



FACTORS INFLUENCING THE KNOWLEDGE LEVEL OF HIGH DENSITY PLANTING (HDP) IN CASHEW CULTIVATION - AN ANALYSIS

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Abstract

“Cashew is the Golden mine of wasteland”. Cashew (*Anacardium occidentale* L.), a tree native of Eastern Brazil, was introduced in India by the Portuguese nearly five centuries ago. India occupies the first place in terms of area with 1.03 million ha under cashew cultivation and second place in production. India needs about 16 lakh metric tones of raw cashew nut to feed. But we produce about 6.70 lakhs metric tones of raw cashew nut annually (2015-16). Hence, the balance quantity of 8.0 to 9.0 lakh metric tones of raw cashew nuts has to be imported from African and South East Asian countries. HDP in cashew cultivation is the important innovative tool in the hands of farmers to improve the production, productivity, double the income of famers, and increase the export quality of nuts, by involving in the set of HDP practices in cashew cultivation that involves less spacing, more plant population, pruning, better irrigation and nutrient management to increase the yield. Unfortunately majority of the farmers are following primitive and traditional practices in cashew. An understanding of appropriate high yielding varieties, positive HDP in cashew cultivation practices and adoption are very much needed for the present situation. The profile characteristics of the cashew growers play a vital role in determining their knowledge level on recommended HDP practices. The zero-order correlation co-efficient and linear multiple regression analysis were employed to study the relationship and contribution of characteristics with knowledge level in HDP practices in cashew cultivation. The study was taken up in the cashew predominant district of Cuddalore in Tamil Nadu State (India) with a sample size of hundred and twenty cashew growers selected based on the random sampling method. The findings revealed that out of sixteen independent variables, eight variables were found to be positive and significant relationship with knowledge level in both correlation and regression analysis.

Introduction

India occupies the first place in terms of area with 1.03 million ha under cashew cultivation and second place in production. India needs about 16 lakh metric tones of raw cashew nut to feed. But we produce about 6.70 lakhs metric tones of raw cashew nut annually (2015-16). Hence, the balance quantity of 8.0 to 9.0 lakh metric tones of raw cashew nuts has to be imported from African and South East Asian countries. Same time India also exports about 0.9634 lakh metric tonnes (2015-16) of cashew kernel to over 65 countries of the world. Quality of Indian cashew is rated as best in the global market. In Tamil Nadu cashew plantation covering 141.58 thousand ha and producing 67.65 metric tones per year.

To meet the future demand for cashew, the production of cashew has to be increased and sustained. The possibility of increasing the cashew area is limited due to various factors like lack of water availability, natural disaster etc., As a result, the cashew growers are shifting to other crops, leading to shortfall in cashew area. The only a way to step up supply side is to increase productivity per acre. It could be achieved only if concentrated efforts are taken in the improved method of cashew cultivation. HDP in cashew cultivation is the

important innovative tool in the hands of farmers to improve the production, productivity, double the income of famers, and increase the export quality of nuts, by involving in the set of HDP practices in cashew cultivation that involves less spacing, more plant population, pruning, better irrigation and nutrient management to increase the yield. Unfortunately majority of the farmers are following primitive and traditional practices in cashew. An understanding of appropriate high yielding varieties, positive HDP in cashew cultivation practices and adoption are very much needed for the present situation. The personal, socio-economic and psychological characteristics of the cashew growers may play a role in determining their knowledge level on recommended HDP practices. Keeping this in view, the present study has been made to know the relationship and contribution of characteristics with knowledge level in HDP practices.

Materials and Methods

The present study was taken up among the cashew growers in the area of Cuddalore district. Totally 120 cashew growers those who followed in HDP were selected from the two blocks namely Panruti and Kurinjipadi of the district by proportionate random sampling method. The data were

collected from the respondents with the help of well structured and pre tested interview schedule. Sixteen variables, *viz.*, Age, Educational status, Occupational status, Farm size, Experience in cashew cultivation, Annual income, Social participation, Extension agency contact, Mass media exposure, Information sharing behaviour, Innovativeness, Risk orientation, Scientific orientation, Economic motivation, Decision making pattern and Training undergone and an dependent variable knowledge were included in the study. The statistical tools used in the study were percentage analysis, zero order correlation and multiple regression analysis.

Results and discussion

The results of the association of the characteristic with knowledge level of HDP practices in cashew cultivation are being presented in subsequent tables.

