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Adoption of insecticides as per the label claim by cotton growers in Akola district

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Abstract

The cotton seed coat extends into tubular fiber and is spin in to yarn. Cotton is currently the leading plant fiber crop worldwide and is grown commercially in temperate tropical region of more than 50 countries with a total coverage of 34 million hectare. The present investigation was carried out in Akola and Murtijapur panchyat samiti of Akola districts in Vidarbha region of Maharashtra State. The findings were done in search of adoption of various insecticide by cotton growers as per the label claim and constraints faced by cotton growers while in adoption of insecticide as per the label claim in cotton. The results of study revealed that, majority of cotton growers observed in medium level of adoption of insecticides as per the label claim. The partial adoption was observed in case of purchased insecticides in original packing, check statutory warning before spraying. The full adoption was observed in case of label and leaflet of insecticides read and understand carefully before spraying. Major constraints ascertain for knowledge adoption of insecticides as per the label claim were non availability of skill labour, high cost of pesticides, lack of awareness about label claim, lack of knowledge about proper handling, non availability of money at proper time, inadequate and timely availability of recommended pesticides, non availability of water for spraying, high wages of labour.

Keywords: cotton growers, adoption, label claim of insecticide, constraints

Introduction

Cotton is currently the leading plant fiber crop worldwide and is grown commercially in temperate tropical region of more than 50 countries with a total coverage of 34 million hectare. The cotton seed coat extends into tubular fiber and is spin in to yarn.

Meaning of label claim: Pesticides Company registered its products as per Insecticide Act 1968 and claimed that the registered products are for management of certain pest on particular crop only as per the written, printed or graphic label on the container approved by the government regulatory agencies.

Cotton is the major cash crop of India and it is also the main cash crop for farmers of vidarbha region of Maharashtra state. India rank first in cultivation of cotton crop. Vidarbha region covers 65% areas under cotton out of total cotton cultivable area of Maharashtra i.e. 17-18 lack per hectare area. In this major area of cotton production 20-90% loss occurs due to continuous attack of insect on cotton crop 2012. It is from the time of green revolution for minimizing the damage due to insects on the crop and for getting higher yield and income farmer use large quantity of insecticide.

It has been now realized that the improper and indiscriminate application of chemical insecticide have disturbed the balance of agro-ecosystem and created the new problems in the insect management like increasing in resistivity of insect against chemical, pollution, residual hazardous, low productivity and production, use of insecticide without knowing the insecticide as per label claim it increase the cost of production of farmer, loss of insecticide reducing the yield, increasing the number of spray, increasing labor cost ultimately it increase cost of production. Hence, the study of adoption of insecticide as per label claim by cotton grower was undertaken for studying adoption of various insecticide by cotton growers as per the label claim and constraints faced by cotton growers.

Materials and Methods

Research methodology deals with the description of research method and procedures used in the present study. The study was conducted in Akola and Murtijapur panchyat samiti of Akola districts in Vidarbha region of Maharashtra State. From each panchyat samiti five villages was selected. From each selected villages, 10 cotton growers was selected randomly for the present study. Thus, total 100 cotton growers was selected randomly.

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Tools of data collection

The basic instrument used for study was interview schedule. The data were collected by personal interview so as to get valid and complete responses. Keeping the objective of the study in view, an interview schedule was developed and was personally administered

Collection of data

Personal interview technique was used for collection of data. Majority of the selected cotton growers were contacted at field. The information collected through interview was transferred from the interview schedule wherever necessary the information in qualitative form was converted into quantitative form and computation of score was done. The data were analysed through statistical tools.

Adoption

Adoption means the decision to make full use of innovation in the best course of action available.

Adoption has been operationally defined as the degree of actual utilization of insecticide as per label claim by cotton growers. The objective type questions was advocated for measuring the adoption score. The responses of the cotton growers was elicited on three point continuum i. e. full adoption, partial adoption, and non adoption by assigning the score of 3, 2 and 1 respectively.

The raw adoption score obtained from individual respondent was converted into adoption index as below.

$$\text{Adoption index} = \frac{\text{Actual obtainable adoption score}}{\text{Maximum obtainable adoption score}} \times 100$$

On the basis of obtained adoption index, cotton growers was categorized in low, medium and high categories with the help of equal interval method, as follows.

Sl. No.	Adoption	Index range
1.	Low	Up to 33.33
2.	Medium	33.34 to 66.66
3.	High	Above 66.66

Statistical methods used

The data collected through personal interview were carefully examined for its completeness and correctness. The scoring procedure was decided and all the data from schedule were transferred to master tables. Then the qualitative and quantitative classes arbitrarily or by using mean and standard deviation were formed. The data was tabulated and frequencies and percentage in each class were then worked out.

Following statistical techniques were used in the present study for analysis of data and drawing of conclusions.

1. Arithmetic mean (\bar{X})
2. Standard deviation (SD)
3. Coefficient of correlation (r)

1) Arithmetic mean (\bar{X})

It was calculated by summing all the score and dividing it by number of cotton growers.

$$\bar{X} = \frac{\sum X}{N}$$

Where,

\bar{X} = Arithmetic mean

$\sum X$ = Sum of respondent score

N = Number of cotton growers

2) Standard deviation

It is measure of variability calculated around mean. The usual symbol of the S.D.

$$\sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where,

σ - Standard deviation

$\sum X^2$ - Sum of square of X series

$(\sum X)^2$ - Square of sum of X series

N - No. of cotton growers

3) Coefficient of correlation

The relationship between independent and dependent were calculated with the help of following given formula.

