

Factors Influencing The adoption Level of The Tomato Growers on Recommended Cultivation Practices

K. Madhuri*, V. Sailaja, P.V. Sathya Gopal and D. Subramanyam

Acharya N G Ranga Agricultural University,
Department of Agricultural Extension S. V. Agricultural College, Tirupathi-517502

*Corresponding Author E-mail: madhurireddykogara@gmail.com

Received: 20.06.2019 | Revised: 28.07.2020 | Accepted: 4.08.2020

ABSTRACT

The present investigation was carried out in Chittoor district of Andhra Pradesh state during 2016-17 to study the extent of adoption and factors influencing the extent of adoption of the tomato growers. A total of 120 participants were selected for the study. The results of the study revealed that 60.00 per cent of the farmers were having extent of adoption, followed by high (23.00%) and low (17.00%) levels. The profile characteristics viz., education, extension contact, mass media exposure, scientific orientation, risk orientation, management orientation, innovativeness and achievement motivation were found to be positively significant with the extent of adoption of respondents. Further, all the selected 14 independent variables put together explained about 69.30 per cent variation in the knowledge level of tomato growers.

Keywords: Adoption, Tomato cultivation, Tomato growers

INTRODUCTION

Tomato is a fruit that is almost universally treated as a vegetable and a perennial plant that is almost universally as an annual. Tomato is well known and very popular vegetable grown successfully throughout India. Tomato ranks third in priority after potato and onion in India but ranks second after potato in the world. India ranks second in the area as well as in production of tomato. Andhra Pradesh is producing about 36% of tomatoes in the country and is the leading producer of tomato involving a production of 1473.5 thousand

million tones from an area of 54.2 thousand hectares with productivity of 27.2 mt/ha. In chittoor district horticulture crops are grown in an extent of 1.05 lakh hectares including fruits and vegetables. Out of 21199 hectares of vegetables, tomato is grown in an extent of 16000 hectares has a predominant vegetable crop. On this background, the study was planned in tomato growing area chittoor district of Andhra Pradesh with an objective to find out the factors influencing the extent of adoption of recommended cultivation practices by tomato growers.

Cite this article: Madhuri, K., Sailaja, V., Sathya Gopal, P.V., & Subramanyam, D. (2020). Factors Influencing The adoption Level of The Tomato Growers on Recommended Cultivation Practices, *Ind. J. Pure App. Biosci.* 8(1), 183-189. doi: <http://dx.doi.org/10.18782/2582-2845.7577>

MATERIALS AND METHODS

Chittoor district of Andhra Pradesh was selected as tomato is extensively cultivated. Out of 66 mandals of chittoor district, three mandals namely Kurabalakota, Molakalacheruvu and Gurramkonda were purposively selected based on the highest area under tomato cultivation. Four villages from each mandal were selected for the study. From each village 10 farmers were selected thus a total number of 120 respondents were selected from 12 villages.

RESULTS AND DISCUSSION

Overall level extent of adoption of recommended cultivation practices of tomato by the tomato growers

In order to assess the overall extent of adoption of recommended cultivation practices of tomato by the tomato growers, data were collected and the respondents were categorized into three groups *viz.*, low, medium and high by using mean and standard deviation and the results were presented in Table 1.

A glance at the Table 1 revealed that 60.00 per cent of the participant farmers were

having medium extent of adoption, followed by high (23.00%) and low (17.00%) extent of adoption. The probable reason for this trend might be majority of the respondents were having medium levels of scientific orientation, achievement orientation, management orientation and knowledge on recommended cultivation practices. These along with low levels of credit orientation, market facilities might be the reasons for medium extent of adoption. Lack of family labour and farm labour coupled with high cost of labour also might have contributed much in lowering the extent of adoption by the tomato growers.

Competent authorities should bestow their attention in imparting more trainings to the farmers, inculcate the urge to achieve more and more from the field and raise their economic orientation, develop good management orientation and mobilize more numbers of middle aged and youngsters into agricultural activities to increase the extent of adoption of recommended practices to a high level from the present medium level. The result was in conformity with the results of Sajith Kumar (2004).

