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Research Note

**CONSUMPTION PATTERN OF FRUITS IN
A SELECTED AREA OF BANGLADESH**

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ABSTRACT

This study was an attempt to examine the consumption pattern and the factors affecting consumption of fruits in an area of Gazipur district. Consumption of fresh fruits in rural area was higher than that of urban area. Rural people mainly consumed fruits from their own production, whereas urban peoples' main source was purchase. Sharp seasonal variation in consumption was found in the study area; peak period consumption was about twenty one times higher than that of slack period. Urban consumers consumed proportionately more amount of banana, papaya, pineapple and citrus fruits than their rural counterpart. Fruit consumption was affected by the amount available from own production and income of the consumer. Education and knowledge about fruits had little or no impact on fruit consumption.

I. INTRODUCTION

Many people of Bangladesh are suffering from malnutrition because of consuming unbalanced diet. About two-fifth of rural people suffers from vitamin-A and three-tenth from iron or other minerals deficiency in their daily diet (Anon., 1994). The nutritional status of the people can easily be improved by making available adequate amount of fruits because they are rich in vitamins and minerals. Per capita daily fruit consumption, which is the lowest among the neighbouring countries, was 27.60 grams during 1995/96 in Bangladesh (Appendix Table 1). In 1995/96, the production of fruits in the country was 1.37 million tons of which banana accounted for the highest proportion of 46% followed by 19% of jackfruit, 11% of pineapple and 8% of mango (BBS, 1997). The other fruits like papaya, melon, litchi, guava, lemon etc. comprised only 16% of total production. Therefore, fruit production as well as consumption in the country has to be increased manifold for eliminating the deficiency in vitamins and minerals in daily diet of the people of Bangladesh.

For increasing fruit consumption, it is necessary to know the present fruit intake pattern of different people under various income groups. But unfortunately, excepting household expenditure survey at national level in limited form, no attempt has been made from any corner to generate adequate data/information on this aspect. This type of information will also be helpful to the

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horticulture scientists as well as to the planners for taking decision on fruit improvement programme. The present study is an attempt to examine the consumption pattern of fruits in selected areas of Bangladesh.

II. METHODOLOGY

The study was conducted both at rural and urban areas. Two villages namely, Porabari and Salna (North) under Kawaltia union of Gazipur district were purposely selected from rural areas. On the other hand, Bangladesh Agricultural Research Institute (BARI) campus and a fruit market were purposely chosen as urban areas.

Stratified Random Sampling technique was used to select sample household for the present study. A total of 51 households, taking 27 from rural areas and 24 from urban areas, were randomly selected after dividing the total households into some strata. Accordingly, 18, 6 and 3 households were chosen from small, medium and large farmers in rural area respectively. Similarly, 5 officer, 11 employee and 8 labourer households were selected from urban area.

Fruit intake data were gathered from the selected households by frequent visits, generally after two weeks interval, to their residence during December 1995 to November 1996 using pre-designed and pre-tested interview schedules.

Fruit Consumption Function

It was hypothesized that per capita fruit consumption was likely to be influenced by various socio- economic factors. Therefore, an attempt was made to identify the factors influencing fruit consumption in different areas. The following fruit consumption function was fitted for this study.

$$Y = \alpha + \beta_1 IN + \beta_2 OP + \beta_3 KN + \beta_4 CH + \beta_5 ED + \beta_6 PD + U$$

Where, Y = Per capita consumption of fruits

α = Constant term

IN = Per capita income

OP = Own production

KN = Fruit intake knowledge

CH = No. of children

ED = Education level

PD = Professional dummy i.e. 1 for agriculture as major occupation and 0 for other.

U = Random disturbance term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the regression coefficients.

Measuring of Fruit Intake Knowledge

Fruit intake knowledge included understanding of different aspects of fruit consumption, such as, nutritive value, usefulness or harmfulness, consumption types, causes of low intake etc. This knowledge was measured by computing fruit intake knowledge score. Eighteen questions covering the different aspects of fruit consumption were asked to the household heads for ascertaining their knowledge about fruit intake. Score given for correct answer to each question varied from 2 to 4 according to the nature of the questions. A respondent could get a total score of 53 for correct responses to all the questions while, for wrong or no responses to all the questions, he could get 0. Thus, fruit intake knowledge score ranged from 0 to 53; 0 indicating no knowledge and 53 indicating very high knowledge.

