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Effect of Knowledge Level of Farmers and Technology Recommendation on Papaya Production in Begusarai District of Bihar

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ABSTRACT

A study on the farmer's knowledge regarding papaya cultivation practices has carried out in Begusarai districts of Bihar states during 2016-17. A large number of papaya growers belong to medium knowledge level category (63.33%), followed by high knowledge level (20.00%) and low knowledge level category (16.67%). A very high percentage of the papaya growers had correct knowledge about the cultivation practices like harvesting time (95.00%), transplanting method and time (92.50%) and sowing method & time (90.00%). It is followed by practices like soil type (86.50%), marketing and storage (80.00%), post harvesting management (73.33%), spacing & pit size (72.00%), irrigation and drainage management (70.00%), Seed treatment (68.50%), variety (65.00%), seed bed preparation & raising seedling (63.33%), weed management (60.00%) and Plant protection measures (55.00%). Knowledge level was very low in case of recommended practices such as manure & fertilizer applications (38.33%). During the study, it was observed that there were positive and significant relationship between knowledge level and selected independent variables viz. education, land holding, annual income, contact with extension agency, economic motivation and risk preference. While the variables age had negative and area under papaya had positive but both variables were found to be non-significant.

Key words: *Seed treatment, Annual Income, Papaya, Harvesting Management*

INTRODUCTION

Papaya (*Carica papaya* L.) belongs to the family Caricaceae and commonly known as Papaya, Paw or Papaw (Australia), Mamao (Brazil), Tree Melon. Related species of papaya included: Babaco (*Carica pentagona*), Mountain Papaya (*C. pubescens*), Chambura (*C. stipulata*). It is the fruit of the plant Carica papaya, which is native to Southern Mexico and Central America, but has long been known and cultivated in the home gardens of people in tropical and sub-tropical areas. It is one of the few crops that bears fruit throughout the year, offering quick return on investments. Papaya has grown from being a home-garden crop to a commercial crop in many tropical and sub-tropical countries. This wide and extended range of micronutrients makes papaya very nutritious. It contains a high amount of potassium and its flesh is very high in Vitamin A.

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It is very good for those who frequently suffer from colds, coughs or flu because it boosts the immune system. It is also very good for the hair and helps in controlling dandruff. Papaya shampoos are available in many health stores. Like banana it is available throughout the year and it is easy to cultivate. It produces more income per unit area only next to banana and has high nutritive and medicinal value. Hence, it is an excellent food for those on a diet. Sagwal and Malik[5] revealed that age exhibited negative but significant relationship at 0.5 level of probability with over all knowledge of farmers about rice production technology.

India leads the world in papaya production with an annual output of about 4.958 million tons and area covered by 0.118 million ha. In our country Gujarat is largest papaya producer followed by Andhra Pradesh. Bihar is the 13th rank in papaya production figure almost 0.044 million tons in an area of 2000 ha (NHB, 2014-15). In Bihar Papaya is mainly grown in Vaishali, Samastipur, Begusarai, Patna and Muzaffarpur district. The average yield of papaya in Bihar is lower than national average. The productivity of papaya could be increased considerably if the available technology is effectively transferred to the farmers. Among these, however, in recent years' papaya growers are facing several production and marketing problems. The problems in production include non-availability of genuine plant material, high incidence of disease especially viral diseases, etc., have threatened the cultivation of papaya. Hence, the present study is intended to address the specific objectives to measure the knowledge level of papaya growers about recommended practices in papaya cultivation and to find out the relationship between socio-economic and demographical characteristics of papaya growers with their knowledge level. Basanayak *et al*[1]., reported that the vast number of the papaya growers belonged to medium knowledge level category (51.33%), followed by high knowledge level (26.67%) and low knowledge level category (22.00%).A very high percentage of the papaya growers had correct knowledge about the cultivation practices like harvesting time (97.33%), planting time (96.67%) and soil type (95.33%), followed by practices like variety (93.33%), pit size (91.33%), irrigation in red soil (90.00%) and irrigation in black soil (87.33%). Majority of respondents had good knowledge about practices like pest and diseases (83.33%) filling material (83.33%) and spacing (48.67%).

Singh *et al*[6]., revealed that majority (63.75%) of the farmers had medium level of knowledge about scientific rice cultivation practices followed by high (23.13%) and low (13.12%) level of knowledge. Radhakrishnan, *et al*[4]., studied that majority (73.33%) of the papaya growers were of middle age category, where as more than four fifth (86.67%) of the papaya growers of Raichur and 68.89 per cent of Gulbarga, belonged to middle age category. Age influenced the behaviour of an individual by exposing to varied situations. Moulasab[3] reported that, more than 23 per cent of growers were educated up to primary school followed by higher secondary school (19.16%) and 14.16 per cent of the respondents were illiterates. Kumar[2] indicated that majority (98.00%) of the respondents were marginal farmers followed by a very little extent of small (1.33%) and big (0.67%) farmers from his study on adoption of recommended package practices by coconut farmers of Pondicherry.

