Original Research Article

EXTENT OF ADOPTION OF RECOMMENDED PRACTICES OF COTTON CULTIVATION BY THE COTTON FARMER

ABSTRACT

Aims: To know the adoption level of recommended cultivation practices of cotton crop.

Study Design: The research design used for this study was an Ex-post Facto.

Place and Duration of Study: The study was conducted in Khandwa district of Madhya Pradesh and duration 2020-2022

Methodology: The study was conducted in Khandwa district of Madhya Pradesh a total of 200 farmers selected by following the proportionate random sampling technique. An interview schedule was prepared for collection data relating to the adoption of recommended practices by the respondents.

Results: The study, it could be concluded that, with respect to the adoption, majority of the farmers (69.00%) had a medium level of adoption of recommended improved practices of cotton cultivation while, an equal number (15.50%) of the respondents had low and high level of adoption of recommended cotton cultivation practices. Among the socio-economic and personal, communication and psychological characteristics of the respondents namely age, education, family size, family type, land holding, annual income, farm mechanization, extension participation, information seeking behaviour, cosmopoliteness, economic motivation, scientific orientation and risk orientation indicated significant association with the extent of adoption of the recommended practices of cotton.

Conclusion: The study concluded that majority of the cotton growers were low adopted recommended cotton practices.

Key words: *Adoption level, Cotton, Growers, Production technology, Respondents*

INTRODUCTION

Cotton (*Gossypium spp.*) is one of India's most significant cash crops and sources of fibre, and it is vital to the nation's industrial and agricultural economics (Jaglan et al. 2012). The total area planted with cotton in the world in 2020–2021 was 31.66 million hectares, and the crop produced 113.11 million bales, or 778 kg/hectare, on that area. In terms of both total area and production, India has overtaken other countries to become the world's top cotton producer. India ranked first among the top exporters of cotton in the world. India occupied with 5.5 million bales, Canada ranks third after the United States (16.25 million bales) and Brazil (10.70 million bales) (USDA, 2020-21). In Madhya Pradesh, cotton occupies an area of about 0.6 million hectare with a production of 19 lakh bales and

with a productivity of 527 kg/ha (2020-21) (Deshpande 2020). The productivity of cotton is very poor and this crop is attacked by a number of insect, pests, diseases, nematodes and weeds. Modern agricultural technologies are essential to improve yields and increase resistance to climatic risks and attack of insect, pests, diseases and nematodes. So, the aim of the study was to determine the adoption level of cotton growers about cotton production technology and find association between selected socio-economic & personal, communication and psychological characteristics of cotton growers and their adoption of cotton production technology (Vishnuvardhan *et al.* 2022).

Comment [A1]: When (year) did cotton begin to decline in productivity at the study site (in Pandhana and Khandwa block of Khandwa district (Madhya Pradesh) ?

Comment [A2]: Explain the factors that contribute greatly to the decrease in capacitors at the research location. Name insects (n%), pests (n%), diseases (n%), nematodes (n%) and weeds (n%).

Comment [A3]: This section can be strengthened by the results of previous research or related references.

Comment [A4]: This citation should not justify the purpose of the research. Instead, you should place it on the research problem section.

MATERIALS AND METHODOLOGY

The research study on adoption level of cotton growers about cotton production practices was conducted during the year 2021-2022 inPandhana and Khandwa block of Khandwa district (Madhya Pradesh). In the present investigation, descriptive type of ex-post-facto research design was employed. This design was appropriate because the phenomenon had previously happened. Ex-post-facto research is the most logical empirical enquiry in which the researcher does not have any control over independent variables as their appearance has already occurred or as they are inherent and not manipulatable thus, inferences about relations among variables were made without direct intervention from concomitant variation of independent and dependent variables (Kerlinger, 1972). Khandwa district comprises of 7 blocks namely Khandwa, Punasa, Pandhana, Harsud, Chhaigaon, Baldi and Khalwa. Out of these two blocks namely; Pandhana and Khandwa block were purposively selected, because of highest area under cotton crop. The Pandhana block comprise of 124 villages and Khandwa block comprise of 97 villages. Out of which ten villages were selected on the basis of larger area under cotton crop. From the ten selected villages, 200 cotton growers were selected from each selected village by using proportionate random sampling method to make the total sample size for the present study.

