Extent of adoption of the production technology and Relationship between attributes with the knowledge and adoption by Chilli Growers of Raipur District, Chhattisgarh, India

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A B S T R A C T

The present study covers the Extent of adoption of the recommended chilli production technology by the chilli growers and relationship between selected attributes with the knowledge and adoption of Raipur District of Chhattisgarh. The chilli growers 39.17 per cent were of middle age group, 45.83 per cent of respondents were found to possess primary school level of education, 40.83 per cent belonged to SC/ST category and 38.33 per cent had low social participation. It was observed that most of the chilli growers 34.17 per cent had medium size of land holding, majority 55.83 per cent were in the medium socio-economic status category, 39.17 per cent were in the medium economic motivation category, 48.33 per cent were in the medium risk preference category, majority 53.33 per cent were in the medium cosmopoliteness category.

Introduction

Agriculture has been and will continue it be the life line of the Indian economy. As the largest private enterprise in India, agriculture contributes nearly one fourth of the national G.D.P., sustains livelihood of about two third of the population and is the backbone of agro-based industry. In food sector alone agriculture contributes about 250 thousand corers rupees annually. Since 1950, the productivity gain is nearly 3.3 times in food grain, 1.6 times in fruits, 2.1 times in vegetables, 5.6 times in fish, 1.8 times in milk and 4.8 times in eggs.

Horticulture is prominent sector among agriculture and allied activities as a means of diversification for making agriculture more profitable through efficient land use, optimum

utilization of natural resources and creating skilled employment for rural masses. These efforts coupled with grower's enthusiasm for horticultural crops have paid rich dividend. Horticulture sector covering only 8.00 per cent of total crop area in the country, contributes 24.50 per cent to G.D.P. and 54.55 per cent to export earning in agriculture sector.

India has favorable climate and soils for growing a large number of horticultural crops which includes vegetables, fruits, ornamental plants, medicinal plants, aromatic plants and spices etc. It is the largest producer, consumer and exporter of spices and spice based products in the world. Thus, India is on a brink of golden revolution in horticulture.

Materials and Methods

Raipur District is situated in the fertile plains of Chhattisgarh Region. This District is situated between 22^0 33' N to 21^0 14'N Latitude and 82^0 6' to 81^0 38'E Longitude. The District is surrounded by District Bilaspur in North, District Bastar and part of Orissa state in South, District Raigarh and part of Orissa state in East and district Durg in West. The district occupies the south eastern part of the upper Mahanadi valley and the bordering hills in the south and the east. Thus, the district is divided into two major physical divisions, Viz., the Chattisgarh plain and the Hilly Areas.

Variables under study

(1) Age (2) Education (3) Caste (4) Social participation (5) Size of land holding (6) Socio-economic status (7) Economic motivation (8) Risk preference (9) Cosmopoliteness (10) Attitude towards improved farm practices (11) Innovativeness (12) Management orientation.

These variables classified into the following heads:

1. Social 2. Economic 3. Psychological

Statistical analysis of data

Data collected were qualitative as well as quantitative. The quantitative data were interpreted in terms of percentage and qualitative data were tabulated on the basis of categorization methods.

After tabulation, percentage, mean, standard deviation, correlation coefficient and multiple regression analysis was carried out.

Percentage

The term 'percentage' means a fraction whose denomination is 100 and the numeration of the fraction is called percentage. For calculating percentage, frequency was multiplied by 100 and divided by total respondents.

$$P = \frac{X}{N} \, x100$$

Where,

P = Percentage
X = Frequency of respondents
N = Total number of respondents

Mean

Mean was obtained by dividing the sum of the scores by the total number of respondents, according to the following formula -

$$\overline{X} = \frac{\sum X_i}{n}$$

Where,

$\overline{X}$ = Mean

$\sum X_i$ = Sum of all the pairs in a distribution

n = Total number of items involved.

Results and Discussion

Extent of adoption of recommended chilli production technology by the chilli growers

The data furnished in Table 1 shows the extent of adoption by respondents of recommended package of production practices.

It is evident from the Table that out of 120 respondents, most of the respondents 45.00 per cent had medium extent of adoption about improved varieties followed by 30.00 per cent in low and 25.00 per cent in high extent of adoption. The cumulative adoption of this particular practice was observed as 65.00 per cent among the total respondents.

Table.1 Extent of adoption of the respondents about chilli production technology

S.No.	Practices	Extent of adoption				
		Low	**Medium**	**High**	**Mean score**	Cumulative percentage
1	Improved varieties	36(30.00)	54(45.00)	30(25.00)	1.95	**65.00**
2.	Field preparation	31(25.83)	50(41.67)	39(32.50)	2.07	**69.00**
3.	Recommended dose of chemical fertilizers	58(48.33)	51(42.50)	11(09.17)	1.61	**53.67**
4.	Irrigation management	53(44.17)	60(50.00)	07(05.83)	1.62	**54.00**
5.	Weed management	71(59.17)	38(31.66)	11(09.17)	1.50	**50.00**
6.	Insect control	54(45.00)	46(38.33)	20(16.67)	1.72	**57.33**
7.	Disease control	61(50.83)	44(36.67)	15(12.50)	1.62	**54.00**
Average mean score					**1.72**	**57.57**

Regarding field preparation, higher percentage of the respondents 41.67 had medium extent of adoption, while 32.50 per cent had low and 25.83 per cent had high extent of adoption. The cumulative adoption of this particular practice was observed as 69.00 per cent among the total respondents.

