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Impact of Training Need for Papaya Growers in Begusarai District of Bihar

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ABSTRACT: Papaya is an important and vital table fruit crop of tropical and sub-tropical countries. According to the research, the respondents (61.67%) indicated a medium need for training, which was followed by low and high needs for training (20% and 18.33%, respectively). Additionally, the results showed that all of the chosen papaya farmers gave training in plant protection measures top priority, followed by the areas of high producing varieties and manures and fertilizer management, respectively. Seed treatment was ranked fourth with a mean score of 2.13, followed by weed management in fifth place with a mean score of 2.07, marketing and storage in sixth place with a mean score of 1.93, sowing techniques and timing in seventh place with a mean score of 1.82, raising seedlings in eighth place with a mean score of 1.78, and seed bed preparation in ninth place with a mean score of 1.73. Other significant areas are the timing and manner of transplanting (10th rank), management of irrigation and drainage (11st rank), post-harvest management (12th rank), and marketing & storage (13th rank), all of which show mean scores of 1.62, 1.60, and 1.58, respectively. The study's findings regarding plant protection measures showed that papaya growers prioritized the identification of the most common insect pests and diseases as their top priority, followed by knowledge of the use of different insecticides and pesticides and the residual effects of those chemicals as their second and third priorities, respectively. The overall training need of papaya growers was found to be of medium level. Though the present paper attempts to examine the training need of papaya growers of Bihar, the study was confined to Begusarai District of Bihar. Hence, generalization on this could be restricted to other areas with similar condition. The findings of the study were based on verbal appearance of the respondents, therefore the findings were conditioned by the extent of reliable and valid in rank provided by those selected for the purpose of investigation.

Keywords: Training need, Papaya training need, Impact of training on papaya production.

INTRODUCTION

Fruit cultivation was crucial to agricultural diversity and the provision of food and nourishment for the world's population, which is constantly expanding. Fruit crops thrive in Bihar's agro-climatic conditions, which are very favourable. The state is third in the nation for vegetable output and fourth for fruit production. The papaya, or Carica papaya, has a prominent place among the fruits. Similar to the banana, it is readily accessible all year long and is simple to grow. Only the banana generates more money per square foot and has more nutritional and therapeutic value. The pharmaceutical, textile, apparel, and other sectors all utilize it.

With an annual output of over 5.988 million tones and a surface area of 0.138 million hectares, India is the world's top producer of papaya (Horticulture Statistics at a Glance-2018). Gujarat and Andhra Pradesh are the two states that generate the most papaya in our nation (1.68 million tonnes each) (1.257 million tons). Bihar produces almost 0.043 million tonnes of papaya over an area of 1900 acres, placing it in 15th place overall (Horticulture Statistics at a Glance-2018). Papaya is mostly grown in the districts of Vaishali, Samastipur, Begusarai, Patna, and Muzaffarpur in Bihar. Bihar has a lower papaya output on average than the rest of the country. However, if the present technology is efficiently distributed to the farmers, papaya yield might be significantly boosted. Our training programmes need to focus more on transferring new technology from the confines of laboratories and research institute to the farmers and make then result oriented. The

