

Comparative Profitability of Winter Vegetables In A Selected Area of Dhaka District

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Abstract

The present study was designed to assess the comparative profitability of four winter vegetables namely cauliflower, cabbage, tomato and brinjal in five villages under Keranigonj Thana of Dhaka district. Four dominant winter vegetables in the study were considered. A simple purposive sampling technique was applied. Five villages were purposively selected for the collection of data. In all, 120 respondents (30 for each vegetable) were investigated by interview method during the period of November 2008 to March 2009. Per acre gross margin and net return of brinjal were the highest and the corresponding figures were TK 130051.5 and TK 125226 respectively. The lowest gross margin and net return were found in the case of cabbage and these were TK 45185.5 and TK 37407 respectively. The highest share of total cost of each vegetable goes to labor. In case of brinjal, Benefit Cost Ratio (BCR) (3.2) was higher than BCR of cabbage (1.8), tomato (1.7) and cauliflower growers (1.6). BCR indicates that vegetable growing is a profitable farm activity in a short duration of time. So it is evident from the results that vegetable production is a profitable business.

Key words: BCR, Production, Profitability, Winter Vegetables.

Introduction

Vegetable growing is an important farming activity from the point of view of economic returns. The International Food Policy Research Institute (IFPRI-1998) conducted an economic evaluation of the USAID-sponsored Asian Vegetable Research and Development Center (AVRDC), International Center for Living Aquatic Resources and International Center for Living Aquatic Resources Management (ICLARM) projects in Bangladesh during 1996-97. The study found 350% higher monthly net return from vegetables than from rice (Hassan *et al*, 2005). The demand for food in Bangladesh and around the world is changing rapidly, because of economic growth, rising incomes and urbanization. Demand is changing away from traditional commodities toward high-value food commodities like fruits, vegetables, spices, fish etc.

We know Bangladesh is an overpopulated country. So food shortages and malnutrition have become general problems in our country. Rice, the staple food, contributes more than 80 percent of our daily food intake. Although vegetables are considered as an indispensable part of our daily diet, yet it contributes a very little portion of our total food intake because of short supply and

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health unawareness. The problem of existing acute malnutrition and food shortages might be overcome by producing more vegetables to a significant extent which will ultimately lead to build a healthy nation.

An important way of helping growers to survive in the era of open market economy is to reduce their production cost, so that the prices of locally produced vegetables become more competitive and profitable.

Objectives

The aim of the study is to analyze the present condition of vegetable production, especially of winter vegetables in Bangladesh. Although a lot of information are available from past studies on comparative profitability of winter vegetables, yet the present study is undertaken to add more information about cost of production and return on winter vegetables. The results of the study may be helpful in making right decision for the growers, which will help them ultimately to allocate their resources more efficiently.

The specific objectives of the study are:

- i. To analyze the current status of winter vegetables in terms of area, yield, production and net returns.
- ii. To determine the economic aspects of vegetable production at grower's level.
- iii. To determine the cost of production, relative share of various inputs in total cost.
- iv. To assess the benefit cost ratio of different winter vegetables to analyze the financial efficiency of the farms.

Methodology

This study is based on field level primary data collected from selected growers through farm survey method. The locations for the present study were selected purposively in Keranigonj Thana under Dhaka district. For this study, five villages namely Mithapur, Aksail, Nazirpur, Ghatarchar, and Oashpur where multiple vegetables are grown, were selected. The vegetables covered were cauliflower, tomato, cabbage and brinjal. Five villages were purposively selected for the collection of data. In all, 120 respondents (30 for each vegetable) were selected. Data collected from the respondents and the Department of Agricultural Extension (Ministry of Agriculture) were used to estimate the cost of production and gross income and other various analyses. The selected growers were interviewed about comparative profitability of winter vegetables using a questionnaire to collect primary data of costs and returns of each vegetable. For this study, the year 2008-2009 was considered. Data were collected through several field visits during the period from November 2008 to March 2009.