The most of the respondents 48.33 per cent had low adoption while 42.50 per cent had medium and only 09.17 per cent had high adoption of recommended dose of chemical fertilizers. The cumulative adoption of this particular practice was observed as 53.67 per cent among the total respondents.

About irrigation management, the majority 50.00 per cent respondents had medium adoption followed by 44.17 per cent in low and only 05.83 per cent in low adoption. The cumulative adoption of this particular practice was observed as 54.00 per cent among the total respondents.

Regarding weed management, the majority of chilli growers 59.17 per cent had low adoption followed by 31.66 per cent in medium and only 09.17 per cent in high adoption of recommended dose of fertilizers. The cumulative adoption of this particular practice was observed as 50.00 per cent among the total respondents.

The most of respondents 45.00 per cent had low adoption of insect control while 35.00 per cent had medium and 16.67 per cent had high adoption. The cumulative adoption of this particular practice was observed as 57.33 per cent among the total respondents.

Regarding disease control majority of the respondents 50.83 per cent had low adoption followed by 36.67 per cent in medium adoption and 12.50 per cent in high adoption. The cumulative adoption of this particular practice was observed as 54.00 per cent among the total respondents.

It revealed from the Table 6 that only two practices had higher mean score than the average mean score 1.72 i.e. improved varieties and field preparation. It can be concluded from the above findings that the maximum respondents had higher adoption regarding these two practices was higher in these two practices as compared to others.

Overall extent of adoption about chilli production technology among the respondents

The extent of adoption of chilli production technology among the respondents were measured as low, medium and high categories. The relevant observed frequencies are presented in Table.2.

Table.2 Overall extent of adoption of respondents about chilli production technology

S. No.	Categories	Frequency	Percentage
1	Low	52	43.33
2	Medium	49	40.84
3	High	19	15.83
Total		120	100.00

It is observed from the Table 2 that higher percentage of the respondents (43.33%) were

having low extent of adoption followed by 40.84 per cent respondents had medium and 15.83 per cent high adoption of chilli production technology.

Relationship between selected attributes and level of knowledge and extent of adoption

The data collected to find out the relationship between socio-economic, communicational and psychological attributes of chiilli growers and level of knowledge and extent of adoption were analyzed and presented from Table 9 to 16.

Level of knowledge

Social attributes

Table.3 Relationship between social attributes of chilli growers and their level of knowledge

S.No.	Attributes	Correlation coefficient 'r'	't' value
1	Age	0.035 NS	0.384
2	Education	0.425**	4.935
3	Caste	0.097NS	1.067
4	Social participation	0.307**	3.535

** significant at 0.01 level of probability

Age

Null hypothesis

There is no relationship between age and level of knowledge of chilli growers.

Empirical hypothesis

There is a positive relationship between age and level of knowledge of chilli growers.

The computed correlation coefficient (0.035)

was found non significant. This means that there is no relationship between age and level of knowledge of the respondents. Hence, the null hypothesis was accepted and original proposition that there is positive relationship between age and level of knowledge of chilli growers was rejected.

Education

Null hypothesis

There is no relationship between education and level of knowledge of chilli growers.

Empirical hypothesis

There is a positive relationship between education and level of knowledge of chilli growers.

The correlation coefficient (0.425) was found significant at 0.01 level of probability. This shows a positive relationship of education with level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between education and level of knowledge of chilli growers was accepted.

Caste

Null hypothesis

There is no relationship between caste and level of knowledge of chilli growers.

Empirical hypothesis

There is a positive relationship between caste and level of knowledge of chilli growers.

The correlation coefficient (0.097) was found non-significant. This means that there is no relationship between caste and level of knowledge of the respondents. Hence, the null

hypothesis was accepted and original proposition that there is positive relationship between caste and level of knowledge of chilli growers was rejected.

Social participation

Null hypothesis

There is no relationship between social participation and level of knowledge of chilli growers.

Empirical hypothesis

There is a positive relationship between social participation and level of knowledge of chilli growers

The computed correlation coefficient (0.307) was found significant at 0.01 level of probability. This shows a positive relationship of social participation with level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between social participation and level of knowledge of chilli growers was accepted.

