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Assessment of Losses of Jackfruit as Perceived by the Farmers

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Abstract

The main purpose of this study was to assess the losses of jackfruit as perceived by the farmers and explore the relationships of the selected characteristics of the jackfruit farmers with the losses of jackfruit as perceived by them. The selected characteristics were age, level of education, jackfruit land size, number of jackfruit trees, annual income from jackfruit, experience in jackfruit cultivation, knowledge on jackfruit cultivation and problem faced by the farmers. Data were gathered from 120 jackfruit farmers of six villages such as Kachina and Honpara of Bhaluka Upazilla, Donua and Nagar Haowla of Sreepur Upazilla and Naoghata and Sristighar of Shibpur Upazilla under Mymensing, Gazipur and Narsingdi districts respectively by using a structured interview schedule. For harmonious representation from each village 10 percent sample were drawn following stratified random sampling method. Appropriate scales were formulated in order to assess the concerned variables. SPSS software was used to probe the data and Pearson Product Moment Correlation Co-efficient was applied to examine the relationship among the variables. The findings revealed that the highest proportion of the farmers (71.7 percent) perceived medium loss, while 17.5 percent perceived high loss and 10.8 percent of them perceived low loss in jackfruit production. Hence, overwhelming majority (89.2 percent) of the respondents perceived medium to high loss in jackfruit cultivation. The statistical analysis exposed that annual income from jackfruit, experience in jackfruit cultivation and knowledge on jackfruit cultivation of the jackfruit farmers had significant negative relationship with the losses of jackfruit while problem faced by the jackfruit farmers had significant positive relationship with the losses of jackfruit as perceived by them.

Key words: Loss assessment, Jackfruit, Farmer's perception

Introduction

Jackfruit (*Artocarpus heterophyllus* Lam.) belongs to the family Moraceae, is one of the tropical fruits of Bangladesh which is produced in large quantity every year. It is an important and widely distributed and cultivated fruit in Bangladesh. Jackfruit is economically important throughout the tropics of Asia. It is grown in the homestead in almost all the rural areas of Bangladesh. It ranks top in production among the fruits grown in the country accounting 23.08 percent of total fruit production in 2008-09 (BBS, 2010). There is a prospective market for jackfruit products in country as well as outside. On the other hand, jackfruit processing industries may generate an employment opportunity which is one of the urgent needs in the present context of Bangladesh. It is envisaged that there is a good scope for setting up jackfruit processing units in jackfruit growing areas. This will not only help the farmers to utilize the perishable raw material but also generate more employment opportunities in rural areas. About twenty to twenty five units are engaged in unorganized sector manufacturing jackfruit chips and jackfruit preserves. Fruits at 25-50 percent of full size are eaten unripe as a vegetable or ripe, full size as a fruit. The fruit has high nutritive value and significantly contributes to the nutrition of the people of Bangladesh as a source of vitamins such as vitamin A, B and C, minerals and calories. Seeds of jackfruits are also a good source of carbohydrates and potassium with considerable amount of phosphorus, calcium and protein (Acedo, 1992). So we can prevent various diseases and malnutrition by properly consuming this fruit. Though a huge amount of jackfruit is produced in every year in Bangladesh, a significant portion of them goes to waste due to its high perishability and cramped seasonality. The peak harvesting period of jackfruit is June to July. It's a hot, humid and rainy period of Bangladesh. In this period, marketing of fruit becomes difficult, as the fruits are rotten quickly once it ripens. On the contrary, sub-standard and outdated pre and post-harvest management practices

adopted by stakeholders like farmers and intermediaries, inadequate and unscientific storage facilities, lack of smooth and timely transportation of agro-products to the sell points and indiscriminate use of non-recommended chemicals specially for ripening and preservations were identified as root causes of huge losses of jackfruit. Lack of knowledge in the farmers and latest technologies are also key-reasons behind such spoilage leads to enormous economic losses, the researchers pointed out. During the peak season for example, about 50 percent fruits mainly pineapple, watermelon, jackfruit, tomato etc. is lost due to inadequate processing facilities in Bangladesh (Hussain, 1993). Preservation of jackfruit ensuring quality would reduce the wide fluctuation of prices between peak harvesting period and off-season. Moreover, if the excess amount of this seasonal fruit can be processed and dried for the future storage that may be an earning source of foreign currency. On the other hand, jackfruit processing industries may generate an employment opportunity which is one of the urgent needs in the present context of Bangladesh.

