

## Export potential of cutflower in Bangladesh

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**Abstract:** The present study is an attempt to examine the export potential of some selected flowers such as tuberose, rose, gladiolus and marigold of Bangladesh based on primary and secondary data. Bangladesh has been exporting selected cutflowers and other floricultural products to some of the middle-eastern and european countries. For describing the growth pattern of cutflower export and making forecast with minimum forecasting error the exponential model is appeared and reported. It was observed that if the present growth rate continues the cutflowers export from Bangladesh would be Tk. 1163012 thousand in the March, 2008 based on exponential growth model. It is noted that the short term forecast is better as the error of forecast increases with the increase of the period of forecast. Bangladesh has a scope for expanding floriculture export as it enjoys comparative advantages in terms of favorable climatic conditions to meet seasonal market opportunities in the overseas market. Trader indicated that there were some problems which created hindrances in the export of cutflower from Bangladesh. On the basis of the findings some recommendations were made.

**Key words:** Export potential, Cutflowers, Bangladesh

### Introduction

Commercial floriculture is a recent development in Bangladesh, although flower gardening as a hobby is an age-old practice in this country. This is nothing peculiar in Bangladesh. The situation, more or less, was the same throughout the whole region of the South Asian countries; the difference is only of degree and not of kind. Flowers were traditionally produced and used within the country everywhere in the world. It is only with the advancement in scientific post harvest management and improvement in transportation and communication facilities, over the last two decades or so, the movement of floriculture products across the borders started and export trade of flowers developed; the global turnover of which presently stands at about US\$ 10 billion (Hortex, 2006).

In Bangladesh, the pioneering effort in this field was taken by Export Promotion Bureau (EPB) during the mid 90's. They conducted two export feasibility studies and organized one market intelligence mission to get acquainted with the marketing norms and practices of cutflowers. This resulted in first ever commercial export of about 1 MT of tuberose to the mainstream marketing hub in the Netherlands in 1999-2000. Subsequently, a trial shipment of 1000 ornamental plants and sample shipment of orchid cutflowers also took place to the European destinations. All the products were well accepted in the target market places and follow-up orders also started coming. But sudden disruption in the direct flight connections, particularly between Dhaka and Amsterdam, caused serious deadlock and export to international markets could not be sustained (Hortex, 2006). The global floriculture industry, with an investment of about US \$ 40 billion, is growing at an annual rate of 10 to 15 percent (Thakur, et.al, 2004).

To get over this situation and exploit potential of floriculture products through regional collaboration, Hortex has taken up a new effort to undertake a new project on Floriculture Export Development with Common Fund for Commodities (CFC) based in the Netherlands. The donor has already agreed to finance a Techno-economic Feasibility Study of Cutflower Production and Export from Bangladesh, Nepal and

Bhutan, to start with and assured to consider a national project subsequently, if found justified.

This development is expected to create a real impact on the export development of cutflowers and other floriculture products, like foliage, orchids, ornamental plants, etc., as floricultural exports, now a days, are also to face stringent market access/entry regulations and environmental requirements and unless a full-fledged project is devoted to the export development of this sub-sector, the ultimate objective may not be achieved (Hortex, 2006). Thus the study was designed to examine the export potential of cutflowers in terms of future export from Bangladesh.

### Methodology

The present study is based on secondary data. Secondary data were also collected from various books, journals, newspaper, document of BBS, website searching, Export Promotion Bureau (EPB) and Department of Agricultural Marketing (DAM), etc. Moreover to know the consequences of flower export from Bangladesh it was a bare necessity to select a zone, which would provide maximum information regarding flower export from Bangladesh. Dhaka city is the center, which provides maximum information as regards flower export from Bangladesh. So, for having maximum potential in flower export, Dhaka city was selected as the study area for collecting information on the exporting information from Bangladesh. For collecting supplementary data the researcher personally visited the flower concentrated area, Jhikargacha Upazila in Jessore district.