Relationship between personal, socio-economic and psychological characteristics of respondents and their knowledge level of HDP practices

The personal, socio-economic and psychological characteristics of the cashew growers may play a role in determining their knowledge level on recommended HDP practices. In order to assess the relationship between personal, socio-economic and psychological characteristics of the cashew growers and their knowledge level on recommended HDP practices, zero order correlation coefficient was worked out and the results are presented in Table-1.

The results in Table 1 exhibited that out of sixteen independent variables *viz.*, educational status, experience in cashew cultivation, extension agency contact, mass media exposure, information sharing behaviour, innovativeness, risk orientation, and training undergone had shown positive and significant relationship with knowledge level of the respondents. Among the significant variables, educational status, experience in cashew cultivation, mass media exposure, information sharing behaviour, innovativeness and training undergone were found to be significant association at one per cent level of probability, whereas the remaining variables namely extension agency contact and risk orientation had significant at five per cent level of probability. The correlation values for the rest of the eight variables showed non-significant association with knowledge level of respondents.

Educational status was positively and highly significantly related to knowledge level. Education increases the ability to understand facts and facilitates proper analysis and interpretation. Educated respondents may have better social participation, extension agency contact and mass media exposure. It had increased access to communication sources. These may be the reasons for the positive relationship between educational status and knowledge level. This finding derives support from the findings of Ganapathy Ramu (2017). Experience in cashew cultivation had shown positive and highly significant relationship at one per cent level of probability. This may be due the fact that the

respondents with more experience in farming are mostly old aged persons. It may be stated that more experience in cashew farming would enhanced the higher knowledge in package of practices and technical aspects. Hence, the experience in cashew cultivation of the respondents resulted in positive and significant relationship with knowledge level. This finding is identical with the findings of Ram Sundar (2016).

There was positive influence of extension agency contact with the knowledge level. Extension agency contact might have provided them the opportunities to get the authenticated information. Those who had better exposure to mass media might have the opportunity to receive information in many modes and which would have resulted in better knowledge level. This might be the probable reason for positive and significant relationship of extension agency contact with the knowledge level of the respondents. A similar finding was also reported by Saravanakumar (2000).

Mass media exposure is found to have positive and highly significant relationship with the knowledge level HDP practices. Farmers get the information from various sources like, the Officials of State Horticulture Department and also from radio, television, newspaper etc., which might have resulted in greater knowledge of the respondents. This findings is in accordance with that findings of Ushas (2001). Information sharing behaviour had exhibited a positive and significant association at one per cent level of probability. It is obvious because the respondents who had higher information sharing behaviour would have naturally acquired knowledge about the practices. This is in conformity with the findings of Vasanthakumar (2014). There was a positive and highly significant relationship between innovativeness and knowledge level of the respondents. Those who are willing to adopt new technologies would search for more information, which in turn would have resulted with higher knowledge level of the respondents. This finding delivers it support from the findings of Jeyalakshmi (2008) and Vinoth (2012).

The variable risk orientation had showed positive and significant relationship with knowledge level at five per cent of probability. Respondents with higher risk orientation would have high risk bearing tendency increased the knowledge level in HDP practices for getting higher production. This may be the reasons for the reported relationship between risk orientation and knowledge level. This finding is in contradictory with the finding of Sujatha (2009). There was a positive and highly significant relationship between training undergone and knowledge level of the respondents. Generally trained farmers would be having more knowledge about the recommended practices than the untrained farmers. Hence, a positive relationship had resulted. This observation is in agreement with the earlier findings of Rajamanickam (2010).

Contribution of personal, social-economic and psychological characteristics of respondents towards their knowledge level of HDP practices

Multiple regression analysis was undertaken to determine the contribution of each characteristics towards the knowledge level of recommended HDP practices. The

results are presented in Table 2.

The data in Table 2 indicate that the R^2 value was 0.513 which revealed that 51.30 per cent of variation in the knowledge level of cashew growers about HDP practices was explained by sixteen variables selected for the study. Since the 'F' value was significant at one per cent level of probability, the prediction equation was fitted for knowledge level of the respondents as given below.

$$Y = 9.531 + 0.326(X_1) + 1.765(X_2) - 1.482(X_3) + 2.206(X_5) + 0.407(X_6) + 0.911(X_8) - 0.317(X_7) + 1.416(X_9) + 0.594(X_9) + 0.135(X_{10}) + 1.417(X_{11}) + 0.815(X_{12}) + 0.227(X_{13}) + 0.247(X_{14}) + 0.177(X_{15}) + 0.687(X_{16})$$

It could be seen from the above equation that the regression co-efficient of the variables viz., educational status (X_2), experience in cashew cultivation (X_5), extension agency contact (X_8), mass media exposure (X_9), innovativeness (X_{11}), risk orientation (X_{12}) and training undergone (X_{16}) were found to be positive significant contributing towards the knowledge level of the respondents. Among the significant variables, educational status (X_2) and risk orientation (X_{12}) were found to be significant at one per cent level of probability whereas the remaining variables viz., experience in cashew cultivation (X_5), extension agency contact (X_8), mass media exposure (X_9), innovativeness (X_{11}) and training undergone (X_{16}) were significant at five per cent level of probability.

