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MARKETING OF POTATOES AT FARM LEVEL IN KOTWALI THANA OF NAOGAON DISTRICT

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ABSTRACT

The study was undertaken to analyse the economics of marketing potatoes by farmers in some selected areas of Sadar Upozila of Naogaon district. The study reveals that average potato production is positively related with the size of farm under potato cultivation. The per farm sale was the highest (152 quintals) for large farms and the lowest (42 quintals) for small farms and the largest volume of sale (69%) was made at the market place. The major elements of marketing cost of farmers are transportation, storage and wastage. The study reveals that higher proportion of potatoes (36%) kept for table purpose were stored at home while higher volume of potatoes (33%) used for seed purpose were stored in cold storage. The findings indicate an inverse relationship between farmer's net share and the length of marketing channel i.e. the larger the marketing channel, the lower was the farmer's net share.

I. INTRODUCTION

Potatoes are the leading vegetable crop in the world and at present people of at least 40 countries eat potatoes as their staple food (Islam 1987). The potato is however, an important cash crop and a multipurpose food crop in Bangladesh.

Bangladesh has made a remarkable progress in the production of potatoes during the last three decades from 1918-59 to 1987-88 (Hossain et al. 1982, BBS 1967, 1981, and 1989a). Areas under potatoes has increased by three and a half folds and that of production by more than five times during the same period. Though the soil characteristics and other agro-climatic factors widely vary among the various districts of Bangladesh, the former district of Rajshahi produces a large volume of potatoes. The shares of Rajshahi district in the total potato area and production of Bangladesh in 1987-88 are 8.5% and 6% respectively (BBS 1989). Potato cultivation in that area offers a good opportunity for expanding farm income because of higher yield potential through adoption of modern technology and improvement in the marketing system. But it is widely believed that potato growers of former Rajshahi district do not get fair price due to the lack of adequate cold storage facilities, prevalence of superfluous chain of middlemen, inefficient transportation facilities, lack of proper market information and the urgent need for cash money by farmers immediately after harvest. Thus, there is a great need for improving the existing marketing system in order to sustain increased potato production and thereby to increase farm income.

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Materials for this paper have been derived from a Master's thesis submitted to the Dept. of Co-operation and Marketing by Sudhir Chandra Sarker in 1990.

The present study has been designed to examine the various features of potato marketing in Naogaon Kotwali Thana under Naogaon district with a view to analysing the marketing costs, margins, net share of farmers and the problems of potato marketing existing at farm level.

Following the introduction, Methodology section highlights the selection of study area, sampling procedure and data collection. Results and Discussion section provides an analysis of volume of potato production and sale, transportation and storage of potato, marketing cost of potato, price spreads and farmers' share in the study area. Some suggestions are made in the concluding section.

II. METHODOLOGY

Two potato growing unions namely - Fateyapur and Tilokpur under Sadar Upozila of Naogaon district were purposively selected for the study. In all six villages-three from Fatyapur Union and three from Tilokpur Union were purposively selected. From a list of potato growing farmers, 60 farm households taking 30 from each selected union and 10 from each selected village were selected following stratified random sampling technique considering small farm (upto 1 hectare), medium farm (1.01 - 2.00 hectare) and large farm (above 2 hectares). Sixty selected farms included 20 small farms, 20 medium farms and 20 large farms. Data were collected through administering a pre-tested interview schedule during the month of March, 1990. The data so collected were scrutinized, tabulated and analysed in accordance with the objectives of the study.

III. RESULTS AND DISCUSSION

Land under Potato Cultivation and Volume of Potato Production

The sample farmers of all sizes had a total land of 31.2 hectares under potato cultivation (Table 1). Table 1 reveals that total production of potatoes in all farms was 6354 quintal. The small farmers produced a total of 1080 quintal from 5 hectares of land, the medium farmers produced 1868 quintal potatoes from 9.2 hectares while the large farmers produced a total of 3406 quintal potatoes from 17.2 hectares of land. The average production of potatoes per farm varied from 54 quintal for small farms to 170 quintal for large farms which had the largest average farm area under potato cultivation. This implies that the average potato production is related positively with the size of farm under potato cultivation.

