Bangladesh Journal of Extension Education *ISSN 1011-3916*
Volume 23, No. 1&2, 2011:61-66 *Research Article*

Household Food Security Status of Farmers in Selected Areas of Phulpur Upazila under Mymensingh District

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Abstract

The main purpose of the study was to determine the household food security status of farmers of the selected study area. Data were collected from a random sample of 104 farm family heads, out of 688, in two selected villages of Phulpur Upazila of Mymensingh District. The data were collected through personal interviewing by using a pre-tested semi-structured interview schedule during 10 September to 21 October, 2011. Correlation test was used to ascertain the relationships between the concerned variables. Data revealed that more than (52.9 percent) of the households were food secure and energy intake was 2122 kcal/person/day. On the contrary, 41.3 percent household were food insecure and consumed between 1805 and 2121 kcal/person/day and 5.8 percent households were severely food insecure and calorie intake was less than 1805 kcal/person/day. Farmers' education, farm size, annual family income, annual household expenditure, decision making ability, extent of contact with information sources, usefulness of contact with information sources, mass media exposure and strategic behavior had significant positive relationships with their household food security status, while household size and dependency ratio had significant negative relationships with their household food security status.

***Keywords**: Household, food security status, farmers.*

Introduction

Ensuring food security for all is one of the major challenges that Bangladesh faces today. This is almost synonymous to agricultural development in Bangladesh, as income and livelihood of the vast majority population directly or indirectly depends on agriculture. Despite significant achievements in food grain production since independence in 1971, food availability, food security at national and household level remains a matter of major concern of the Government of Bangladesh.

The economy of Bangladesh is based on agriculture and it contributes 23 percent in national GDP (BBS, 2010). Despite important economic progress, the country remains highly food-insecure. Bangladesh is ranked 129th out of 169 countries in the 2010 Human Development Index (HDI) (UNDP, 2010). Around 60 million people consume less than the minimum daily recommended amount of food (HIES, 2005).

The prevalence rates of global acute and chronic malnutrition among children under two years old in Bangladesh are alarming. Growth retardation, an outcome of chronic malnutrition, is widespread affecting an estimated 48.6 percent of the country's 20 million children. A staggering 18.2 percent of women are acutely malnourished, and thus at high risk of giving birth to low birth-weight babies. Approximately one third of adolescent girls in Bangladesh suffer from anemia and micronutrient deficiency (HFSNA, 2009).

As ensuring food security and agricultural development in Bangladesh is almost

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synonymous, it is important to know the household food security status of farmers, who produce foods to feed the whole nation. Usually the concern regarding food security is analyzed at the national level. National level analysis always compares the availability and requirement of food grains. It has to be understood that availability and supply are not always the same. Therefore, it is important to understand the different household characteristics that are specific to food security and related issues. However, to achieve desired agricultural production for gaining sustained food security, it is necessary to have a clear understanding about present household food security status of farmers. Thus, the study was undertaken to ascertain the food security status of the farm households and to explore the relationships of the selected characteristics of the heads of households with their household food security status.

Methodology

The study was conducted in Nogua and Paikpara villages under Phulpur upazila of Mymensingh district. In total there were 688 farm families (one farmer from each household) in two villages which were considered as population of the study. Fifteen percent of the population was randomly selected by using a Table of Random Numbers. Thus, a total of 104 farmers constituted the sample size for the study. The empirical data were collected during 10 September to 21 October, 2011. The data were collected by personal interviewing through pre-tested semi-structured interview schedule.

The dependent variable in this study was Household Food Security (HFS) status of selected farm households. The HFS status was determined using the consumption approach. Consumption is preferable to measure HFS than income because it is less vulnerable to seasonality and life-cycle, less vulnerable to measurement errors because respondents have less reasons to lie, it is closer to the utility that people effectively extract from income, and for the poor most of income is consumed (FAO, 2002).

To obtain the actual calorie consumption by the household members, Household Calorie Acquisition (HCA) method was used. First, the gross household food consumption of last 7 days was converted into calories. Due to differences in household compositions in terms of age and sex, there was a need to adjust the household size to adult equivalent household size. Adult equivalence was developed by World Health Organization (WHO) considering the nutritional requirements of an individual by age and gender. Finally, a concise figure for average calories consumed per person per day was resulted and compared with an estimate of threshold kilocalorie level requirement i.e. 2122 kcal (HIES, 2010).