Comment [A5]: Add the method of data collection and the instruments used. Support with reference sources.

The adoption level of cotton growers with respect to improved cultivation practices of cotton was studied by computing adoption score. Concerning adoption, the responses were rated on three-point continuum namely complete adoption, partial adoption and no adoption. A numerical score of 2 was assigned for complete adoption, a score 1 was assigned for partial adoption and a zero was assigned for no adoption. The score of all identified practices was then summed up. This sum total indicates the adoption score of that particular individual respondent. The scores of all the practices earned by each individual were added together to work out the adoption score of an individual. The raw score then was converted into adoption index as mentioned below.

Comment [A6]: Write the reference source

Comment [A7]: Write the reference source

$$\text{Adoption Index} = \frac{\text{Total adoption score obtained}}{\text{Maximum obtainable adoption score}} \times 100$$

On the basis of adoption index, the respondents were categorized in to low, medium and high groups based on mean ± sd

Comment [A8]: What is sd ?, you should write the complete abbreviation.

The primary data were collected personally by the researcher by interviewing the selected respondents with the help of semi structured interview schedule.

RESULTS AND DISCUSSION

Adoption level of the cotton growers about recommended cotton production technology:

Adoption level of the cotton growers regarding different practices of cotton cultivation is presented in Table 1. The perusal of data clearly indicated that the majority of the cotton growerswere fully or partially adopted recommended land preparation practice (91.5%), method of sowing (74%), recommended dose of fertilizer (76.5%), application of FYM/compost (66.5%), use of improved varieties of cotton (63.5%), insect management and seed treatment (61.5%),whereas, nearly more than half of the respondents were fully or partially adopted recommended seed rate (56.50%),intercropping (55.5%) and time of irrigation(51.50%). Furthermore, the data indicated that majority of the respondents were not adopting recommendedstriking trap (74.50%), topping operation (62.50%),intercultural operations (61.50%), and disease management(54.50%). The findings are in line with the findings ofJat*et al.* (2022) andBondarwad*et al.* (2010).

Table 1: Practice wise adoption level of the cotton growers about recommended cotton production technology

(n = 200)

S. No.	Practices	Adoption Level				
		Complete Adoption	Partial Adoption	No Adoption	Mean	Rank
1	Preparation of land	49 (24.50)	134 67.00	17 (8.50)	116	I
2	Use of Improved Varieties of cotton	38 (19.00)	89 (44.50)	73 (36.50)	82.50	V
3	Method of sowing	57 (28.50)	91 (45.50)	52 (26.00)	102.50	II
4	Seed rate	34 (17.00)	53 (26.50)	113 (56.50)	60.50	XI

5	Seed treatment	28 (14.00)	93 (46.50)	79 (39.50)	74.50	VIII
6	Application of FYM/Compost	46 (23.00)	85 (42.50)	69 (34.50)	88.50	IV
7	Time of Irrigation	38 (19.00)	59 (29.50)	103 (51.50)	67.50	X
8	Recommended dose of fertilizer	36 (18.00)	117 (58.50)	47 (23.50)	94.50	III
9	Application of weedicide	42 (21.00)	59 (29.50)	89 (49.50)	71.50	IX
10	Intercultural operations	33 (16.50)	44 (22.00)	123 (61.50)	55.00	XIII
11	Insect management	40 (20.00)	81 (40.50)	79 (39.50)	80.50	VI
12	Disease management	22 (11.00)	69 (34.50)	109 (54.50)	56.50	XII
13	Intercropping	47 (23.50)	64 (32.00)	89 (44.50)	79.00	VII
14	Topping operation	24 (12.00)	51 (25.50)	125 (62.50)	49.50	XIV
15	Striking trap	24 (12.00)	27 (13.50)	149 (74.50)	37.50	XV

Figures in parenthesis indicate percentage

Overall adoption level of the cotton growers:

It is evident from the data reported in Table 2 revealed that, nearly two third of the respondents (69.00%) had a medium level of adoption of recommended improved practices of cotton cultivation while, an equal number (15.50%) of the respondents had low and high level of adoption of recommended cotton cultivation practices.Thus, it may be inferred from the data that the majority of cotton growers had medium level of adoption regarding recommended improved practices of cotton cultivation. The probable reason might be that the majority of the respondents had medium level of knowledge would have motivated them to adopt a number of technologies fully or partially. Besides the respondents with medium risk orientation, scientific orientation, extension participation and information seeking behaviour would have adopted the latest recommended technologies to some

extent. The findings are in line with the findings of Rajput and Chinchmalatpure (2016), Kumar *et al.* (2017) and Mahendrakar*et al.* (2018).

