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KNOWLEDGE EMPOWERMENT OF FARMERS THROUGH PARTICIPATORY TRIALS IN SOYBEAN ECOSYSTEM

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ABSTRACT

The present study was undertaken to assess the impact of farmers participatory trials on level of knowledge of farmers about Integrated Crop Management (ICM) tecehnology under Soybean cropping system in Jhalawar district of Rajasthan. Thirty farmers of two villages (which already been identified by KVK, Jhalawar under IVLDP) were identified randomly for this study. Level of knowledge of respondents was measured on three parameters of ICM viz., a) improved crop management practices, b) improved pest management practices, and c) improved wed and rodent management practices. The results indicated that there was remarkable change in the level of knowledge of the soybean growers in all the three aspects of ICM after on-farm trials. The mean knowledge level was increased from 23.33% (pre-exposure) to 78.33% (after exposure) indicating a change of 55.00% in the overall knowledge level of the farmers about ICM.

INTRODUCTION

Developing suitable technologies for farming forms a major thrust area of Soybean research. The Soybean area is about 16 million hectare with low productivity of equal or less than 1.5 tones/hectare, due to improper integrated crop management (ICM). Soybean needs about 15 to 32°C temperature for germination but for rapid growth the crop needs slightly higher temperature falls below 10°C but at the same time if it goes above 40°C the crop gets a greater setback in the growth, flowering seed formation or even in the seed quality. It is reported that the cold temperature lowers the oil content and higher temperature during seed formation increases the oil content in seeds. The crop requires 60-65 cm annual rainfall. The average annual rainfall of the Jhalawar district is 932 mm. To achieve the target of increased soybean production due to growing population, there is a need to raise the productivity. The warm and humid climatic condition being conducive for many pests, form a major constraint for increasing soybean production. Therefore, it is essential to evolve suitable location specific integrated crop management strategy that is environment friendly, economically viable and socially acceptable. In this context, farmers' participatory on-farm trials on ICM in soybean of Jhalawar district of Rajasthan were conducted to increase the farmers' access to ICM technology and to test the suitability/ viability of the technology on farmers' fields. Therefore, a study was conducted with the objective to assess the impact of on-farm trials on the level of knowledge of participating farmers about the ICM technology and to document the benefits of on-farm trials as perceived by the farmers.

RESEARCH METHODOLOGY

The present study was conducted in Khanpur block of Jhalawar district of Rajasthan. In the present study knowledge was conceptualized as the sum total of farmers' knowledge about different components of integrated crop management practices. Out of total adopted farmers for on-farm trials, a target number of 30 respondents were randomly selected for this study from two villages viz., Bardwalia & Brahmkhedi of Khanpur block of district Jhalawar, Participatory Rural Appraisal was performed with the selected farmers to measure the knowledge level of farmers in three major areas viz. a) improved crop management practices, b) improved pest management practices and

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c) integrated weed management practices. Twenty questions, including open ended and close-ended, were farmed. A score '1' and '0' was awarded for each correct & wrong answers, respectively. Thus, the minimum and maximum score than an individual could obtain was '0' and '30', respectively. The pre-knowledge level of the respondents was tested by using the PRA tools prior to implementation of farmers' participatory trials. The information collected during the pre knowledge test provided the basic idea about the existing level of knowledge of the farmers. After completion of the farmers' participatory on farm trials, again the level of knowledge of the respondent farmers were evaluated through farmers participatory PRAs. However, along with this, some other related information of their information sources about the ICM technology and benefits of farmers participatory on-farm trials were collected and analyzed accordingly.

RESULTS AND DISCUSSION

A critical examination of Table 1 indicates that the major source of information relating to ICM practices were Subject Matter Specialists from Krishi Vigyan Kendra, Jhalawar as reported by all the respondents followed by pesticide dealers and traders (73.33%), personal experiences (70%), neighbouring farmers (66.66%) and village level agricultural workers (63.33%), respectively. A percentage of the respondents (40%) got the information from mass media and only 36% respondents from Agricultural Extension Officer.

