Knowledge, adoption and attitude on banana cultivation technology of the banana growers of Bangladesh

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Banana is a major fruit among all fruits which available throughout the year in Bangladesh. It is the fruit which under the purchasable limit of all income levels people in the country. The consumption of banana is mainly domestically and a small part shares in the global market. A major part of the population of the study area is engaged with banana cultivation. Their livelihoods are mainly depends on banana cultivation. So, the study was undertaken with a random sample of 100 banana growers of Salmara village of Gaibandha district of Bangladesh. We observed that that majority of the banana growers had medium level of knowledge, adoption and attitude towards banana cultivation technology. The 62.00% banana growers belongs to medium level of adoption of banana cultivation technology, whereas 21.00% banana growers had high level of adoption and 17.00% of them had low level of adoption. The findings suggest that a special program should be taken by the government to improve the level of knowledge, adoption and favorable attitude towards banana cultivation technology.

Key words: Knowledge, adoption, attitude, banana cultivation, Bangladesh

INTRODUCTION

Banana is the best-known, healthy, delicious and tropical fruit. It contains several essential nutrients and has benefits for digestion, heart health and weight loss. The banana of Bangladesh is variable in size usually elongated and curved. It is variable in size, color and firmness usually elongated and curved, with soft flesh rich in starch covered with green, yellow, red, purple, or brown in colour when ripe. It is a wealthy source of carbohydrate with calorific value of 67 calories per 100 g fruit and is one of the well-liked and widely traded fruits across the world (Emaga et al., 2008; Kumar et al., 2012). It is a rich source of human nutrition bearing carbohydrate, potassium and vitamins, including A, C and B6. They are a good source of fat-free dietary fiber and the first solid food fed to infant. The mixer of rice with ripe banana is the traditional delicious dish for Bangladesh (Hossain, 2014). It is one of the economically important fruit crops grown in Bangladesh in both homestead and commercial farms (Ahmed, 1984). It is the fourth most important staple food of the world after rice, wheat and maize.

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Banana (Musa paradisiaca, family Musaceae) is a vital fruit crop of the tropical and subtropical regions of the world which cultivated on about 8.8 million hectares (Mohapatra et al., 2010). It is possibly the world's oldest grown plants (Kumar et al., 2012). Bangladesh produces nearly 1.00 million tons of banana annually (Hossain, 2014). It is also a nutritious fruit crop in the world and grown in many tropical areas where used as a staple food and dietary supplements (Assani et al., 2001).

Banana is cultivated almost everywhere in Bangladesh round the year. The foremost banana growing areas in Bangladesh are Narsingdi, Gazipur, Tangail, Rangpur, Bogra, Natore, Pabna, Noakhali, Faridpur and Khulna. Also, Sylhet, Moulibazar, Netrokona, Rangamati, Khagrachhari and Bandarban are wild grown banana area in Bangladesh. In 2010-2011, the total production of banana in Bangladesh was 800840 metric tons and the cultivated area was about 130589 acres (BBS, 2012). Several studies have been conducted to analyze the banana production in Bangladesh (Ahmad et al., 1973; 1974; Haque, 1984; Islam and Hoque, 2005; Hoque, 2006; Roy et al., 2006; Ara et al., 2011; Mukul and Rahman, 2013; Mohiuddin et al., 2014; Hossain et al., 2015).

Banana is a major fruit which is grown everywhere in Bangladesh. It is blended with the Indian culture and finds mention in the ancient scriptures. It’s fiber used for storing and packing materials for food items and decorative purposes. The fruit is considered to be a poor man's food which is available throughout the year. Banana is grown in more than 130 countries across the world in an area of 45.44 lakh ha, producing 69.28 tonnes/ ha of banana with a productivity of 15.24 tonnes/ ha. (Choudhary, 2004).

The production of banana requires sufficient knowledge and positive attitude with improved management practices to make it commercially viable through adoption of improved management practices. The modern science and technology suggest adopting the improved agriculture and horticultural practices (Sarker, 2016). One of the major problems of banana cultivation in Bangladesh is to develop new practices with its diffusion and adoption by the banana growers. On realizing this problem, a study was necessary to find out knowledge, adoption and attitude of the banana growers towards banana cultivation technology. Hossain et al. (2015) recommended that an appropriate price system and price spread of the market should be ensured by the Government so that both growers and consumers of the banana can enjoy reasonable price. Necessary steps should be taken by the Government to improve the knowledge level of the growers to the modern cultivation technique and motivated them to adopt the new technology to increase the production. Thorat et al. (2014) reported that the majority of the banana growers had medium level of knowledge, adoption and attitude towards banana cultivation technology. The 68.00 percent of the banana growers were found with medium level of adoption of banana cultivation technology, whereas 18.67 percent banana growers had high level of adoption and 13.33 percent of them had low adoption level of banana cultivation technology. They also suggested engaging extra efforts by different agencies to change the psychology of the banana growers in positively by the improvement in their level of knowledge, adoption and favorable attitude to banana cultivation.