profitability of papaya farming still has to be improved, however this is due to the numerous production and marketing-related challenges that papaya producers must overcome. As a result, in order to increase papaya output and productivity, papaya producers must receive the most up-to-date training in growing techniques. Training in organizational skills is intended to put information into practise rather than to impart it. Every training session must increase output. Application is more important than theory. The main goal of training is to increase performance. Training need is a gap between the existing and desired level of competency of farmers. As a result, if the gap is substantial, training is required since farmers' knowledge, attitude, and abilities fall short of what is expected. The current study was conducted with all of these factors in mind in order to identify the training need for enhanced papaya farming and plant protection strategies for papaya producers. According to a study by Kumari and Laxmikant (2016), beekeepers need the most training in a variety of areas to protect themselves from pests, diseases, and other risks. These areas were followed by the beekeeping industry, beehive products and the value of their extraction, processing, and medicinal uses, management of bee colonies throughout the year, and basic tasks. Sharma (2016) found that the majority of marigold producers need instruction in 64% of cases. The farmers discussed how they would like to be trained in many areas, including plant protection, nursery management, fertilizer management, field management, and marketing management. The results of a correlation study showed that education, farm size, yearly income, decision-making behaviour, risk orientation, and marketing orientation were all positively and substantially connected with training needs, whereas age and caste were not. Sharma and Sharma (2014) found that all krishi input merchants (100%) believed that training was necessary in the seed-related sub-areas of type, germination power, viability, and enhanced crop varieties included in the top rank. All respondents (100%) said that there was a need for training in the sub-areas of fertilizer, such as fertilizer type, fertilizer composition, fertilizer application techniques, fertilizer dose calculation, and bio-fertilizer mentioned in the top three. Similarily, all Krishi input dealers (100%) perceived training needs in seed sub-areas such as kind of pesticides, calculation of pesticide dose/ha, major crops pests, and pests management by pesticides included in top rank. According to Verma *et al*. (2013) research, determining the need for training is the first and most important step in programme development. To fit and be effective in doing their jobs, they need receive suitable training based on their needs, which would assist to enhance output. Following the management of fertilizer, nursery growing, marketing, and field management, the farmers identified a need for instruction on plant protection. It also showed that more than three-fifths of marigold producers (61.66%) fit into the medium category, while 20.00% and 18.34% of marigold growers, respectively, were placed under the high and low groups of training needs. According to Verma and Ansari (2013), all of the chosen potato producers placed the area of high yielding variety as their second top priority after training in plant protection measures. The seed treatment was ranked third in terms of the training requirements for potato producers, behind sowing technique and sowing window. According to the order of merit and their average mean scores of 2.38, 2.31, and 1.88, respectively, the manures and fertilizer management, irrigation and drainage, and weed management were afterwards identified as the key related training requirements areas among the potato producers. The survey found that potato producers desired knowledge on the use of different insecticides and pesticides, the identification of common insect pests and diseases, the causes of spread, as well as the timing and technique of treatment. According to Naik (2006) research, 43.34 percent of groundnut farmers fell into the medium training needs group, followed by the high (29.33%) and low (27.33%) categories. According to Maneria, *et al.* (2002), the majority of respondents, or 62.50 percent, fall into the medium level of training need category, while 20.83 percent were kept in the high level of training need category, and the remaining 16.67 percent had low level training needs regarding soybean production technology. According to Leihaothabam *et al.* (2002), the majority of the farmers had medium level (58.33%) of training needs followed by low level (23.34%) and high level (18.33%) of training needs.

METHODOLOGY

Begusarai district of Bihar state has been identified as the area for present research work in view of its importance in terms of area and total production of papaya crop in the state. There are eighteen blocks in Begusarai district. Five of the eighteen blocks that had the most land planted with papayas were chosen. Two villages from each of the five blocks that had the most land planted in papaya were chosen. Ten communities in all were thus chosen as example villages for this study. There were taken six papaya farmers from each of the chosen villages. Thus a total number of sixty papaya growers was constitute as the sample for the present study and the survey details are presented in Table 1.

Table 1: Details of locations selected for survey in Begusarai district of Bihar.

Sr. No.	Name of Block	Name of Village	No. of respondents selected
1.	Bachhawara	Bachhawara	06
		Rashidpur	06
2.	Begusarai	Paharpur	06
		Habetpur	06
3.	Cheriabariarpur	Sripur	06
		Manjhaul-3	06
4.	Khodabandpur	Khodabandpur	06
		Fafuat	06
5.	Nawkothi	Pahsara	06
		Dafarpur	06
		Total	**60**

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 data were analyzed using various statistical tools such as frequency, percentage, mean score, standard deviation and ranking.

RESULT AND DISCUSSIONS

Training needs of papaya growers in overall components of training: Information on papaya producers' training requirements was gathered, tallied, and examined. With an average of 24.98 and a standard deviation of 2.64, the training needs of papaya producers varied from 20 to 31. The papaya growers were divided into three groups based on their scores: low (scores below 22.34), medium (scores between 22.34 and 27.62), and high (scores above 27.62). Table 2 displays the outcomes.