Table 2: Distribution of cotton growers according to their adoption level

S. No.	Categories	Frequency	Percentage
1.	Low (Up to 39 Score)	31	15.50
2.	Medium (40 to 64 Score)	138	69.00
3.	High (Above 64 Score)	31	15.50
Total		200	100.00

(Mean = 51.31, S.D=12.20)

Association between Socio-economic personal, communication and psychological characteristics of cotton growers and their adoption level:

It is apparent from the Table 3 that out of fourteen independent variables sevenvariables namely age, education, farm mechanization, economic motivation, family size, scientific orientation and risk orientation had significant association at 0.01 level of probability with adoption level of the cotton growers, while, sixvariables namely type of family,annual income,land holding, extension participationcosmopoliteness and information seekingbehaviour had significant association at 0.5 level of probability with adoption level of the cotton growers.

Therefore the null hypotheses were rejected and original propositions that there would be association between age, education, farm mechanization, economic motivation, scientific orientation, risk orientation, family size, type of family, annual income, land holding, extension participation,information seekingbehaviour and cosmopolitenessof cotton growers and their adoptionlevel were accepted. The findings are in line with the findings of Singh *et al.* (2019), and Bishnoi *et al.* (2016).

The remaining one variableviz; caste, had no significant association with adoption level of the cotton growers. Hence, the null hypothesis was accepted and original proposition that there would be association between caste, of cotton growers and their adoption level was rejected. The findings are in line with the findings ofVerma*et al.* (2019).

Table 3: Association between socio-economic personal, communication and psychological characteristics of cotton growers and their adoption level

S. No.	Independent variables	Chi square value (χ^2)
1.	Age	35.44**
2.	Education	64.29**
3.	Caste	7.33^{ns}

4.	Family size	13.79**
5.	Type of family	6.99*
6.	Annual income	19.76*
7.	Land holding	24.61*
8.	Farm mechanization	40.98**
9.	Extension participation	10.19*
10.	Information seekingbehaviour	10.97*
11.	Cosmopoliteness	17.13*
12.	Economic Motivation	44.39**
13.	Scientific Orientation	67.65**
14.	Risk orientation	39.93**

*Significant at 0.05 level of probability

** Significant at 0.01 level of probability

NS = Non-Significant

CONCLUSION

The study concluded that majority of the cotton growers were adopted recommended methods forpreparation of land, recommended method of sowing, recommended dose/quantity of fertilizer, recommended dose of FYM/compost, use of improved varieties of cotton and recommended insect management while, very few of them were adopted recommended seed treatment, recommended application of weedicide for weed control, recommended time of irrigation, recommended seed rate, recommended disease management, recommended intercultural operations, recommended topping operation, recommended striking trap and use of light trap. The study also indicated that the majority of cotton growers had medium level of adoption concerning cotton production technology. The study also concluded that adoption level of cotton growers was significantly associated with their age, education, farm mechanization, economic motivation, scientific orientation risk orientation, family size, family type, annual income, land holding, extension participation,cosmopoliteness and information seeking behaviour. Hence, toincrease the adoption level of cotton growers, the various training programmes and method & result demonstrations should be organised on farmers' field, extension agencies may also be used information communication technologies for motivation of cotton growers towards cotton production technologies and required inputs should made available in time.

REFERENCES

Comment [A9]: Paragraph sentences at the conclusion rearranged.

Focus on Simoulan to answer these two problems, as follows:

1. How is the adoption rate of cotton farmers related to cotton production technology.

2. How is association between selected socio-economic & personal, communication and psychological to adoption of cotton production technology.

Comment [A10]: Recommendations should be in the form of concrete means to correct deficiencies or weaknesses in the current implementation

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