Kamal et al. (2014) revealed that the average family sizes were 6.78, 4.71, 6.67 and 5.80 for small, medium, large and all farms of banana growers respectively. About 50.93 % farm owners belong to age group of 31 to 40 years while 12.67 % of banana growers were illiterate. About 62 % of farm owners dealt with agriculture as their main occupation. The overall average farm size was 237.29 decimal where 83, 224 and 405 decimals for small, medium and large farms respectively. The overall annual income was Tk. 55414.7 in which banana farming contributed 35.32 % and non-farm sources was greater than farm income. They identified some major problems faced by the banana growers related to non-availability or insufficiency of credit, high interest rate and loan transaction cost, low prices of output, high prices of inputs, lack of sucker of banana, high prices of fertilizer and insecticides, lack of storage facilities.

Mukul and Rahman (2013) investigated total cost, profit and benefit cost ratio for different marketing channel like banana producers, wholesalers and retailers. Profit for producer, wholesaler and retailer in banana production were Tk. 55002.8 per Hectare, Tk. 59.08 per Chari, and Tk. 122.67 per Chari respectively and benefit cost ratio for producers, wholesalers and retailers were 1.40, 1.30 and 1.41 respectively. Banana is a fruit as well as a mean of livelihood of the banana growers in Bangladesh which ensure their food security and poverty alleviation (Sarker et al., 2015). There is a gap of literature related to knowledge, adoption and attitude of the banana growers in Bangladesh, so the above literature review leads us to conduct this research. The main objective of this study was to determine the knowledge, adoption and attitude of banana growers in Bangladesh. The specific objectives were (i) to measure the knowledge and adoption level of banana growers, (ii) to determine the attitude of banana growers and (iii) to suggest some policy measures for betterment of banana growers based on findings, so that they could increase their production and contribute the national economy by providing an essential food like banana.

**METHODOLOGY**

The present study was conducted in Salmara village under Gobindagonj upazila, having higher area under banana cultivation of Gaibandha District in Bangladesh.
One Hundred respondents from this village were randomly selected for the study as sample. The data were collected through pre-tested, well structured, personal interview schedule. The scale developed by Jha and Singh (1970), Sengupta (1967), Patel (2005) and Thorat (2014) were included in the interview schedule to measure the variables of knowledge, adoption and attitude respectively. A secondary data also collected from various journals, books, and websites. An attempt has been made to collect recent information whenever possible.

RESULTS AND DISCUSSION

Knowledge level of banana growers about banana cultivation technology

The knowledge level of the banana growers are shown in Table 1 which reveals that the majority 68 percent of the banana growers had medium level of knowledge followed by 14.00 percent and 18.00 percent of the respondents had high and low level respectively. Similar results were obtained by Shrivastava et al. (2002), Patel (2005), Sarker (2016) and Thorat (2014). Since knowledge is the cognitive behavior of an individual which acquired through learning process. It produces desirable changes in decision making process of an individual and lead banana grower for the adoption of improved banana cultivation technology.

Adoption level of banana growers about banana cultivation technology

Adoption is a decision to continue the full use of an innovation. The adoption process is the mental process through which an individual pass from first hearing about an innovation to its final adoption. The majority 62.00 percent of the banana growers were found with medium level of adoption of banana cultivation technology, while 17.00 percent and 21.00 percent banana growers had low and high level of adoption respectively. The similar findings were found by Sarker et al. (2001 and 2002), Chauhan et al. (2003), Patel (2005), Thorat (2014) and Sarker (2016).

Table 1. Knowledge, adoption and attitude of the banana growers about the banana cultivation technology (n=100)

<table>
<thead>
<tr>
<th>Sl. no.</th>
<th>Category</th>
<th>Knowledge Number</th>
<th>Percent</th>
<th>Adoption Number</th>
<th>Percent</th>
<th>Attitude Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low level</td>
<td>18</td>
<td>18</td>
<td>17</td>
<td>17</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>Medium level</td>
<td>68</td>
<td>68</td>
<td>62</td>
<td>62</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>3</td>
<td>High level</td>
<td>14</td>
<td>14</td>
<td>21</td>
<td>21</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Mean</td>
<td>25.13</td>
<td>14</td>
<td>34.16</td>
<td>16</td>
<td>47.23</td>
<td>5.89</td>
</tr>
<tr>
<td></td>
<td>S. D.</td>
<td>4.12</td>
<td></td>
<td>6.18</td>
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<td></td>
</tr>
</tbody>
</table>

Source: Field survey, 2016

Attitude of banana growers toward banana cultivation technology

An attitude of banana growers’ is a tendency to react favorable or unfavorable towards an innovation or technology regarding banana cultivation. The majority 71.00 percent of the banana growers were found with medium level of attitude to banana cultivation technology, while 13.00 percent and 16.00 percent banana growers had low and high level of attitude respectively. The similar findings were found by Sarkar et al. (2001 and 2002), Chauhan et al. (2003), Patel (2005) Thorat (2014) and Sarker (2016).