MATERIAL AND METHODS

Begusarai district of Bihar state has been identified as a locale of present research enterprise in view of its importance in terms of area and total production of papaya crop in the state. There are 18 block in Begusarai district. Out of 18 blocks, five blocks which had maximum area under papaya cultivation, was selected. Out of these five blocks, two villages from each block, having maximum area under papaya was selected. So in all ten villages was selected as sample villages for this study. Six papaya growers were taken from each of the selected village. Thus a total number of 60 papaya growers was constituting as the sample for the present study. For collection of relevant

data, a personal interview schedule was specially structured and prepared in order to get the desire response of farmers in face to face situation. The interview schedule constituted 45 knowledge questions. The answers to the questions were quantified by giving one score to correct answer and zero score to the incorrect answer. The summation of scores for the correct answer for a particular respondent indicates his knowledge level about recommended practices of papaya cultivation. The respondents were grouped into low, medium and high categories using mean and standard deviation as measures. The data were also analyzed using other various statistical tools such as frequency, percentage, mean score and ranking.

RESULT AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Overall knowledge level of papaya growers about improved management practices:

The scores of knowledge on cultivation of papaya growers ranged from 16 to 34, with an average of 28.97 and standard deviation of 2.92. On the basis of their scores, the papaya farmers were classified into three categories as low (< 26.05), medium (26.05 to 31.89) and high (> 31.89). The results are presented in table-1.

The data pertaining to the of table-1 reveal that out of the total papaya growers, 16.67 per cent had low, 63.33 per cent had medium and 20.00 per cent had high knowledge regarding papaya production practices.

Table 1: Distribution of papaya growers according to their knowledge level about papaya cultivation practices

Sr. No	Categories	f	%
1	low (< 26.05)	10	16.67
2	Medium (26.05 to 31.89)	38	63.33
3	High (> 31.89)	12	20
	Total	60	100

Mean = 28.97, S.D = 2.92

Thus, it can be concluded that the highest i.e. 63.33 per cent growers were having medium knowledge about the improved papaya production technology. The reasons might be due to the fact that more number of the papaya growers were educated and exposed themselves to different mass media which provided the information about new technology. In addition, it is very clear from the results that the variables like education, land holding, contact with extension agency, risk preference and economic motivation might have influenced the knowledge level of farmers about cultivation practices of papaya crop.

Knowledge level of the respondents about selected recommended practices in papaya cultivation

It can be observed from table-2 and Figure- 1 ,that, a very high percentage of the papaya growers had correct knowledge about the cultivation practices like harvesting (95.00%), transplanting method and time (92.50%) and sowing method & time (90.00%) followed by practices like soil type (86.50%), marketing and storage (80.00%), post harvesting management (73.33%), spacing & pit size (72.00%), irrigation and drainage management (70.00%), Seed treatment (68.50%), variety (65.00%), seed bed preparation & raising seedling (63.33%), weed management (60.00%) and Plant protection measures (55.00%). Knowledge level was very low in case of recommended practices such as manure & fertilizer applications (38.33%).

Table 2: Knowledge level of farmers about selected recommended practices in papaya cultivation (n = 60)

Sr. No	Cultivation practices	Maximum obtainable score	Obtained mean score	(%)
1	Variety	4	2.6	65
2	Soil type	2	1.73	86.5
3	Seed treatment	2	1.37	68.5
4	Spacing and pit size	4	2.88	72
5	Sowing method and time	3	2.7	90
6	Seed bed preparation & raising seedling	3	1.9	63.33
7	Transplanting method and time	2	1.85	92.5
8	Manures & fertilizer applications	3	1.15	38.33
9	Irrigation and drainage management	4	2.8	70
10	Weed management	5	3	60
11	Plant protection measures	4	2.2	55
12	Harvesting	2	1.9	95
13	Post harvesting management	3	2.20	73.33
14	Marketing and storage	4	3.2	80

Thus, it can be concluded that the majority of papaya growers had correct knowledge about the cultivation practices. Possible reason could be regular participation in extension activities like agricultural exhibitions, field visits and extension meetings might have helped the respondents to gain correct knowledge about recommended practices of papaya cultivation. The other reasons may be high risk preference, medium contact with extension agency and medium economic motivation of the respondents might have influenced the knowledge level. In case of knowledge about the practice like manure & fertilizer applications, it was 38.33 per cent. It might be due to lack of regular training about manures and fertilizer and unavailability of skilled labour.