Volume, Place and Time of Sale of Potatoes

A total of 5456 quintal potatoes was sold by the sample farmers of the study area till the time of survey. The average per farm sale of potatoes was 90.9. The per farm sale was the highest (151.9 quintals) for large farms and the lowest for small farms (Table 2). Table 2 further reveals that the small and medium farms sold most of their produce (96% and 89% respectively) in the market whereas the large farms sold nearly half of their produce at the farmgate. This implies that the large farms preferred bulk selling at farmgate.

As a whole, 86% of the total potatoes were sold during harvest (January to April) and the rest was sold after harvest (May to December). Table 2 also reveals that the small farms sold the highest volume (90%) during harvest. This may be attributed to the dire need of cash of the small farms for meeting urgent family expenses. From the above finding, it may be concluded that the small farms unlike the large farms are less benefited from potato marketing because of lower production on the one hand and disposal of largest volume during harvest on the other.

Table 1. Land under Potato Cultivation and Volume of Potato Production.

Farm size	Land under potato cultivation		Volume of production	
	Total (ha)	Per farm (ha)	Total (quintal)	Per farm (quintal)
Small	5.0 (30)	0.25	1080	54
Medium	9.0 (37)	0.45	1868	93
Large	17.2 (33)	0.86	3406	170
All farms	31.2 (100)	0.52	6354	106

Note: Figures in parentheses indicate percentages of total cultivated land.

Marketing Cost of Potatoes by Farmers

The marketing cost of potatoes varied from Tk. 23.05 per quintal for small farms to Tk. 29.76 per quintal for large farms. Average marketing cost for all farms was Tk. 26.90 per quintal. Major elements of marketing cost of farmers in the study area were transportation (26.25%), storage (25.84) and wastage (23.23%). Transportation was the highest element of cost (37.53%) for small farms whereas, storage (35.15%) and wastage (27.72) were the largest elements of cost for large farms (Table 3).

Price Received by Farmers

On an average, the large farms followed by medium and small farms received the highest prices from market sale, amount being Tk. 638, Tk. 536 and Tk. 521 per quintal compared to farmgate prices of Tk. 402, Tk. 423 and Tk. 429 per quintal respectively. Table 4 reveals that the large farms received the lowest net price of Tk. 492 per quintal. This implies that the large farms sustained more losses (Tk. 207 per quintal) as against medium and small farms due to selling larger volumes at farmgate. The large farms were found to sell the highest volume (49%) as compared to small and medium farms because of their convenience and preference for bulk selling at the farmgate. Thus the study shows that for large farms, the loss due to sale at

farmgate outweighed the benefit of selling higher proportion in the off-season. The small farms on the other hand, were able to overcome such loss by selling higher proportion during harvest in the market place.

Table 2. Volume, place and Time of Sale of Potato.

Farm size	Volume of sale ¹		Place of sale		Time of sale	
	Total (quintal)	Per farm (quintal)	Farm gate %	market %	During harvest %	After harvest %
Small	835	41.7	4	96	90	10
Medium	1583	79.2	11	89	85	15
Large	3038	151.9	49	51	84	16
All farms	5456	90.9	21	79	86	14

Note: ¹ Sale till the time of survey.

