

**RESEARCH ARTICLE :**

# Knowledge of weedicides used in *Kharif* season by the farmers in Amravati district

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**SUMMARY :** The present study was conducted with specific objectives to study the knowledge of weedicides used in *Kharif* season by the farmers in Amravati district. For the study two talukas viz., Chandur railway and Nandgaon khandeshwar were selected on the basis of large area under two crops selected for the study viz., cotton and soybean from Amravati district and four villages from each taluka were selected randomly. From each village ten respondents were selected. Ex-post-facto research design was used for the research study. Data were collected by personally interviewing the respondents with the help of pre-tested structured interview schedule in face to face situation. Collected data were tabulated. Correlation analysis for interpretation of the findings were calculated. Two hypotheses were set for the study and were tested for acceptance or rejection. Results obtained after analysis were summaries as below. In case of personal profile of the respondents revealed that majority 42.50 per cent of the respondents were from middle age, 32.50 per cent of the respondents were educated upto junior college, 32.50 per cent of the respondents had small land holding, 51.25 per cent of the respondents engaged in only agriculture, 35 per cent of the respondents had low annual income, 57.50 per cent were having medium social participation, 60 per cent were having medium source of information, 47.50 per cent were in medium extension contact, 67.50 per cent of the respondents had medium market orientation. In case of knowledge the majority 90 per cent of the respondents had knowledge about weedicide spraying in cotton, 86.25 per cent had knowledge about post emergence application of weedicide in standing crop, 16.25 per cent of the respondent had knowledge about pre-emergence application of weedicide in cotton. In soybean the majority 92.50 per cent of respondents had knowledge about weedicide spraying, 93.75 per cent had knowledge about post emergence application of weedicide in standing crop, 90 per cent of the respondents had knowledge about dose of weedicide, 17.50 per cent of the respondent had knowledge about pre-emergence application of weedicide in soybean. Characteristics namely education, land holding, occupation, annual income, social participation, extension contact, market orientation had significant relationship with knowledge of chemical weed control. Whereas, age and source of information did not show any significant relationship with knowledge and adoption of chemical weed control.

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## **BACKGROUND AND OBJECTIVES**

Supplying adequate food to increasing population of the world has become a serious problem over the past few years. The problem is more severe in our country, depending upon the vagaries of the nature which when adverse and losses caused by weeds shake the entire agriculture industry. Insect pests and plant diseases cause considerable damage to agricultural crop, but losses caused by weeds are even more. Many research workers have tried to assess the losses caused by weeds due to reduction in any yield and the removal of plant food from the soil. The estimated losses in crop yield alone range from 5 per cent in clean cultivation of fields to over 70 per cent in neglected fields depending upon the degree of weed infestation. The loss of nitrogen through weeds is as high as 150 kg per hectares. Weed control is costly item on the cultivation schedule, but it cannot be neglected on the same ground. The weeds are any plants not sown in the field by the farmer. Such plants are undesirable. They not only compete with crop plants, but also interfere with agricultural operations, increase the cost of labour, tillage practices and ultimately adversely affect the yield and quality of the produce. Among all the chemicals used at global level in agriculture sector use of herbicides ranks first (50%) followed by insecticides (25%), fungicide (22%) and other chemicals (3%). On the contrary in India among all the chemicals used in agriculture sector maximum use is of insecticides (72%), followed by herbicides (15%), fungicide (12%) and other chemicals (1%). Therefore, use of herbicides can effectively serves as a good practice for weed control. In advanced countries, weed management involves use of herbicides and in India though it is mostly done by traditional methods but in northern India *viz.*, Punjab and Haryana the farmers are keen to use herbicides for weed control.

### **Specific objectives of the study :**

- To study extent of knowledge of chemical weed control by the farmers.
- To study relationship between profile of the farmers with knowledge of chemical weed control.