Scientists do not know the effectiveness of their discoveries, extensionists do not know the effectiveness of their extension education policy and farmers do not know their future course of action. If the reason of losses and amount of losses could be identified and minimized successfully, the deficiency of food and economic condition of our country would be improved undoubtedly. In this condition assessing the losses of jackfruit can be considered important alternatives for finding out the reason behind the pre and post-harvest losses of this nutritive fruit. So that the necessary steps can be taken to minimize the losses fulfilling the above requirement. Therefore, the researcher was keenly interested to undertake the research entitled "Assessment of Losses of Jackfruit as Perceived by the Farmers" with the following objectives:

- To assess the losses of jackfruit as perceived by the farmers
- To identify and describe some selected characteristics of the jackfruit farmers
- To explore the relationship of the selected characteristics of the jackfruit farmers with the losses of jackfruit as perceived by them

Methodology

Three Upazillas of Bangladesh namely Sreepur under Gazipur District, Bhaluka under Mymensing District and Shibpur under Narsingdi District were purposively selected as the locale of the study. Six villages were also purposively selected by taking two from each selected Upazilla. A total of 1204 jackfruit growing farmers were listed which constituted the population of this study. For proportionate representation, 120 jackfruit farmers were selected as the sample of the study by taking 10 percent of the farmers from each of the six selected villages following stratified random sampling method considering each village as a stratum. Data were collected from the sample farmers with the help of a pretested interview schedule during the period from 9th June to 20th July, 2011.

For measuring jackfruit losses at farmers' level, eight different loss items of three phases namely production, harvesting and marketing phases were considered. Losses of Jackfruit were measured by asking perception on these eight different items of jackfruit loss to the each respondent individually. It was recorded based on the perception of the farmers and expressed in percentage. Percentage of losses of jackfruit was perceived in terms of total production of jackfruit. Finally, losses of jackfruit were measured by adding the percentage of losses of all items. Losses of three different phases were determined separately for better understanding.

The age of the respondents was measured in terms of years by counting the period of time from his/her birth to the time of interview. Level of education of a respondent was measured in terms of years of successful schooling completed by an individual in educational institute. Jackfruit land size was estimated in terms of hectare owned by a farmer on which jackfruit growing activities are carried out. The number of jackfruit trees of a respondent was measured in terms of actual number of jackfruit tree. Annual income from jackfruit was measured in `thousand' Taka. Experience in jackfruit cultivation of a respondent was measured on the basis of his duration of jackfruit cultivation in terms of years. Knowledge on jackfruit cultivation was measured by asking 20 relevant questions. A score of two (2) was assigned for each complete and correct answer and 0 (zero) for incorrect or no answer for each question. Partial score was assigned for partially correct answer for each question. Problem faced in jackfruit production of respondent farmers was measured by asking 12 items of problem on the basis of the nature of problem they faced in jackfruit cultivation.

Findings and Discussion

Losses of Jackfruit as Perceived by the Farmers

The losses of jackfruit as perceived by the farmers have been presented in Table 1. They range from 7 to 34 having a mean of 18.61 and standard deviation of 5.31. The highest proportion of the farmers (71.7 percent) perceived medium loss, while 10.8 percent of the respondents perceived low loss and 17.5 percent perceived high loss in jackfruit production. It means that overwhelming majority (89.2 percent) of the jackfruit farmers perceived medium to high losses in jackfruit cultivation.

An attempt had been made to determine the losses of jackfruit at three different phases. And It was 13.3 percent in production phase, 3.03 percent in harvesting phase and 2.28 percent in marketing phase. The findings have been shown in Table 2.

Selected characteristics of the farmers

Salient features of the farmers' selected characteristics like possible and observed range, number and percent distribution, mean, standard deviation (SD) and categorization are presented in Table 3. Findings revealed that majority proportion of the farmers was middle and old aged (77.5%) with 'Can sign only' and 'Primary level' of education (61.6%) and had small to medium jackfruit land size (95%). Majority of them had small number of jackfruit trees (51.7 %), low to medium annual income from jackfruit (85 %) and medium to high experience in jackfruit cultivation (85.8 %). Three-fourth (76.6 %) of the respondents felt in moderate knowledge. Majority (83.3 %) of the respondents faced medium problem in jackfruit production activities.

Relationship of the selected characteristics of the jackfruit farmers with the losses in jackfruit production as perceived by them

Table 4 shows the relationship between the selected characteristics of the jackfruit farmers and the losses in jackfruit production as perceived by them. Correlation analysis indicates that annual income from jackfruit, experience in jackfruit cultivation and knowledge on jackfruit cultivation of the jackfruit farmers had significant relationship with the losses of jackfruit while problem faced by the jackfruit farmers had significant positive relationship with the losses of jackfruit as perceived by them. The rest four variables namely age, level of education, jackfruit land size and number of jackfruit trees of the farmers had no significant relationship with the losses of jackfruit as perceived by the farmers.

