

ANALYSIS OF SOCIO-PERSONAL CHARACTERISTICS OF COTTON GROWERS

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ABSTRACT

Agriculture is an important occupation of rural people and it is the backbone of the economy of many countries. Cotton is most important fibre crop in Indian agriculture and India ranks first with respect to area and production and eighth rank with respect to productivity of cotton. Consumption of pesticides is particularly high in cotton cultivation as the crop yield is seriously affected by pest attacks. Pesticides overuse can contaminate soil, water, turf, killing insects, beneficial insects, non-target plants and also create health hazard in human. so considering this fact to know cotton growers profile present study was conducted in Rajkot, Amreli and Jamnagar district of Saurashtra region. Six talukas were selected randomly and two villages were selected randomly from each selected taluka and Twelve respondents were randomly selected from each village. Thus, 144 cotton growers were selected for the study. The study revealed that majority of the respondents were (52.08%) belonged to middle age group, (36.11%) belonged to middle school (9th to 10th standard) level of education, (31.25%) had high farming experience, (35.42%) had medium level of health value, (34.72 %) had semi medium size of land holding (2 ha to 4 ha), (31.25%) had annual income ₹ 1,00,001 to ₹ 1,50,000, (59.02%) had medium environmental orientation, (63.20%) had medium level of sustainability, (35.41%) had high risk orientation, (40.30%) had medium Economic motivation, (37.50%) had high scientific orientation (35.42%) had high innovativeness, (65.28%) had medium mass media exposure and (61.80%) of cotton growers had medium source of information.

Keywords: cotton growers, socio-personal, pesticides

INTRODUCTION

Cotton is one of the most important fibre crop of India and plays a dominant role in the industrial and agricultural economy of the country. India accounts for approximately 41 percent of world's total cotton production and 26 percent of global cotton production. India ranks first with respect to area and production and eighth rank with respect to productivity of cotton.

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). Farmers were the becoming dependent to pesticides and to some extent they used excessively and inappropriately until today.

Globally, synthetic pesticides have become the predominant method for controlling pests. Consumption of pesticides is particularly high in cotton cultivation as the crop yield is seriously affected by pest attacks. The potential production losses due to pests in the absence of pest control mechanisms worldwide have been estimated at around 82

per cent for cotton (Oerke, 2006). However, with respect to overall consumption, India ranks tenth in the world. Per hectare use of pesticides in India (0.5 kg/ha) is much lower as compared to other countries like China (13.06 kg/ha), Japan (11.85 kg/ha) and Brazil (4.75 kg/ha) and other Latin American countries (FICCI, 2016). Cotton forms roughly 5 percent of the gross cropped area in the country. While, consuming 36 percent to 50 percent of the total pesticides in the country (Devi, 2010; Bhardwaj and Sharma, 2013).

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 (Lingappa *et al.* 1993). Pesticide consumption pattern in Cotton (93.27 per cent) was the high pesticide consuming agro product (Yadav and Dutta, 2019).

Conventionally grown cotton uses more insecticides than any other single crop and epitomizes the worst effects

of chemically dependent agriculture. Cotton growers typically use many of the most hazardous pesticides on the market including aldicarb, methamidophos, phorate and endosulphane. 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. India is emerging as a leading cotton producer in the world there is a need to understand the patterns of pesticide use by cotton farmers, especially as environmental, ecological and health concerns surrounding pesticide use continue to be debated.

Perception is the immediate apprehension of an object or all of the sense organs by way of sensation. The value of any programme can only be judged through audience perception and response. Perception is the interpretation of sensation. What we perceive depends more upon the past experience. Thus, perception is a mental phenomenon which depends upon various types of sensation and ideal, which become associated as a whole. Perception cannot observe directly in behaviour, but must be inferred from performance and particularly from the change in performance or behaviour. Perception is the degree to which an individual organizes and interpret his sensory impression in order to give meaning to other environment.