III. SOCIO-ECONOMIC CHARACTERISTICS OF SAMPLE HOUSEHOLDS

The socio-economic characteristics of the sample household members affect their fruit consumption pattern. It will, therefore, be worthwhile to know the background information of the respondent household members. The socio-economic characteristics of the sample households are presented in Table 1.

The average family size was 5.2; which was higher in rural area (5.8) than urban area (4.6). On an average, 54% of the family members were male and the rest were female. The age structure of the members was dominated by active age group of 16-50 years, which constituted 53% of members, followed by child group of 1-9 years. About three-fourth of the members were literate. Illiteracy rate in rural area was about three times higher than that in urban area.

In rural areas, farming was the main occupation of the majority members, while service was the dominant occupation in urban areas. Fifty four percent of members were said to be economically dependent indicating economic dependency rate of 1.87. Averages one-fifth of the household members (especially female member) were engaged in household works and 10% were involved in service or agriculture. Only 1% member was doing business.

On an average, a rural household owned 4.82 acres of land of which 4.37 acres were under crop cultivation, 0.19 acre under homestead and 0.4 acres under orchard. On the other hand, the average land holdings of an urban household was only 1.14 acres of which 0.91 acres under crop cultivation, 0.14 acres under homestead, and only 0.03 acre under orchard. In urban area, labourer did not possess any orchard.

The average per capita income of the farmer households was Tk 10038. Major part of the income came from crop sales (77%) followed by other sources (9%) and business (8%). It was found that no large farmer was engaged in any service or business. In urban areas, average per capita income of the households was Tk 8427, which was lower than that of rural area. Their majority income (81%) came from service. No member in urban area was engaged in any business at all. The per capita income of labourer families was about two times higher than that of employees.

Table1. Socio-economic characteristics of sample households.

Particulars	Rural	Urban	All area
Family size	5.8	4.6	5.2
Sex (%) :			
Male	55	52	54
Female	45	48	46
Age Structure (%) :			
01-09	25	28	26
10-15	15	13	14
16-50	51	56	53
> 50	9	3	7
Literacy Level (%) :			
Illiterate	35	13	26
I - IV	21	25	23
V - IX	28	28	28
S. S. C	5	13	8
H. S. C	8	10	9
Degree & above	3	11	6
Profession (%) :			
Dependent	53	54	54
Service	6	16	10
Business	2	-	1
Farming	2	-	10
Wage labour	2	8	5
Household works	19	22	20
Land Holding (acre) :			
Cultivable	4.82	1.14	2.98
Homestead	4.37	0.91	2.64
Orchard	0.19	0.14	0.16
Other	0.04	0.03	0.03
	0.23	0.06	0.14
Income per capita (Tk.)	10038	8427	9280
Fruit trees (no./household)	23	7	16
Fruit Intake Knowledge (%) :			
High (> 35)	22	29	25
Medium (27-35)	11	29	20
Low (< 26)	67	42	55

The average number of fruit bearing trees per household was 16. The rural households owned, on an average, 23 fruit trees whereas urban households owned only 7. That means rural households owned more than three times higher number of trees compared with urban households. Regarding fruit intake knowledge, one-third of the respondents obtained high level of knowledge. In case of

farmer households, majority respondents (67%) fell into low level knowledge group. The similar trend was observed in urban area. However, comparatively large percentage of urban respondents belonged to high and medium knowledge group than their rural counterpart.

IV. CONSUMPTION OF FRESH FRUITS FROM DIFFERENT SOURCES

Per capita daily consumption of fresh fruits for farmer households was 196 gms of which 62% were obtained from own production and about 30% were purchased (Table 2). Large farmers consumed more proportion from own production against other farmers. This may be due to higher per capita income and availability of more fruit trees for large farmers. Despite higher per capita consumption of small farmers, compared with medium farmers, their consumption of edible part was lower may be due to the fact that small farmers consumed low priced fruits like jackfruit.

