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     INTRODUCTION

     REVIEW OF LITERATURE

     NEED/IMPORTANCE OF THE STUDY

     STATEMENT OF THE PROBLEM

     OBJECTIVES

     HYPOTHESES

     RESEARCH METHODOLOGY

     RESULTS & DISCUSSION

     FINDINGS

     RECOMMENDATIONS/SUGGESTIONS

     CONCLUSIONS

     SCOPE FOR FURTHER RESEARCH

     ACKNOWLEDGMENTS

     REFERENCES

     APPENDIX/ANNEXURE

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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POTATO PRICING: A SOLEMN DILEMMA FACED BY THE FARMERS OF BANGLADESH

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ABSTRACT

Bangladesh is a densely populated country with over 150 million people. This large number of population needs a lot of food each year and undoubtedly its food security is largely depends on production of potato. Fortunately Bangladesh can grow enough to feed its population. Yet, unorganized distribution of potato and other staple food deprived a large proportion of people from getting right price. The economic disparity, poverty, lack of access to the information by the farmers and consumers, poor transportation system, absence of preservation facility are main causes. Together with inadequate credit facility and technological support have made the pricing of potato a solemn dilemma to the farmers and consumers of Bangladesh. Although measures has been taken to reduce such problem. But the solution is still in progress. We have tried to illustrate the actual scenario regarding potato pricing through this paper.

KEYWORDS
Bangladesh, Economic disparity, Preservation facility, Potato pricing, Transportation System.

1. INTRODUCTION
Bangladesh is an agro-based country. The economy of Bangladesh is predominantly based on agriculture. Agriculture contributes about 18.5 per cent to the Gross Domestic Product (GDP) in 2009-10. In Bangladesh potato occupied the first position among all the vegetables in respect of hectare, production and it contributed 64.69 percent to the total production of vegetables in Bangladesh in 2010 (BBS 2010). In Bangladesh the productions of potatoes as well as its many fold uses have increased over the last few years.

2. IMPORTANCE OF POTATOES IN AGRICULTURAL ECONOMY OF BANGLADESH
In Bangladesh, potato is used as food crop as well as vegetable by both the poor and rich people. Rice and wheat are main food crops in Bangladesh but their production is not sufficient to meet the increasing requirements for the growing population in the country. The country imports food grains each year at the cost of hard earned foreign currency ranging from 2.7 million to 0.85 million tones. In this regard, potato can play an important role as an alternative and a multipurpose food crop of Bangladesh. It is also an important cash crop for the farmers.

3. OBJECTIVES OF THE STUDY
1.   To estimate the seasonal price variation of potato
2.   To estimate the seasonal indices of potato prices in different districts and their behavior.
3.   To identify the problem of potato marketing and finally to make suggestions for improving pricing system of potato in Bangladesh.

4. LIMITATIONS OF THE STUDY
1.   The first problem was the limitation of time, due to shortage of time the study could not cover wide areas for collecting necessary information.
2.   The second problem was shortage of money that did not allow to take a large numbers of samples and to cover wide areas.
3.   This study based on secondary data. So all data is not available in different sources. So some data was missing.
4.   And all dates were not properly decorated. So it's taken a lot of time.

5. REVIEW OF LITERATURE
The purpose of this chapter is to review the previous project works that are related to the present analysis. The most relevant studies, which have been conducted in the recent past, are discussed below:
Sabur and Gangwar (1984) carried out a study on production and price structure of potato in Bangladesh and showed that the growth rate of potato in terms of production, area and productivity during the pre liberation period was by and large higher than that for the post liberation period.
Sabur (1986) conducted a study on marketed surplus of potatoes in two districts of Bangladesh and found that production and marketed surplus of potatoes moved in same direction and land under potatoes was the most important factor determining the marketed surplus. He showed that the average production cost per hectare was Tk.29637.57 which was the lowest for medium farmers and net return and benefit cost ratio were calculated at Tk.30947.82 per hectare and 1: 2.25 respectively which were the highest for medium farmers in both the areas
Sabur (1988) in his study analyzed that resource use and profitability of potato production at farmer's level in two upazilas namely, Tongibari in Munshigonj district and Bogra sadar respectively. He found that in case of potato cultivation, medium farmers emerged as the most efficient in the study areas
Islam et I (1991) conducted a study on farm level price behavior of different farm products. This paper illustrated monthly farm level price fluctuation patterns of different important farm products which are cereals, pluses, chilli, onion, mustard and potato at different locations in Bangladesh.
Sarker et. al, (1992) carried out a study analyzed the economics of marketing potatoes by farmers in some selected areas of sadar upazila of Naogaon district, Bangladesh. The study shows that average potato production is positively related to the size of farm under potato cultivation. The per farm sale was highest (152

quintals) for large farms and the sale was 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.