OBJECTIVES

- (1) To know the socio-personal characteristic of cotton growers in study area
- (2) To determine the association between selected characteristics of the cotton growers and their perception about pesticides usage

METHODOLOGY

The present study was conducted in Rajkot, Amreli and Jamnagar district of Gujarat state during 2021-22. Ex-post facto research design was followed for carrying out the study. The simple random sampling was used for selection of taluka, village, and respondent. There is eleven talukas of Rajkot, among eleven talukas of Amreli and ten talukas of Jamnagar, two talukas were selected randomly from each of the selected districts by employing simple random sampling method. Thus, six talukas were selected for the study. Two villages were selected from each of the selected taluka. Thus, total 12 villages were selected for the study. Twelve respondents were selected from each of selected village. Thus, 144 cotton growers were selected as sample.

An interview schedule was developed in accordance

with the objectives of the study and it was pretested. The data of this study were collected with the help of structured interview schedule. The collected data was interpreted in order to make the finding meaningful.

The variables in profile of the cotton growers studied in the present investigation are as follows:

Age: The age of the cotton growers was measured as the number of completed years reported by the respondent at the time of interview.

Education: The education of the respondents was measured as the level of education in terms of the educational standard that respondents had passed. It was measured with the help of scale developed by Pandya and Pandya (2008).

Farming experience: It refers to the number of years of experience in farming by the farmer at the time of the interview. The procedure for scoring and categorization were classified into five groups.

Health value: It was measured with the help of scale developed by Lau *et al.* (1986) with slight modification.

Size of land holding: It was measured with help of structured schedule on the basis of total land possessed by the respondents. On the basis of land possessed in hectares, the respondents were grouped into six categories using scale developed by Pandya and Pandya (2008).

Annual income: This indicates the total annual income expressed in rupees earned by the respondents from both farm and non-farm enterprises put together. On the basis of annual income, the respondents were grouped into five categories using scale developed by Pandya and Pandya (2008).

Environmental orientation: It was measured with the help of scale developed by Sreevalsan (1995).

Sustainability: sustainability was administered on respondents who were asked to express their reactions in terms of their strongly agreement or disagreement with each item by selecting any of the five response categories *viz.* strongly agree, agree, neutral, disagree and strongly disagree. The score given for statements were 5, 4, 3, 2 and 1. According to level of sustainability respondents were classified into three categories low, medium and high level of sustainability on the basis of mean and standard deviation as under.

Risk orientation: The risk orientation is described as the degree to which an individual is oriented towards the risk, uncertainty and courage to face the risk in farming. Farmer's willingness to take risk was measured by the means of scale developed by Supe (1969).

Economic motivation: The economic motivation is defined as an occupational success in terms of profit maximization and the relative value of respondent's places on economic ends. Economic motivation of the respondents was measured with the help of economic motivation scale worked out by Supe (1969) with slight modifications.

Scientific motivation: It refers to the degree to which farmers were oriented towards the use of scientific method of farming and decision making. It was measured with the help of scale developed by Supe (1969).

Innovativeness: Innovativeness was operationalized as the degree to which an individual is earlier in adopting the farm production technology than other member of the social system.

The variable was measured by using scale developed by Singh (1972).

Mass media exposure: To measure the mass media exposure of the respondents, the scores were assigned to respondents on the basis of frequency of their use of various sources of information. The scores assigned to various frequencies of uses were regularly (3 score), frequently (2 score), once in a week (1 score) and not at all (0 score). The total score of the respondent categorized on the basis of mean and standard deviation.