PROBLEMS FACED BY BANANA GROWERS

Banana growers were asked to mention the major problems which faced by them during cultivation. Most of the banana growers faced the same kind of problems during banana cultivation. Individual farmer’s problems are not identical for the enterprise; some problems were in fact more severe than others. So an attempt has been made to identify some major problems of banana cultivation as reported by the farmers in the study villages. The major problems are summarized below:

Problems of credit

Most of the banana growers of the study area are subsistence farmers; they have not enough capital for cultivation of banana commercially. Credit poses the most important constraint in banana production. The non-availability of credit is a main burden to banana growers. About 65 % of the banana growers in the study area mentioned that they had problems in obtaining bank loans. Some of them expressed their opinion regarding so many formalities for getting bank loan. Though some of them (19%) availing bank loan but it is not sufficient for covering the production expenses which hinders to obtain better yield and thereby higher income.

High interest rate

The majority (60%) of the banana growers reported that...
bank charged high interest rate from them. If they borrowed loan from local lender, they had to pay high interest rate which was more than bank interest rate.

**Low prices of output**

The majority (80%) of banana growers sold their products at low prices. The farmers of Bangladesh are not well organized. They usually do not get competitive prices for their product.

**High prices of inputs**

In the study area about the majority (65%) of banana growers mentioned that the existing prices of inputs for the selected enterprises were quite high. Some key inputs like fertilizer, manure, sucker, human labour and insecticides are important factors for banana cultivation.

**Lack of human labour**

Shortage of human labour is one of the major problems for growing banana since banana is a labour intensive field crop especially during the time of transplanting period. About 75% of banana growers reported that lack of human labour as a crucial problem.

**Lack of sucker/seed**

Good quality HYV sucker is necessary for getting better yield. Lack of good quality HYV sucker/seed appeared another problem in cultivation of banana in the study area. Most of the farmers purchased this input from their neighboring farmers/relatives/traders but they opined that in many cases sucker/seeds were not of good quality and the rate of mortality was quite high. About 55% of banana growers mentioned this problem.

**High prices of fertilizer and insecticides**

The majority (85%) of the banana growers mentioned that high price of fertilizer and insecticides are the major problems. Since banana is highly sensitive to diseases and pest, so insecticide and pesticides are very necessary inputs for banana cultivation.

**Lack of storage facilities**

The lack of storage facilities are the common problem not only in the study area but also all over the country. The majority (85%) reported that they had no proper storage facilities. A storage facility is necessary for banana because it is a perishable fruit crop.

**Problem of theft**

Stealing of banana was a common problem during the time of harvesting which adversely affected the cultivation of banana. The 49% of banana growers reported about the problems.

**Inadequate extension service**

The majority (80%) of banana growers mentioned that the extension service is not adequate for banana cultivation.

**RECOMMENDATION**

Based on the findings of the study, some policies and recommendations may be advanced which are likely to be useful for policy formulation:

- Institutional credit facilities should be available on easy terms and conditions to the banana growing farmers.
- Good quality HYV suckers should be made available to the door steps of the farmers at a reasonable price in time.
- Reasonable market prices of banana should be ensured by increasing available storage facilities and establishing various types of food processing industries. Adequate supply of fertilizers and insecticides should be ensured to the growers on time at fair prices for increasing the production of banana.
- Appropriate steps should be taken by the government for improving transport and marketing facilities in the study area.
- Extension services should be extended to farmers to accelerate the production of banana.
- Capacity building program should be arranged for banana growers for better understanding of knowledge and adoption of improved production technology.

**CONCLUSION**

The majority of the banana growers possessed medium level of knowledge, adoption and attitude of banana cultivation technology. They should be facilitated with technical know-how and motivate them to participate in the extension activities to rise the knowledge and adoption of recommended banana cultivation technology. The majority 68 percent of the banana growers had medium level of knowledge followed by 14.00 percent and 18.00 percent of the respondents had high and low level respectively. The majority 62.00 percent of the banana growers were found with medium level of adoption of banana cultivation technology, while 17.00 percent and 21.00 percent banana growers had low and high level of adoption respectively. The majority 71.00 percent of the banana growers were found with medium level of attitude to banana cultivation technology, while 13.00 percent and 16.00 percent banana growers had...
low and high level of attitude respectively. The major problems faced by banana growers are credit facilities, high interest rate, low prices of output, high prices of inputs, lack of human labor, lack of sucker/seed, high prices of fertilizer and insecticides, lack of storage facilities, problem of theft and inadequate extension services. The findings suggest taking proper steps to ensure institutional credit facilities, good quality HYV suckers, reasonable market prices for inputs and products, transport and marketing facilities and adequate extension services.

REFERENCES


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