

Determinants of knowledge of cotton growers about integrated weed management practices

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ABSTRACT

This study was carried out in Vadodara District of Gujarat state with specific objective to study the knowledge of cotton growers regarding integrated weed management practices, revealed that nearly two-third (65.00 %) of cotton growers found in the category of high level of knowledge regarding basic knowledge about weeds, slightly less than half (49.16 %) of cotton growers had very high level of knowledge about preventive measures of weed management in cotton. Whereas more than two-fifth (42.50 %) of cotton growers falls under the category of high level of knowledge about cultural method. Exactly one third (33.33 %) of cotton growers had high level of knowledge about chemical method, more than two-fifth (41.66%) of cotton growers had medium level of knowledge about biological method and two-fifth (40.00%) of cotton growers found with medium level of knowledge about safety measures of weed management. While exactly two-third (66.66 %) of the cotton growers had high level of overall knowledge pertaining to integrated weed management practices followed by 19.67 per cent and 14.67 per cent had medium and very high level of overall knowledge and independent variables like education, social participation, mass media exposure and land holding had positive and significant correlation with their knowledge level.

Key Words : Knowledge, Cotton growers, Weed management

INTRODUCTION

Weed management is an essential agricultural operation to boost yield of cotton as weeds reduce yields by competing with crop for water, nutrients, and sunlight directly and reduce profits indirectly by hindering harvest operations, and lowering crop quality. Integrated weed management is a system approach aims at whole land use planning is done in advance to minimize the very invasion of weeds in aggressive forms by some kind of preventive, cultural, biological chemical means. Every method of weed control has its own advantages and disadvantages. No single method is successful under all weed situations. An integrated weed management is new concept involves the utilization of a combination of mechanical, chemical and cultural practices of weed management in a planned sequence without affecting the ecosystem. The convenience of using integrated weed management depends on knowledge, attitudes skill and other situational factors of the farmer. Since, change in knowledge and attitude preceded adoption of an innovation and hence it is essential to analyze

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situation and the way and means for enhancing rate of adoption with reference to integrated weed management among the group of farmers for focusing attention of scientist's and extension functionaries to plan suitable strategies with judicious use of integrated weed management practices for the substantiality of agriculture in the future. Keeping this view in mind, the present study was carried out with following objective.

1. To study the knowledge of cotton growers regarding integrated weed management practices.
2. To find out relationship between profile of cotton growers and their knowledge about integrated weed management practices.

METHODOLOGY

The present study was conducted in Vadodara district of Gujarat state. Twelve villages from two talukas of Vadodara district with higher potentiality of cotton cultivation were selected for the study. Ten respondents from each selected villages were selected randomly and thus total 120 farmers were selected as respondent.

Suitable and appropriate scales developed by past researchers were used for the measurement independent variables and dependent variable in light of the derived objective. The data were collected through personal interview and then after it is compiled, tabulated and analyzed to get proper answer for the specific objectives of the study with the help of various appropriate statistical tools like mean, frequency, percentage, coefficient of correlation and one way analysis of variance to test the hypotheses under study.

RESULTS AND DISCUSSION

Knowledge of cotton growers regarding different six components of integrated weed management practices were measured and the result is in presented in Table 1.

Components of integrated weed management practices:

Basic knowledge about weeds:

It is apparent from the data presented in Table 1 that, nearly two- third (65.00 %) of cotton growers found in the category of high level of knowledge group, followed by 27.5 per cent and 7.5 per cent of cotton growers had very high and medium level of basic knowledge about weeds. None of the cotton growers fall under the categories of very low and low level of knowledge.

Knowledge about preventive measures:

It is apparent from the data presented in Table 1 that, slightly less than half (49.17 %) of cotton growers had very high level of knowledge, followed by 35.83 per cent 12.5 per and 2.5 per cent of cotton growers had high, medium and low level of knowledge about preventive measures of weed management in cotton . None of the cotton growers fall under the categories of very low level of knowledge.

Knowledge about cultural method:

The data presented in Table 1 shows that, more than two-fifth (42.50 %) of cotton growers falls under the category of high level of knowledge, followed by medium, very high and low level of knowledge about cultural method with 36.67 per cent, 17.50 per and 3.33 per cent, respectively. None of the cotton growers fall under the categories of very low level of knowledge.

Knowledge about chemical method:

The data displayed in Table 1 indicated that, exactly one third (33.34 %) of cotton growers had

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high level of knowledge, followed by 21.66 per cent, 20.84 per cent, 15 per cent and 09.16 per cent of cotton growers had, very high, medium, low and very low level of knowledge about chemical method, respectively.

