

Attitude of coastal farmers towards fruits cultivation

M.A. Malek and M.E. Uddin¹

Department of Horticulture, ¹Department of Agricultural Extension and Rural Development, Patuakhali Science and Technology University, Dumki, Patuakhali.

Abstract: The paper highlights attitude of the farmers towards fruits cultivation in coastal area. Data were collected from 80 randomly selected farmers of two selected villages of coastal Patuakhali district using a pre-tested structured interview schedule. The study also explored the seed sources used by the farmers for fruit cultivation. Attempt was also taken to describe the individual characteristics of the farmers and to explore the relationship between selected characteristics of the farmers and their attitude towards fruits cultivation. The findings indicate that highest proportion (56.25 %) of the farmers had moderately favourable attitude while 22.5 percent had unfavourable attitude and only 21.25 percent farmers had favourable attitude towards fruit cultivation in coastal area. Among the six selected characteristics of the farmers education, supporting media used, knowledge on fruit cultivation and constraints of fruits cultivation had significant correlation with attitude of the farmers towards fruit cultivation. On the other hand age, family farm size and annual income of the coastal farmers from selling fruits had no significant relationships with attitude.

Key Words: Attitude, coastal farmer, sorjan method, fruits species

Introduction

Bangladesh is an agricultural country where fruits occupy an important position (3.91% of land) and supply 6.5% of total food production and 2.05% of national GDP. There are about 60 species of fruits are cultivated in Bangladesh (Mondal, 2000). In agriculture, fruits being economically more remunerative have been identified as a means of rural employment generation, poverty alleviation and foreign exchange earning. Fruit cultivation may plays a pivotal role in economic development and poverty alleviation through meeting the increasing demand of fruit and adding economic return to the nation.

There is tremendous scope of developing fruit production in our country. It can be expected that, fruits would play a greater role in future meeting the domestic requirement and catering a number of international markets. During the recent past there have been some advancement in the field of research and development of fruit crops but the transfer of technologies among the growers has not been satisfactory. There is urgency to provide greater intensive extension support and technical know how to the growers on nutritional needs of fruit trees, proper cultural schedules for intercultural plant protection measures against insect-pest and diseases. However, for successful transfer of knowledge and technology it is necessary to know the attitude of the ultimate users towards the technology.

Many peoples do not know the significance of eating fruits. For an adult human, daily requirement of fruits is 100 gm. But we take only 35-40 gm, which is far bellow than the requirement (Mondal, 2000). This indicates a knowledge gap or unfavourable attitude towards fruits. It is also true that all the fruits are not affordable to common people. But everybody can easily consume local and seasonal fruits if they cultivate it even in homestead area.

About one third area of Bangladesh is covered by coastal area and has enough potential for fruits cultivation though characteristics and growth habits of different fruits are diverse in nature. Some where fruit species are well adapted in coastal areas of Bangladesh and intensively cultivated. So it is necessary to assess the attitude of the farmers towards fruits cultivation in coastal area.

Materials and Methods

Sources of data: Two villages namely Sreerampur and Jolisha under Dumki Upazila of Patuakhali district were

purposively selected as the locale of the study. 200 fruits growers were listed in advance by the researchers from the study area which were considered as the population of the study. However, 40 percent of the total population was selected randomly as the sample of the study. Thus actual number of the respondent for the study area was 80. A structured interview schedule was prepared for collection of valid and consistent data in accordance with the objectives of the study. The draft interview schedule was prepared and pre-tested before using the same for final collection of data. Necessary corrections, additions and adjustment were made in the interview schedule. Data were collected by the researcher themselves during 15 July 2008 to 15 August 2008.

Measurement of variables: In the present study, six selected individual characteristics of the farmers such as their age, education, farm size, annual income from fruits, supporting media used, knowledge on fruits cultivation and constraints faced by the farmers in cultivating fruits were considered as the independent variables of the study. On the other hand, attitude of the farmers towards fruits cultivation were the dependent variable of the study. All the six individual characteristics of the farmers were measured either by direct scoring or by developing suitable scale. Attitude of the farmers towards fruits cultivation was ascertained through a 5-point-Likert scale. Farmer's agreement on ten statements were ascertained as 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree' with corresponding score of 4, 3, 2, 1 and 0 for positive statements. Reverse scoring was done for a negative statement. Thus, for a respondent the attitude score could rang from 0 to 40 where 0 indicates most unfavourable attitude and 40 indicates most favourable attitude. SPSS software package (11.5 versions) was used for data entry. Frequency distribution, percentage, mean, standard deviation (SD), correlation coefficient (r) etc were used to analyze and interpret the data scientifically.