Data obtained from the respondents were compiled to a master sheet, then tabulated and analyzed in accordance with the objectives of the study. SPSS (Statistical Package for Social Sciences) computer program was used to process all the collected information in computer.

Findings and Discussion

Characteristics of an individual greatly determine his behavior. In the present study 15 characteristics of the respondents were considered. The salient features of the characteristics of the farmers and their classification based on the characteristics have been presented in Table 1.

Table 1 Classification of farmers according to their selected characteristics

Characte-ristics	Measu-ring unit	Range		Respondents			Mean	SD
		Possible	Observed	Categories	Number	Per-cent		
Age	Year	Unknown	23-68	Young (up to 35) Middle-aged (36-55) Old (above 55)	29 52 23	27.9 50 22.1	45.10	11.96
Level of education	Year of schooling	Unknown	0-12	Cannot read or write (0) Can sign only (0.5) Primary (1-5) Secondary (6-10) HSC (11-12)	38 16 24 24 2	36.5 15.4 23.1 23.1 1.9	3.09	3.71
Household size	Number of member	Unknown	2-10	Small (up to 4) Medium (5-6) Large (above 6)	29 45 30	27.9 43.3 28.8	5.62	1.840
Dependency ratio	Ratio	Unknown	0-3	Low (up to 0.14) Medium (0.141-1.4) High (above 1.4)	14 72 18	13.5 69.2 17.3	0.77	0.63
Farm size	Hectare	Unknown	0.01-3.42	Landless (up to .02) Marginal (.021-0.20) Small (0.21-1.0) Medium (1.1-3.0) Large (above 3.0)	20 26 43 10 5	19.2 25.0 41.3 9.6 4.8	0.619	.793
Annual family income	'000' TK	Unknown	43-535	Low (up to 60) Medium (61-150) High (above 150)	15 70 19	14.4 67.3 18.3	123.34	98.10
Annual household expenditure	'000'TK	Unknown	40.6-319	Low (up to 50) Medium (51-100) High (above 100)	5 63 36	4.8 60.6 34.6	104.32	64.07
Inputs availability	Score	0-57	34-56	Low (up to19) Medium (20-38) High (above 38)	0 2 102	0 1.9 98.1	48.90	4.06
Decision making ability	Score	8-16	8-16	Low (up to 5) Medium (6-10) High (above 10)	0 33.7 66.3	0 35 69	11.64	2.43
Extent of contact with information sources	Score	0-36	4-23	Low contact (up to 12) Medium contact (13-24) High contact (above 24)	46 58 0	44.2 55.8 0	13.66	4.32
Usefulness of contact with information sources	Score	0-36	3-27	Low (up to 12) Medium (13-24) High (above 24)	87 16 1	83.65 15.38 0.961	9.29	4.35
Mass media exposure	Score	0-28	0-13	Low contact (up to 12) Medium contact (13-24) High contact (above 24)	103 1 0	99 1 0	3.067	2.91
Information sharing behavior	Score	0-21	5-18	Low (up to 7) Medium (8-14) High (above 14)	1 88 15	1 84.6 14.4	11.71	2.49
Gender sensitivity	Score	6-30	9-25	Low (up to 10) Medium (11-20) High (above 20)	1 46 57	1 44.2 54.8	20.45	1.863
Strategic behavior	Score	5-25	15-24	Low (up to 8) Medium (9-16) High (above 16)	0 2 102	0 1.9 98.1	20.37	1.86

