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Assessment of socio-economic characteristics, knowledge and extent of adoption of improved papaya production technology in farmers of Muzaffarpur, Bihar

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Abstract
Horticulture is a specialized branch of agriculture and constitutes a significant component of the total agricultural produce in India. In recent years, greater attention is being paid to horticulture for better utilization and development of waste lands, which are not suitable for economic cultivation of field crops. Papaya (*Carica papaya*) fruit is very popular with the farmers in general because it requires less area per plant, comes to fruiting in a year, easy to cultivate and provides more income per hectare. It is one of the highest producers of fruits per ha. 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. Bihar is the 13th rank in papaya production figure almost 0.044 million tons in an area of 2000 ha. In Bihar papaya is mainly grown in Vaishali, Samastipur, Begusarai, Patna and Muzaffarpur district. As of today, there is few research studies conducted in area of knowledge and adoption level finding of papaya growers in improved papaya production technology in different parts of the country and in Bihar only one such study could be traced. But there is no such study available in Muzaffarpur district of Bihar. Muzaffarpur district comprises of 16 blocks out of which only one block, namely Sakra was selected purposively on the basis of maximum area under papaya cultivation and having maximum number of papaya growers. Six villages (Gauri har khalik nagar, Sarmastpur, Ghanipur Bejha, Majhaulia and Katesar) were selected randomly and considered for study on the basis of larger area coverage. A list of papaya growers of each selected village was prepared with the help of DHO, Muzaffarpur. Twenty papaya growers were taken from each selected villages. Thus, a total number of 120 papaya growers were constituted as the sample for the study. The primary data collected through the interview schedule is represented in the form of Tables. The tables are analyzed with the percentages, so as to make analytical study and also help for comparison of different kinds of the data. The socio-economic conditions and demographical characteristics of papaya growers should be kept in mind while designing the effective training programmes. The papaya growers needed to properly aware and extension professionals should conduct many demonstrations and field visits and make the papaya growers to adopt the improved papaya production technology.

Keywords: improved papaya production technology, Bihar, knowledge, adoption and training

Introduction
Horticulture is a specialized branch of agriculture and constitutes a significant component of the total agricultural produce in India (Sankaran 2021) [6]. Horticultural crops particularly fruits, have great export potential and can earn foreign exchange in the sizeable quantum, if the existing resources are tapped to the full extent (Yadav 2010) [8]. In recent years, greater attention is being paid to horticulture for better utilization and development of waste lands, which are not suitable for economic cultivation of field crops. Papaya (*Carica papaya*) fruit is very popular with the farmers in general because it requires less area per plant, comes to fruiting in a year, easy to cultivate and provides more income per hectare. The importance of papaya to agricultural and the world's economy is demonstrated by its wide distribution. It has long been known and cultivated in the home garden by the people of tropics and subtropics (Chauhan 2013) [3], because it adapts to diverse soil and climatic condition and gives quick returns (S R, M 2019) [7]. It has emerged from the status of a home garden crop to that of commercial orchards in many tropical countries. It is one of the highest producers of fruits per ha. 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. Other leading producers are Brazil, Mexico, Nigeria, Indonesia, China, Peru, Thailand and Philippines. In our country Gujarat is largest papaya producer, growing 1.17 million tons in an area 19130 ha.

Andhra Pradesh is the second, with its production figure almost 0.668 million in area 8790 ha. Bihar is the 13th rank in papaya production figure almost 0.044 million tons in an area of 2000 ha. 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. Both area and production have increased but the productivity increase is not that spectacular. The farmers were facing many problems in papaya cultivation like availability of quality seed and seedling (Assefa 2015) [1], pollination problems due to single sex plant, lower shelf-life of fruit, fruit marketing, lack of advance knowledge about papaya production, resulting in poor plantation and lowered economic term (Gaikar 2014) [4]. If recommended papaya production technologies are adopted by the cultivators. Poor average yield of papaya might be due to ignorance about the improved technology and poor socio-economic conditions of the growers (Banerjee 2010) [2]. As of today, there is few research studies conducted in area of knowledge and adoption level finding of papaya growers in improved papaya production technology in different parts of the country and in Bihar only one such study could be traced. But there is no such study available in Muzaffarpur district of Bihar. Our training programmes need to focus more on transferring of new technology from the confines of laboratories and research institute to the farmers and make then result oriented. Its profitability needs to be enhanced further (Kumar 2021), but still profitability of papaya growing is based with many constraints faced by papaya growers due to production and marketing. Keeping on the above researchable issues, the study formulated these objectives,