The following formula was used to calculate the different parameters and the cost of production of selected vegetables:

i. **Net Return** = $GR - GC$

Where, Gross Return (GR) = $P \times Q$

Q = Yield per acre (kg)

P = Sale price of the product ($Tk.$)

GC = Gross Cost

= $TFC + TVC$

Where, TFC = Total fixed cost per acre ($Tk.$)

TVC = Total variable cost per acre ($Tk.$)

GM = $GR - TVC$

Where, GM = Gross Margin

ii. **Benefit Cost Ratio (BCR)** =
$$\frac{\text{Gross Return (GR)}}{\text{Gross cost (GC)}}$$

It is calculated that level of farm profit per hectore during an accounting period is an absolute measure of profitability (Dillion and Hardaker, 1980). Gross Return per acre represented the average price of the main product and its by- products. Gross Margin (GM) analysis has been estimated as the difference between gross return (GR) and Variable Cost (VC). That is $GM = GR - VC$ (Yang, 1965). Farmers generally want to maximize return over variable cost of production. The argument for using the gross margin analysis is that the growers are interested to get returns over variable costs.

The Net Return (NR) analysis considered fixed cost which includes costs for land use, interest on capital, etc. So net return per acre was calculated by deducting all costs (variable costs and fixed costs) from total (i.e. $NR = GR - GC$). Thus, per acre GM and NR of the relevant vegetables were estimated and comparisons were made among the alternative vegetables to identify the most profitable vegetable from the viewpoint of individual growers. Benefit Cost Ratio (BCR) is a relative measure which is used to compare benefits per unit of costs. It helps to analyze the financial efficiency of the farms.

Results and Discussion

The result presented in table I shows that the cost of producing tomato was the highest and that of cabbage the lowest. This was due to the fact that the tomato growers farmers used more fertilizer and pesticides than the cabbage growers. Again from the table we can say that, the most important cost component of the selected vegetables was the labor used for different farming activities. The input-output analysis suggests that the grower farmers can increase total income by reducing the use of labor.

The result estimated by field survey (Nov 2008-Mar 2009) shows that 39.2% of the total cost was devoted to labor, 30.3% to fertilizer, 3.4% to seed, 4.8% to pesticide, 7.9% to land rent, 6.3% to land preparation, 4.2% to irrigation and 3.6% to interest on capital, whereas the result estimated by AVRDC (2001) shows that 48.4% of the total cost was devoted to labor, 24.2% to fertilizer, 6.1% to irrigation and pesticide and 3.7% to seed.

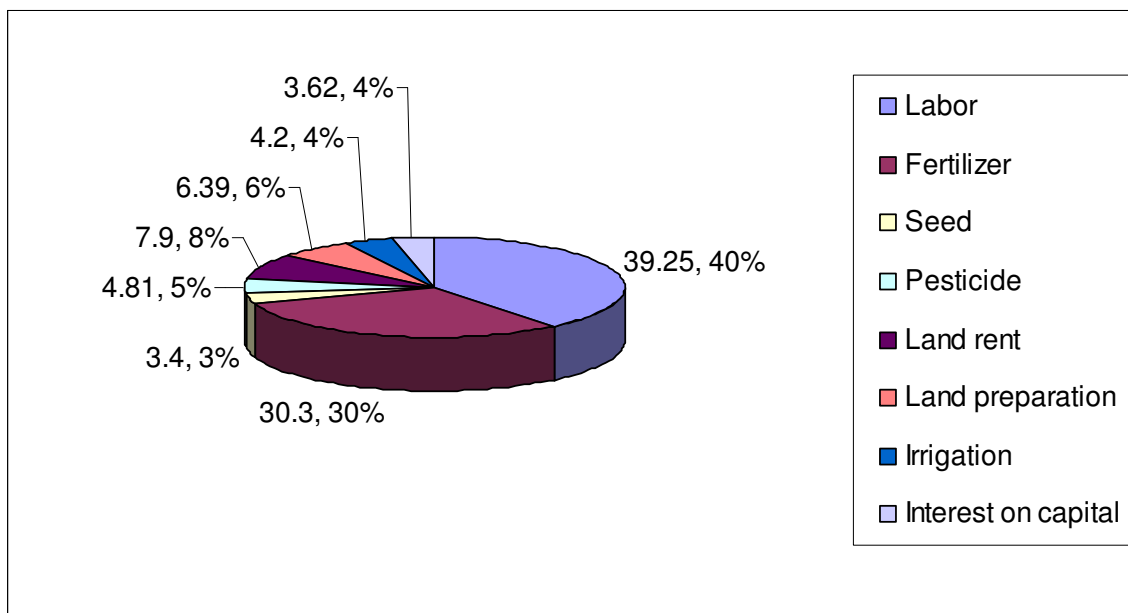


Figure 1: Share of total cost under different vegetables.