Source of information: The methodology followed to determine utilization of various sources of information by

RESULTS AND DISCUSSION

Profile of cotton growers

Table 1: Distribution of cotton growers based on their personal characteristics

(n=144)

Sr. No	Personal Characteristic	Category	Respondents	
			Frequency	Percentage
1	Age	Young age (up to 35 years)	28	19.44
		Middle age (36 to 50 years)	75	52.08
		Old age (above 50 years)	41	28.48
2	Education	College/post-graduation	13	09.02
		Higher school (11 th & 12 th)	17	11.80
		Middle school (9 th to 10 th standard)	52	36.11
		Primary school (1 st to 8 th standard)	31	21.52
		Functionally Literate	21	14.60
		Illiterate	10	06.95
3	Farming experience	Very less (Up to 5 year)	08	05.55
		Less (6 to 10 year)	20	13.89
		Medium (11 to 15 year)	32	22.22
		High (16 to 20 year)	45	31.25
		Very high (Above 21 year)	39	27.09

the respondents was simple scoring system. For always utilized source of information were scored 3, for sometimes utilized source of information were scored 2 and the person who never utilized source of information were scored as 1. The total score of the respondent categorized on the basis of mean and standard deviation.

Coefficient of correlation (r)

To find out the relationship between dependent and independent variables, the Pearson's product moment method of computing correlation coefficient, which provides generally accepted means for measuring the relationship was used (Chandel, 1975). Following formula was used to calculate the correlation coefficient (Garret, 1967).

Where,

$$r = \frac{SP(XY)}{\sqrt{SS(x)SS(y)}}$$

r = Co-efficient of correlation

X and Y = Two variables under study

SP(XY) = Sum of product of the deviations on x and y from their means

SS(x) = Sum of squares of deviations due to 'x' variable

SS(y) = Sum of squares of deviations due to 'y'

Sr. No	Personal characteristic	Category	Respondents	
			Frequency	Percentage
4	Health value	Very low level (Up to 7.2)	14	09.72
		Low level (7.3 to 10.4)	18	12.50
		Medium level (10.5 to 13.6)	51	35.42
		High level (13.7 to 16.8)	34	23.61
		Very high level (16.9 to 20)	27	18.75
5	Land holding	Big size (above 10.00 ha)	11	07.63
		Medium size (4.01 to 10.00 ha)	22	15.30
		Semi medium size (2.01 to 4.00 ha)	50	34.72
		Small size (1.01 to 2.00 ha)	38	26.40
		Marginal size (0.01 to 1.00 ha)	23	15.95
6	Annual income	Above ₹ 2,00,000	13	09.02
		₹ 1,50,001 to ₹ 2,00,000	21	14.60
		₹ 1,00,001 to ₹ 1,50,000	45	31.25
		₹ 50,001 to ₹ 1, 00,000	35	24.30
		Up to ₹ 50,000	30	20.83
7	Environmental orientation	Low level (< Mean – S. D.) (Up to 7.51)	26	18.05
		Medium level (Mean ± S. D.) (7.52 to 10.83)	85	59.02
		High level (> Mean + S. D.) (Above 10.83)	33	22.93
		Mean = 9.17 S.D. = 1.66		
8	Sustainability	Low level (< Mean – S. D.) (Up to 8.59)	28	19.44
		Medium level (Mean ± S. D.) (8.60 to 15.47)	91	63.20
		High level (> Mean + S. D.) (Above 15.47)	25	17.36
		Mean = 12.03 S.D. = 3.44		
9	Risk orientation	Very low (Up to 5 score)	00	00.00
		Low (6 to 10 score)	25	17.36
		Medium (11 to 15 score)	46	31.94
		High (16 to 20 score)	51	35.42
		Very high (Above 20 score)	22	15.28
10	Economic motivation	Very low (6.00 to 10.80 score)	11	07.63
		Low (10.81 to 15.60 score)	15	10.41
		Medium (15.61 to 20.40 score)	58	40.30
		High (20.41 to 25.20 score)	44	30.55
		Very (25.21 to 30.00 score)	16	11.11
11	Scientific orientation	Very low (6.00 to 10.80 score)	10	06.94
		Low (10.81 to 15.60 score)	15	10.42
		Medium (15.61 to 20.40 score)	50	34.72
		High (20.41 to 25.20 score)	54	37.50
		Very high (25.21 to 30.00 score)	15	10.42
12	Innovativeness	Traditional farmer	11	07.64
		Less innovative farmer	34	23.61
		Medium innovative farmer	36	25.00
		High innovative farmer	51	35.42
		Very high innovative farmer	12	08.33