- To assess the socio-economic characteristics of the respondents.
- To ascertain the knowledge of the respondents about recommended papaya production practices.
- To find out the extent of adoption of recommended papaya production practices by respondents

Methodology

Muzaffarpur district comprises of 16 blocks out of which only one block, namely Sakra was selected purposively on the basis of maximum area under papaya cultivation and having maximum number of papaya growers. A list of papaya growing villages was prepared with the help of DHO, Muzaffarpur. Only six villages (Gauri har khalik nagar, Sarmastpur, Ghanipur Bejha, Majhaulia and Katesar) were selected randomly and considered for study on the basis of larger area coverage. A list of papaya growers of each selected village was prepared with the help of DHO, Muzaffarpur. Twenty papaya growers were taken from each selected villages. Thus, a total number of 120 papaya growers were constituted as the sample for the study. Based on this practical knowledge, side by side an extensive literature review and discussions with relevant experts and academicians, the researcher selected twelve independent variables and two dependent variable for this study. The primary data collected through the interview schedule is represented in the form of Tables. The tables are analyzed with the percentages, so as to make analytical study and also help for comparison of different kinds of the data. Data was collected by employing the interview method. The respondents were contacted at their residence or farms. The recorded responses from the respondents were converted into score for tabulation and analysis were done with appropriate statistical tools.

Results and Discussions

Table 1: Socio-Economic profile characters of the respondents

S. No.	Socio-Economic profile characters	Number	Percent
1.	**Age**		
	Young	37	30.84
	Middle	59	49.16
	Old	24	20.00
2.	**Educational status**		
	Illiterate	08	06.66
	Functionally literate	13	10.86
	Primary school education	17	14.16
	Middle school education	20	16.66
	High school education	26	21.66
	Higher secondary education	18	15.00
	Collegiate education	18	15.00
3.	**Occupational status**		
	Agriculture alone	63	52.50
	Agriculture + Business	18	15.00
	Agriculture + Labour	29	24.17
	Agriculture+ Government / Private services	10	08.33
4.	**Size of land holding**		
	Up to 2.5 acres	20	16.67
	2.5 acres to 5 acres	61	50.83
	More than 5 acres	39	32.50
5.	**Farming Experience**		
	Low	35	29.17
	Medium	57	47.50
	High	28	23.33
6.	**Family size**		
	Small	63	52.50
	Medium	41	34.17
	Big	16	13.33
6.	**Annual Income**		
	Very low income (Upto 1 Lakh)	08	06.67
	Low income (1 to 3 lakhs)	34	28.33
	Medium income (3 to 5 lakhs)	36	30.00
	High income (Above 5 lakhs)	42	35.00
7.	**Extension agent contact**		
	Low	32	26.67
	Medium	77	64.17
	High	11	09.16
8.	**Social participation**		
	Low	59	49.17
	Medium	40	33.33
	High	21	17.50
9.	**Mass media exposure**		
	Low	32	26.67
	Medium	37	30.83
	High	51	42.50
10.	**Risk orientation**		
	Low	26	21.67
	Medium	59	49.17
	High	35	29.17
11.	**Economic motivation**		
	Low	36	30.00
	Medium	57	47.50
	High	27	22.50