Nand, et al, (1994), conducted a study on the training needs of farm women involved in potato production, based on 41 farm families in Patna district, Bihar, India. Education and age did not show s significant relationship with the inclination for learning about new technologies, whereas area under potatoes and the desire to learn seemed to be related. They suggested that training programmers for women should primarily be focused on selection of seeds, insect and pest control, fertilizer application and seed treatment.

Aslam (1995) carried out a comparative economic study on winter crops in Gauripur upazila of Myrnensingh district. He studied the economic aspects of winter crops such as potato, mustard, brinjal, bottlegourd, beans, cucumber, sweet potato and groundnut. He estimated per hectare gross expenses and gross return of HYV potato obtained second highest, in case of net returns HYV potato obtained the highest position among the selected winter vegetables.

Saha (1996) in this study An Economic Analysis of Potato Production in Some Areas of Bangladesh observed that gross expenses for producing per hectare of Diamant variety of potato under improved management was Tk. 62288.54 of which cash and non-cash expenses occupied about 68 and 32 per cent, respectively while farmers gross return was Tk. 61719.44, net return was 73% of gross expenses and net return 27% of cash expenses in per hectare of production of Diamont veriety of potato under farmer's management.

Ahmed (2001) conducted a study during the period of January to February 2000 on a comparative Economic Study of Potato and Cauliflower production in a selected area of Comilla district. The study was undertaken to analyze the comparative profitability of potato and cauliflower production. Sixty households were selected to which 30 were potato and 30 were cauliflower farmers. It was estimated that per hectare costs of production of potato were (Tk 71860.23 and Tk 59054.31 on full costs and cash costs basis respectively) higher than cauliflower (Tk 48642.44 and Tk 31708.69 on full costs and cash costs basis respectively).

Brouya (2001) conducted a study entitled Area, Yield and Production Growth of Potato in Bangladesh: A Quantitative Estimating. The study estimated quantitative of potato in Bangladesh by utilizing the time series data from 1981-82 to 1997-98. It carried out a disaggregated analysis to compute the status of the parameters according to high concentration region (HCR), medium concentration region (MCR) and low concentration region (LCR). The findings showed that area, yield and production indices of local potato decreased in HCR, LCR and aggregate (Bangladesh as a whole) category while it was almost stagnant in MCR category. Area, yield and production indices of Indian variety potato increased in all the categories except MCR; however, those of modern potato showed the increasing trend.

Saiyem (2007) investigated that the potato marketing in selected areas of Rangpur district. This study was mainly based on data of sumples, which were randomly selected 1mm the study area, Rangpur district. The samples included 30 farmers and 30 market intermediaries of Rangpur sadar upazila and Taragong upazila. He found that the marketing cost per quintal potato incurred Tk 43.46 and Tk 44.36 for farmers of Rangpur sadar upazila and Taragong upazila respectively. The marketing cost per quintal potato incurred Tk 60.95, Tk 56.87, Tk 133.60 and Tk 37.81 Beparis, Paikers for cold storage owners and retailer of Rangpur bazar respectively. The marketing cost per quintal incurred Tk 45.42, Tk 61.21, Tk 134.64 and Tk 37.32 for Beparis, Paiker, cold storage owners and retailers of Taragong bazar respectively. The net margin of per quintal potato of Beparis, Paikers, the cold storage owners and retailers of Rangpur baar were calculated at Tk 21.73, Tk 21.50, Tk 19.57 and Tk 23.28 relatively. The net margin of per quintal potato of Beparis, Paikers, the cold storage owners and retailers of Taragong bazar were calculated at Tk 30.02, Tk 26.91, Tk 25.62 and Tk 21.94 respectively.

