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PERCEPTION OF COTTON GROWERS TOWARDS PESTICIDES USAGE

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ABSTRACT

Cotton is one of the most important fibre crop of India and plays a dominant role in the industrial and agricultural economy of the county. Saurashtra is a predominant cotton growing region in the Gujarat state, where more per cent of cultivated area is under cotton cultivation. In cotton cultivation, pesticide use is an essential part of production technology and excessive and injudicious use of pesticides has led to development of resistance in sucking pest, decrease the efficiency of the pesticides which turn to lowering of profit per annum and also responsible for degradation of soil. Considering the above facts, it seems worthwhile to know the level of perception of farmers about the pesticides usage. The study was conducted in Saurashtra region with 144 cotton growers. The result of study revealed that less than two fifth (36.11 per cent) of cotton growers were from high level of perception about pesticides usage in cotton crop. The profile characteristics like education, health value, sustainability, environmental orientation risk orientation, economic motivation, innovativeness, farming experience, annual income, scientific orientation, mass media exposure and source of information were positively and significantly associated with perception of cotton growers about pesticides usage, while age is negative and significantly related with perception level of cotton growers about pesticides usage. to increase profit per annum and effective plant protection technology transfer, extension functionaries may suggested to select educated, young and more cotton growing experienced farmers for imparting training.

Keywords: *cotton growers, perception, pesticides*

INTRODUCTION

Cotton is one of the most important fibre crops of India and plays a dominant role in the industrial and agricultural economy of the country. India ranks first with respect to area and production and eighth rank with respect to productivity of cotton. Cotton in India occupies an area of 13,477 thousand hectares with production of 36,065 thousand bales and productivity of 455 kilogram per hectare (Anon., 2020). Gujarat is the leading cotton growing state with cultivation in an area of about 2,655 thousand hectares with an annual production of about 8,617 thousand bales of cotton (lint) with a productivity of about 552 kilograms per hectares within Gujarat, more than 70 per cent production comes from Saurashtra (Anon., 2020). Saurashtra is a predominant cotton growing region in the Gujarat state, where more per cent of cultivated area is under cotton cultivation. The higher yield has been achieved with a relatively higher use of chemical inputs particularly pesticides.

Pesticide use in Indian agriculture is an essential part of production technology. Therefore, farmers in developing countries are perceived as over using of pesticides, both in quantity and quality, with mixtures of chemicals, being the favored form of application (Crissman *et al.*, 1994).

Consumption of pesticides is particularly high in cotton cultivation as the crop yield is seriously affected by pest attacks. There is a wide regional variation in the use of pesticides across the states in India. The consumption pattern of different pesticides belonging to different groups varies across the geographic location primarily based on the dealer recommendations, intensity of pests and diseases, influence of peer groups, efficacy of particular insecticides, knowledge level of the farmer, availability of a particular insecticide and socio-economic condition of the farmer (Rathwa *et al.*, 2021 and 2022a & 2022b; Lingappa *et al.* 1993). In pesticide consumption pattern Cotton is the highest (93.27 per cent) pesticide consuming agro product followed by vegetables (87.2 per cent), Wheat (66.4 per cent), millet (52.6 per cent) and mustard (12.6 per cent) (Yadav and Dutta, 2019).

Conventionally grown cotton uses more insecticides than any other single crop and epitomizes the worst effects of chemically dependent agriculture. To avoid loss and improve production efficiency, many cotton growers have deepened their approach to pest management. Utilizing integrated pest management (IPM), growers use pesticides in the most

appropriate way prioritizing criteria such as profitability, safety, and sustainability.

The agro-climatic conditions of Gujarat state are very much conductive for the cotton cultivation and potential technologies are also being supplied to farmers by the developmental departments and research stations to increase the productivity, still we find productivity is not up to the mark. This low productivity might have been due to so many factors.

One of the main factors responsible for this low productivity is inappropriate use of pesticides. Injudicious use of pesticides by farmers has also lead to development of resistance in sucking pests which then decreases the efficiency of the pesticides which in turn leads to lowering of profit per annum. Extensive use of pesticides is also responsible for degradation of soil. Because of this it is necessary to know the farmers mental phenomena about pesticides usage in cotton crops. By considering this fact the current study was determined with following objectives

OBJECTIVES

(1) To know the perception of cotton growers about pesticides usage

(2) To explore the relationship between perception about pesticides usage and their profile of cotton growers

METHODOLOGY

The present study was conducted in Rajkot, Amreli and Jamnagar district of Gujarat state, where there are proportionately more area under cotton cultivation in Saurashtra region and the study was confined to "ex-post facto" research design. The multistage and purposive random sampling technique was used for the selection of district, talukas and villages and it was based on highest area under cotton cultivation. The total numbers of 144 cotton growers were selected from twelve selected villages by random sampling method. For the selection of independent variables, which were found most relevant were finally selected for the study. The tools and techniques used in the present study was interview schedule along with the suitable scales and indices for measurement of dependent and independent variables. For the data collection, pretested and structured interview schedule was prepared after discussing with a group of expert and necessary modifications were made. To know the association between selected profile of the cotton growers and perception about pesticides usage, a correlation coefficient was applied.