Facts in table II give an insight into the profitability of the selected vegetables. Keeping in view this information, it was found that the brinjal growers obtained higher returns (indicated in table II- profitability of vegetables) than cabbage, tomato and cauliflower growers. Cost per kg and per 40 kg was found approximately the highest for tomato and the lowest for cabbage, but the highest profits were estimated for brinjal (12.5Tk. per kg); for tomato growers (5.3tk/per kg); for cauliflower growers (3.2tk /per kg) and cabbage growers (2.4tk/per kg).

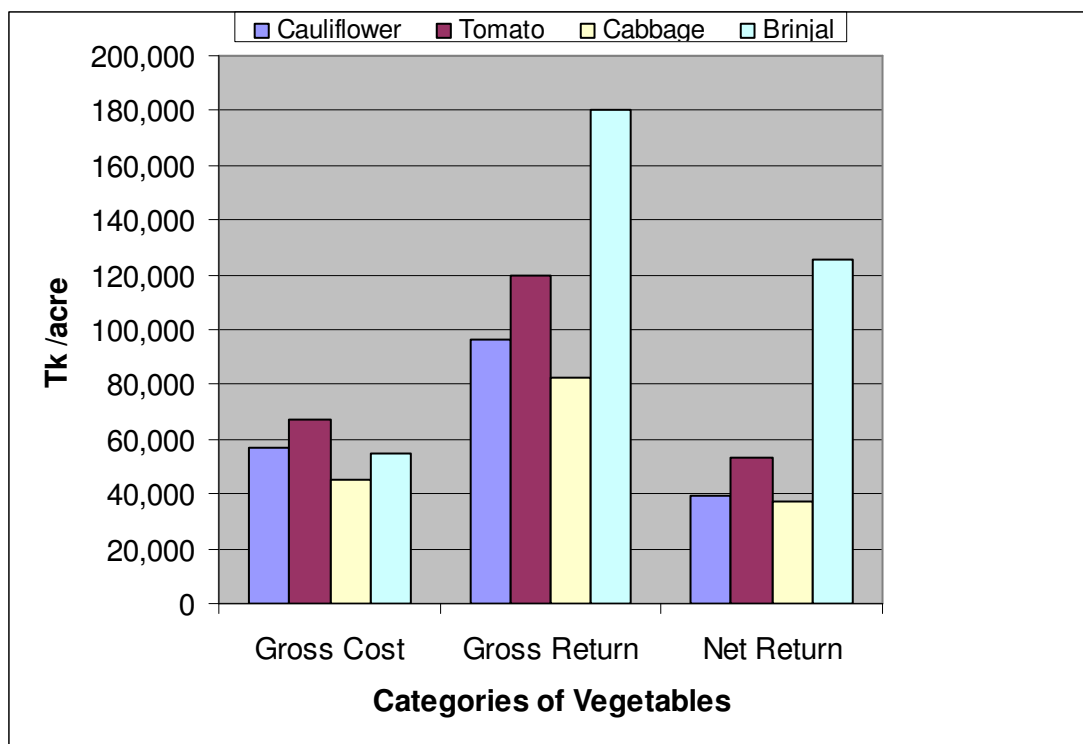


Figure 2: Gross Cost, Gross Return and Net Return for different vegetables.

At last it can be said that brinjal production is the most profitable one. Table III also shows that, benefit cost ratio is the highest for brinjal i.e. 3.2 (obtained by dividing Gross return by Gross cost of Brinjal) and the lowest for cauliflower i.e. 1.6 (obtained by dividing Gross return by Gross cost of Cauliflower).

Conclusion

The analysis of the study comes up with some important conclusions. Labor is the most important component of total cost of all the selected vegetables. Cost per kg for tomato was 6.6 Tk. for brinjal 5.4 Tk. for cauliflower 4.7 Tk. and for cabbage 3.0 Tk.; but the brinjal growing farmers obtained higher income than the other growers.