The above review of literature clearly indicates that a few studies have been conducted on pricing behavior and marketing of potato. However, no detailed study was done on pricing system and price behavior of potatoes in the selected areas of Bangladesh, where large number of potato farmers were located. Therefore, this study is expected to provide new and additional information to help the farmers, intermediaries and further research.

6. METHODOLOGY

In order to make an assessment of the pricing behavior system of potato, this project was conducted in some selected districts of Dhaka, Chittagong, Narayangonj, Rajshahi and Rangpur. On the basis of these districts were selected for the present study. Because these districts are mostly allocated their land in potato production was higher than other districts.

In the present study, data were collected mainly from secondary sources. The researcher several visits were needed to collect necessary data from different sources. Data were collected in local units.

The secondary sources of data were gathered from various books, journals and publication of Bangladesh Bureau of Statistics (BBS). These intermediaries were included in the sample to assess the level of pricing margin of different intermediaries. Farm-gate prices were collected from the Beparis and consumer prices were collected from the retailers. Secondary data was collected during the months of May, 2011. The secondary data was accumulated from different records of BBS, DAM, DOF, etc. In the present study, data were collected on daily. On the basis of Weekly and monthly.

7. ANALYSIS AND FINDINGS

TABLE 1: SEASONAL PRICE INDICES OF POTATO IN DIFFERENT DISTRICTS (Indices)

Month	Dhaka	Chittagong	Narayangonj	Rajshahi	Rangpur	Average
January	98.05	104.7	97.72	99.52	93.50	98.90
February	79.50	97.70	67.60	91.46	71.10	81.47
March	64.90	67.03	69.23	72.04	76.10	69.69
April	76.80	71.16	85.96	79.91	82.10	79.15
May	93.08	87.90	99.49	89.86	94.10	92.86
June	100.49	97.70	97.43	101.85	105.05	100.46
July	109.50	108.50	110.52	106.57	110.80	109.12
August	108.70	110.12	111.25	108.83	121.10	111.70
September	116.18	117.41	111.76	104.71	114.30	114.01
October	117.50	111.18	113.57	113.05	118.50	114.30
November	122.01	110.60	116.70	117.62	105.30	114.90
December	113.30	116.00	118.80	114.58	107.20	113.90
Range	79.27	101.30	89.62	102.2	90.20	92.52
C.V.	17.57	15.97	16.49	13.53	15.74	15.24

[C.V. = (Standard deviation / Mean) $\times$ 100]
[Range= Highest value – Lowest value]

