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THE MAJOR LIMITATIONS FACED BY FARMERS IN THE ADOPTION OF INTEGRATED PEST AND NUTRIENT MANAGEMENT IN PADDY (BASMATI) IN HARYANA

Agricultural Economics

Dr. Mohit Sehal* District Extension Specialist (Agricultural Economics), Krishi Vigyan Kendra (CCSHAU), Panipat *Corresponding Author

Dr. Neeraj Pawar Assistant Scientist, Regional Research Station (CCS HAU), Rohtak

Dr. D. P. Malik Professor and Head, Department of Agricultural Economics, CCS Haryana Agricultural University, Hisar

Dr. Maha Singh Jaglan Senior Co-ordinator, Krishi Vigyan Kendra (CCS HAU), Karnal

ABSTRACT

The goal of the current study was to examine the difficulties farmers encountered while using IPM-INM in Basmati Paddy. Karnal, Kaithal, Sonipat, and Jind were the four districts of Haryana that were purposefully chosen. A random block was chosen from every district. Twenty IPM and ten CPM farmers were chosen from each block. As a result, 120 farmers were chosen at random. Using a specially designed interview schedule, personal interviews with the chosen farmers were used to gather the primary data for the agriculture year 2019–20. The overall findings reveal that lack of skill in using IPM-INM tools was with 37.50%, non-availability of bio-pesticide agents and bio-fertilizers (96.25%), non-availability of labour for inter-culture like uprooting of weeds, cleaning of water channels and harvesting (53.75%). Therefore, it is suggested that the extension activity needs to be intensified to create awareness among the farmers for higher adoption of IPM & INM technology for sustainable production of paddy (Basmati).

KEYWORDS

Integrated pest management, Integrated nutrient management, Basmati, Paddy, Sustainable production

INTRODUCTION

Paddy (Basmati) is one of the most important crops in Haryana, as it contributes to the food security, income generation, and export earnings of the state. However, paddy cultivation faces various challenges such as pest infestation, nutrient deficiency, water scarcity, and climate change. To overcome these challenges, farmers need to adopt integrated pest management (IPM) and integrated nutrient management (INM) practices, which aim to optimize the use of biological, cultural, chemical, and mechanical methods to control pests and enhance soil fertility. However, the adoption of IPM and INM practices by paddy farmers in Haryana is low, due to several constraints such as lack of knowledge, skill, technical guidance, availability of inputs, finance, and extension services. This paper attempts to identify and analyze the major constraints faced by farmers in the adoption of IPM and INM practices in paddy (Basmati) in Haryana and suggest some possible solutions to overcome them.

MATERIALS AND METHODS

The study used a multistage random sampling technique to select 120 farmers from four districts of Haryana state, including Karnal, Sonepat, Jind, and Kaithal, and four blocks, 'Assandh', 'Kaithal', 'Jind', and 'Kharkhoda'. The villages were chosen based on the availability of desired information. 20 farmers from each block adopted IPM-INM practices and 10 farmers adopted the CPM method for paddy cultivation were selected. To identify the most prevalent constraints faced by farmers, an interview schedule was designed, data collected, and the most important constraints were identified using frequency, percentage, and final ranks.

As per this method, respondents were asked to assign Yes/No for each constraint and the outcome of such responses was converted into frequency, The percentage of frequency was calculated with the help of the following formula:

$$\text{Percentage: } \frac{\text{Observed frequency for a particular constraint}}{\text{The total number of farmers surveyed}}$$

The final ranking of the constraints to fix their relative priority was done based on their percentage. The constraint having the highest percentage is the most severe e.g., the constraint with the highest percentage was ranked 1st, the constraint with the second highest percentage was ranked 2nd, and so on.

RESULTS AND DISCUSSION

Constraints faced in the complete adoption of IPM and INM technologies.

The perceptions of farmers about the IPM-INM technologies are presented in Table 1.

Constraints were divided into five categories namely, 1) adoption of cultural practices 2) adoption of manual/mechanical practices 3) adoption of biological practices 4) dissemination of information (extension and capacity building) 5) other constraints. Then frequencies were calculated for all constraints in the list and then ranks were evaluated.

In Haryana, in the category of "adoption of cultural practices", high wages of labor 75.00 ranked 1st with 75 per cent occurrence, lack of knowledge and skill about seed priming ranked 2nd with 40 per cent, lack of knowledge about balanced use of fertilizers ranked 3rd with 35 per cent, lack of knowledge about proper water management ranked 4th with 30 per cent and lack of knowledge about crop residue management ranked 5th with 23.75 per cent occurrence.

In the category of "adoption of manual/mechanical practices", lack of skill in using IPM tools with 76.25 per cent occurrence, "non-availability of IPM tools" ranked 2nd with 75 per cent and labor-intensive ranked 3rd with 61.25 per cent occurrence.