Table 3. Marketing Cost of Potatoes

Cost item	Farm size			All farms (average)
	Small	Medium	Large	
Loading & unloading	0.39 (1.69)	0.47 (1.69)	0.40 (1.34)	0.42 (1.56)
Assorting/grading	0.50 (2.17)	0.48 (1.72)	0.45 (1.51)	0.48 (1.78)
Market tolls	1.89 (8.20)	1.54 (5.52)	1.13 (2.80)	1.52 (5.65)
Sweeper	0.74 (3.21)	0.71 (2.54)	0.80 (2.69)	0.75 (2.79)
Transportation	8.65 (37.53)	8.02 (28.75)	4.52 (15.19)	7.06 (26.25)
Storage	2.48 (10.76)	7.92 (28.39)	10.46 (35.15)	6.95 (25.84)
Wastage	4.35 (18.87)	6.15 (22.04)	8.25 (27.72)	6.25 (23.23)
Personal expenses	2.20 (9.55)	1.61 (5.77)	2.81 (9.44)	2.21 (8.22)
Others	1.85 (8.03)	1.00 (3.58)	0.94 (4.16)	1.26 (4.68)
Total	23.05 (100.00)	27.90 (100.00)	29.76 (100.00)	26.90 (100.00)

Note: Figures in parentheses indicate percentage.

Other costs include weighing charge, bagging/packaging cost and cost for gunny bags.

Table 4. Average price received by Farmers.

Farm size	Farm gate price	Market price	Price difference ^a	Loss due to farmgate ^b sale	Taka per quintal	
					Average price	Net price ^c
Small	428.64	520.87	92.2	71.71	517.16	496.64
Medium	423.28	536.04	112.76	84.86	523.93	496.03
Large	401.85	638.47	236.62	206.86	521.44	491.68
All farm average	404.51	574.73	170.22	142.86	521.51	494.15

Note : a/ Market price- Farm gate price
 b/ Price difference- Marketing cost
 c/ Average price- Marketing cost

Transportation of Potatoes by Farmers

Roads and communication system in the study area were not well developed. Most of the roads in the selected villages were kutcha which were at some places connected with puce roads. But most of the villages were not at all connected with any communication networks. The sample farms adopted more than one mode of transports to carry their potatoes to the markets (Table 5). From table 5 it is further observed that the small and the medium farms carried the highest volume of potatoes (55% and 45% respectively) by headload while the large farms carried the highest volume by cart (44%). Besides headload and cart, rickshaw was found to be an important mode of transport. The findings imply that economic status of farmers had no influence on using mode of transport for potato marketing as the nature of transport use by them was more or less the same. The study further reveals that trucks and trains were not used by any group of farmers because they sold comparatively small volume of potatoes at a time in the local markets.

Table 5. Transportation of potatoes by Farmers.

Farm size	% of potatoes transported by				Total
	Headload	Cart ¹	Rickshaw	Boat	
Small	55	27	10	8	100
Medium	45	34	15	6	100
Large	37	44	16	3	100
All farms	44	37	14	5	100

Note : 1/ Cart includes both bullock and push carts.

Storage of Potatoes by Farmers

Potato storage in Bangladesh is likely to have a great impact on regulating potato marketing specially glut during harvest and ensuring its steady supply at reasonable price to the consumers during lean period (Ahmed et al. 1981).

The seasonal character of potato arrivals coupled with nonavailability of storage facilities greatly influences the small farmers' failure to retain them for future use/sale which leads to post harvest market glut of potatoes and compels them to sell at lower price.

In terms of volume of potato stored it was observed that for all farms 56% of total potatoes were stored at home and the rest in cold storage (Table 6). Table 6 further reveals that volume stored at home had a negative relationship with farm size while the volume stored in cold storage was positively related with farm size which imply that small farms were quite unable to preserve more potatoes in cold storages due to their poverty.

Table 6 also shows that higher proportions of potatoes (36%) kept for table purpose were stored at home while higher volume of potatoes (33%) used for seed purpose were stored in cold storage for relatively long period usually for 7 months. Total storage loss due to rotting, sprouting and disease was much higher in case of home stored potatoes (7.44%) as compared to cold stored potatoes (2.47%) whereas, the storage cost was excessively higher for cold storage (TK. 167 per quintal) than for home storage (only Tk. 10 per quintal).