The strength of contribution of these variables revealed that a unit increase ceteris paribus in educational status (X_2), experience in cashew cultivation (X_5), extension agency contact (X_8), mass media exposure (X_9), innovativeness (X_{11}),

risk orientation (X_{12}) and training undergone (X_{16}) would increase knowledge level by 1.765, 0.407, 1.416, 0.594, 1.417, 0.815, and 0.687 units respectively. This meant that HDP practicing farmers who possessed educational status, experience in cashew cultivation, extension agency contact, mass media exposure, innovativeness, risk orientation and training undergone would have higher knowledge level in HDP practices in cashew cultivation. The other variables did not show significant effect on the knowledge level in HDP practices.

Conclusion

Out of sixteen independent variables viz., educational status, experience in cashew cultivation, extension agency contact, mass media exposure, information sharing behaviour, innovativeness, risk orientation, and training undergone had shown positive and significant relationship with knowledge level of the respondents. Among the significant variables, educational status, experience in cashew cultivation, mass media exposure, information sharing behaviour, innovativeness and training undergone were found to be significant association at one per cent level of probability, whereas the remaining variables namely extension agency contact and risk orientation had significant at five per cent level of probability with knowledge level of respondents. The multiple regression indicate that the R^2 value was 0.513 which revealed that 51.30 per cent of variation in the knowledge level of cashew growers about HDP practices was explained by sixteen variables selected for the study. Since the 'F' value was significant at one per cent level of probability. Hence the results fit in the regression equation.

Table 1: Relationship between personal, socio-economic and psychological characteristics of respondents and their knowledge level. (n=120)

Variable No.	Independent Variables	Correlation - coefficient 'r' value
X ₁	Age	0.062NS
X ₂	Educational status	0.176**
X ₃	Occupational status	0.101NS
X ₄	Farm size	0.098NS
X ₅	Experience in cashew cultivation	0.151**
X ₆	Annual income	0.053NS
X ₇	Social participation	0.092 NS
X ₈	Extension agency contact	0.126*
X ₉	Mass media exposure	0.176**
X ₁₀	Information sharing behaviour	0.274**
X ₁₁	Innovativeness	0.201**
X ₁₂	Risk orientation	0.153*
X ₁₃	Scientific orientation	0.047 NS
X ₁₄	Economic motivation	0.011NS
X ₁₅	Decision making pattern	0.045NS
X ₁₆	Training undergone	0.229**

** - Significant at 1% level

* - Significant at 5 % level

NS - Non-significant

Table 2: Contribution of personal, social-economic and psychological characteristics of respondents towards their knowledge level (n=120)

Variable No.	Impendent Variables	Regression co-efficient	Standard error	't' value
X ₁	Age	0.326	0.463	1.201NS
X ₂	Educational status	1.765	0.656	2.678**
X ₃	Occupational status	-1.482	1.307	-1.308NS
X ₄	Farm size	2.206	1.501	1.358NS
X ₅	Experience in cashew cultivation	0.407	0.346	2.167*
X ₆	Annual income	0.911	0.549	1.104NS
X ₇	Social participation	-0.317	0.394	0.271NS
X ₈	Extension agency contact	1.416	0.717	1.891*
X ₉	Mass media exposure	0.594	0.117	2.126*
X ₁₀	Information sharing behaviour	0.135	0.301	0.387NS
X ₁₁	Innovativeness	1.417	0.717	1.748*
X ₁₁	Innovativeness	1.417	0.717	1.748*
X ₁₂	Risk orientation	0.815	0.155	2.697**
X ₁₃	Scientific orientation	0.227	0.305	0.615NS
X ₁₄	Economic motivation	0.247	0.101	0.454NS
X ₁₅	Decision making pattern	0.177	0.259	1.082NS
X ₁₆	Training undergone	0.687	0.257	2.5425*

$R^2 = 0.513$ $F = 7.510^{**}$ $a = 9.531$ ** - Significant at 1% level * - Significant at 5 % level
NS – Non-significant

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