In the category of "adoption of biological practices", "non-availability of bio-pesticide agents and bio-fertilizers ranked 1st with 96.25 per cent, lack of knowledge and skill for determining ETL of insect pests and diseases ranked 2nd with 86.25 per cent and lack of knowledge about bio-fertilizers ranked third with 80 per cent.

Non-availability of bio-pesticide agents and bio-fertilizers ranked 1st with 96.25 per cent, Lack of knowledge and skill for determining ETL of insect-pests and diseases ranked 2nd with 86.25 per cent problem and Lack of knowledge about bio-fertilizers ranked 3rd with 80 per cent.

In the category of "Dissemination of information (Extension and capacity building)" inadequate extension services and absence of follow-up FFS modules ranked 1st with 91.25 per cent, inadequate training facilities ranked 3rd with 85 per cent and lack of information about recent Pest-management strategies ranked 4th with 83.75 per cent.

In the category of "Other constraints" complexity in the use of IPM practices v/s simplicity of chemical pesticides ranked 1st with 85 per cent, lack of knowledge about beneficiaries and harmful insects and lack of awareness about the effectiveness of IPM practices ranked 2nd with 80 per cent occurrence and non-adoption of IPM practices on community basis or larges areas ranked 3rd with 71.25 per cent.

The major barriers reported in IPM-INM adoption were lack of easy availability of IPM-INM tools, slow action of bio-pesticides and bio-fertilizers, short shelf-life, and low survival of these bio-agents on farmers' fields, labor intensiveness, lack of involvement of IPM and INM experts, lack of knowledge about recent pest management strategies.

Table – 1 Constraints Faced By Farmers In The Adoption Of Ipm-inm Techniques In Overall Haryana

Sr. No.	Constraints	Percentage	Ranks
Adoption of cultural practices			
1	Non-availability of quality seed	21.25	6
2	Lack of knowledge and skill about seed priming	40	2
3	Lack of knowledge about balanced use of fertilizers	35	3
4	Non-availability of labour for inter-culture practices	15	7
5	High wages of labour	75	1
6	Lack of knowledge about proper water management	30	4
7	Lack of knowledge about crop residue management	23.75	5
	Average	35.71	
Adoption of manual/mechanical practices			
8	Lack of awareness of IPM and INM technology	41.25	5
9	Non-availability of IPM tools (Traps i.e. light, pheromone)	75	2
10	Lack of skill in using IPM tools	76.25	1
11	Labour intensive (more sprays required)	61.25	3
12	Lack of knowledge about manual/mechanical methods (Clipping seedling leaf tip, passing of rope over rice plants)	47.5	4
	Average	60.25	
Adoption of biological practices			
13	Lack of knowledge about bio-pesticide agents	76.25	4
14	Lack of knowledge about bio-fertilizers	80	3
15	Non-availability of bio-pesticide agents and bio-fertilizers	96.25	1
16	Lack of knowledge and skill for determining ETL of insect-pests and diseases	86.25	2
	Average	84.69	
Dissemination of information (Extension and capacity building)			
17	Inadequate training facilities	85	3
18	Inadequate extension services	91.25	1
19	Lack of involvement of IPM and INM experts	77.5	5
20	Absence of follow-up FFS modules	91.25	1
22	Lack of information about recent Pest-management strategies	83.75	4
	Average	85.75	
Other Constraints			
23	Lack of knowledge and awareness about soil fertility and environmental pollution.	36.25	10
24	Lack of knowledge about beneficiaries and harmful insects	80	2
25	Lack of awareness about the effectiveness of IPM-INM practices	80	2
26	Decline in yield in adoption of IPM-INM practices	33.75	11
27	High cost of inputs of INM practices (FYM, Vermi-compost)	40	8
28	Lack of motivation to use of IPM-INM practices	65	6
29	Dominant influence of agro-chemicals industry	66.25	5
30	Ineffectiveness of IPM and INM on crop yield	38.75	9
31	Amount of risk involved in IPM-INM practices discuss	53.75	7
32	Complexity in use of IPM-INM practices vs simplicity of chemical pesticides	85	1
33	Non-adoption of IPM-INM practices on community basis or on larges areas	71.25	4
	Average	59.09	

CONCLUSIONS

The study found out that Paddy growers of selected areas were well acquainted with cultural practices while they had poor knowledge about mechanical, and biological, and used safer pesticide practices regarding IPM. The same is the case with INM farmers, they have good knowledge about some organic sources of nutrients like FYM, crop residue, green manure, legumes, and up to some extent vermicompost, but they have poor knowledge regarding biological sources and harmful effects of high use of synthetic fertilizers in the soil as well as underground water.

Findings also show that there are large gaps between knowledge and adoption concerning IPM-INM practices. So, there is an urgent need for skill-oriented training for paddy growers regarding IPM-INM practices for high and safer paddy production.

There is a need to educate the farmers on the benefits of IPM-INM technology by the extension workers of the state agricultural department and CCS HAU, Hisar.

There is also a need to establish a production unit for the multiplication and supply of biological agents by different agencies. If these steps are followed, it will go a long way to making paddy cultivation a success in the state.

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