FIGURE 1: SEASONAL PRICE VARIATION IN DHAKA

FIGURE 2: SEASONAL PRICE VARIATION OF POTATO IN CHITTAGONG

FIGURE 3: SEASONAL PRICE VARIATION OF POTATO IN NARAYANGONJ

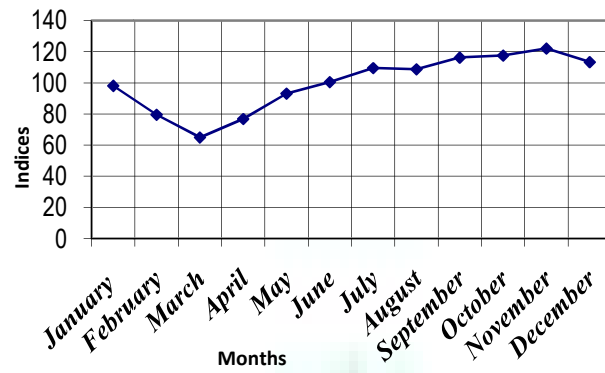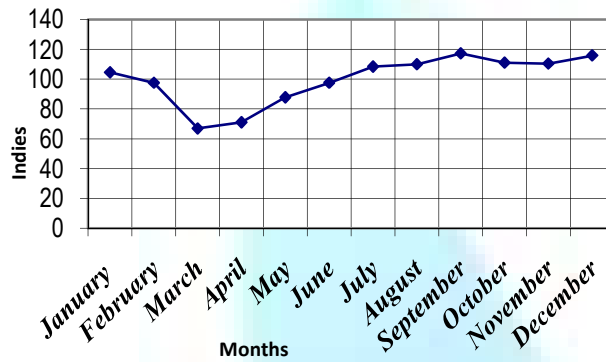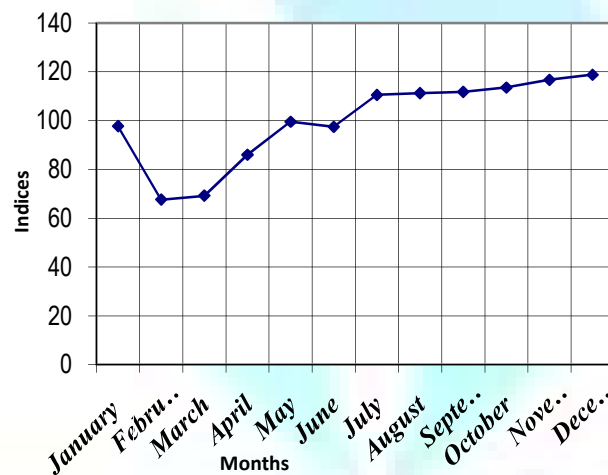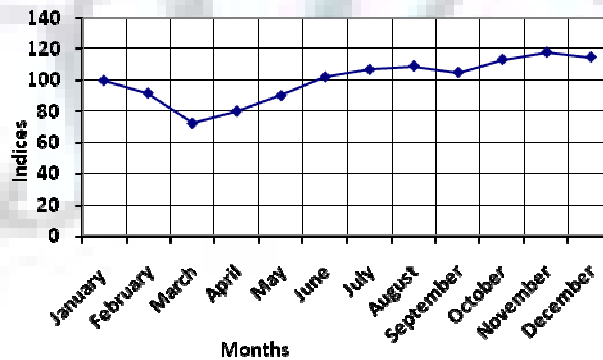FIGURE 4 SEASONAL PRICE VARIATION OF POTATO IN RAJSHAHI
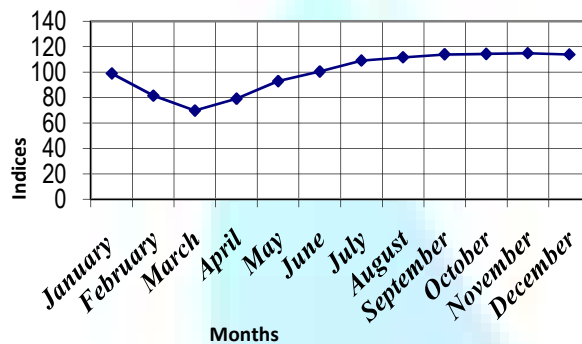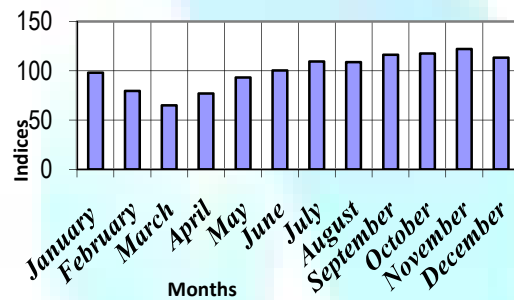
FIGURE 5: SEASONAL PRICE VARIATION OF POTATO IN RANGPUR