Table 1. Distribution of the respondents according to the their sources of information relating to integrated crop management techniques. (n=30)

Information Sources	f	%*	Rank
Agricultural Extension Officer	10	33.33	VII
Experts from KVK	30	100.00	I
Mass Media	12	40.00	VI
Neigbouring Farmers	20	66.66	IV
Personal Experiences	21	70.00	III
Pesticides Dealers and Traders	22	73.33	II
Villages Agricultural Workers	19	63.33	V

f = Frequency
* Multiple responses

It is obvious that the major sources of information among the farmers were the SMS from KVK Jhalawar because farmers' participatory on-farm trails of the ICM technology were directly carried out by the KVK. The farmers used to exchange their views, ideas and experiences more informally and frequently with the experts from KVK. Conducting farmers' participatory on-farm trails in farmers' fields proved to be very effective for creating awareness and acceptance of improved soybean production practices among farmers and ultimately getting relative advantages / benefits by adopting the improved practices. Perusal of Table 2 indicat that insect pest management was perceived as the top most benefit of on-farm trials on ICM technology by all the respondents. Besides, the other important benefits of on-farm trials are disease management, integrated weed management and improved crop management practices which were

Table 2. Benefits of on-farm trial as perceived by the farmers. (n=30)

Benefits perceived in areas	Frequency	%*	Rank
Disease Management	27	90.00	II
Exposure visit	07	23.33	X
Helping other farmers in practicing the technology	09	30.00	IX
Improved crop management practices	23	76.66	IV
Increased yield	22	73.33	V
Insect pest management	30	100.00	I
Labour saving techniques	17	56.66	VIII
Opportunity to attend field day	11	36.66	XI
Reduced cost of cultivation	19	63.33	VI
Sharing of technology with fellow farmers	18	60.00	VII
Integrated weed management	26	86.66	III

* Multiple responses

perceived by 90%, 86.66% and 76.66% respondents, respectively. The rest benefits including increased yield (73.33%), reduced cost of cultivation (63.33%), sharing technology with fellow farmers (60%) and labour saving techniques (56.66%) were also perceived by the respondents.

The knowledge of the respondents about ICM technologies were studied before and after exposure to farmers' participatory on-farm trails to study the impact of these trails. The data presented in Table 3 depict that there was a remarkable change (59%) in overall knowledge level of the farmers about ICM practices. In crop management, the mean knowledge level increased from 26.6 per cent (pre-exposure) to 90 per cent (post-exposure) indicating the highest change of 63 per cent. Similarly, in pest management practices and weed and rodent management, the pre-exposure mean knowledge level increased from 20 per cent (pre-exposure) to 80 per cent (post-exposure) and from 20 per cent (pre-exposure) to 70 per cent (post-exposure) showing a change of 60 per cent and 50 per cent, respectively. These findings are in conformity with the earlier work of Ray (1976), Narayanswamy and Eshwarappa (2000), Verma (2000) and Dani et al. (2007).

Table 3. Distribution of respondents according to their mean level of knowledge before and after exposure to participatory on-farm trials.

Areas	Range of scores	Pre-exposure mean knowledge	Post-exposure mean knowledge	Change in mean knowledge
Crop management	0-15	4.0 (26.66)	13.5 (90.00)	9.5 (63.34)
Pest Management	0-10	2.0 (20.00)	8.0 (80.00)	6.0 (60.00)
Integrated Weed Management	0-5	1.0 (20.00)	3.5 (70.00)	2.5 (50.00)
Overall level of knowledge	0-30	7.0 (23.33)	23.50 (78.33)	16.50 (55.00)

Figures in the parentheses indicated percentage

The increase in level of knowledge of participants was also studied with regards to four major areas of pest management of soybean. The results presented in Table 4 depict that the gain in knowledge in identification of insect put, diseases and their natural enemies expressed by maximum number of respondents (86.66%). Similarly, an increase in level of knowledge in the area monitoring of insect pests, disease and natural enemies expressed 80.00% of the respondents followed by introduction of seed treatment (73.33%) and use of insecticides (63.33%), respectively.

Table 4. Distribution of respondents according to their increase in level of knowledge in pest management.

Areas	Frequency	Percentage	Rank
Identification of Insect pests, Diseases and Natural enemies	26	86.66	I
Monitoring of insect pests, diseases and natural enemies	24	80.00	II
Introduction of seed treatment	22	73.33	III
Use of pesticides	19	63.33	IV

* The added percentage is more than 100 since multiple responses were allowed

CONCLUSION

There was a significant change in level of knowledge of the farmers about ICM technologies after exposure to farmers' participatory on-farm trials. This change might have appeared due to reasons like frequent contacts with KVK, exposure to improved crop management practices and field day related to soybean. Hence, the planners, administrators and researchers must give attention to train the grass root extension workers and progressive farmers on the concept of farmers' participatory on-farm trials on farmers' field. Conducting farmers' participatory on the farm trials on farmers' fields can prove to be very effective

extension approach for creating awareness and acceptance of improved production technologies for sustaining soybean production.

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