Sr. No	Personal characteristic	Category		Respondents	
				Frequency	Percentage
13	Mass media exposure	Low (< Mean - S. D.)	(Up to 7.33)	29	20.14
		Medium (Mean \pm S. D.)	(7.34 to 16.41)	94	65.28
		High (> Mean + S. D.)	(Above 16.41)	21	14.58
		Mean = 11.5 S.D. = 4.55			
14	Source of information	Less (< Mean - S. D.)	(Up to 7.39)	31	21.53
		Medium (Mean \pm S. D.)	(7.40 to 16.59)	89	61.80
		More (> Mean + S. D.)	(Above 16.59)	24	16.67
		Mean = 11.99 S.D. = 4.66			

The data presented in the Table 1 indicated that 52.08 per cent of the farmers belonged to middle age group. The observed findings might be due to the fact that generally in the rural social system the head of the families, who in the majority of the cases belonged to middle to old age group and take decision for their farming. This finding is in conformity with the findings of Patel (2016) and Kumar *et al.* (2021).

36.11 per cent of farmers were educated up to middle school level their probable reason might be that most of the respondents were middle to old aged. Due to lack of proper educational facilities in area under study they could not get higher education. So, majority of the respondents were educated up to primary and middle school level. This finding was in concurrence with the findings of Vinaya *et al.* (2013), Mohamed *et al.* (2018) and Ranabhat *et al.* (2021).

31.25 per cent of farmers had high farming experience. The majority of farmers belonged to middle age (36 to 50 years) to old age (above 50) group, who came from agricultural background, used to join farming at younger age and started getting experience of farming. This led them to have high farming experience. This finding is in conformity with the findings of Reddy (2013) and Rathwa (2018).

35.42 per cent of the respondents were having medium level of health value Their probable reason might be that the farmers under the study area were aware about the hazardous effect of pesticides like pesticides can contaminate soil, water, turf and other vegetation. In addition to killing insects or weeds, pesticides can be toxic to a host of other organisms including birds, fish, beneficial insects, and non-target plants. This finding is in conformity with the findings of Badekhan and Devi (2018).

34.72 per cent of the respondents were having semi medium size of land holding. The probable reason behind this might be that the farmers under the study area were living

together in joint family however they might have their own separate land holding on their names. Their profession runs jointly with cooperation and fraternity. This finding is in conformity with the findings of Raut *et al.* (2012).

Slightly less than one-third 31.25 per cent of the farmers had annual income above ₹ 1.00 lakh to ₹ 1.50 lakh. It can be summarized that majority of farmers were in medium (₹ 1,00,001 to ₹ 1,50,000) to low (₹ 50,001 to ₹ 1,00,000) income group. This might be due to semi medium to small size of land holding. This finding is in conformity with the findings of Kadam (2016) and Sharma (2020).

Nearly three-fifth 59.02 per cent respondents were medium environmental orientation. The reason behind this might be the respondents has to be concerned about environmental issues like soil pollution, air pollution, water pollution etc. There is now overwhelming evidence that some pesticides do pose a potential risk to humans and other life forms and unwanted side effects to the environment. This finding is in concurrence with the findings reported by Badhe (2012).

Slightly more than three-fifth 63.20 per cent respondents were medium level of sustainability. The reason behind this might be due to the majority of the respondents are medium level sustainability because their medium level social participation, mass media, education and economic motivation. There are found mostly low to medium level sustainability due to higher input cost, social stratification, land fragmentation, uneven distribution of rainfall, havoc of pest and disease, etc. These finding was more or less similar with the findings of Krishnakutly (1995).