In case of service class, the per capita consumption of fresh fruits was 134.61 gms, which was much lower than the consumption of farmer households.

Table 2. Per capita daily consumption of fruits from different sources.

(Amount in grams)

Particulars	Own production	Purchase	Other	Total	Edible part
Rural Area:					
Small farmer	119.36 (60.40)	63.12 (31.94)	15.15 (7.66)	197.63 (100.0)	128.00
Medium farmer	109.66 (59.30)	54.79 (29.63)	20.46 (11.07)	184.91 (100.00)	131.20
Large farmer	161.26 (75.28)	44.34 (20.70)	8.62 (4.02)	214.22 (100.0)	146.80
All rural	122.15 (62.22)	58.41 (29.75)	15.75 (8.03)	196.31 (100.0)	131.30
Urban Area:					
Officer	22.29 (19.01)	75.05 (64.02)	19.19 (16.37)	117.25 (100.0)	64.80
Employee	38.61 (30.72)	72.34 (57.56)	14.72 (11.72)	125.67 (100.0)	67.40
Labourer	72.43 (45.66)	74.69 (47.09)	11.50 (7.25)	158.62 (100.0)	77.90
All urban	46.20 (34.32)	73.66 (54.72)	14.75 (10.96)	134.61 (100.0)	70.30
All Area	90.34 (52.99)	64.80 (38.01)	15.33 (9.00)	170.47 (100.0)	105.70

Figures in the parentheses indicate percentage of total

Contrary to the farmer households, urban peoples' main source of fruit was purchase. They purchased over one-half of their consumption. Labourers consumed the highest quantity of fruits

(159 gms) followed by employees (126gms) and officer (117gms). Consumption mainly depends upon the quantity of fruits available in a particular time. The result indicates that in urban area, fruit intake was not related to income, education or knowledge about fruits of the households.

V. SEASONAL VARIATION IN CONSUMPTION OF FRUITS

Monthly per capita consumption of fruits for different groups of consumers is presented in Table 3 and in Fig. 1. The consumption of fruits was the highest in May and the lowest in November.

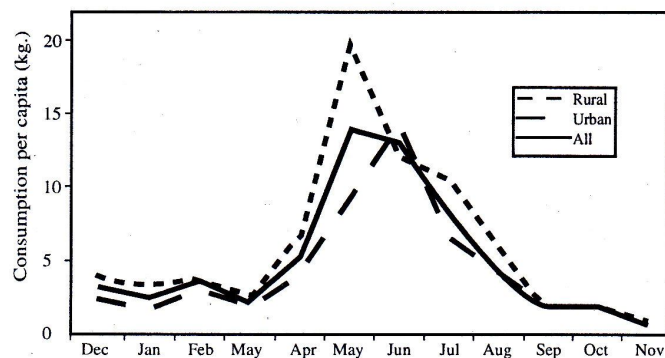


Table 3. Monthly per capita consumption of fruits in different areas.

(Amounts in grams)

Months	Rural				Urban			All	
	Small farmer	Medium farmer	Large farmer	All rura	Officer	Employee	Labour	All urban	Area
Dec.	134.30	89.42	195.10	130.00	107.9	58.50	92.10	79.60	106.28
Jan.	115.60	84.60	142.70	110.60	45.50	55.20	58.00	54.10	84.01
Feb.	130.20	144.8	101.80	130.40	89.70	132.90	40.70	94.00	113.27
March	81.70	97.70	68.70	84.45	65.60	39.20	78.70	57.50	71.77
April	242.50	162.20	239.00	220.20	117.90	95.00	214.10	138.40	181.71
May	605.20	730.00	708.20	652.60	205.50	296.00	266.88	267.80	471.52
June	392.90	335.50	574.40	400.80	377.70	393.80	634.60	468.60	432.71
July	373.10	330.00	260.00	346.60	230.20	215.10	203.00	214.30	284.34
August	108.50	124.10	211.40	169.10	49.50	100.20	211.60	125.80	148.72
Sep.	67.40	46.80	41.80	58.50	54.40	60.20	55.30	57.40	57.98
Oct.	60.60	79.80	45.10	63.90	47.60	62.90	51.30	55.90	60.14
Nov.	20.40	24.90	19.00	21.40	35.10	20.10	23.80	24.20	22.72
Average	179.42	173.06	200.55	183.73	109.74	117.62	148.47	125.97	156.55

VI. CONSUMPTION OF DIFFERENT TYPES OF FRUITS

Table 4. Consumption of different fruits by types of consumers.

