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

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Abstract
Integrated Pest Management (IPM) is holistic way of thinking that improves the ability to mitigate the negative impacts of pests in agricultural production, horticulture, buildings and other situations, while at the same time reducing costs and improving environmental quality. Benefits of the IPM approach extend well beyond just the improvement in short terms economic return. The study was conducted in two irrigated districts namely Janjgir-Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. Form the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa form Janjgir-Champa district were selected purposively. Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Bagbhra from Mahasamund district were selected. 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. Only 37.50 Percent respondents of urad bean had knowledge about augmentative release of natural enemies to killed harmful insects in the field of urad, 46.63 Percent respondents had knowledge about Conserve the natural enemy through ecological engineering like use of mychorrhiza which enhance rhizobacteria, raise the flowering plants etc., 37.50 Percent respondents had adopted light trap where as 46.62 Percent respondents installed the pheromone trap 59.37 Percent respondents adopted trichoderma for seed treatment where as 64.37 Percent respondents had used monocrotophos to control the pod borer.

Keywords: IPM, Urad, insect, pest, knowledge, monocrotophos, control

1. Introduction
Integrated Pest Management (IPM) is holistic way of thinking that improves the ability to mitigate the negative impacts of pests in agricultural production, horticulture, buildings and other situations, while at the same time reducing costs and improving environmental quality. Benefits of the IPM approach extend well beyond just the improvement in short terms economic return. Potential reduction in the development of insecticide resistance has considerable long term economic implications in their studies concluded that lack of familiarity, time and resources were recurring reasons for non-use of IPM practices; therefore researchers and extension personnel should develop and emphasize IPM programs that are economical and easy to use. A major point to keep in mind, when considering IPM decision-making is that of paths to production intensification of rice and other important crops cultivated as a part of rice based cropping system both in kharif and rabi seasons. In most cases, intensification means the use of improved high-yielding varieties, irrigation, fertilizers and pesticides - as was common during the "green revolution" period. However, two approaches to intensification should be considered. The first is the input intensification approach. The better one is the second route i.e. route to intensification is that of optimizing all output from the crop ecosystem for maximizing profits.

2. Methodology
The study was conducted two irrigated districts namely Janjgir-Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. Form the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa form Janjgir-Champa district were selected purposively. Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Bagbhra 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.

Overall Extent of adoption of insect-pest management practices by the respondents of rice crop
URAD (*Vigna mungo* L.)

Table 1: Distribution of respondents according to their knowledge about IPM practices on Urad

Sl. No.	IPM practices	Knowledge	
		F	%
Cultural component			
1	Use of resistance/ tolerance variety like COBG-671, UL-310, T-9 etc.	70	43.75
2	Timely sowing and proper spacing of seed	90	56.25
3	To eradicate the weeds from the bunds	106	66.25
4	To dig the trenches in the field	75	46.75
Mechanical component			
1	Use of sticky traps	65	40.62
2	Use of light traps	62	38.75
Biological component			
1	Augmentative release of natural enemies	60	37.50
2	Conserve the natural enemy through ecological engineering	65	40.63
Chemical component			
1	Spray of Quinalphos 25 EC 600 ml in 200-400 liters of water/ acre.	105	65.62

Table 2 data revealed that 43.75 percent respondents had knowledge about resistance/ tolerance variety 56.25 percent respondents had knowledge of Timely sowing and proper spacing of seed, 66.25 percent respondents had knowledge about bunds sanitation to prevent the insect pest of urad,46.75 percent respondents had knowledge about to dig the trenches in the field to kill the pest, 40.62 percent respondents had knowledge to destroyed the insects by using sticky traps, 38.75 percent respondents knowledge about light trap, 37.50 percent respondents had knowledge about augmentative release of natural enemies, 40.63 percent respondents had knowledge about conserve the natural enemy through ecological engineering and 65.62 percent respondents had knowledge about Spray of Quinalphos 25 EC 600 ml in 200-400 liters of water/ acre to control the insect in Urad crop.

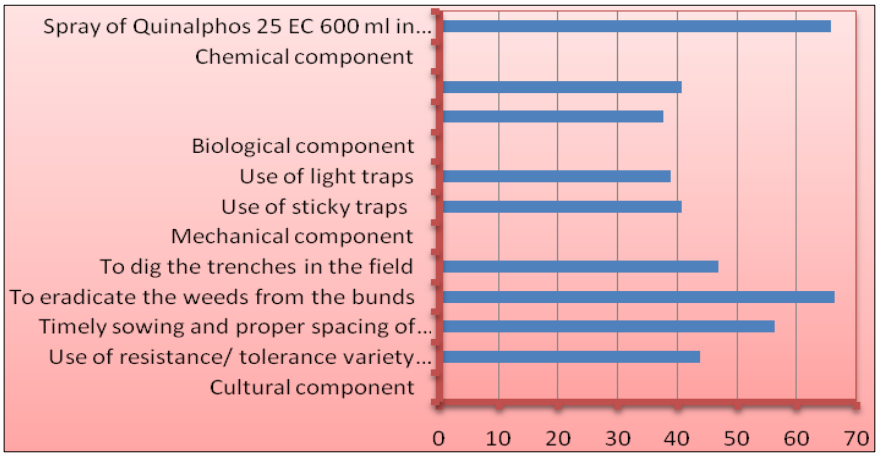

Fig 1: Distribution of respondents according to their overall Adoption regarding IPM in Urad

Table 2: Distribution of respondents according to their adoption about IPM practices on Urad

Sl. No.	IPM practices	Adoption	
		F	%
Cultural component			
1	Collect and destroyed the crop debris	90	56.25
2	Avoid the water logging condition	75	46.75
3	Avoid the use of nitrogenous fertilizers at the vegetative stage	80	50.00
Mechanical component			
1	Use of light trap @ 1 no./ acre and operate between 6- 10 pm	60	37.50
	Install the pheromone trap	65	40.62
Biological component			
1	Use of Trichoderma for seed treatment	95	59.37
Chemical component			
1	Use of monocrotophase 36 percent SL @ 250 ml in 200-400 litre of water/ acre against the pod borer.	103	64.37

Table 3 data revealed that 56.25 percent respondents had adopted the cultural practice to collect and destroyed the eggs of larva of insects, followed by 46.25 percent respondents follow the practice of drainage to avoid the water logging condition, 50.00 percent of respondents had adopted the major not to use the excesses usage of nitrogenous fertilizers, 37.50 percent respondents had used the light trap, 40.62 percent of respondents install the pheromone traps, 59.37 percent respondents had adopted Trichoderma for seed treatment and 64.37 percent respondents use of monocrotophos 36 percent SL @ 250 ml in 200-400 liter of water/ acre against the pod borer. The result is supported by Patidar (2016) [12].

4. Conclusion

Only 37.50 Percent respondents of urad bean had knowledge about augmentative release of natural enemies to killed harmful insects in the field of urad, 46.63 Percent respondents had knowledge about Conserve the natural enemy through ecological engineering like use of mychorrhiza which enhance rhizobacteria, raise the flowering plants etc., 37.50 Percent respondents had adopted light trap where as 46.62 Percent respondents installed the pheromone trap 59.37 Percent respondents adopted trichoderma for seed treatment where as 64.37 Percent respondents had used monocrotophos to control the pod borer.

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