FIGURE 6: AVERAGE SEASONAL PRICE VARIATION IN ALL DISTRICTS
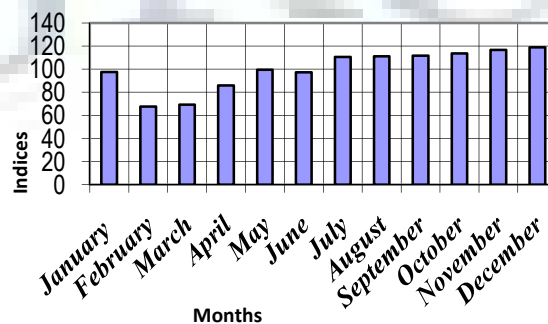

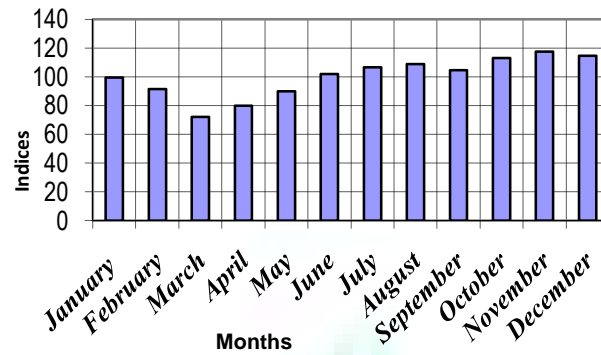BAR-DIAGRAM 1: SEASONAL PRICE VARIATION OF POTATO IN DHAKA DISTRICT

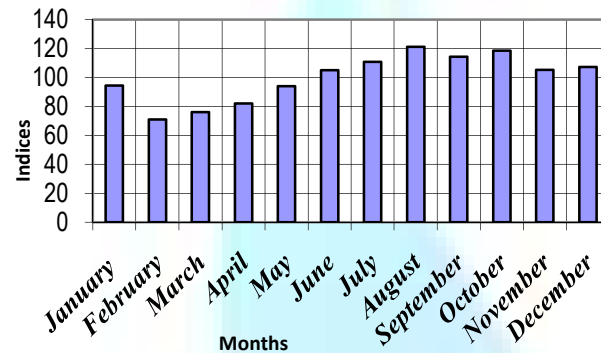BAR-DIAGRAM 2: SEASONAL PRICE VARIATION OF POTATO IN CHITTAGONG DISTRICT

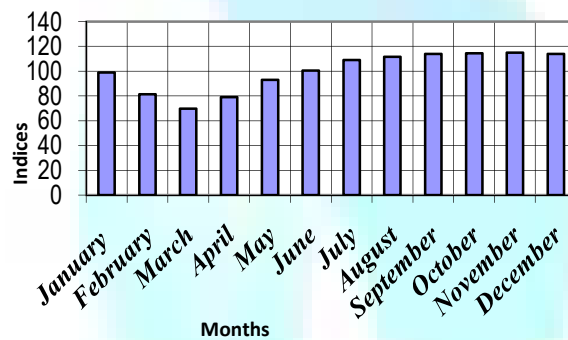BAR-DIAGRAM 3: SEASONAL PRICE VARIATION OF POTATO IN NARAYANGONJ DISTRICT

BAR-DIAGRAM 4.4: SEASONAL PRICE VARIATION OF POTATO IN RAJSHAHI DISTRICT

BAR-DIAGRAM 5: SEASONAL PRICE VARIATION OF POTATO IN RANGPUR DISTRICT

BAR-DIAGRAM 6: AVERAGE SEASONAL PRICE VARIATION IN ALL DISTRICT.

7.1 COMPARISON AMONG ALL DISTRICT PRICE BEHAVIOR

From the table 1 and figure 6, during 2005 to 2010, average seasonal price indices of potato of Dhaka, Chittagong, Narayangonj, Rangpur and Rajshahi districts were the highest in the month of November and the lowest in the month of March. After initial peak in January, February the price began to fall and it fell to reach the lowest level in March. After March, the price began to rise and reached the highest level in November with a small decrease in December Table 4.1 also shows that the range was 92.52. The co-efficient of variation of monthly price index of potato was 15.24 percent. In all the districts potato price indices reveal seasonal variation on account of variation in supply in the market.

In general it was found that the prices of potato fluctuated in different months within a year. The causes of this fluctuation might be:

1.   Supply of potato came to an end in November-December especially November but the demand remained unchanged and so the price rises.
2.   The cause for falling prices of potato in March is that the supply of potato was greater than its demand which resulted in lower price of potato in March. At this time other winter vegetables also became easily available and the price of potato began to fall gradually.

7.2 SPATIAL PRICE INTREGATION

A pricing system is spatially integrated when prices in each individual market respond not only to their supply and demand, but also to the supply and demand of the set of all markets. Spatial integration fulfills a very important social function. In short, a local scarcity in an integrated system is less prejudicial to local consumers because it induces the arrival of products from other location. It increases supply and decreases the price. Consequently, local price in an integrated system would be more stable than there in a non-integrated system. Spatial arbitrage generates these results. Therefore, market integration signifies the extent to which price movements in one market are related to those in other market.