(Percentage of total consumption)

[illegible]

VII. FACTORS AFFECTING FRUIT CONSUMPTION

The estimated fruit consumption functions for rural, urban and all areas are presented in Table 5. For all cases, own production and income of the consumers were significantly affecting the fruit consumption (Sikka, 1986). That means fruit consumption will increase if income of the consumers increase and/or if more fruits are made available from own production. Only in case of urban area, fruit consumption was affected by number of children in a family. The results show that urban people is more conscious about feeding fruits to their children as they contain more nutrients.

All other variables such as fruit intake knowledge, education level, profession did not affect the consumption significantly. This indicates that those variables had little or no impact on fruit consumption.

Table 5. Estimated consumption functions of fruit for different areas.

Independent Variable	Regression coefficients		
	All Area	Rural	Urban
Constant term	16.885	-8.230	10.629
Income per capita	0.001* (1.895)	0.002* (1.718)	0.001** (2.523)
Own source	0.781*** (6.229)	0.607*** (3.043)	1.137*** (7.266)
Fruit intake knowledge	0.156 (0.419)	1.375 (1.66)	-
No. of children	4.589 (1.556)	2.999 (0.658)	6.337** (2.310)
Education level	-	-0.900 (-0.76)	0.401 (0.933)
Professional dummy	-2.308 (-0.323)	-	-
R ²	0.505	0.328	0.736
F Value	11.202***	3.537** 16.995***	
N	51	27	24

Note: 1. Dependent variable: Consumption of fruit per capita.

2. Figures in the parentheses are 't' values.

3. *** Indicates significant at 1% level

4. ** Indicates significant at 5% level

5. * Indicates significant at 10% level

VIII. CONCLUSION

This micro level study shows that daily per capita fruit consumption was 105.70 gms, which was about four times higher than national average (27.60 gms). This indicates that sharp regional

variation in consumption of fruit exits in the country. Policy based on national level data will not be effective. More micro level studies in different places are to be conducted. Alternatively, Bangladesh Bureau of Statistics may publish data for different region from their household expenditure survey.

Availability of fruits from own production was the dominant factor for determining the fruit consumption. On the other hand, education and fruit intake knowledge had no impact on fruit consumption. That means fruit consumption can not be increased simply by educating consumers about the nutritional value of fruits. For more consumption, more fruit trees need to be planted.

Considerable seasonal variation in consumption of fruits was observed in the study area. To minimize this variation, all season fruit varieties should be developed. Besides, modern storage and processing facilities may be established for making available different types of fruits and fruit products all the year round.

REFERENCE

- Anonymous (1994) : Project Proposal for establishment of Horticulture Research Centre. Bangladesh Agricultural Research Institute, Joydebpur, Gazipur.
- Bangladesh Bureau of Statistics (1997) : Statistical Pocket Book of Bangladesh, BBS, Ministry of Planning, Government of Bangladesh, Dhaka.
- Bangladesh Bureau of Statistics. Report on the Household Expenditure Survey (Various Issues), BBS, Ministry of Planning, Government of Bangladesh, Dhaka.
- Sikka, B. K. (1986) : *Demand for Fresh Fruits*, B. K. Publishing Corporation, Delhi.

APPENDIX

Table 1. Average per capita daily intake (gms) of fruits in Bangladesh.

Year	Rural	Urban	National
1973/74	15.14	19.50	16.80
1976/77	14.25	18.95	16.04
1981/82	9.90	13.65	11.33
1983/84	16.80	20.80	17.20
1985/86	22.00	36.00	23.80
1988/89	12.40	19.50	13.30
1991/92	15.90	23.40	16.90
1995/96	25.30	38.80	27.60

Source : Report on Household Expenditure Survey (various issues), Bangladesh Bureau of Statistics.