Table 1: Distribution of respondents based on the overall level of extent of adoption

S.No	Extent of adoption	Frequency	Percentage
1.	Low	20	17.00
2.	Medium	72	60.00
3.	High	28	23.00
Total		120	100.00

Mean: 72.60 SD: 9.32

Relationship between the selected profile characteristics and the extent of adoption of tomato farmers about recommended cultivation practices

In order to study the nature of relationship between the selected independent variables and the extent of knowledge of tomato farmers about the recommended cultivation practices, correlation coefficients (*r*) were computed and the values are presented in Table 2

Adoption Vs Age

It could be observed from the table 2 that the computed coefficient of correlation value ($r = -0.195$) was found negatively and significantly

related with extent of adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was significant relationship between age and extent of adoption of recommended tomato cultivation practices.

Adoption Vs Education

From the table 2 it is evident that the computed coefficient of correlation value ($r = 0.752$) was positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices.

Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was significant relationship between education and extent of adoption of recommended tomato cultivation practices. This might be due to reason that if education of farmers is more, their mental horizons are honed up and they will acquire more knowledge about various cultivation aspects and try to practice newly acquired information in their field resulting in increased level of adoption. observation is substantiated by the conclusions of Latha (2002).

Adoption Vs Farming Experience

Table 2 point out that the computed coefficient of correlation value ($r' = -0.304$) was found negatively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a negative and significant relationship between farming experience and extent of adoption of recommended tomato cultivation practices. As the experience increases farmers might be able to taste the fruits of new technologies in farming activities and become more and more confident in using better technologies. This might be the reason for the positive and significant relationship between these two variables. This observation is supported by the results obtained by Sathish Rahul (2003).

Adoption Vs Farm size

A bird's eye of table 2 indicated that the computed coefficient of correlation value ($r' = 0.285$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was significant relationship between farm size and extent of adoption of recommended tomato cultivation practices. This might be due to in general big farmers are economically sound and they will be willing to take risk and adopt recommended practices in their farms regardless of cost

involved where as small and marginal farmers think of their invest and returns expected, before going for adoption of new practices. This might be the reason for such relationship between the variables. This conclusion is substantiated by the findings of Sajith Kumar (2004).

Adoption Vs Annual income

Table 2 point out that the computed coefficient of correlation value ($r' = 0.152$) was found non-significantly related with extent of adoption of the respondents about the recommended cultivation practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore, it could be confirmed that there was a non-significant relationship between extension contact and extent of adoption of recommended tomato cultivation practices.

Adoption Vs Extension contact

Table 2 point out that the computed coefficient of correlation value ($r' = 0.717$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between extension contact and extent of adoption of recommended tomato cultivation practices. This might be due to the fact that farmers with more extension contact acquire more knowledge about the advanced developments and form favourable attitude, which in turn lead to the adoption of technologies. This conclusion is supported by the findings of Sajith Kumar (2004).

Adoption Vs Mass Media Exposure

Table 2 point out that the computed coefficient of correlation value ($r' = 0.693$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between mass media exposure and extent of adoption of

recommended tomato cultivation practices. It is natural that increased mass media exposure broadens the understanding and awareness on the adoption of recommended practices and this in turn leads to better adoption of recommended practices by the tomato farmers. This result is substantiated by the findings of Hemanth Kumar (2002).

Adoption Vs Marketing facilities

It could be observed from the table 2 that the computed coefficient of correlation value ($r^2=0.030$) was found non significantly related with extent of adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore it could be inferred that there was significant relationship between marketing facilities and extent of adoption of recommended tomato cultivation practices.

Adoption Vs Scientific Orientation

From a pigeon hole observation of Table 2 it is evident that the computed coefficient of correlation value ($r^2=0.54$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Consequently, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between scientific orientation and extent of adoption of recommended tomato cultivation practices. Farmers having more scientific orientation will be motivated to know more scientific information about improved agricultural technologies. Due to this, they might develop favourable attitude towards the technologies, which in turn lead them to adopt new agricultural technologies. Hence the above trend was noticed. Similar results were observed by Hemanth Kumar (2002).