Table 2: Distribution of papaya growers according to training needs.

S. No.	Categories	f	%
1.	Low (scores below 22.34)	12	20.00
2.	Medium (scores between 22.34 and 27.62)	37	61.67
3.	High (scores above 27.62)	11	18.33
	Total	**60**	**100**

Mean = 24.98, S.D = 2.64

According to the results in Table 2, the majority of respondents (61.67%) fell into the category of medium need for training, while 20.00% went into the area of low need, and the remaining 18.33% fell into the category of high need. Due to the farmers' medium level of education, moderate level of extension interaction, moderate level of economic motivation, preference for high risk situations, and small and marginal agricultural holdings, the demand for training was determined to be in the high category. As a result, the government must focus more on implementing need-based training programmes that include course material organized according to the primary areas that have been identified. The urgent need is for district-level extension and training centres to be established, along with vigorous attempts to expand their services to farmers. The results were in line with Adebisi-Adelani *et al*. (2020); Pale *et al.* (2019); Pujari *et al*. (2018); Sahoo and Satapathy (2021); Verma and Ansari (2013).

Further, the data relevant to the various papaya producers' agricultural practices was gathered, tallied, and examined. Fig. 1 displays the findings.

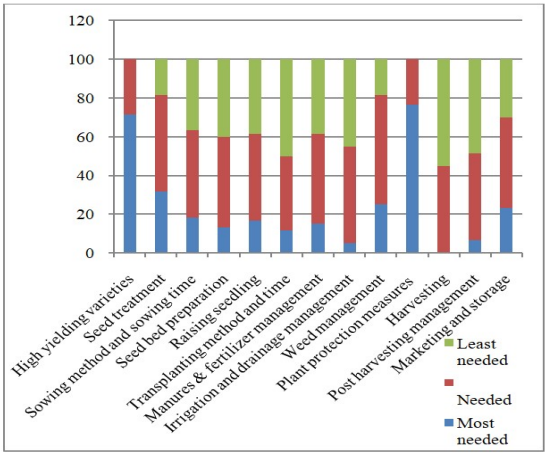

Fig. 1. Distribution of papaya growers according to different cultivation activities.

According to data from Fig. 1, high yielding varieties (about 71.67%) and manure and fertilizer management (roughly 46.67%) were the two areas where papaya producers most urgently needed training. Plant protection measures (76.67%) and high yielding varieties (roughly 71.67%) were the other two. It was found that seed treatment, irrigation, and drainage management, seed bed preparation, marketing, and storage, and raising seedlings, sowing method and sowing time were the areas where papaya growers had the greatest need for training. Weed management was the area where the greatest need for training was found in 56.67% of papaya growers. Additionally, it was found that 55.00% of papaya producers had the least need for training in weed picking, followed by the method and timing of transplanting (50.00%), and 48.33% of papaya growers had the least need for training in post-harvest management.

There are thirteen distinct cultivating activities for training needs that have been found and are categorized into categories like most needed, needed, and least needed. 3 points, 2 points, and 1 point were used for scoring. Based on the mean score, the order of the major regions was selected. Figure-1 presents the findings.

Training needs of papaya growers for different cultivation activities: The respondents' perceptions of the relative training needs of farmers in the thirteen distinct cultivation activities with regard to better papaya farming are shown in Table 3.

Table 3: Training needs of papaya growers in different cultivation activities.

Sr. No.	Cultivation activities	Mean score	Rank
1.	High yielding varieties	2.72	2
2.	Plant protection measures	2.77	1
3.	Sowing methods and sowing time	1.82	7
4.	Seed bed preparation	1.73	9
5.	Seed treatment	2.13	4
6.	Manures & fertilizer management	2.15	3
7.	Raising seedling	1.78	8
8.	Transplanting method and time	1.62	10
9.	Weed management	2.07	5
10.	Irrigation and drainage management	1.60	11
11.	Harvesting	1.47	13
12.	Post harvesting management	1.58	12
13.	Marketing and storage	1.93	6

On perusal of data presented in the Table 3 revealed that the Plant protection measures came in first place and were deemed to be the most important training need, with a mean score of 2.77. High yielding varieties came in second place with a mean score of 2.72, while manures and fertilizer management came in third place with a mean score of 2.15. Weed management came in fifth and had a mean score of 2.07, followed by "marketing and storage" in sixth place with a mean score of 1.93, "sowing methods and sowing time" in seventh place with a mean score of 1.82, "raising seedlings" in eighth place with a mean score of 1.78, and "seed bed preparation" in ninth place with a mean score of 1.73. The fourth rank was "seed treatment".