## **RESOURCES AND METHODS**

The data for the present study were collected from Amravati district. The two talukas namely Chandur Railway and Nandgaon Khandeshwar were selected on

the basis of larger area under the cultivation of two crops selected for the study *viz.*, cotton and soybean. Four villages were selected from each taluka having largest area under the crops selected for the study. Ten respondents were selected from each village with the help of random sampling method. Total 80 respondents were selected as sample for the study. The data were collected with the help of structural schedule. The respondents were contacted personally at their home or at their farm as per their convenience. The schedule included questions pertaining to age, education, land holding, occupation, annual income, social participation, source of information, extension contact, market orientation and knowledge. The information from the respondent was collected by personal interview methods and their responses were considered for the purpose of present study. Mean, S.D. and co-efficient of correlation methods were used for analysis of the data.

## **OBSERVATIONS AND ANALYSIS**

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

### **Practice wise knowledge about chemical weed control in cotton :**

It is observed from Table 1 that majority of the respondents *i.e.* 90 per cent had knowledge about weedicide spraying, followed by 88.75 per cent of respondents had knowledge about hand weeding, 87.50 per cent of the respondents possessed knowledge about hoeing and 85.00 per cent of the respondents were having knowledge about crop rotation, followed by 81.25 per cent integrated weed management (IWM). It is also seen from Table 1 that most of the respondents 86.25 per cent had knowledge about post emergence application of herbicide in standing crop followed by 83.75 per cent of the respondents had knowledge about dose of weedicide, 82.50 per cent of the respondents had knowledge about number of weeding and hoeing when weedicide used, 77.50 per cent of respondents had knowledge about number of weeding and hoeing without weedicide used and 16.25 per cent of the respondent had knowledge about pre-emergence application method of weed control in cotton. It was also revealed from Table 1 that majority of 87.50 per cent of the respondents had knowledge regarding preparatory tillage in cotton. It is noticed from

Table 1 that most 85 per cent of the respondents had knowledge regarding proper seed rate of cotton. It is also revealed from Table 1 that majority 80 per cent of the respondents had complete knowledge regarding recommended spacing of cotton. Further it is revealed from Table 1 that majority of 83.75 per cent of the respondents had knowledge about selective crop stimulation by proper fertilizer dose.

**Practice wise knowledge about chemical weed control in soybean :**

It was clear from Table 2 that most of the respondents 92.50 per cent had knowledge about weedicide spraying, followed by majority 91.25 per cent of the respondents had knowledge about hoeing, 87.50 per cent of respondents were known hand weeding, 86.25 per cent of the respondents had knowledge about crop rotation and 81.25 per cent of the respondents had knowledge about integrated weed management (IWM) method of weed control in soybean. It is clear regarding method of chemical weed control in soybean from Table 2 that majority 93.75 per cent of the respondents were known post emergence application of weedicide in standing crop, followed by 90 per cent of the respondents known about proper doses of weedicide, 87.50 per cent of the respondents were known number of weeding and hoeing when weedicide used, 85 per cent of the

respondents had knowledge about number of weeding and hoeing without weedicide used and only 17.50 per cent of the respondents had knowledge about pre-emergence application of weedicide in soybean. It was also revealed from Table 2 that majority 82.50 per cent of the respondents had knowledge regarding preparatory tillage in soybean. It is noticed from Table 2 that most 87.50 per cent of the respondents had knowledge regarding proper seed rate of soybean. It is also revealed from Table 2 that majority 83.75 per cent of the respondents had complete knowledge regarding recommended spacing of soybean. Further it is revealed from Table 2 that majority of 82.50 per cent of the respondents had knowledge about selective crop stimulation by proper fertilizer dose.

**Level of overall knowledge about recommended chemical weed control :**

Level of knowledge possessed by the respondents, Table 3 indicated 61.25 per cent of the respondents had medium level of knowledge, followed by 20 per cent of the respondents had high level of knowledge and remaining 18.75 per cent of the respondents had low level of knowledge.