Table 1 : Components wise knowledge level of the cotton growers regarding integrated weed management practices (n=120)				
Sr. No.	Components	Categories	Frequency (No.)	Percentage (%)
1.	Basic knowledge about weeds	Very low (0 to 20 score)	00	00.00
		low (21 to 40 score)	00	00.00
		Medium (41 to 60 score)	09	07.50
		High (61 to 80 score)	78	65.00
		Very High (81 to 100 score)	33	27.50
		Total	120	100
2.	Knowledge about preventive measures	Very low (0 to 20 score)	00	00.00
		low (21 to 40 score)	03	02.50
		Medium (41 to 60 score)	15	12.50
		High (61 to 80 score)	43	35.83
		Very High (81 to 100 score)	59	49.17
		Total	120	100
3.	Knowledge about cultural method	Very low (0 to 20 score)	00	00.00
		low (21 to 40 score)	04	03.33
		Medium (41 to 60 score)	44	36.67
		High (61 to 80 score)	51	42.50
		Very High (81 to 100 score)	21	17.50
		Total	120	100
4.	Knowledge about chemical method	Very low (0 to 20 score)	11	09.16
		low (21 to 40 score)	18	15.00
		Medium (41 to 60 score)	25	20.84
		High (61 to 80 score)	40	33.34
		Very High (81 to 100 score)	26	21.66
		Total	120	100
5.	Knowledge about biological method	Very low (0 to 20 score)	18	16.00
		low (21 to 40 score)	30	25.00
		Medium (41 to 60 score)	50	41.67
		High (61 to 80 score)	17	14.17
		Very High (81 to 100 score)	05	04.16
		Total	120	100
6.	Knowledge about safety measures	Very low (0 to 20 score)	00	00.00
		low (21 to 40 score)	11	09.17
		Medium (41 to 60 score)	48	40.00
		High (61 to 80 score)	41	34.17
		Very High (81 to 100 score)	20	16.66
		Total	120	100

Knowledge about biological method:

Table 1 shows that, more than two-fifth (41.67%) of cotton growers had medium level of knowledge, followed by 25.00 per cent, 16.00 per cent, 14.17 per cent and 04.16 per cent had low, very low, high and very high level of knowledge about biological method, respectively.

Knowledge about safety measures:

It is clearly mentioned from the Table 1 that two-fifth (40.00%) of cotton growers found with medium level of knowledge, followed by 34.17 per cent, 16.66 per cent and 09.17 per cent of cotton growers had high, very high and low level of knowledge about safety measures. None of the cotton growers fall under the categories of very low level of knowledge.

Sr. No.	Overall knowledge level categories	Cotton growers	
		Frequency	Per cent
1.	Very low (0 to 20 score)	00	00.00
2.	low (21 to 40 score)	00	00.00
3.	Medium (41 to 60 score)	23	19.67
4.	High (61 to 80 score)	80	66.66
5.	Very High (81 to 100 score)	17	14.67
	Total	120	100.00

Components	Basic knowledge	Preventive measures	Cultural methods	Chemical methods	Biological methods	Safety measures	Critical Difference = 4.9
Mean	74.51	83.04	69.41	58.63	41.95	71.58	

Sr. No.	Independent variables	Correlation coefficient ('r' value)
1.	Age	-0.08NS
2.	Education	0.22*
3.	Social participation	0.19*
4.	Extension participation	0.12NS
5.	Mass media exposure	0.34**
6.	Land holding	0.23*
7.	Annual income	0.14NS
8.	Scientific orientation	0.15NS
9.	Risk preference	0.08NS
10.	Economic motivation	0.04NS
11.	Attitude	0.17NS

*= significant at 5% level of probability,

**= significant at 1% level of probability

Overall knowledge of cotton growers:

The distributional analysis pertaining to overall knowledge level of the cotton growers mentioned in Table 2 indicated that exactly two-third (66.66 %) of the cotton growers had high level of overall knowledge pertaining to integrated weed management practices followed by 19.67 per cent and 14.67 per cent had medium and very high level of overall knowledge. None of the cotton growers fall under the categories of low and very low level of overall knowledge regarding integrated weed management practices.

The data presented in Table 2 clearly mentioned that knowledge level of cotton growers among different component of integrated weed management was differed from one component to another component and knowledge level of cotton growers about preventive measures was highest among all the components of integrated weed management with mean knowledge score (83.04) followed by basic Knowledge about weeds and cultural method.

Relationship between profile of cotton growers and their knowledge about integrated weed management practices:

It could be seen from Table 4 that education, social participation, mass media exposure and land holding exerted positive and significant influenced on knowledge level of cotton growers in relation to integrated weed management practices whereas, extension participation, annual income, scientific orientation, risk preference, economic motivation, and attitude of the cotton growers failed to show any significant influence on their knowledge level about integrated weed management practice, whereas age of the cotton growers had negative and non significant correlation.

Conclusions:

To epitomize the results it can be said that knowledge level of cotton growers about preventive measures was highest among all the components followed by basic knowledge about weeds and safety measures. As far as overall knowledge about integrated weed management practices is concerned majority of cotton grower possess high level of knowledge and their knowledge level among different component of integrated weed management was significantly differed from one component to another component. Among independent variables, education, social participation, mass media and land holding exerted positive and significant influenced on knowledge level of cotton growers in relation to integrated weed management practices whereas, extension participation, annual income, scientific orientation, risk preference, economic motivation, and attitude of the cotton growers failed to show any significant influence on their knowledge level about integrated weed management practice whereas age of the cotton growers had negative and non significant correlation.

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