Adoption Vs Risk Orientation

From the figures of Table 2 it is evident that the computed coefficient of correlation value ($r^2= 0.590$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Consequently, the null hypothesis was rejected and empirical

hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between risk orientation and extent of adoption of recommended tomato cultivation practices. A farmer who has courage to face uncertainties and ready to take risk in cultivation of crops will naturally adopts the recommended practices. This might be the reason for the positive and significant relationship between the above two variables. This observation is substantiated by the findings of Hemanth Kumar (2002).

Adoption Vs Credit Orientation

It could be observed from the table 2 that the computed coefficient of correlation value ($r^2=-0.177$) was found negatively and significantly related with extent of adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore it could be inferred that there was significant relationship between credit orientation and extent of adoption of recommended tomato cultivation practices.

Adoption Vs Management Orientation

A cursory glance of Table 2 shows that the computed coefficient of correlation value ($r^2=0.728$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Consequently, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between the management orientation and extent of adoption of recommended tomato cultivation practices. Management orientation is the ability of a farmer in scientific farm management in planning, production and marketing. Farmers endowed with these attributes could naturally strive hard to get maximum profits by adopting the latest technologies in a scientifically programmed manner. This might be the reason for such relationship between the variables. This conclusion derives support from the findings of Sathish Rahul (2003).

Adoption Vs Innovativeness

A cursory glance of Table 2 shows that the computed coefficient of correlation value ($r^2=0.729$) was found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Consequently, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between the antecedent and consequent variables. Innovativeness is associated with the individual's earliness in the use of new practices. Therefore, a person, who is more innovative, acquires more knowledge from various sources and adopts the practices without any hesitation and this might be the reason for the above relationship.

Adoption Vs Achievement Motivation

Results in Table 2 shows that the computed coefficient of correlation value ($r^2=0.656$) was

found positively and significantly related with extent of adoption of the respondents about the recommended cultivation practices. Consequently, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be confirmed that there was a positive and significant relationship between achievement motivation and extent of adoption of recommended tomato cultivation practices. Individuals with high achievement motivation would be determined to reach his goal with concrete efforts. In this process, he knows the importance of recommended practices and this lead to high adoption. It is obvious that a farmer with achievement motivation will definitely conceive new ideas and skills better than others and this higher order conception might have influenced to have better level adoption. The positive, significant relation might be due to this reason.

Table 2: Correlation coefficients between the selected profile characteristics with the extent of adoption of the tomato farmers

(n=120)

Variable No.	Independent Variables	Correlation co-efficients (r^2 values)
X ₁	Age	-0.195*
X ₂	Education	0.752**
X ₃	Farming experience	-0.304**
X ₄	Farm size	0.196*
X ₅	Annual income	0.152NS
X ₆	Extension contact	0.717**
X ₇	Mass media exposure	0.705**
X ₈	Marketing facilities	0.030NS
X ₉	Scientific orientation	0.540**
X ₁₀	Risk orientation	0.602**
X ₁₁	Credit orientation	-0.177*
X ₁₂	Management orientation	0.728**
X ₁₃	Innovativeness	0.729**
X ₁₄	Achievement motivation	0.656**

* : Significant at 0.05 level of probability

** : Significant at 0.01 level of probability

NS : Non significant

Further, in order to study the combined effect of all the independent variables in explaining

variation in extent of adoption of recommended cultivation practices by tomato

growers, Multiple Linear Regression (MLR) analysis was carried out. The computed coefficient of determination (R^2) value and partial regression co-efficient (b) values with

their corresponding values were presented in Table 3. The R^2 and 'b' values were tested statistically for their significance.

