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N Praveen
Agril. Extension & Coordinator
District Agricultural Advisory
and Transfer of Technology
Centre, PJTSAU Telangana,
India

JS Sudharani
Crop Production District
Agricultural Advisory and
Transfer of Technology Centre,
PJTSAU Telangana, India

Impact and success case of stem application in cotton of farmers in rangareddy district for sucking pest management

N Praveen and JS Sudharani

Abstract

Cotton is one of the most important fiber and cash crop of India and plays a dominant role in the industrial and agricultural economy of the country. Nearly 65 percent cotton area is rained, mainly in the Central and Southern States Cotton crop is highly prone to pests and diseases. In Bt cotton era sucking pests are becoming more serious inviting indiscriminate use of pesticides. To control sucking pests effectively, use of stem applicator is cost effective and eco-friendly technology. In this method sucking pest incidence was controlled by the stem application of systemic insecticides monocrotophos or imidacloprid 200 SL with water in 1:4 ratio or 1:20, at 20, 40, 60 days after sowing. Within three days of application the plant, will die. This technique is being practiced for three years in 15 locations of Rangareddy district. Stem application in cotton showed better performance when compared to the farmers practice in the kapas yield in the demo plots. On an average, cotton kapas yield (1425kg/ha) under front line demonstration was higher by 6% percent as compared to farmer's practices. In the second year the Results revealed that on an average, cotton kapas yield (1432kg/ha) under front line demonstration was higher by 6% percent as compared to farmer's practices followed by third year where in the findings showed that on an average, cotton kapas yield (2086kg/ha) under front line demonstration was higher by 11% percent as compared to farmer's practices.

Keywords: Stem application, cotton, farmers, sucking pest management

Introduction

Cotton as a crop as well as commodity has a unique place in the economy of India as it plays an important role in the agrarian and industrial activities of the nation, In Telangana, the total area under cotton is 17.73 lakh hectares and the production is 37.3 lakh with a productivity of cotton in Telangana is 358 kgs ha⁻¹ in 2015-16 (Agriculture at a glance, 2016).

From the few years DAATTC, Rangareddy is promoting the Stem application method in cotton through trainings and method demonstrations in FLD fields as well as in other farmer fields for the control of sucking pests and simultaneously tested the modified tools (Stem application bottles) under OFT for the better adoption. During the first and second year we have faced difficulties in the adoption and spread of this technology even though it is an effective. We have collected feedback from the farmers in which most of the farmers expressed that, the application with brushes is laborious and women labour is refusing to work for this due to chemical smell and contamination.

Here we have taken a simple intervention of using Plastic pipes inserted with brush which can overcome drudgery reduction for the application of chemical. This stem applicators were distributed to the farmers under demonstrations and also made available through DAATTC Rangareddy district on cost basis. Wide publicity was given through electronic and print media on this stem application technology and farmers were well educated about the stem application technology through method demonstrations. DAATTC strongly believes that unless until we will provide the source of technology the technology will not be viable. Director of Extension PJTSAU instructed the DAATTCs and KVKs to adopt this technology where ever cotton is a predominant crop and take the Brushed sticks and other easy methods for adopting the technology. From the past three years the farmers were adopted this methodology and expressed their happiness towards ecofriendly and cheaper technology for effective management of sucking pests in cotton. Hence the Front line demonstrations on stem application in cotton was implemented for three years at 15 locations of Rangareddy district. The impact of few success cases is presented below

Correspondence

N Praveen
Agril. Extension & Coordinator
District Agricultural Advisory
and Transfer of Technology
Centre, PJTSAU Telangana,
India

Table 1: Results pertaining to stem application in Cotton (2015-16)

S. No	Name of the farmer	Address	Yield (Kg ha ⁻¹)	
			Demo	Control
1	K. Gopal reddy	Raghavapur (V), Parrigi (M)	1580	1485
2	V. Venkat Reddy	Raghavapur (V), Parigi (M)	1525	1480
3	D. Ramulu	Mansanpalli (V), Shabad(M)	1350	1225
4	J. Veeresham	Kummera (V), Chevella (M)	1250	1120
5	V. Mallesh	Nagasanpalli (V),Dharur (M)	1425	1395
Average			1425	1345
% increase			6%	

Details of Economics pertaining to stem application in Cotton (2015-16)

Parameter	Demo plot	Farmers practice
Yield (Kg/ha)	1425	1345
Gross income (Rs 3800/q lint)	54150	51110
Cost of cultivation (Rs/acre)	31750	33850
Net income (Rs)	22400	17260
C:B Ratio	1:1.70	1:1.50

Stem application in cotton showed better performance when compared to the farmers practice in the *kapas* yield in the demo plots. The number of spray required for control of

sucking pests were reduced by 3-4 sprays and an amount of Rs 2100/- was reduced on purchase of systemic insecticide.

