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To study the level of knowledge and adoption of integrated pest management on mung in rice based cropping system in Chhattisgarh plains

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Abstract

Rice-based cropping system can be described as mix of farming practices that comprises of rice as the major crop followed by subsequent cultivation of other crops. Intercropping of rice and other compatible crops is also widely practiced in many regions. Rice-based cropping system is a major cropping system practiced in India, which include the rotation of crops involving cereals, pulses, oilseeds, cotton, sugarcane, green manures, vegetable, etc. These principles were first articulated in the Indonesian National IPM Programme but have expanded as IPM Programmes have evolved and improved. The study was conducted during the year 2017-19 in two irrigated districts namely Janjgir-Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. From the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa from Janjgir-Champa district were selected purposively. Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Baghra from Mahasamund district were selected. From each selected block two representative villages were selected randomly. Therefore 8 irrigated and 8 rainfed villages were considered for the study. Total 16 villages were selected. From each selected village 20 representative farmers were selected randomly. In this way a total of 160 (20X8) farmers from irrigated and 160 (20X8) farmers from rainfed area were selected. Thus total 320 farmers were considered as respondents for the present study. The data were collected by a personal interview with the help of a pre-tested structured interview schedule. The result shows that 87.5 Percent respondents of mung had good knowledge in cultural practice that is timely sowing of seed, 56.25 Percent respondents had known that seed treatment of mung could be done by trichoderma viride, 53 Percent respondents had adopted sticky trap followed by 50 Percent respondents adopted light trap to catch the harmful insect of mung crop.

Keywords: Mung, knowledge, treatment, insect, IPM

1. Introduction

Rice-based cropping system can be described as mix of farming practices that comprises of rice as the major crop followed by subsequent cultivation of other crops. Intercropping of rice and other compatible crops is also widely practiced in many regions. Rice-based cropping system is a major cropping system practiced in India, which include the rotation of crops involving cereals, pulses, oilseeds, cotton, sugarcane, green manures, vegetable, etc. These principles were first articulated in the Indonesian National IPM Programme but have expanded as IPM Programmes have evolved and improved. Currently, programmes in Africa and Latin America use the terms integrated production and pest management (IPPM) and the IPPM principles are: grow a healthy soil and crop; conserve natural enemies; observe the field regularly (eg. soil, water, plant, pests and natural enemies); that farmers should strive to become experts; Within these principles, economic decision-making remains at the core of rice IPM but the approach also incorporates good farming practices and active pest control within a production context. IPM seeks to optimize production and to maximize profits through its various practices. To accomplish this, however, decision-making must always take into consideration both the costs of inputs and the ecological ramifications of these inputs. There is still much room for improving the state of IPM. Indeed, the ecological view of all crops presented here must achieve a greater consensus among international and national scientists and policy-makers in order to promote more widely the economic and ecosystems benefits already being realized by some – but not all – farmers.

2. Methodology

The study was conducted during the year 2017-19 in two irrigated districts namely Janjgir-Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. From the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa from Janjgir-Champa district were selected purposively. Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Baghra from Mahasamund district were selected. From each selected block two representative villages were selected randomly. Therefore 8 irrigated and 8 rainfed villages were considered for the study. Total 16 villages were selected. From each selected village 20 representative farmers were selected randomly. In this way a total of 160 (20X8) farmers from irrigated and 160 (20X8) farmers from rainfed area were selected. Thus total 320 farmers were considered as respondents for the present study. The data were collected by

a personal interview with the help of a pre-tested structured interview schedule.

3. Results and Discussion

Overall Extent of adoption of insect-pest management practices by the respondents of rice crop

Mung (*Vigna radiate* L.)

The Table 1 data showed the knowledge of mung IPM practices of non- irrigated respondents 87.50 percent respondents had knowledge about timely sowing should be done to increase the production of mung followed by other cultural practices like 68.75 percent respondents Destroyed the alternate host plant, 31.25 percent respondents Sorghum, maize are shown all around the mung at as a guard crops, 43.75 percent respondents had knowledge about Growing intercrops such as pigeon pea marigold which attracted the blister battles, white fly and leaf hopper and prevents the attacked.

Table 1: Distribution of the respondents according to their knowledge on IPM in mung bean crop. (n=160)

Sl. No.	IPM practices	Adoption	
		F	%
Cultural components			
1	Timely sowing of seeds should be done	140	87.50
2	Destroyed the alternate host plant	110	68.75
3	Sorghum, maize is shown all around the mung at as a guard crop.	50	31.25
4	Growing intercrops such as pigeon pea marigold which attracted the blister battles, white fly and leaf hopper and prevent the attacked.	70	43.75
Mechanical component			
1	Erecting the bird's perches	100	62.50
2	Collect and destroyed eggs and early stage of larvae	103	64.37
3	Use of yellow blue sticky trape @ 4-5 trapes / acre	65	40.62
Biological component			
1	Seed treatment with <i>Trichoderma viride</i> 1 percent WP @ 4 gm/kg of seed	90	56.25
Chemical component			
1	Hairy caterpillar can be controlled by spray of Quinalphos 25 EC 600 ml diluted in 200-400 liter of water/ acre	110	68.75