Table 3: Multiple Linear Regression analysis of the selected independent variables with the extent of adoption of the tomato farmers

S. No.	Variable Number	Independent variables	Partial regression coefficients (b)	Computed 't' values
1.	X ₁	Age	-2.027	-0.863 ^{NS}
2.	X ₂	Education	0.218	0.648 ^{NS}
3.	X ₃	Farming experience	0.418	0.982 ^{NS}
4.	X ₄	Farm size	1.458	2.093*
5.	X ₅	Annual income	0.003	0.557 ^{NS}
6.	X ₆	Extension contact	-0.188	-2.109*
7.	X ₇	Mass media exposure	0.373	4.422**
8.	X ₈	Marketing facilities	0.420	1.740 ^{NS}
9.	X ₉	Scientific orientation	0.222	0.675 ^{NS}
10.	X ₁₀	Risk orientation	0.102	0.245 ^{NS}
11.	X ₁₁	Credit orientation	0.644	1.872 ^{NS}
12.	X ₁₂	Management orientation	0.141	0.809 ^{NS}
13.	X ₁₃	Innovativeness	0.544	2.809**
14.	X ₁₄	Achievement motivation	-0.262	0.794

$R^2 = 0.693$

- * : Significant at 5% level of probability
 ** : Significant at 1% level of probability
 NS : Non significant

The ' R^2 ' value of 0.693 depicted that all the selected fourteen independent variables put together explained about 69.30 per cent variation in the extent of adoption of recommended cultivation practices by the tomato growers. The partial regression coefficients presented in Table 3 further reveals that the independent variables viz. farm size, extension contact, mass media exposure and innovativeness were found positively significant as evident from their significant 't' values. This implied that farm size, extension contact, mass media exposure and innovativeness contributed to most of the variation in the extent of adoption of tomato growers.

CONCLUSION

Among the factors hypothesized to influence the adoption, age, education, extension

contact, scientific orientation were significant while annual income and marketing facilities were non significant. To increase the adoption of tomato cultivation, market centres or market agencies should give proper attention. Target oriented training programme have to be formulated to enhance the adoption of recommended tomato cultivation practices. Extension agencies have to be more active in providing several exposures to the tomato growers regarding precision farming of tomato.

REFERENCES

- Hemanthkumar, B. (2002). A study on attitude, Knowledge and adoption of recommended practices by oriental tobacco farmers in chittoor district of Andhra Pradesh. *M.Sc. (Ag.) Thesis*.

- Acharya N. G. Ranga Agricultural University, Hyderabad, India.
- Mandeep, S., & Devinder S. (2013). Adoption of Improved tomato cultivation practices. *Indian Journal of Extension Education*. 49 (1&2) : 62-66
- Obaiah, M. C. (2004). A study on capacity building of rice growing farmers of Farmers Field Schools (FFS) in Krishna - Godavari zone of Andhra Pradesh. *Ph.D. Thesis*. Acharya N G Ranga Agricultural University, Hyderabad, India.
- Ramu, A. G. (2005). Knowledge and adoption of Turmeric farmers in Kadapa district of Andhra Pradesh. *M.Sc. (Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, India
- Roy, S., & Bhagath, R., & Rao. D.U.M. (2007). Level of knowledge and extent of adoption of farmers on recommended Gladiolus production practices. *Indian Journal of Extension Education*. 7(2&3), 69-71
- Roy, S., & Bhagath, R. (2012). Level of knowledge and extent of adoption of farmers on recommended tuberose production practices. *Indian Journal of Extension Education*. 48(1&2), 78-80
- Sajithkumar, K. (2004). Adoption of recommended package of practices by the coconut farmers of Mahe region of Union territory of Pondicherry. *M.Sc. (Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad.
- Satishrahul, M. (2003). A study on risk perception and adoption of risk management practices by the papaya growers in Kadapa district of Andhra Pradesh. *M.Sc. (Ag.) Thesis*. Acharya N.G. Ranga Agricultural University, Hyderabad, India.
- Sivanarayana, G., Ramadevi, M., & Venkataramaiah, P. (2008). Awareness and adoption of cotton (*Gossypium hirsutum* L.) Integrated pest management practices by the farmers of Warangal district in Andhra Pradesh. *Journal of Research*. Acharya N.G. Ranga Agricultural University. 36, 33-40.