In case of brinjal the BCR (3.2) was higher than BCR (1.6) of the cauliflower growers. Although the area under vegetable cultivation in Bangladesh is small, the importance of vegetables cannot be overstated. It is important to develop business based on growing vegetables to encourage the growers. Promoting vegetable cultivation can be an important instrument to increase the income of small farmers and to generate additional jobs.

Table I. Cost of Production and Factor Share in Total Cost:

Item	Gross cost per acre (Tk.)	Land Preparation	Seed	Fertilizer	Irrigation	Pesticide	Labor	Land rent	Interest on Capital	Total factor Share %
Cauliflower	56,673	7.06	10.59	29.16	3.53	3.53	35.29	7.06	3.78	100
Tomato	66,900	5.98	0.45	48.27	2.99	2.99	29.90	5.98	3.44	100
Cabbage	45,093	8.87	1.86	22.90	3.00	1.77	44.35	13.31	3.94	100
Brinjal	54,774	3.65	0.73	21	7.39	10.95	47.47	5.48	3.33	100

Source: Estimation based on primary data.

Table II. Profitability of vegetables

Item	Gross Return per acre (Tk.)	Production (Kg.)	Price per Kg. (Tk.)	Cost per Kg.	Cost 40 Kg.	Gross margin per acre (Tk.)	Net Return per acre (Tk.)	Net Return per Kg. (Tk.)
Cauliflower	96,000	12,000	8	4.72	188.80	45,470.35	39,327	3.2
Tomato	120,000	10,000	12	6.69	267.60	59,401.99	53,100	5.3
Cabbage	82,500	15,000	5.50	3.01	120.40	45,185.54	37,407	2.4
Brinjal	18,000	10,000	18	5.47	219.09	13,005.15	125,226	12.5

Source: Estimation based on primary data.

Table III. Benefit-Cost Analysis of some winter vegetables for the Farmers

Item	Gross Return per acre (Tk.)	Gross cost per acre (Tk.)	Benefit cost ratio
Cauliflower	96,000	56,673	1.6
Tomato	120,000	66,900	1.7
Cabbage	82,500	45,093	1.8
Brinjal	18,000	54,774	3.2

Source: Estimation based on primary data.

Vegetable production constraints

To identify the constraints on the expansion of vegetable production in Bangladesh is important, since the supply of vegetables is quite irregular in most Asian countries, including Bangladesh (Ali, 2000:4). Only a small proportion of total cropped areas of Bangladesh is under vegetables production. Most of the agricultural production in Bangladesh is concentrated on rice, occupying about 75 percent of the total cropped areas (Government of Bangladesh, 1996:6), whereas according to the Hortex Foundation estimation (2005), the area under vegetable cultivation accounts for only 1.8 percent of the total cropped areas. The general yield level of vegetables in Bangladesh is very poor because of lack of good seed, good varieties, inability of the growers to use chemicals and lack of incentives due to improper marketing facilities. Cultivation of vegetables is more expensive than the cost of producing field crops, in terms of labor and inputs. Due to the socioeconomic conditions of Bangladesh, vegetables are marketed mainly in the towns

and cities. Since the transportation system in the rural areas is poor, marketing of perishable vegetables from the rural areas to urban areas is expensive. As a result, the growers are compelled to sell their produce to the middlemen at a very low price. Moreover, during the peak harvest season a market glut causes the poor growers to sell their produce at a throw-away price. Successful cultivation of most vegetables requires more care than the cultivation of field crops. But our vegetable growers are not aware of modern cultural practices. By following traditional methods of cultivation, they obtain low crop yields.

Recommendations

To increase vegetable production, a number of production constraints must be alleviated to achieve this level of production. These are as follows:

- i. To extent the area under vegetable production
- ii. To ensure a supply of quality seeds to the growers at the right time
- iii. To grow a commercial vegetable industry
- iv. Ensuring agricultural subsidy to reduce production cost
- v. The role of channel of distribution should be smooth
- vi. The interference of faria, arotder and dalal should be demolished
- vii. To improve the modern cultural practices of vegetable production.

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