CORRELATION CO-EFFICIENT METHOD

In this study simple correlation co-efficient as a measure of market integration is used even though this method has been criticized by many authors (Blyn, 1973, Harriss, 1979, Landahl and Petersson, 1982). Price series correlations are convenient measure of market integration since the only required data are prices and these are more readily available than cost data

relevant to evaluating inter market price differentials. In an integrated market, prices of the homogenous commodity at different specially separated locations should tend to move together. This implies that price movement in one location should be highly correlated with price movement in other locations. It is argued that, in an efficient integrated market the correlation co-efficient will be positive and close to unity.

Table 2 showed the correlation matrix of monthly wholesale price of potato in the selected during Potato markets of Dhaka-Narayangonj, Dhaka-Chittagong, Dhaka-Rangpur, Dhaka-Rajshahi markets appear to be highly integrated or linked because the correlation co-efficient between the markets are very high (more than 0.8) and significant. Good communication among the traders and easy transportation facilities has made the markets more competitive.

TABLE 2: CORRELATION CO-EFFICIENT MATRIX (MONTHLY DATA) OF POTATO IN SELECTED DISTRICTS

Market	Narayangonj	Dhaka	Chittagong	Rangpur	Rajshahi
Narayangonj	1.00	0.995**	0.916**	0.916**	0.969**
Dhaka	0.995**	1.00	0.932**	0.970**	0.974**
Chittagong	0.916**	0.932**	1.00	0.958**	0.959**
Rangpur	0.954**	0.970**	0.958**	1.00	0.969**
Rajshahi	0.969**	0.974**	0.959**	0.969**	1.00

**Correlation is significant at the 0.01 level (2-tailed).

Source: Computed from the data on prices collected from Monthly Statistical Bulletin of Bangladesh and Department of Agricultural Marketing.

Table 3 showed the correlation matrix of average annual wholesale price of potato in the selected markets during 2005 to 2010. Here potato markets of Dhaka-Chittagong, Dhaka-Rangpur, Dhaka-Rajshahi, Chittagong-Rangpur, Chittagong-Rajshahi, Rangpur-Rajshahi, markets appeared to be highly integrated or linked. As the correlation co-efficient values are close to unity (more than 0.8). This indicates that markets are significantly correlated in respect of their price changes and markets are integrated in the long run.

TABLE 3: CORRELATION CO-EFFICIENT MATRIX (ANNUAL DATA) OF POTATO IN SELECTED DISTRICTS

Market	Narayangonj	Dhaka	Chittagong	Rangpur	Rajshahi
Narayangonj	1.00	0.093	0.631	0.200	0.579
Dhaka	0.093	1.00	0.828**	0.986**	0.865**
Chittagong	0.631	0.828**	1.00	0.886**	0.994**
Rangpur	0.200	0.986**	0.886**	1.00	0.906**
Rajshahi	0.579	0.865**	0.994**	0.906**	1.00

** (correlation is significant at the 0.01 Level (2-tailed).

7.3 FINDINGS

The paper reveal that the seasonal indices is highest in November is 122.2 and lowest in March 64.90 in Dhaka districts. In the Chittagong district, the highest seasonal indices is 117.41 in September & lowest seasonal indices is 67.03 during March month. In Narayongang district the highest seasonal indices is 118.8 during December, lowest is 67.6 during February month. In Rajshahi district, the seasonal indices highest during November 117.62 & lowest are 72.04 during March month. And lastly in Rangpur districts the highest seasonal indices is 121.1 during august & lowest is 71.1 during February month.

In order to make an assessment of the pricing behaviour system of potato, this project was conducted in some selected districts of Dhaka, Chittagong, Narayangonj, Rajshahi and Rangpur. On the basis of these districts were selected for the present study. Because these districts are mostly allocated their land in potato production was higher than other districts. And the study districts have some homogenous characteristics like topography, Soil & climate condition for producing potato and it we select these 5- districts (Dhaka, Chittagong, Narayangong, Rajshahi and Rangpur.) Then we can see the whole pricing behaviour of Bangladesh. As a result data can be founded accumulate from the BBS. In the present study, data were collected mainly from secondary sources. The researcher Several visits were needed to collect necessary data from different sources. Data were collected in local units. The secondary sources of data were gathered from various books, journals and publication of Bangladesh Bureau of Statistics (BBS). These intermediaries were included in the sample to assess the level of pricing margin of different intermediaries. Farm-gate prices were collected from the Beparis and consumer prices were collected from the retailers. The study will be based on secondary data. Secondary data was collected during the months of May, 2011. The secondary data was accumulated from different records of BBS, DAM, DOF, etc. In the present study, data were collected on daily. Weekly and monthly basis. After data collection the data were edited and coded. Then all the collected data were scrutinized carefully and recorded in master sheets. Finally, a few relevant tables were prepared according to necessity of analysis in order to meet the objectives of the study.