Household Food Security Status of the Farmer

The household food security status of farmers was measured in terms of household calories consumption per person per day. The household calories consumption per person per day in a household ranged from 1474.54 to 2982.01 kcal. The average daily per capita calorie intake by households was estimated to be 2192.16 kcal with a standard deviation of 322.66. The average was lower than the national average of 2318.3 kcal (HIES, 2010). Based on the food security status, farmers have been classified into three categories as severely food insecure (calorie intake less than 1805kcal/day/person), food insecure (calorie intake 1805-2121kcal/day/person) and food secure (calorie intake 2122 or above kcal/day/person). The household food security of the respondents has been shown in Table 2. The minimum calorie requirement set in Bangladesh is 2122 kcal/person/day (HIES, 2010). Figure 1 revealed that more than half (52.9 percent) of the households were food secure and had a calorie intake of 2122 or above kcal/person/day. 41.3 percent households consumed between 1805 and 2121 kcal/person/day and these households were food insecure. However 5.8 percent households were severely food insecure as people from these households consumed less than 1805 kcal/person/day.

Relationship between Selected Characteristics of the Farmers and Their Household Food Security Status

Pearson's product moment correlation co-efficient (r) was used to test the concerned research hypothesis in the relationship between the dependent and the independent variables. Level of education, farm size, annual family income, annual household expenditure, decision making ability, extent of contact with information sources, usefulness of contact with information sources, mass media exposure and strategic behavior showed significant positive relationships and household size and dependency ratio showed significant negative relationships with the household food security status of the farmers (Table 3).

Table 2 Food security-insecurity status of the respondents

Extent of household food security	% respondents
Severely food insecure (less than 1805 kcal)	5.8
Food insecure (1805 – 2121 kcal)	41.3
Food secure (more than 2121 kcal)	52.9

Table 3 Correlation co-efficient between selected characteristics of the farmers and their household food security status

Independent variables	Computed 'r' values with 102 df (n=104)
Age	0.075
Education	0.212*
Household size	-0.330**
Dependency ratio	-0.230*
Farm size	0.531**
Annual family income	0.534**
Annual household expenditure	0.515**
Decision making ability	0.246*
Extent of contact with information sources	0.548**
Usefulness of extent of contact with information sources	0.505**
Mass media exposure	0.429**
Information sharing behavior	0.124
Gender sensitivity	0.166
Strategic behavior	0.346**

*Significant at 5 percent level of probability
** Significant at 1 percent level of probability
Dependent variable: Household food security status (Calorie intake per day per person)

The Table 2 shown that the educational level and extent of contact with information sources of the farmers had positive significant relationships with their household food security status. It may be said that educational level of the household heads and their contact with information sources enable to improve the food security status of farm households. Education helps to change an attitude of the head, which in turn enables to adopt new agricultural technologies and consequently it might have helped achieve household food security.

Household size and dependency ratio of the farmers had significant negative relationships with their household food security status. It indicated that larger household size and presence of high dependent members in household had high influence in worsening the food insecurity status of households. Hence, it is difficult to reduce the household size, but there is scope for reducing the dependency ratio through providing income generating activities for the other members of the households.

Farm size, annual household income and annual household expenditure had significant positive relationships with household food security status. Having large farm size and high annual household income are not only essential to produce enough crops but also important factors for farmers to use new technologies such as fertilizers, improved seeds and so on. Based on farmer's perceptions, high price of food items, crop loss due to flood, lack of income generating activities, not getting proper value for rice, high cost of production and insufficient credit support were identified as major problems in the study area. Thus, the state of achieving household food security has been hindered mainly by the high price of food due against less income generating opportunities.

Conclusion

Study revealed that 47 percent farmers' households were food insecure i.e. they consumed below the minimum calorie requirement (2122 kcal/person/day). Among them six percent households were severely food insecure and consumed less than 1805 kcal/person/day. Among the characteristics of the farmers, 11 had significant relationship with household food security. However, among the significant variables education, farm size, annual family income, annual household expenditure, decision making ability, extent of contact with information sources, usefulness of extent of contact with information sources, mass media exposure and strategic behaviour showed positive relationship while, household size and dependency ration showed significant negative relationship with household food security. It is true that sustainable income generation is crucial for ensuring access of the farmers, particularly landless, marginal and small farmers, to their basic requirements including access to adequate food. Therefore, it is recommended that through alternative IGAs in addition to farming activities may be helpful in improving their household food security status. In addition, proper initiatives from DAE and other concerned organizations are essential to ensure farm household's access to information regarding farm and non-farm activities that might improve household food security.

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