

RESEARCH ARTICLE : **Farmer's opinion towards integrated weed management practices in Narsinghpur district of Madhya Pradesh**

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SUMMARY : The present study was carried out with the objective to know the farmers opinion towards the integrated weed management practices and the adoption of weed management practices in Narsinghpur District of Madhya Pradesh. In order to achieve the objectives the study was carried out in five randomly selected villages of Saikheda block of Narsinghpur district. The total 120 respondents were selected by proportionate random sampling method from the selected villages. The farmers of selected villages were grown paddy, pigeon pea and soybean in *Kharif* season and wheat, gram and sugarcane in *Rabi* season. 39.17 per cent paddy growers, 36.67 per cent soybean growers and 38.33 per cent pigeon pea growers adopted chemical control method. Majority of wheat farmers 75 per cent applied herbicide while 20.00 per cent gram growers adopted only hand weeding. Majority of farmers 83.33 per cent have adopted both mechanical and chemical control practices in sugarcane. Cent per cent farmers have considered weed as a major obstacle in crop cultivation and cent per cent farmers thinks that integrated weed management practices gives better result. Majority of the farmers 71.43 per cent applied herbicide at recommended dose and 72.27 per cent applied herbicide at recommended time. Higher percentage of the farmers 69.74 per cent used flat fan nozzle and 63.87 per cent used hand operated sprayer for spraying.

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BACKGROUND AND OBJECTIVES

Weeds are the vital limiting factor to crop production causes direct or indirect losses. Weeds are not only the reason for huge production loss but also increase cost of cultivation, reduce input use efficiency, loss of potentially productive lands, loss of grazing areas and livestock production. It also

interface with crops, reduce quality, serve as alternate host for insect pests, diseases, loss of biodiversity as well as human and cattle health. In Indian condition, weeds in general reduces crop yield by 37-45 per cent and in some cases can cause complete crop failure, when compared to 25 per cent due to diseases, 20 per cent due to insects, 15 per cent due to

storage and miscellaneous pests and 6 per cent due to rodents (Bahadur et. al 2015).

The yield losses due to type and intensity of weeds can be as higher as 65 per cent depending on the crop, degree of weed infestation, weed species and management practices (Yaduraju et. al 2006). The losses can be minimized through effective weed management practices which should be more economical and ecological (Sanyal, 2008). The manual method is most easily afforded by traditional farmers are inadequate and have limited effects on weeds. It is labour intensive and now at present there is shortage of labour. Most of the farmers are now adopting chemical control which is less labour intensive and more economical than other methods of weed control. But more use of herbicide can deteriorate micro and macro environment of plant. Some weeds may develop resistance for herbicide (Kumar, 2014; Sharma, 2014). Applying herbicide only is not ecological. There is a greater need to adopt integrated weed management practices that are more economic and sustain the production. The present study was conducted with the following specific objective:

- To know the farmers opinion about the integrated weed management practices.
- To know the adoption of weed management practices by the farmers in different crops
- To know the adoption of herbicide application practices.

RESOURCES AND METHODS

The present study was conducted during 2014-2015 year in Narsinghpur district of Madhya Pradesh state. The Saikheda block was selected for study out of the six block of district. The Saikheda block comprises of 102 villages, out of which 5 villages namely Khairi, Gardha, Kamti, Pitthera and Khursipar was selected randomly. Respondents were selected by proportionate random sampling method to make sample size 120. In selected villages generally farmers were grown paddy, soybean and pigeonpea in *Kharif* season and wheat, gram and sugarcane in *Rabi* season. Generally the farmers of that area were grown more than one crop at a time in their land. The data were collected through personal interview. The interview schedule was prepared by keeping the objectives of the study in mind. Data was classified, tabulated and analyzed to find out the findings and draw conclusion. The statistical tool like frequency (f) and

percentage (%) was employed to analyze data.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads :

To know the Farmers opinion about the integrated weed management practices :

Data presented in table 1 indicated that cent per cent farmers said that weed is one of the major obstacles in crop production, provide shelter to insect pest and it deteriorates the seed quality. Cent per cent farmers said that they did not have any knowledge about the legal awareness to invasive weeds and 70.00% per cent farmers did not have knowledge about super weeds whereas majority (77.50%) of respondents said that occurrence of weed species is decreased than earlier, it may be due to adoption of improved weed management practices.

More than half (60.83%) respondents said that in traditional farming system, weed management was not given due importance. Cent per cent respondents said that there is no ITK prevailing in their area about weed management whereas cent per cent respondents told that IWM technologies gives better weed control and yield than traditional method. Cent per cent respondents said that integrated weed management methods give better results. Higher percentage of farmers 51.67% said that use of integrated weed management methods did not time consuming and costly affairs. Among the total selected respondents, 70.83% respondents said that mechanical weeding/hand weeding is better than herbicides. More than half (67.50%) of the respondents said that hand weeding was used as weed control methods. Almost all (99.17%) farmers used chemical method.