Relationship of selected socio-economic and demographical variables with knowledge level of papaya production technology

The knowledge of papaya cultivation technology is affected by various socio-economic and demographical variables. Attempt has been made in this section to explore the relationship between the independent variables and knowledge of papaya production technology. The correlation was computed to know the relationship of knowledge with selected variables *viz*. age, education, land holding, annual income, area under papaya, contact with extension agency, economic motivation and risk preference. The results are presented in Table-3.

Table 3: Relationship of selected socio-economic and demographical variables with knowledge level of papaya production technology

S.No	Independent variables	Value of correlation coefficient (r)
1	Age	- 0.122 ^{NS}
2	Education	0.260*
3	Land holding	0.285**
4	Annual income	0.424**
5	Area under papaya	0.212 ^{NS}
6	Contact with extension agency	0.391**
7	Economic motivation	0.271*
8	Risk preference	0.403**

** Significant at 0.01 level, * Significant at 0.05 level & NS - Non Significant

It is evident from the table that out of eight variables studied, as many as six variables, were found statistically correlated with the knowledge of papaya production technology. These variables are education, land holding, annual income, contact with extension agency, economic motivation and risk preference. Further, out of six correlated variables, four are variables were found to be highly significant i.e. at 0.01 level of probability and two variables were found to be significant i.e. at 0.05 level of probability. The variables age had negative and area under papaya had positive but both variables were found to be non-significant. It means that these variables did not have significant role on the knowledge of papaya production technology.

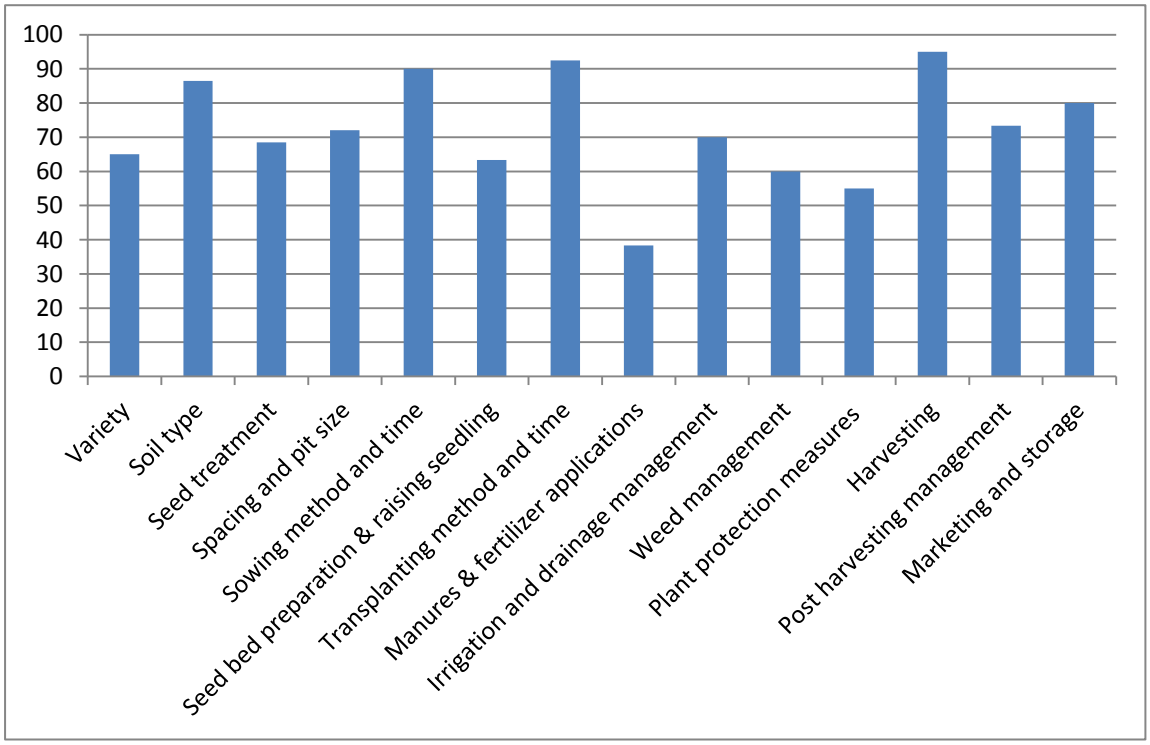

Fig. 1: Knowledge level of farmers about selected recommended practices in papaya cultivation

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