Slightly more than one-third (31.94 per cent) of the farmers had high level of risk orientation, followed by

31.94 per cent farmers had medium level of risk orientation. Hence, it can be concluded that majority 64.58 per cent of the farmers had medium to high level of risk orientation. This might be due to the fact that farmer were having good farming experience in cotton crop and were well aware about the advantages of taking risks in the farming for getting the higher yields. Therefore, they might be taking risk at moderate level. The farming community faces are many risk; such as soil degradation, soil erosion, high fluctuation in the prices of cotton, high cost pesticide and fertilizers, non-availability of labour, disease and pests *etc.* Similar findings were also observed by Prathyusha (2014) and Sarada (2016).

Two-fifth (40.30 per cent) of the farmers had a medium economic motivation, while 30.55 per cent were found to have a high economic motivation. It can be thus inferred that (70.55 per cent) of the farmers had a medium to high level of economic motivation. It could be stated that the aspiration for higher returns from cotton farming have a better standard of living. The high interest, medium education, social participation, explore farm mass media and positive attitude towards cotton farming might have made them medium economically motivated personalities. This finding are in conformity with the findings Bhaltlak (2017) and Kantheti (2018).

37.50 per cent of the farmers had a high level of scientific orientation, reason behind this might be due to the farmers having a medium education, medium mass media exposure and high innovativeness boosted their thinking capacity, might have resulted in medium to high level of scientific orientation and also provided scientific outlook towards cotton farming practices. These findings are similar to the findings of Vihariya (2017), Singh (2017) and Sasane and Jadhav (2019).

Slightly more than one-third (35.42 per cent) of the farmers had high level of innovation proneness and 25 per cent of them were with medium level of innovation proneness. Hence, it can be concluded that (60.2 per cent) of the farmers had medium to high level of innovation proneness. The probable reason might be due to the fact that farmer is a professional who always need to update and look for innovative ways. The cotton growers were having medium to high extension participation and exposure to various information sources might have made them innovative. This finding is in line with the finding of Pruthvi (2011) and Manunayaka (2019).

65.28 per cent of the farmers had than medium level of mass media exposure. The probable reason might be that the majority of cotton farmers had awareness about the significance of agricultural mass media in providing useful

agricultural information. This finding is in line with the findings of Sipai *et al.* (2016) and Sharma (2020).

More than three-fifth (61.80 per cent) respondents had medium utilization of source of information this might due to medium availability of modern means of communication in the study area. The finding was in line with the findings of Gaikwad *et al.* (2019) and Khodake *et al.* (2020).

Table 2: Association between selected characteristics of the cotton growers and their perception about pesticides usage (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 there was positive and highly significant relationship between risk orientation, scientific orientation, innovativeness, mass media exposure and source of information with their perception about pesticides usage and also had positively and significant relationship between education, farming experience, health value, environmental orientation, sustainability, annual income, economic motivation with their perception about pesticides usage. Another characteristic size of land holding was non-significant relationship associated with their perception about pesticides usage and age had a negative and significant relationship associated with their perception about pesticides usage.

CONCLUSION

The analysis indicates that a majority of the farmers in the study were middle-aged, had a moderate level of education, possessed medium farming experience, having medium levels of health value, sustainability and

environmental orientation, had semi medium-sized land holdings, earned a moderate annual income, had moderate exposure of source of information, had moderate exposure to mass media, demonstrated a high level of innovativeness and scientific orientation and risk orientation, and displayed medium levels of economic motivation. Notably, there was a positive and highly significant relationship between risk orientation, scientific orientation, innovativeness, mass media exposure and source of information with the respondents' perception. The outcome of study says that most of the farmers believed that proper and appropriate use of pesticide is necessary. This finding help scientist and extension functionaries to realize the situation at present so that, they can suggest suitable measures to cotton growers regarding pesticides use.

CONFLICT OF INTEREST

All authors declare that they have no conflict of interest

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