F = Frequency

Table 2: Distribution of respondents according to their adoption of IPM practices in mung (n=160)

Sl. No.	IPM practices	Adoption	
		F	%
Cultural components			
1	Deep summer ploughing	125	78.12
2	Field sanitation	120	75.00
3	Rotated with the cucurbits and cruciferous crops like: Bottle guard, Bitter guard or Mustard, Radish etc.	55	34.37
Mechanical component			
1	Use of sticky traps @ 4-5 no./ acre	85	53.12
2	Use of light traps 1 /acre, operated 6-10 pm	80	50.00
3	Pick up the eggs of insect and destroyed	90	56.25
Biological component			
1	Augmentative release of natural enemies like <i>Trichoderma</i> spp.at weekly intervals @ 0.6 lakh / acre	30	18.75
2	Spray the neem oil @ 5ml / liter of water	80	50.00
3	Seed treatment with <i>Trichoderma</i>	72	45.00
Chemical component			
1	Use of phorate 10 G @ 4 kg/acre to control the stem fly and white fly	68	42.50

F = Frequency

Table 2 revealed adoption of IPM by the respondent's data showed that majority of the respondents i.e. 78.12 percent had the cultural practices that is deep ploughing in summer to destroyed the harmful pathogen which found in plant debris and soil, 75.00 percent of the respondents had adopted the field sanitation, only 34.37 percent respondents had adopted Rotated with the cucurbits and cruciferous crops like: Bottle guard, Bitter guard or Mustard, Radish etc. It had further observed that 53.12 percent respondents adopted sticky traps to control the insect in mung, 50.00 percent of respondents"

use of light trap to fetches the insects, 56.25 percent respondents adopted the mechanical practices that land pick of eggs or larva of insects and destroyed. Only 18.75 respondents about releasing of natural enemies against the harmful insects of mung, 50.00 percent respondents had adopted of neem spray against the plant hopper of mung, 45.00 percent respondents had adopted seed treatment with *Trichoderma*, and only 42.50 percent respondents had adopted phorate 10 G @ 4 kg / acre to control the stem fly and white fly in mung crop.

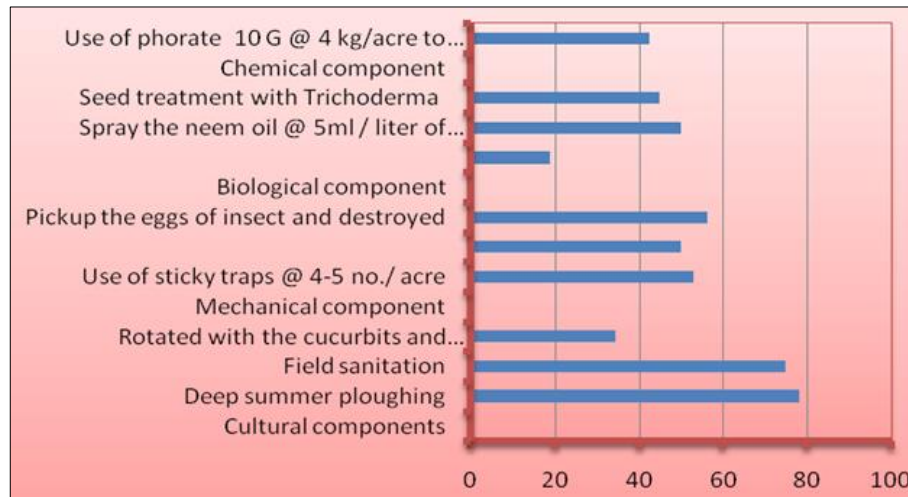


Fig 1: Distribution of respondents according to their overall adoption regarding IPM in Mung bean

4. Conclusion

The result revealed adoption of IPM by the respondent's data showed that majority of the respondents i.e. 78.12 percent had the cultural practices that is deep ploughing in summer to destroyed the harmful pathogen which found in plant debris and soil, 75.00 percent of the respondents had adopted the field sanitation, only 34.37 percent respondents had adopted Rotated with the cucurbits and cruciferous crops like: Bottle guard, Bitter guard or Mustard, Radish etc. It had further observed that 53.12 percent respondents adopted sticky traps to control the insect in mung, 50.00 percent of respondents' use of light trap to fetches the insects, 56.25 percent respondents adopted the mechanical practices that land pick of eggs or larva of insects and destroyed. Only 18.75 respondents about releasing of natural enemies against the harmful insects of mung, 50.00 percent respondents had adopted of neem spray against the plant hopper of mung, 45.00 percent respondents had adopted seed treatment with Trichoderma, and only 42.50 percent respondents had adopted phorate 10 G @ 4 kg / acre to control the stem fly and white fly in mung crop. The result shows that 87.5 Percent respondents of mung had good knowledge in cultural practice that is timely sowing of seed, 56.25 Percent respondents had known that seed treatment of mung could be done by trichoderma viride, 53 Percent respondents had adopted sticky trap followed by 50 Percent respondents adopted light trap to catch the harmful insect of mung crop.

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