Lastly from the table 4.1 and figure 4.6 that during 2005 to 2010. Average seasonal price indices of potato of Dhaka, Chittagong, Narayangonj, Rangpur and Rajshahi districts were the highest in the month of November and the lowest in the month of March. After initial peak in January, February the price began to fall and it reached the lowest level in March. After March, the price began to rise and reached the highest level in November with a small decrease in December Table 4.1 also shows that the range was 92.52. The co-efficient of variation of monthly price index of potato was 15.24 percent. In all the districts potato price indices reveal seasonal variation on account of variation in supply in the market.

8. LIMITATION AND SOLUTIONS

LIMITATIONS

1 Scarcity of capital
2 Lack of quality seeds and over price
3 Pest and diseases problem
4 Inadequate pricing of potato
5 Transportation problems
6 Inadequate pricing facilities
7 Over charges for cold storage
8 Dominance of intermediaries
9 Inadequate storage facilities

SUGGESTIONS FOR THE PRODUCERS:

1 Supply of credit on easy terms
2 Supply of inputs
3 Improvement of transportation facilities
4 Arrangement of storage facilities
5 Formation of farmers' organization
6 Improvement of market facilities
7 Increased cold storage facility

PROBLEM FACED BY THE INTERMEDIARIES

1 Inadequate transportation facilities
2 Lack of capital
3 Inadequate storage facilities
4 Inadequate pricing facilities
5 Lack of adequate price information
6 High cold storage charges

SUGGESTION FOR THE INTERMEDIARIES

1. Institutional credit should be made available for all types of businessman in the study areas against their product.
2. Physical facilities like construction of godown (Store House), building tinshed and pacca floor in the market places would facilitate the marketing operation.

3. They furthermore suggested that market information and weather forecasts should be made at right time. Government should ensure a stable price to stop market price fluctuation.

They also suggested that modern storage facility should be developed by establishing more cold storage by the Government at market place.

9. RECOMMENDATIONS

On the basis of findings of the study the following recommendations are made for the improvement of existing production and pricing system of potato.

1. Institutional credit should be made available to the potato producers and intermediaries to meet their production and pricing requirements.

2. Government should ensure timely supply of fertilizer and pesticides to the farmers at subsidized price.

3. The input prices should be fixed at certain reasonable level and their supply should be ensured by the Government.

4. Irregular pricing practices should be checked and better marketing facilities ought to be provided in order to improve the marketing efficiency of potato. This will require supportive intervention of the government. Provisions of loans may be made through the nationalized banks for expansion of potato production and pricing activities to the producers and traders.

5. Poor communication and transportation system is possibly the principal problem of potato marketing. Therefore, development of communication and transportation system is essential for improving the pricing efficiency.

6. Storage facilities should be improved at primary and secondary markets by establishing public as well as private cold storage plants at different points of potato pricing zone.

7. Physical facilities of the markets should he developed by the local authority.

8. Provision should be made by the Government to disseminate improved technology relating to production and pricing of potato to the farmers. And

9. Necessary steps should be taken against illegal subscription collection by hooligans.

10. CONCLUSION

The finding of project paper reveals that the production of potato is profitable. The profit of farmer was lower than others intermediaries. As a result farmers have to face pricing problem. From project paper study seasonal price of potato is higher in ending month of the year for it's off season. And at the starting point of the year shows lower price for its harvesting period. And other time show average price behavior. Lastly Potatoes are not only the source of nutrients but also source of cash income for farmers. Moreover, a large number people involved in the production and marketing of potato. So the farmer's and intermediaries could certainly be benefited financially if production and pricing system of potato are well developed.

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