Price spreads and Farmers' share

Farm-retail price spread is the difference between retail price per unit and the farm value of the produce whereas, the farmers' share is the farm value expressed as a percentage of retail price. The farmers' share is widely regarded as a measure of fairness of the farm prices and the efficiency of the marketing system (kohls & Uhf 1980). price spread and farmers' share under four different potato marketing channels are shown in Table 7. Under channel I (largest channel), the price spread was Tk. 342.91 per quintal while farmers' net share was 52.40%. For channel II, price spread and farmers' net share were Tk. 295 per quintal and 58.61%. For channel IV (smallest channel), price spread was Tk. 107 per quintal and farmers' net share was 82.74%. The findings indicate an inverse relationship between price spread and farmers' net share and between farmers' net share and the length of the channel i.e. the longer the marketing channel, the lower was the farmers' net share.

A study conducted by Sabur (1990) in Dhaka City indicates that the farmers receive 36%, 48%, 40% 66% and 41% of consumers' Taka for egg plant, tomato, radish, polwal and pumpkin respectively. Another study by Akbar et al. (1988) shows that farmers received about 43% of consumers' taka from marketing banana in Narsinghdi area. A comparative analysis of these studies indicates that farmers of Naogaon district received relatively higher returns from marketing potato as compared to marketing of egg plant, tomato, radish, pumpkin and bananas in some other areas of Bangladesh. This further implies that potato marketing system is relatively efficient.

Table 6. Percentage of Potatoes Stored According to Types and Purpose of storage.

Farm size	Home storage			Cold storage			All source
	Table	seed	Total	Table	Seed	Total	
Small	39	21	60	4	36	40	100
Medium	33	22	55	11	34	45	100
Large	36	18	54	12	34	46	100
All farms	36	20	56	11	33	44	100

Table 7. Price Spreads and Farmers' Shares of Consumers' Taka under various Potato Marketing Channels.

Marketing channel	Retail price Tk./qnt.	Farmers' price Tk./qnt.	Farmers' net ^a price	Price spread Tk./qnt.	Farmers' share % of retail price	Farmers' net share % of retail price
I ^b	776.91	434.00	407.10	342.91	55.86	52.40
II ^c	776.91	482.22	455.32	294.69	62.07	58.61
III ^d	776.91	522.41	495.51	254.50	67.24	63.78
IV ^e	776.91	669.75	642.85	107.16	86.21	82.74

- Notes : a/ Net price = Farmer's price - Farmer's marketing cost
 Farmer's marketing cost: For the sake of convenience the average marketing cost for all farms (Tk. 26.90 per quintal) was considered in the computation of net price under four marketing channels. However, the authors feel that channel wise marketing cost could provide better estimate of farmer's net share.
- b/ Farmer- Bepari- Cold storage-Wholesaler-retailer-consumer
 c/ Farmer- Cold storage owner-Wholesaler-retailer-consumer
 d/ Farmer-Wholesaler-retailer-consumer
 e/ Farmer- retailer-consumer

IV. PROBLEMS AND SUGGESTIONS

The potato growers under study were found to face various marketing problems. Eighty two percent growers reported that due to lack of transportation facilities they could not take advantage of higher prices prevailing in urban markets. Ninety three percent of farmers stated that due to lack of adequate storage facilities they were compelled to sell potatoes immediately after harvest at low prices. Sixty five percent of them reported that financial inability and pressing need for cash also forced them to sell their surplus immediately after harvest at lower prices.

In order to improve the efficiency of the existing potato marketing system, the following measures are suggested:

- a) Transportation facilities should be improved to facilitate the marketing process. Priority should be given to the development of such roads which link villages to the main road and urban markets.
- b) Adequate cold storage facilities should be increased with lower preservation charge in the area.
- c) The net returns to the potato farmers could be increased further if they are able to sell potatoes directly to the retailers bypassing other intermediaries. For this, they can organize themselves into producers' Co-operative societies.

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