It was observed from the above table that most of the respondents 80.83% were aware about preventive methods of weed management, out of them 45.36% respondents were cleaned seeds before sowing, 35.05% respondents cleaned agricultural implements and 19.59% used decomposed organic matter in the field. Wilson et.al, 2008 also find out that cleaning agricultural product and equipment is best prevention method

Equal percentage (63.02%) of respondents had received information on suitable herbicide, their required

dose and received information on suitable time and method of application of recommended herbicides. Cent per cent users said that herbicide is easily available and majority (88.24%) of respondents said that herbicide application is better and easy.

Among all the chemical control adopting farmers,

equal percentage (62.18%) of respondents known about appropriate time of application of pre-emergence herbicide and post-emergence herbicides. Cent per cent farmers said that it is necessary to have sufficient moisture in soil during application of herbicides and also farmers avoid herbicide spray during high speed wind

Table 1 : Farmers opinion about the integrated weed management practices (n=120)

Sr. No.	Opinion	Yes		No	
		f	%	f	%
(a)	Weed				
1.	Weed is one of the major obstacles in crop production	120	100.00	-	-
2.	Weed deteriorates the seed quality	120	100.00	-	-
3.	Weed provide shelter to insect pest	120	100.00	-	-
4.	Knowledge about super weeds	36	30.00	84	70.00
5.	Legal awareness about invasive weed	0	00.00	120	100.00
6.	Occurrence of weed species is decreased than earlier	93	77.50	27	22.50
(b)	Integrated weed management practices				
7.	In traditional farming system weed management was not given due importance	47	39.17	73	60.83
8.	ITK prevailing in your village about weed management	-	-	120	100.00
9.	IWM technologies gives better weed control than traditional	120	100.00	-	-
10.	IWM technologies gives better yield than traditional	120	100.00	-	-
11.	Use of IWM practices give better results	120	100.00	-	-
12.	Use of integrated weed management methods is time consuming and costly affairs	58	48.33	62	51.67
13.	Mechanical method/Hand weeding is better than herbicide	85	70.83	35	29.16
14.	Hand weeding used as a weed control method	81	67.50	39	32.50
15.	Chemical method used as a weed control method	119	99.17	1	0.83
16.	Chemical method is more economical than hand weeding and mechanical method	120	100.00	-	-
(c)	Preventive method				
17.	Aware about preventive methods of weed management	97	80.83	23	19.17
18.	Preventive methods used by them n ₁ = 97				
a.	Cleaning of seeds before sowing	44	45.36		
b.	Cleaning of agricultural implements	34	35.05		
c.	Cleaning of irrigation channel	-	-		
d.	Use of decomposed organic matter in the field	19	19.59		
(d)	Chemical control method n₂ = 119				
19.	Received information on suitable herbicide and their required doses	75	63.02	44	36.98
20.	Received information on suitable time and method of application of recommended herbicides	75	63.02	44	36.98
21.	Herbicide is easily available	119	100.00		
22.	Herbicide application is better and easy	105	88.24	14	11.76
23.	Knowledge about appropriate time of application of pre-emergence herbicide	74	62.18	45	37.82
24.	Knowledge about appropriate time of application post emergence herbicide	74	62.18	45	37.82
25.	It is necessary to have sufficient moisture in soil during application of herbicide	119	100.00	-	-
26.	Avoid herbicide spray during high speed wind and cloudy weather	119	100.00	-	-
27.	Precautionary measure used during spraying	0	00.00	119	100.00
28.	Spraying is done by yourself	22	18.49	97	81.51
	If no, then before spraying , whether doses of herbicide is informed to labour	14	11.76	83	69.74
29.	Using separate nozzle like flat fan for spraying herbicide	83	69.74	36	30.26
30.	Herbicide container is destroyed after use	92	77.31	27	22.69

and cloudy weather whereas cent per cent respondents did not used any precautionary measure during spray. In case of spraying of herbicide, majority (81.51%) of respondents did not spray by self, out of them 69.74% respondents did not told about the doses of herbicides to labour. More than half (69.74%) of the respondent said that they were used separate nozzle for herbicide application, where 77.31% of respondents did not destroyed container after use.

To know the adoption of weed management practices by the farmers in different crops :

The perusal of the result presented in Table 2 revealed that in paddy 39.17 per cent of farmers adopted hand weeding and while very few farmers 2.50 per cent adopted chemical weed control. In soybean crop only 1.67 per cent adopted hand weeding and 36.67 per cent adopted chemical control. 38.33 per cent pigeon pea growers adopted chemical control whereas 8.33 farmers adopted both hand weeding and chemical control method and negligible 0.83 per cent adopted only hand weeding. In wheat crop majority of farmers 75 per cent applied chemical method to control weed and only 5.83 per cent adopted hand weeding. Gram growers were adopted only hand weeding that is 20.00 per cent. In sugarcane crop

none of the famers adopted hand weeding. Majority of farmers 83.33 per cent adopted both mechanical control and chemical control whereas 10.00 per cent sugarcane growers adopted only mechanical method.