Results and Discussion

Available fruits cultivated in coastal area and their seed sources: The findings demonstrate that about 36 fruits of different species cultivated in coastal area of Patuakhali district which is near about 50 percent of total number of fruits cultivated in Bangladesh. The most grown fruits were Mango, jackfruit, seeded banana, betel nut, coconut, chalta, palm, water melon, velvet apple,

jujube, hog plum, golden apple, pummelo and guava. The probable reasons of these well grown fruits are seed availability and eco-climatic adaptability of that species in coastal area. The findings also show that farmers cannot produce good quality seeds of fruits like mango, golden

apple, guava, litchi, papaya, lemon etc. They buy these seeding from the market or nursery. In case of other available fruits farmers use their home made seedlings (Table 1).

Table 1. List of fruits cultivated in coastal area and their seed sources

Sl. No.	Name of the fruits	Own seed user		Nursery seed user	
		Number	Percent	Number	Percent
1.	Mango (<i>Mangifera indica</i>)	58	72.5	28	35
2.	Jack fruit (<i>Artocarpus heterophyllus</i>)	60	75	16	20
3.	Banana (<i>Musa sapientum</i>)	64	80	4	5
4.	Litchi (<i>Litchi chinensis</i>)	12	15	12	15
5.	Jamun (<i>Syzygium cumini</i>)	16	20	4	5
6.	Tamarind (<i>Tamarindus indica</i>)	44	55	0	0
7.	Betel nut (<i>Areca catechu</i>)	65	81.25	20	25
8.	Coconut (<i>Cocos nucifera</i>)	48	60	28	35
9.	Palmyra palm (<i>Borassus flabellifer</i>)	40	50	0	0
10.	Date palm (<i>Phoenix sylvestris</i>)	36	45	0	0
11.	Monkey jack (<i>Artocarpus lakoocha</i>)	28	35	0	0
12.	Jujube (<i>Zizyphus mauritiana</i>)	16	20	20	25
13.	Bael (<i>Aegle marmelos</i>)	32	40	0	0
14.	Hog plum (<i>Spondias mangifera</i>)	32	40	24	30
15.	Golden apple (<i>Spondias dulcis</i>)	25	31.25	32	40
16.	Wood apple (<i>Feronia limonia</i>)	0	0	4	5
17.	Pine apple (<i>Ananas comosus</i>)	36	45	0	0
18.	Velvet apple (<i>Diospyros discolor</i>)	48	60	4	5
19.	Chalta (<i>Dillenia indica</i>)	58	72.5	0	0
20.	Pummelo (<i>Citrus grandis</i>)	60	75	12	15
21.	Bilimbi (<i>Averrhoa bilimbi</i>)	0	0	2	2.5
22.	Caranda (<i>Carissa carandas</i>)	8	10	0	0
23.	Guava (<i>Psidium guajava</i>)	16	20	60	75
24.	Papaya (<i>Carica papaya</i>)	44	55	28	35
25.	Carambola (<i>Averrhoa carambola</i>)	20	25	20	25
26.	Water melon (<i>Citrullus lanatus</i>)	4	5	16	20
27.	Musk melon (<i>Cucumis melo</i>)	4	5	12	15
28.	Indian olive (<i>Elaeocarpus floribundus</i>)	8	10	20	25
29.	Aonla (<i>Phyllanthus emblica</i>)	4	5	12	15
30.	Wax Jambu (<i>Syzygium samarangense</i>)	4	5	20	25
31.	Bullock's heart (<i>Annona reticulata</i>)	12	15	8	10
32.	Pomegranate (<i>Punica granatum</i>)	8	10	4	5
33.	Sapota (<i>Manilkara achras</i>)	0	0	12	15
34.	Lemon (<i>Citrus limon</i>)	24	30	28	35
35.	Garcinia (<i>Garcinia cowa</i>)	8	10	0	0
36.	Star goose berry (<i>Phyllanthus acidus</i>)	5	6.25	15	18.75

Fruits tree plantation techniques in coastal area: The findings show that majority of the farmers (68.7%) use conventional method of fruits cultivation as it was easy and less labourious to them. Only the farmers who had high land used convention method of fruits cultivation. On the other hand the farmers who had not adequate high land for fruits cultivation used a special technique named "sorjan method". It was found that one fourth (25%) of total farmers used this techniques. In sorjan method a deep furrow and high ridge is made in low land for growing fruits on the wide ridge. The furrow is used as medium of drainage and protects fruits from salty water. The method is becoming popular day by day for growing all sorts of plants in coastal area to overcome water logging. A little

proportion (6.3%) of the farmers planted fruits seed/seedling on small artificial hills (Table 2).