Economic attributes

Table. 4. Relationship between economic attributes of chilli growers and their level of knowledge

S. No.	Attributes	Correlation coefficient 'r'	't' value
1	Size of land holding	0.364**	4.281
2	Socio-economic status	0.292**	3.345
3	Economic motivation	0.311**	3.585
4	Risk preference	0.309**	3.562
5	Cosmopoliteness	0.366**	2.969

** significant at 0.01 level of probability

Size of land holding

Null hypothesis

There is no relationship between size of land holding and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between size of land holding and level of knowledge of chilli growers.

The correlation (0.364) was found significant at 0.01 level of probability. This shows a positive relationship of size of land holding with level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between size of land holding and level of knowledge of chilli growers was accepted.

Socio-economic status

Null hypothesis

There is no relationship between socio-economic status and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between socio-economic status and level of knowledge of chilli growers

The correlation coefficient (0.292) was found significant at 0.01 level of probability. This means that there is a positive relationship between socio-economic status and level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is positive relationship between socio-economic status and level of knowledge of chilli growers was accepted.

Economic motivation

Null hypothesis

There is no relationship between economic motivation and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between economic motivation and level of knowledge of chilli growers

The correlation coefficient (0.311) was found significant at 0.01 level of probability. This shows a positive relationship of economic motivation with level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between economic motivation and level of knowledge of chilli growers was accepted.

Risk preference

Null hypothesis

There is no relationship between risk preference and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between risk preference and level of knowledge of chilli growers

The correlation coefficient (0.309) was found significant at 0.01 level of probability. This shows a positive relationship between risk preference and level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between risk preference and level of knowledge of chilli growers was accepted.

Cosmopoliteness

Null hypothesis

There is no relationship between cosmopoliteness and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between Cosmopoliteness and level of knowledge of chilli growers.

The correlation coefficient of cosmopoliteness (0.366) was found significant at 0.01 level of probability. This means that there is a positive relationship between cosmopoliteness and level of knowledge of the respondents. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between cosmopoliteness and level of knowledge of chilli growers was accepted.

Communicational attributes

Table.5 Relationship between communicational attributes of chilli growers and their level of knowledge

S.No.	Attributes	Correlation coefficient 'r'	't' value
1	Mass media exposure	0.289**	3.307
2	Extension participation	0.381**	4.515
3	Information seeking behavior	0.331**	3.844
4	Exposure to demonstration	0.374**	4.418
5	Exposure to training	0.379**	4.487

** Significant at 0.01 level of probability

Mass media exposure

Null hypothesis

There is no relationship between mass media exposure and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between mass media exposure and level of knowledge of chilli growers. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between mass media exposure and level of knowledge of chilli growers was accepted.

Extension participation

Null hypothesis

There is no relationship between extension participation and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between extension participation and level of knowledge of chilli growers. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between extension participation and level of knowledge of chilli growers was accepted.

Information seeking behavior

Null hypothesis

There is no relationship between information seeking behaviour and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between information seeking behavior and level of knowledge of chilli growers. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between information seeking behaviour and level of knowledge of chilli growers was accepted.

Exposure to demonstration

Null hypothesis

There is no relationship between exposure to demonstration and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between exposure to demonstration and level of knowledge of chilli growers. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between exposure to demonstration and level of knowledge of chilli growers was accepted.

Exposure to training

Null hypothesis

There is no relationship between exposure to training and level of knowledge of chilli growers**.**

Empirical hypothesis

There is a positive relationship between exposure to training and level of knowledge of chilli growers. Hence, the null hypothesis was rejected and original proposition that there is a positive relationship between exposure to training and level of knowledge of chilli growers was accepted.

Relationship between selected attributes and level of knoiwledge and extent of adoption

Level of knowledge

Social attributes

It revealed from the study that out of four social attributes, education, and social participation were found positively and significantly related with level of knowledge of chilli growers at 0.01 level of probability while age and caste had non-significant relationship.

Economic attributes

It revealed from the study that all five economic attributes viz. size of land holding, socio-economic status, cosmopoliteness, risk preference and economic motivation had positive and significant relationship with level of knowledge of chilli growers at 0.01 level of probability.

Communicational attributes

It revealed from the study that all five communicational attributes viz. mass media exposure, extension participation, information seeking behavior, exposure to demonstration and exposure to training were found positively and significantly correlated with level of knowledge of chilli growers at 0.01 level of probability.

Socio psychological attributes

It revealed that all three socio psychological attributes viz. management orientation, innovativeness and attitude towards improved farm practices had positive and significant relationship with level of knowledge of chilli growers at 0.01 level of probability.

It revealed from the present study that most of the chilli growers 39.17 per cent were of middle age group, 45.83 per cent of respondents were found to possess primary school level of education, 40.83 per cent belonged to SC/ST category and 38.33 per cent had low social participation.

It was observed that most of the chilli growers 34.17 per cent had medium size of land holding, majority 55.83 per cent were in the medium socio-economic status category, 39.17 per cent were in the medium economic motivation category, 48.33 per cent were in the medium risk preference category, majority 53.33 per cent were in the medium cosmopoliteness category.

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