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Where,

r - Coefficient of correlation

$\sum X$ - Sum of the score of variable X

$\sum Y$ - Sum of the score of variable Y

$\sum XY$ - Sum of products of 'X' and 'Y' variables

$\sum X^2$ - Sum of the square of 'X' variable

$\sum Y^2$ - Sum of the square of 'Y' variable

N - Total number of cotton growers

Result and discussions

The results obtained after the analysis of the collected data from the cotton growers through personal interview, observation with appropriate discussion there on efforts have been made to investigate realities under the following heads.

1 Distributional analysis

Distribution of cotton growers according to the adoption of insecticides as per the label claim by cotton growers.

2 Constraints faced by cotton growers in adoption of insecticides as per the label claim.

1. Distribution of cotton growers according to the adoption of insecticides as per the label claim

Adoption

Table 1: Distribution of cotton growers according to level of adoption

Sr. No.	Adoption level	Cotton growers (n=58)	
		Number	Percentage
1.	Low	36	36.00
2.	Medium	44	44.00
3.	High	20	20.00
	Total	100	100.00

It was observed from Table 1, that 44.00 per cent cotton growers have medium level of adoption of insecticides as per the label claim. Thus, study concluded that majority of the

cotton growers had medium level of adoption of insecticides as per the label claim.

2. Relationship between selected profile of cotton growers with adoption

It could be seen from table 2, that among the selected variables age, education, experience in cotton cultivation, risk preference are significantly correlated with adoption of insecticides as per the label claim at 0.01 level of probability.

economic motivation, source of information are significantly correlated with adoption of insecticides as per the label claim at 0.05 level of significance. This indicate that if age, education, experience in cotton cultivation, source of information, economic motivation, risk preference increases adoption of insecticides as per the label claim. The rest of the did not show any significant correlation with the adoption of insecticides as per the label claim.

Table 2: Coefficient of correlation between selected profiles of the cotton growers with their adoption of insecticides as per the label claim

Sl. No	Variables	“r” Values
1	Age	0.407071**
2	Education	0.278325**
3	Land holding	0.131235
4	Occupation	0.130945
5	Experience in cotton cultivation	0.521828**
6	Cropping pattern	-0.08047
7	Source of information	0.245836*
8	Training received	-0.01782
9	Innovativeness	0.178255
10	Economic motivation	0.226624 *
11	Risk preference	0.332738**

*Significant at 0.05 level of probability

**Significant at 0.01 level of probability

Whereas, land holding, occupation, cropping pattern, training received, innovativeness are non significantly correlated with adoption of insecticides as per the label claim.

3. Constraints

The constraints generally restrict the attitude of new farm technology. The constraints faced by the cotton growers about

adoption of insecticides as per the label claim were collected and depicted in Table 3 as follows.

It is observed from Table 3, that 95.00 per cent cotton growers faced the constraints of high cost of pesticides and 100.00 per cent cotton growers faced the constraints of lack of awareness about label claim as information constraints. The 87.00 per cent cotton growers have lack of knowledge about proper handling as information constraints.

Table 3: Constraint expressed by the selected cotton growers in adoption of insecticides as per the label claim

Sl. No.	Constraints	Cotton growers (n=100)	
		Number	Percentage
1)	High cost of pesticides	95	95.00
2)	Lack of awareness about label claim.	100	100.00
3)	Lack of knowledge about proper handling	87	87.00
4)	Non availability of money at proper time	95	95.00
5)	Inadequate and timely availability of recommended pesticides	60	60.00
6)	Non availability of water for spraying	80	80.00
7)	Non availability of skilled labour	88	88.00s
8)	High wages of labour	96	96.00

As regarding to constraints 95.00 per cent of cotton growers faced the constraints of non availability of money at proper time. And 60.00 per cent of cotton growers faced the constraints of inadequate and timely availability of recommended pesticides. The 80.00 per cent of cotton growers faced the constraints of non availability of water for spraying. The 88.00 per cent of cotton growers faced constraints of non availability of skilled labour, and 96.00 per cent of cotton growers faced the constraints of high wages of labour.

Conclusions

From the present study it was concluded that, the 44.00 per cent cotton growers have medium level of adoption of insecticides as per the label claim. And 36.00 per cent of the cotton growers had low level of adoption of insecticides as per the label claim. The percentage of cotton growers having high level of adoption was 20.00 per cent. Among the selected

variables in cotton cultivation, risk preference are significantly correlated with adoption of insecticides as per the label claim at 0.01 level of probability. economic motivation, source of information are significantly correlated with adoption of insecticides as per the label claim at 0.05 level of significance. Major constraints ascertain for knowledge adoption of insecticides as per the label claim were non availability of skill labour, high cost of pesticides, lack of awareness about label claim, lack of knowledge about proper handling, non availability of money at proper time, inadequate and timely availability of recommended pesticides, non availability of water for spraying, high wages of labour.

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