On an average, cotton kapas yield (1425kg/ha) under front line demonstration was higher by 6% percent as compared to farmer's practices (1345kg/ha) (Table 1). The results indicated that the demonstration has given good impact in terms of yield and income with a gross income of Rs 54150/-, net income of Rs22400/-, and cost benefit ratio of 1:1.70 as compared to farmers practice (gross income of Rs 51110/-, net income of Rs17260/-, and cost benefit ratio of 1:1.50). Impact of the technology revealed that the net income increased by 13% percent over the farmer's.

Table 2: Results pertaining to stem application in Cotton (2016-17)

S. No	Name of the farmer	Address	Yield (Kg ha ⁻¹)	
			Demo	Control
1	K. Narasimhareddy	Raghavapur (V), Parigi (M)	1465	1345
2	V. Rajender	Raghavapur (V), Parigi (M)	1585	1435
3	D. Jangaiah	Bompally (V), Shabad (M)	1250	1120
4	J. Veeresham	Kummera (V), Chevella (M)	1425	1345
Average			1432	1312
% increase			6%	

Details of Economics pertaining to stem application in Cotton (2016-17)

Parameter	Demo plot	Farmers practice
Yield (Kg/ha)	1432	1312
Gross income (Rs 3900/q lint)	55848	51168
Cost of cultivation (Rs/acre)	32580	34750
Net income (Rs)	21098	17588
C:B Ratio	1:1.60	1:1.52

Stem application in cotton showed better performance The number of spray required for control of sucking pests were

reduced by 3-4 sprays and an amount of Rs 2170/- was reduced on purchase of systemic insecticide.

Results revealed that on an average, cotton kapas yield (1432kg/ha) under front line demonstration was higher by 6% percent as compared to farmer's practices (1312kg/ha) (Table 2). The results indicated that the demonstration has given good impact in terms of yield and income with a gross income of Rs 55848/-, net income of Rs21098/-, and cost benefit ratio of 1:1.60 as compared to farmers practice (gross income of Rs 51168/-, net income of Rs17588/-, and cost benefit ratio of 1:1.52). Impact of the technology revealed that the net income increased by 9% percent over the farmer's.

Table 3: Results pertaining to stem application in Cotton (2017-18)

S. No	Name of the farmer	Address	Yield (Kg ha ⁻¹)	
			Demo	Control
1	K. Gopal reddy	Raghavapur (V), Parrigi (M)	1950	1485
2	V. Venkat Reddy	Raghavapur (V), Parigi (M)	1730	1632
3	D. Ramulu	Mansanpalli (V), Shabad (M)	2453	1495
4	J. Veeresham	Kummera (V), Chevella (M)	1946	1620
5	V. Mallesh	Nagasanpalli (V),Dharur (M)	2352	2145
			2086.2	1675.4

Parameter	Demo plot	Farmers practice
Yield kg/ha	2086	1675
Gross income Rs. 42 per kg lint	87612	70350
Cost of cultivation (Rs)	33480	35450
Net returns (Rs)	51862	35770
CB ratio	1:1.43	1:1.36

Stem application in cotton showed better performance when compared to the farmers practice in the *kapas* yield in the demo plots. The number of spray required for control of sucking pests were reduced by 3-4 sprays and an amount of Rs 1970/- was reduced on purchase of systemic insecticide. The findings showed that on an average, cotton kapas yield (2086kg/ha) under front line demonstration was higher by 11% percent as compared to farmer's practices (1675kg/ha)

(Table 3). The results indicated that the demonstration has given good impact in terms of yield and income with a gross income of Rs 87612/-, net income of Rs51862/-, and cost benefit ratio of 1:1.43 as compared to farmers practice (gross income of Rs 70350/-, net income of Rs35770/-, and cost benefit ratio of 1:1.36). Impact of the technology revealed that the net income increased by 6% percent over the farmer's.

Conclusion

The FLDs taken up and implemented by DAATTC, Rangareddy PJTSAU helped the farming community in many folds. The area under stem application for management of sucking pests has increased 400 hectares all over the district. Stem application is an eco-friendly, cost effective technology, reduced the cost on number of sprays and labour usage in cotton crop. Gained wide popularity with the cooperation of KVK, CRIDA, ATMA & State Dept. of Agriculture.

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