Conclusion

It may be concluded that there is necessity to reduce the losses of jackfruit. With the increase of knowledge the losses of jackfruit were decreased. Actually the farmers having more agricultural knowledge receive more agricultural information. It helps an individual to create his understanding and awareness on different aspects of agricultural information. The more the problems faced by the jackfruit farmers the more were their losses of jackfruit. The more the experience in jackfruit cultivation the less was their losses of jackfruit. With the decrease of annual income the losses of jackfruit is increased. These variables influence losses of jackfruit tremendously.

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Appendix

Table 1. Distribution of the farmers according to the Losses of jackfruit as perceived by them

Possible range	Observed range	Categories (percent)	Respondents		Mean	SD
			Number	Percent		
0-100	7-34	Low loss(below 11)	13	10.8	18.61	5.313
		Medium loss (12-22)	86	71.7		
		High loss (above 22)	21	17.5		

Source: Own study

Table 2. Losses of different items of jackfruit as perceived by the farmers

SL. NO.	Phases	Items	Percent Losses in Terms of Total Production
1	Production Phase	Due to lack of cultural operation	4.23
		Due to insect attack	4.59
		Due to pest attack	4.48
2	Harvesting Phase	Due to cracking	1.29
		Due to harvest at over mature stage	1.35
		Due to harvest at immature stage	0.39
3	Marketing Phase	Due to transporting	1.24
		Due to crack or damage	1.04
Total			18.61

Source: Own study

Table 3. Salient features of the farmers selected characteristics

SL. No.	Characteristics	Range		Categories	Farmers		Mean	Standard Deviation
		Possible	Observed		No.	%		
1.	Age	-	23 - 85	Young aged(upto 35)	27	22.5	47.90	12.82
				Middle aged (36-50)	41	34.2		
				Old aged (above 50)	52	43.3		
2.	Level of education	-	0 - 14	Illiterate (don't read and write)	20	16.7	3.13	3.41
				Can sign only (0.5)	40	33.3		
				Primary level (1-5class)	34	28.3		
				Secondary level (6-10 class)	24	20		
				Above secondary level	2	1.7		
3.	Jackfruit land size	-	0.04-0.80	Small (0.10-0.25)	52	43.3	0.20	0.37
				Medium (0.26-1.20)	62	51.7		
				Large (1.32-2.0)	6	5		
4.	Number of jackfruit trees	-	15 - 300	Small (up to 50)	62	51.7	72.3	58.53
				Medium (up to 100)	36	30		
				Large (>100)	22	18.3		
5.	Annual income from jackfruit	-	2 - 120	Low (<20)	36	49.2	30.93	25.60
				Medium (22-50)	43	35.8		
				High (>50)	18	15		
6.	Experience in jackfruit cultivation	-	5 - 65	Low (up to 15)	17	14.2	28.00	10.60
				Medium (upto 30)	67	55.8		
				High (>30)	36	30		
7.	Knowledge on jackfruit cultivation	0-40	8 - 34	Poor knowledge (up to 13)	11	9.2	21.22	5.70
				Moderate knowledge (14-26)	92	76.6		
				Sound knowledge (Above 26)	17	14.2		
8.	Problems faced by the farmers	0-36	6 - 36	Low problem (1-12)	12	10	18.29	4.82
				Medium problem (13-25)	100	83.3		
				High problem (25-36)	8	6.7		

Source: Own study

Table 4. Summarized Results of Pearson's Product Moment Correlation Showing Relationships Between each of the Selected Characteristics of the Jackfruit Farmers and the Losses of Jackfruit as Perceived by Them

N =120

	Characteristics of the farmers	Value of co-efficient of correlation (r)	Tabulated value	
			0.05 level	0.01 level
Losses of Jackfruit as perceived by the farmers	Age	-0.027^{NS}	0.179	0.237
	Level of education	-0.071^{NS}		
	Jackfruit land size	0.114^{NS}		
	Number of jackfruit trees	0.115^{NS}		
	Annual income from jackfruit	-0.181*		
	Experience in jackfruit cultivation	-0.214*		
	Knowledge on jackfruit cultivation	-0.249**		
	Problems faced by the jackfruit farmers	0.245**		

Source: Own study

^{NS} Not significant, ** Significant at the 0.01 level, * Significant at the 0.05 level