Table 2. Distribution of farmers according to fruits tree plantation technique

Plantation methods	Farmers	
	Number	%
Conventional method	55	68.7
Sorjan method	20	25
Small hill method	5	6.3
Total	80	100

Some basic characteristics of the coastal fruits farmers: Data organized regarding the personal characteristics of

the farmers shows that half (50%) of the farmers were middle aged. The lowest proportions of farmers were young (2.5%) and 47.5 percent farmers were old. Majority (42.5%) of the farmers had secondary level education, 26.2 percent farmers had primary education, 17.5 percent farmers had higher education and only 13.8 percent farmers were illiterate. The findings show that highest proportion (58.8%) of the respondents was small farmers followed by 36.2 percent medium farmers and only 5 percent were large farmers. Farmers were categorized according to their annual income from fruits. The findings show that majority (73.7%) of the farmers belong to medium income group while 13.8 percent remained in low income level and only 12.5 percent farmers were high

income level. During fruits cultivation farmers used different helping media. The study shows that majority (73.7%) of the farmers were medium media user where 23.8 percent were low media user and only 2.5 percent were high media user. Knowledge of the farmers on fruits cultivation was another selected characteristic. The investigation shows that most of the farmers possessed high knowledge (43.7%) where 36.3 percent possessed medium knowledge and only 20 percent farmers possessed low knowledge on fruits cultivation. The highest proportion (40%) of the farmers faced high constraints while 38.3 percent faced medium constraints and only 21.7 percent faced low constraints in cultivating fruits in coastal area (Table 3).

Table 3. Salient features of the farmers' selected characteristics

Selected characteristics	Scoring system	Possible range	Observed range	Category	Number	Percent	Mean	SD
Age	Years	-	30-75	Young (18-30)	2	2.5	48.23	10.9
				Middle aged (31-45)	40	50.0		
				Old (>45)	38	47.5		
Education	Year of schooling	0-16	0-16	Illiterate (0)	11	13.8	7.08	4.09
				Primary (1-5)	20	25		
				Secondary (6-10)	36	45		
				Higher (>11)	13	16.2		
Farm size	Acre	-	0.3-12.4	Small (0.05-2.49)	47	58.8	2.78	2.52
				Medium (2.5-7.49)	29	36.2		
				Large (>7.5)	4	5.0		
Income	Score ('000' Tk)	-	0.3-15	Low (<1)	11	13.8	4.18	3.14
				Medium (1-7)	59	73.7		
				High (>7)	10	12.5		
Supporting media used	Rated score	0-14	1-14	Low (<4)	19	23.8	6.24	2.35
				Medium (4-10)	59	73.7		
				High (>10)	2	2.5		
Knowledge on fruits cultivation	Rated score	0-20	8-28	Low (<10)	16	20	15.99	5.86
				Medium (10-14)	26	32.5		
				High (>14)	38	47.5		
Constraints of fruits cultivation	Scale score	0-40	14-29	Low (<18)	17	21.3	21.36	3.53
				Medium (18-22)	31	38.7		
				High (>22)	32	40		

Attitude of the farmers towards fruits cultivation in coastal area: The possible attitude score of the farmers towards fruit cultivation ranges from 0 to 40. However, the observed attitude score ranges from 8 to 38 with an average of 22.11 and standard deviation 6.26. The findings indicate that highest proportion (56.25 %) of the farmers had moderately favourable attitude while 22.5 percent had unfavourable attitude and only 21.25 percent farmers had favourable attitude towards fruit cultivation in coastal area (Table 4). For better understanding, farmers' responses to all the statements regarding attitude towards fruit cultivation were analyzed by their number of citations and

statement wise attitude score and mean value. The mean value was measured as dividing the attitude score of each statement by the number of respondents. The mean values showed that farmers were not solely intended towards positive or negative statements. The finding reflected that the farmers conceived the intended meaning of those statements well. But it is also true that there was a knowledge as well as psychological barrier in their conception that led them towards unfavourable attitude formation regarding nutritional value of fruits, fruits marketing and fruit crop management and cultivation (Table 5).