To know the adoption of herbicide application practices by the farmers :

Out of all herbicide applying farmers, 71.43% farmers applied herbicide at recommended dose, 21.01% respondents applied higher dose than recommended and 7.56% respondents applied herbicides less than recommended dose. Whereas 72.27% respondents applied herbicides at recommended time, 18.49% respondents applied after recommended time and 9.24% respondents applied herbicide before recommended time. Cent per cent farmers have not done calibration of the sprayer before spraying. In case of type of nozzle most of the respondents 69.74% were used flat fan nozzle and more than one third 30.26% used hollow cane nozzle. Sizable group of 63.87% adopter farmers used hand operated sprayer (knapsack sprayer) and 36.13% respondents used tractor operated sprayer (power sprayer) for herbicide application. Similar work has been done by Punia, *et al.*, 2013.

The results about the use of recommended quantity

Sr. No.	Crops	f	%
1.	Paddy		
(a)	Hand weeding	47	39.17
(b)	Chemical control	3	2.50
2.	Soybean		
(a)	Hand weeding	2	1.67
(b)	Chemical control	44	36.67
3.	Pigeon pea		
(a)	Hand weeding	1	0.83
(b)	Chemical control	46	38.33
(c)	Hand weeding+ chemical control	10	8.33
4.	Wheat		
(a)	Hand weeding	7	5.83
(b)	Chemical control	90	75.00
5.	Gram		
(a)	Hand weeding	24	20.00
(b)	Chemical control	-	-
6.	Sugarcane		
(a)	Hand weeding	-	-
(b)	Mechanical control	12	10.00
(c)	Mechanical control + Chemical control	100	83.33

of water for herbicide spray in crops clears that less than one third (20.17%) of respondents used recommended quantity of water and majority (79.83%) of farmers used less than recommended quantity of water for herbicide spray. Cent per cent farmers used fresh water for herbicide spray.

Figures from table cleared that cent per cent respondents said that chemical method is economical and time saving and more than half (63.33%) of the selected

farmers express that laboures availability is to some extent and (19.17%) respondents said abundant availability of laboures, while (12.50%) farmers had expressed not availability of laboures and remaining (5.00%) farmers had not required any external laboures due to working of family members in own farm.

Conclusion :

From the above discussion it can be concluded that

Table 3 : Adoption of herbicide application practices by the farmers		(n=120)		
Sr. No.	Herbicide application practices	F	Overall %	% over adopters
1.	Application of herbicide at dose			
	Less than recommended dose	9	7.50	7.56
	Higher than recommended dose	25	20.83	21.01
	At recommended dose	85	70.84	71.43
	Herbicide was not adopted	1	0.83	
2.	Time of application of herbicide			
	Application of herbicide at recommended time	86	71.67	72.27
	Application of herbicide at after recommended time	22	18.33	18.49
	Application of herbicide before recommended time	11	9.17	9.24
	Herbicide was not adopted	1	0.83	-
3.	Calibration of pump was done			
	Yes	-	-	-
	No	119	99.67	100.00
	Herbicide was not adopted	1	0.83	-
4.	Type of nozzle used for herbicide application			
	Flat fan	83	69.17	69.75
	Hollow cane	36	30.00	30.25
	Herbicide was not adopted	1	0.83	-
5.	Type of sprayer used for herbicide application			
	Hand operated sprayer (Knapsack)	76	63.33	63.87
	Tractor operated sprayer (power sprayer)	43	35.84	36.13
	Herbicide was not adopted	1	0.83	
6.	Quantity of water used			
	Less than recommended quantity	95	79.17	79.83
	At recommended quantity	24	20.00	20.17
	Higher than recommended quantity	-	-	-
	Herbicide was not adopted	1	0.83	-
7.	Source of water for spraying			
	Fresh water	119	99.17	100.00
	Rain water(pond water etc)	-	-	-
	Drainage water	-	-	-
	Herbicide was not adopted	1	0.83	-
8.	Availability of laboures			
	Abundant	23	19.17	-
	Available to some extant	76	63.33	-
	Not available	15	12.50	-
	Not requires due to family labour	6	5.00	-

overall farmers considered weed as major obstacle in crop production. The farmers were adopting chemical control method more than hand weeding and mechanical control. Most of the farmers applied herbicide at recommended dose and time. Flat fan nozzle and knapsack sprayer is used by most of the farmers and overall farmers thought that herbicide application is more economical than any other weed control method. Hence, for promoting integrated weed management practices it is recommended that the state department of agriculture/state agricultural universities should organize regular training/workshops, demonstration, preparation and distribution of printed material about use of herbicides before sowing season with the experts/scientists of SAUs so that farmers will get knowledge about the integrated weed management practices.

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