Other significant activities are the transplanting method and time (10th rank), irrigation and drainage management (11th rank), post harvesting management (12th rank), and harvesting (13th rank), all of which show mean scores of 1.62, 1.60, 1.58 and 1.47 respectively. The majority of papaya producers believed that these tasks were most important. In reality, several diseases and pests frequently impact papaya harvests. Therefore, it seems sense that plant preservation is seen as the top concern. The next crucial topic was thought to be one that farmers had limited opportunity to learn about: high yielding varieties. Therefore, they have acknowledged it as an important area of training needs. The result is similar to the findings of Verma and Ansari (2013); Raina, *et al*. (2014); Sharma, *et al.* (2021); Kumar *et al*. (2020).

Training need of papaya growers in the sub-areas of plant protection measures: Table 4 displays the data of the relative requirement for papaya growers training in the sub-areas of plant protection measures.

Table 4: Training need of papaya growers in the sub-areas of plant protection measures.

Sr. No.	Plant protection measures	Mean score	Rank
1.	Awareness about use of various insecticides and pesticides	2.70	2
2.	Identification of major insect pests and diseases	2.85	1
3.	Preparation of pesticides solution	2.52	5
4.	Time and method of control	2.47	6
5.	Cause of spread	2.57	4
6.	Handling of plant protection implements	2.25	7
7.	Residual effect of insecticides and pesticides	2.63	3

The results shown in Table 4 show that the sub-areas of identification of major insect pests and diseases for cultivation were considered by the chosen papaya farmers as having the greatest need for training, with a mean score of 2.85. The second and third-placed sub-areas of awareness about use of various insecticides and pesticides as well as residual effects of insecticides and pesticides, respectively, earned mean scores of 2.70 and 2.63. The sub-area connected to "cause of spread" was found to be the fourth most necessary, with a mean score of 2.57, while "preparation of pesticides solution" was found to be the fifth most necessary, with a mean score of 2.52. The papaya producers said that among the six sub-areas under "time and method of control," with a mean score of 2.47, they felt that training was most necessary. In the sub-area of "handling of plant protection implements" where papaya producers scored a mean of 2.25, they demonstrated the least amount of training that was necessary. Controlling infections has long been a significant issue for papaya farmers among the several facets of identifying plant protection. The crop's yield is significantly decreased once the diseases occur. Consequently, it makes sense that papaya farmers felt the need for training to take preventative measures against the diseases. The results were in line with Pujari *et al*. (2018); Raghav & Singh (2020); Sharma (2016); Verma and Ansari (2013); Verma, *et al.* (2013).

CONCLUSION

From this study it is found that The respondents (61.67%) indicated a medium need for training, followed by low need (20.00%) and high need (18.33%), in that order. The survey found that the greatest number, or 76.67% of papaya producers, needed the most training in papaya plant protection measures, followed by high producing varieties (71.67%) and 46.67% of papaya growers, who needed the most training in manure and fertilizer management. The priority themes in the training programme for better papaya cultivation should include, in descending order: 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. Within the constraints of a student researcher, this investigation was completed within the allotted time and budget. Survey and action research, however, have more room to grow in this area. Only one district was the focus of the investigation. To verify the results and pinpoint particular issues facing papaya producers, this might be expanded to include all of the state's significant papaya-growing districts. To persuade the farmers of the possible yield realizations with the current technology alone, action research to show the technologies at farmers' fields on a broad scale may be conducted. The study has implication for the planners and policy makers specially related to increase in production and productivity of papaya in a better organized manner considering the commercial impact and crop diversification aspect in future. Specific papaya cultivation zones can be developed in the state based on various resource availability.

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Conflict of Interest. None.

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