From table 1 it was evident that majority (49.16%) of the papaya growers comes under 36-45 age category (middle), whereas a young papaya farmers contributed 30.84% in this study and one-fifth (30.84%) of the study accounted with old age papaya growers. The majority (21.66%) of the farmers were completed their high school education, followed tightly by the papaya growers who have completed middle school education (16.66%), higher secondary school education (15.00%), collegiate education (15.00%) and primary school

education (14.16%), few farmers (10.86%) have not attainted the formal education but they were remained to functionally literate and less than 10.00 per cent (06.66%) of the papaya growers were remain to be illiterate. More than half (52.50%) of the papaya farmers occupation was agriculture alone. Nearly one-fourth (24.17%) of the farmers were the agricultural laborers, followed by 15.00 per cent and 08.33 per cent of the famers were doing agriculture along with business and agriculture along with government/ private services respectively. More than half (16.67%) of the farmers comes under 2.5 to 5 acres category, followed by 32.50 per cent of the papaya growers had more than 5 acres of land and 16.67 per cent of the papaya growers hold less than 2.5 acres of land. Majority (47.50%) of the papaya growers had medium level of experience in papaya production, nearly 29.17 per cent of the farmers had low level of farming experience and famers who had high farming experience were 23.33 per cent in the study. Higher percentage of the papaya growers had small family (52.50%), followed by medium (34.17%) and big family (13.33%). Annual income of the papaya growers of the study area showed that (35.00%) of the respondents had an income more than 5 lakhs. Whereas (30.00%) of respondents had an income 3 to 5 lakhs followed by 28.33 per cent of the respondents had an annual income between 1 to 3 lakhs. A very less percentage of respondents (06.67%) had income below 1 lakh. Majority (64.17%) percent of the papaya farmers had medium level of extension agent contact, followed by 26.67 per cent and 09.16 per cent of the papaya farmers had low and high level of extension agent contact respectively. Higher percentage of the papaya growers had low level of social participation (49.17%), followed by medium (33.33%) and high (17.50%) level of social participation respectively. Majority (42.50%) of the farmers had high level of mass media exposure followed by 30.80 per cent of the papaya farmers had medium level of mass media exposure. About, 24.44 per cent of the papaya growers developed low level of mass media exposure. Nearly half of the respondents (49.17%) had medium level of risk bearing capacity, followed by the farmers had high (29.17%) level of risk bearing capacity and low (21.67%) level of risk bearing capacity. Majority of the papaya growers had medium (47.50%) level of economic motivation, whereas the 30.00 per cent of the papaya growers had low level of economic motivation and nearly one-fourth (22.50%) of the papaya growers had high level of economic motivation.

Table 2: Distribution of papaya growers according to their knowledge level

S. No.	Category	Frequency	Percent
1	Low knowledge	24	20.00
2	Medium knowledge	63	52.50
3	High knowledge	33	27.50
Total		120	100.00

Table 2 revealed that higher percentage of the papaya growers had medium level of knowledge (52.50%), followed by high (27.50%) and low (20.00%) level of knowledge on improved production technology among papaya growers.

Table 3: Distribution of papaya growers according to their adoption level

S. No.	Category	Frequency	Percent
1	Low adoption	40	33.34
2	Medium adoption	55	45.83
3	High adoption	25	20.83
Total		120	100.00

Table 3 revealed that higher percentage of the respondents had medium level of adoption (45.83%), followed by low (33.34%) and high (20.83%) level of adoption on papaya production technology among papaya growers.

Table 4: Association between the independent variables and knowledge level of the farmers about improved papaya production technology

S. No	Characteristics	'r' value
X1	Age	0.239*
X2	Educational status	0.316*
X3	Occupational status	0.089
X4	Size of land holding	0.479**
X5	Farming experience	0.125
X6	Family size	-0.063
X7	Annual income	0.100
X8	Extension agent contact	0.296*
X9	Social participation	0.173
X10	Mass media exposure	0.115
X11	Risk bearing capacity	0.394*
X_{12}	Economic motivation	0.408**

R^2 = 0.607 F=3.046 a= 164.126

NS = Not Significant; * = Significant at 5%, ** = Significant at 1%.