It is revealed from Table 4 that the characteristics of the respondents namely education, land holding, annual income, occupation, social participation, extension

**Table 1 : Distribution of respondents according to their knowledge about chemical weed control in cotton (n=80)**

Sr. No	Recommended of weed control	Respondents	
		Number	Percentage
<b>Method of weed control</b>			
1.	Weedicide spraying	72	90.00
2.	Crop rotation	68	85.00
3.	Hoeing	70	87.50
4.	Hand weeding	71	88.75
5.	Integrated weed management	65	81.25
<b>Method of chemical weed control</b>			
1.	Pre-emergence application of weedicide	13	16.25
2.	Post-emergence application of weedicide	69	86.25
3.	Dose of weedicide	67	83.75
4.	Number of weeding and hoeing when weedicide used	66	82.50
5.	Number of weeding and hoeing without weedicide used	62	77.50
<b>Preparatory tillage</b>			
		70	87.50
<b>Proper crop stand</b>			
1.	Seed Rate	68	85.00
2.	Recommended spacing	64	80.00
<b>Selective crop stimulation by proper fertilizer dose</b>			
		67	83.75

contact, market orientation had positive and significant relationship with knowledge level of the respondents at 0.01 level of probability, only sources of information of the respondents did not show any significant relationship with knowledge level. While age was negatively and non-significantly related with knowledge level of the respondents at 0.01 level of probability. From the present

findings, it could be inferred that knowledge level of the respondents increased with the increase in their education, land holding, annual income, occupation, social participation, extension contact and market orientation. The sources of information could not show any relationship with the knowledge may be due to fact that all the respondents irrespective of their sources of

**Table 2 : Distribution of respondents according to their knowledge about chemical weed control in soybean (n=80)**

Sr. No.	Recommended of weed control	Respondents	
		Number	Percentage
<b>Method of weed control</b>			
1.	Weedicide spraying	74	92.50
2.	Crop rotation	69	86.25
3.	Hoeing	73	91.25
4.	Hand weeding	70	87.50
5.	Integrated weed management	65	81.25
<b>Method of chemical weed control</b>			
1.	Pre emergence application of weedicide	14	17.50
2.	Post emergence application of weedicide	75	93.75
3.	Dose of weedicide	72	90.00
4.	Number of weeding and hoeing when weedicide used	70	87.50
5.	Number of weeding and hoeing without weedicide used	68	85.00
	<b>Preparatory tillage</b>	66	82.50
	<b>Proper crop stand</b>		
1.	Seed Rate	70	87.50
2.	Recommended spacing	67	83.75
	<b>Selective crop stimulation by proper fertilizer dose</b>	66	82.50

**Table 3 : Distribution of the respondents according to their overall knowledge about recommended chemical weed control (n=80)**

Sr. No.	Category	Respondents	
		Number	Percentage
1.	Low	15	18.75
2.	Medium	49	61.25
3.	High	16	20.00
	Total	80	100
Mean = 57.95		S.D. = 2.97	

**Table 4 : Co-efficient of correlation of characteristics of the respondents with their knowledge of Weedicide**

Sr. No	Variables	'r' values
1.	Age	-0.014
2.	Education	0.370**
3.	Land holding	0.218*
4.	Occupation	0.269**
5.	Annual income	0.323**
6.	Social participation	0.215*
7.	Source of information	0.032 NS
8.	Extension contact	0.204*
9.	Market orientation	0.228*

\* and \*\* indicate significance of values at P=0.05 and 0.01, respectively at level of probability.

NS=Non-significant

information had more or less similar knowledge about chemical weed control. The negative non-significant relationship of age with knowledge indicated that younger the farmer, more the knowledge level. Todasum (2009); Tilekar (2010); Mane (2012); Kale *et al.* (2014); Uddin *et al.* (2015) was observed that majority of the respondent had medium level of knowledge and day by day incised use of weedicides.

### Conclusion :

In this study regarding the practice wise knowledge, majority of the respondents had complete knowledge about chemical weed control such as post-emergence application of weedicide in standing crop, its recommended proper doses, along with cultural and mechanical practices of weed control whereas very few respondents had knowledge about pre-emergence application of weedicides for cotton and soybean.

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