Table 4. Distribution of the farmers according to their attitude towards fruits cultivation

Name of Categories	Respondent		Possible Score	Observed Score	Mean	SD
	Number	Percent				
Unfavourable (≤ 16)	18	22.50	0-40	8-38	22.11	6.26
Moderately favourable (17-27)	45	56.25				
Favourable (> 27)	17	21.25				
Total	80	100				

Note: Categorization based on Mean \pm SD,

Table 5. Farmers attitude fruits and fruits cultivation

Sl. No.	Statements	Extent of agreement					AI	Mean
		SA	A	UD	D	SD		
(+) 1.	We should take some fruit every day for better health.	27	31	10	10	2	231	2.89
(-) 2.	Fruit may be stolen so it should not be cultivated.	7	8	15	35	15	203	2.54
(-) 3.	Selling fruits is a prestigious issue.	13	10	6	29	22	197	2.46
(+) 4.	Unemployed youth can be employed by cultivating fruits commercially	13	32	13	14	8	188	2.35
(-) 5.	Fruits are occasional food, so buying fruit is better than planting.	8	9	19	37	7	186	2.33
(-) 6.	Fertilizer is not required for fruit trees	8	15	20	22	15	181	2.26
(-) 7.	Timber plant is more profitable than fruit for homestead area.	12	27	8	22	11	153	1.91
(+) 8.	Harvesting, storage and marketing of fruits is difficult and risky.	6	28	8	26	12	150	1.88
(-) 9.	Fruit crop is time consuming, hence it is not profitable.	9	26	25	15	5	141	1.76
(-)10.	Apple is more nutritious than Guava	26	19	7	8	20	137	1.71
Total		129	205	131	218	117	800	

Note: SA = Strongly Agree, A = Agree, UD = Undecided, D = Disagree, SD = Strongly Disagree, AI= Attitude Index

Relationship between selected characteristics of the farmers and their attitude toward fruit cultivation

The findings demonstrated that education, supporting media used and knowledge on fruits were positively correlated with attitude of the farmers towards fruit cultivation. In contrast, there was a strong negative correlation between constraints of fruits cultivation and attitude of the farmers towards fruit cultivation. Other three variables like age, family farm size and annual income of the farmers from selling fruits did not show any correlation with attitude of the farmers towards fruit cultivation in coastal area (Table 6).

Table 6. Relationship of selected individual characteristics of the farmers and their attitude towards fruits cultivation in coastal area

Selected individual characteristics	Correlation coefficient (r)
Age	0.018 ^{NS}
Education	0.799 ^{**}
Family farm size	0.001 ^{NS}
Annual income from fruits	0.205 ^{NS}
Supporting media used	0.248 [*]
Knowledge on fruits	0.733 ^{**}
Constraints of fruits cultivation	-0.681 ^{**}

Notes: ** = Significant at 0.01 level, * = Significant at 0.05 percent level, NS = Non-significant

Education facilitates individuals to gain knowledge and thus increases their power of understandings. Consequently, their outlook is broadened and horizon of knowledge is expanded. That's why relationship between education and attitude of the farmers towards fruits cultivation was positive. Uddin *et al.* (2008) found similar result in their study.

Supporting media use and knowledge are interrelated with each other and has a cumulative effect on attitude formation. The person who uses more supporting media can acquainted with many unknown things, gained various information and experiences that lead him towards favourable attitude formation. That's why with the

increase of education level and knowledge on fruit cultivation, attitude of the farmers towards fruit cultivation was being favourable. Chowdhury (2003) and Haque, *et al.* (2003) also found more of less similar results in their study.

From the above discussion it was found that due to lack of adequate high land, lack of adequate fruits nursery and unavailability of good quality seed, fruit cultivation in coastal area is neglected. Betel nut, coconut, chalta, palm, water melon, velvet apple, jujube, hog plum, golden apple, pummelo etc are the most grown fruit species of coastal area. Some innovative farmers in coastal area producing fruits in low land using sorjan method and small hill method. Majority of the farmers had moderately favourable attitude towards fruits cultivation while a hand some proportion of them had an unfavourable attitude towards fruit cultivation. Among the six selected characteristics of the farmers education, supporting media used, knowledge on fruit cultivation and constraints of fruits cultivation had significant correlation with attitude of the farmers towards fruit cultivation. Attitude of the farmers did not varied significantly with the variation of age, family farm size and annual income from selling fruits.

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