RESULTS AND DISCUSSION

Perception of cotton growers about pesticides usage

Perception is the true beginning of knowledge. It is the process of attaining awareness or understanding of sensory information. The data regarding the perception of the respondents about pesticide usage were collected. As discussed in the methodology, a pretested and well-structured perception scale was developed and used to measure the perception of the respondents about pesticide usage.

These data regarding the perception of the respondents about pesticide usage are presented in Table 1.

Table 1: Distribution of respondents based on their perception about pesticides usage

(n = 144)

Sr. No.	Level of Perception	Frequency	Percentage
1	Very low (up to 52.2 score)	13	09.03
2	Low (52.3 to 75.4 score)	16	11.11
3	Medium (75.5 to 98.6 score)	41	28.47
4	High (98.7 to 121.8 score)	52	36.11
5	Very high (121.9 to 145 score)	22	15.28

The data given in Table 1 revealed that less than two-fifth (36.11 per cent) of the farmers had high perception towards pesticide usage, followed by 28.47 per cent of them had medium and 15.28 per cent of them were with very high and 11.11 per cent of the farmers had low perception towards pesticides usage, while (9.03 per cent) of them was with very low perception about pesticide usage.

It can be seen that 64.58 per cent of the farmers had high to medium perception about pesticides usage. It is evident from above data that, majority of the respondents had high level of perception about pesticide usage. This might be due to the majority of the respondents had higher secondary level of education and high farming experience, high risk orientation, high scientific orientation, high innovativeness. The outcome of study says that most of the farmers believed that proper and appropriate use of pesticide is necessary.

The finding is more or less similar to result of Raut (2016), Zala (2018), Amreliya and Chauhan (2019) and Meshram (2020).

Relationship between perception about pesticides usage and their profile of cotton growers

To ascertain the association between perception of cotton growers about pesticides usage (dependent variables) and their selected profile (independent variables). On the basis of operational measure developed for the variable null hypothesis were stated for testing the relationship and their significance on zero order correlation.

Table 2: Correlation between perception about pesticides usage in cotton crop and their profile of cotton growers (n = 144)

Sr. No.	Name of the independent variables	'r' value
X_1	Age	-0.1664*
X_2	Education	0.1887*
X_3	Farming experience	0.1685*
X_4	Health value	0.1708*
X_5	Size of land holding	0.0654
X_6	Annual income	0.1881*
X_7	Environmental orientation	0.1783*
X_8	Sustainability	0.1815*
X_9	Risk orientation	0.2463**
X_{10}	Economic motivation	0.1709*
X_{11}	Scientific orientation	0.2220**
X_{12}	Innovativeness	0.2230**
X_{13}	Mass media exposure	0.2146**
X_{14}	Source of information	0.3438**

* = Significant at 0.05 level

** = Significant at 0.01 level

Table 2 indicate that the age was negative and significantly associated with perception of farmers about pesticides usage. It means young age farmers have high perception as compare to old age farmers. The probable reason might be due to that young farmers were more interested and had good understanding of pesticides usage aspects of cotton crop. Result of relationship between age and perception of cotton growers regarding pesticides usage was in line with the finding of Adeola (2013) and Mehmood *et al.* (2020). The other profile characteristics except size of land holding were significant correlation existed between the level of perception about pesticides usage and their education, farming experience, health value, annual income, environmental orientation, sustainability, risk orientation, economic motivation, innovativeness, mass media exposure and source of information.

Another characteristic i.e., size of land holding was non-significant association with their perception about pesticides usage; it means size of land holding was irrespective correlated with perception of farmers. Similar finding had been reported by Badhe (2012) and Shashidhara (2017).

CONCLUSION

It can be concluded that less than two-third (64.58 per cent) of the farmers had medium to high level of perception towards pesticide usage, while 15.28 per cent farmers had very high level of perception about pesticide usage in cotton crop. Based on the above relational analysis, the result leads to the conclusion that the important characteristics of cotton growers for selection criteria in relation to perception about pesticides usage were education, farming experience, health value, annual income, environmental orientation, sustainability, risk orientation, economic motivation, innovativeness, mass media exposure and source of information were significantly correlated with perception of pesticides usage. Therefore, due weightage should be given to the above characteristics of the cotton growers to achieve higher perception about pesticides usage and effective transfer of plant protection practices at the end users.

CONFLICT OF INTEREST

This is to declare that there is "No conflict of interest" among researcher.

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