It could be understood from the table 4, that occupational status, farming experience, family size, annual income, social participation and mass media exposure had non-significant association with the knowledge of the farmers about improved papaya production technology. Meanwhile, age, educational status, extension agency contact and risk bearing capacity had positive and significant association with the knowledge of the farmers about improved papaya production technology at 5 per cent level of probability. In addition to this size of the land holding and economic motivation had positive and significant association with the knowledge level of the farmers improved papaya production technology at 1 per cent level of probability.

Table 5: Association between the independent variables and adoption level of the farmers about improved papaya production technology

S. No.	Characteristics	'r' value
X1	Age	-0.122
X2	Educational status	0.289*
X3	Occupational status	0.177
X4	Size of land holding	0.406**
X5	Farming experience	0.094
X6	Family size	0.156
X7	Annual income	0.204*
X8	Extension agent contact	0.031
X9	Social participation	0.161
X10	Mass media exposure	0.140
X11	Risk bearing capacity	0.367*
X_{12}	Economic motivation	0.356*

R^2 = 0.514 F=2.277 a= 143.781

NS = Not Significant; * = Significant at 5%, ** = Significant at 1%.

It could be understood from the table 5, that age, occupation, family size, farming experience, extension agency contact, social participation, and mass media exposure had non-significant association with the adoption level of the farmers about improved papaya production technology. Meanwhile, educational status, annual income, risk bearing capacity and economic motivation had positive and significant association with the adoption level of the farmers about improved papaya cultivation practices at 5 per cent level of probability. In addition to this size of the land holding had positive and significant association with the adoption level of the farmers about improved papaya cultivation practices at 1 per cent level of probability.

Conclusion

The socio-economic conditions and demographical characteristics of papaya growers should be kept in mind while designing the effective training programmes. Majority of the respondents belonged to medium level of knowledge category in respect of recommended cultivation practices of papaya crop. Hence it is imperative that, the state department of horticulture, Government of Bihar should integrate extension efforts to provide the required knowledge about recommended cultivation practices through demonstrations, periodical visits, training programmes, field trips and educational tours etc. The priority of topics in the training programme for improved papaya cultivation should be in order of plant protection measures, high yielding variety, manures & fertilizer management, seed treatment, weed management, marketing and storage, sowing methods and sowing time, raising seedling, seed bed preparation, transplanting method and time, irrigation and drainage management, post harvesting management and harvesting.

References

1. Assefa AG, Mesgina SH, Abrha YW. Response of onion (*Allium cepa* L.) growth and yield to different combinations of N, P, S, Zn fertilizers and compost in northern Ethiopia. International Journal of Science and Research 2015;4(2):985-989.
2. Banerjee PK, Biswal S. Techno-socio psycho-economic constraints of papaya growers in adopting recommended practices for sugarcane cultivation. Journal of Inter academician 2010;14(1):85-89.
3. Chauhan R, Singh HP, Singh R, Singh JP. Constraints encountered in adoption of fruit production technology on different size of farms in District Badaun (U.P.). Progressive Research 2013;8(1):46-51.
4. Gaikar BH, Jadhav VP. Practices of Farm Management on the Productivity of Orange Cultivation, Nashik District of Maharashtra, Life Sciences International Research Journal 2014;1(1):90-193.
5. Kumar SA, Karthikeyan C. Factors Influencing the Utilization of “Uzhavan App” as Perceived by the Farmers in Tamil Nadu. Madras Agricultural Journal 2021;107(10-12):1-5.
6. Sankaran M, Dinesh MR. Biodiversity of Tropical Fruits and their Conservation in India. Journal of Horticultural Sciences 2021;15(2):107-126. Retrieved from https://jhs.iihr.res.in/index.php/jhs/article/view/894
7. SRM, SPD. Effect of Calcium Nitrate and Potassium Nitrate Priming on Seed Germination and Seedling Vigour of Papaya (*Carica papaya* L.). Journal of Horticultural Sciences 2019;14(2):149-154. https://doi.org/10.24154/JHS.2019.v14i02.010.
8. Yadav D. A study on adoption behaviour of imported mango production technology among the farmers of Khargone block of Khargone district, Madhya Pradesh. M.Sc. (Ag.) Thesis, JNKW, Jabalpur 2010.