintenance of optimum plant population (40%), wild boar management by GI wire (36.6%), inter cropping with redgram (33.3%), soil test

based fertilizer application (33.3%), border cropping with jowar/bajra (25%) and spraying of urea@2% during prolonged dry spells (5%) of farmers. This could be due to trainings and demonstrations conducted by KVK and also availability of technology inputs and feasibility of technologies to adopt immediately. These results are in consonance with the findings of Morwal *et al.,* (2018) and Singh *et al.,* (2014) with respect adoption due to conductance of trainings and FLDs.

From table 2 it was evident that on technologies of tomato cultivation highest knowledge was observed on application of enriched trichiderma viride to reduce soil born diseases (90 %) and installation of pheromone traps and neem oil spray for management of *Tuta absoluta* (90 %) followed by, Use of sticky traps to control sucking pests, Trap cropping with marigold (16:1) to reduce intensity of leaf miner and fertigation schedule was observed to be 55 and 50 per cent respectively by farmers. This is due to on farm trials, front line demonstrations and method demonstrations on improved technologies of tomato.

In case of adoption of pheromone traps and preventive spray of neem oil has found to be 70 per cent by the farmers as pin worm (*Tuta absoluta*) was invasive pest in tomato crop and its damage was high and farmers are witnessing significant economic loss due to this insect pest. Further adoption of enriched *Trichiderma viride* (40%), preventive spray of chlorothalonil@2 g/lit for early and late blight (40 %), fertigation schedule (20 %) and inter cropping with marigold (20%) was found to be adopted by less no.of farmers due to high cost of interventions. These findings were in agreement of Meena and Guptha (2013) and Tanden *et al.,* (2015) and Borate *et al.,* (2012).

Table.1 Knowledge and Extent of adoption of improved technologies of groundnut N=60

S. No.	Groundnut	Knowledge		Adoption	
	Name of technology	Frequency	Per centage	Frequency	Per centage
1.	Summer ploughing exposes grubs and pupae to abiotic factors	55	91.6	50	83.3
2.	Sub soiling improves water holding capacity of soils	54	90.0	30	50.0
3.	Seed treatment with imidacloprid + M-45 gives protection against seedling diseases. for about 3 weeks	40	66.6	36	60.0
4.	Soil test based fertilizer application reduces cost on chemical fertilizers	30	50.0	20	33.3
5.	Use of improved drought resistant varieties Dharani, Narayani & K-6	60	100	60	100
6.	Inter cropping with redgram 7:1 or 11:1	30	50.0	20	33.3
7.	Maintenance of optimum plant population 33 plants /sqm	38	63.3	24	40.0
8.	Application of gypsum @ 500 kg/ha during peg formation stage	45	75.0	25	41.6
9.	Border crop with jowar/bajra to control spread of viral diseases	22	36.6	15	25.0
10.	Wild boars can be managed by GI wire around the field	45	75.0	22	36.6
11.	Spraying of urea @2 % will save crop from prolonged dry spell	42	70.0	3	5.0

Table.2 Knowledge and Extent of adoption of improved technologies of tomato N=60

S. No.	Tomato	Knowledge		Adoption	
	Name of technology	Frequency	Per centage	Frequency	Per centage
1.	Application of enriched *Trichoderma viride* reduces soil born diseases	54	90.0	24	40.0
2.	Use of sticky traps to control sucking pests	36	60.0	24	40.0
3.	Soil test based fertilizer application reduces cost on chemical fertilizers	30	50.0	12	20.0
4.	Trap cropping with mari gold (16:1) reduces intensity of *H.armigera*	33	55.0	12	20.0
5.	Installation pheromone traps and preventive spray of neem oil reduces incidence of tuta absoluta	54	90.0	42	70.0

Table.3 Knowledge and Extent of adoption of improved technologies in other crops N=60

S. No.	Item	Knowledge		Adoption	
		Frequency	Percentage	Frequency	Percentage
1.	Sub soiling in redgram	48	80.0	24	40.0
2.	Paddy variety NDLR-7	51	85.0	36	60.0
3.	Fodder variety APBN-1	30	50.0	12	20.0
4.	Field bean variety TFB-1	42	70.0	26	43.3
5.	Arranging traps for Fruit fly management in mango	54	90.0	24	40.0

Table.4 Distribution of respondents according to constraints faced in adoption of technologies N = 60

S. No.	Constraints	Frequency	Percentage
1.	Lack of awareness about technologies	6	10.0
2.	Non availability of technologies (Eg. Pheromone traps for tomato pin worm, sub soiler, *Trichoderma viride* etc.	19	31.6
3.	High cost of technologies	14	23.3
4.	Labour problem during important operations	8	13.3
5.	Lack of confidence on technologies	9	15.0

The data (Table 3) reveal the highest gain in knowledge (90%) was observed in fruit fly management in mango by pheromone traps. This was in agreement with Morwal *et al.*, (2018). Use of Paddy variety NDLR-7 (85%), sub soiling in redgram (80%), field bean variety TFB-1 (70%) and fodder variety APBN-1 (50%) knowledge was observed. In case of adoption of technologies it was found that paddy variety NDLR-7 was adopted by

60 per cent farmers due to FLDs, trainings and also its high yields during demonstrations. Field bean variety TFB-1, sub soiling in redgram, fruit fly management in mango and fodder variety APBN-1 was adopted by 43.3, 40, 40 and 20 per cent respectively apart from major crop technologies in groundnut and tomato due to regular field visits, awareness programmes and training programmes.

It is clear from table 4 that majority (31.6 %) of farmers' perceived non availability of technologies (eg. Pheromone traps for tomato pin worm, sub soiler, *Trichoderma viride* etc.) as major constraint followed by high cost of technologies (23.3%), lack of confidence on technologies (15 %), labour problem during important operations and lack of awareness about technologies (10 %) are major constraints in adoption of technologies. Hence make sure of availability of technological inputs availability of technological inputs will increase adoption rate by the farmers.

The findings of present study reveals that interventions of KVK certainly facilitated the knowledge acquisition by framers and adoption levels in medium to higher levels depending on feasibility of the technologies. In crops like groundnut, tomato, mango, rice improved production technologies and dry land farming technologies like adoption of improved varieties, management of invasive pests and soil and moisture conservation practices adopted by farmers at higher level. The study also suggests cost of some technologies and availability of technologies will further improve adoption rate. Some technologies like soil test based fertilizer application and urea spray has low adoption rate due to lack of confidence in farmers. In these areas more number of awareness programmes and front line demonstrations has to be conducted to convince majority of framers.

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How to cite this article:

Ganesh Kumar, P., R. Prasanna Lakshmi and Reddi Kumar, M. 2019. Impact Assessment of Krishi Vigyan Kendra Interventions in Adopted Villages. *Int.J.Curr.Microbiol.App.Sci.* 8(06): 2365-2369. doi: https://doi.org/10.20546/ijcmas.2019.806.282