For forecasting purpose two types of time series models are widely used. The first type is known as deterministic models and the second type is known as stochastic models. The stochastic time series models, ARIMA, are very popular and can make forecast with minimum forecast error. The stochastic time series models are very difficult to identify and estimate. Deterministic models, often called growth models, such as linear, exponential are very quick to estimate, inexpensive and very easy to understand. These models are widely used to estimate the growth rate of time series.

**Model Used in this Study:** The present study makes use of secondary time series data of cut-flower exports from Bangladesh for the period July 2004 to March 2007. The data were collected from EPB on monthly basis. This is the only government level institute responsible for collecting and storing necessary data required for future export planning. In this study two growth models are used for forecasting purpose. Their functional forms and formulas for calculating growth rates are given in Table 1.

**Table 1. The mathematical forms of the models used for forecasting purpose**

Name of models	Mathematical form	Meaning of variables
Linear	$Y=a+bt+e$	Y is the value of export t is the time period
Exponential	$Y= a e^{bt}$	

One can easily see by looking into the above table that the natures of the different growth for two models are different. The growth rates for the linear and exponential are both independent of time. In the linear model growth rate is constant in its absolute values throughout the time interval. For exponential model, the growth rate is constant in percentage term.

**Results and Discussion**

The cut-flower export from Bangladesh had a short term upward trend during the period July 2004 to March 2007 (Table 2). The series grew more rapidly from June 2005 to the end of the time period after a sharp fall in September 2006. In July 2004 cut-flower export from Bangladesh was about Tk. 10102 thousand after 30 months in December, 2006 it was about Tk.399653 thousand. This is more than 39 times. The value of export in Fig.1 reveals that there were at least three export jumps in the series. The first was in March 2005, in which export was increased by Tk 47333 thousand compared to February 2005. The second jump was in December 2005 in which the increase was Tk 39296 thousand compared to November 2005. The last jump was seen in December 2006 in which the production was increased by Tk 236151 thousand compared to November 2006.

**Selecting the Best Model:** The models considered for forecasting value of cut-flower exported from Bangladesh shown in Table 3 and Figure 2 shows exponential model based on Export trend of cut flower from Bangladesh.

The analysis shows that all the coefficients of the models are highly significant (at 1 percent level). In this model the linear part i.e. the coefficient b is significant, which indicates that change value of cut-flower exported from Bangladesh during the period was not constant in absolute term.

**Table 3. Parameter estimates of the models of cutflower export from Bangladesh**

Model	Parameter estimates		R <sup>2</sup>
	a	b	
Linear	8236.420 (15263.43)	6933.82** (783.34)	0.71
Exponential	13713.72** (2669.39)	0.09867**t (0.0099)	0.76

Figures in the parentheses are standard errors; \*\* Significant at 1% level

**Table 2. Value of cutflower exported from Bangladesh**

Months & Year	Export Value ('000' Taka)
July, 2004	10102
August,2004	9977
September 2004	14004
October,2004	6824
November, 2004	13854
December, 2004	10488
January, 2005	15984
February,2005	21194
March, 2005	68533
April, 2005	91438
May,2005	71193
June, 2005	117803
July, 2005	126270
August, 2005	95973
September,2005	90752
October, 2005	114588
November, 2005	79248
December, 2005	118544
January, 2006	123908
February, 2006	117469
March,2006	126485
April, 2006	140086
May, 2006	128907
June, 2006	154129
July, 2006	169720
August, 2006	174888
September, 2006	132888
October, 2006	136586
November, 2006	163502
December, 2006	399653
January, 2007	204750
February, 2007	190072
March, 2007	178263

Source: (EPB, 2004.2005.2006, 2007 and BBS, 2004, 2005)

In interpreting the criteria we consider that the more the value of R<sup>2</sup>, the better in the fitness of the model. It is obvious that a better model of export value indicates smaller forecasting error. So for describing the growth pattern of cutflower export and making forecast with minimum forecasting error the exponential model is appeared and reported.

**Forecasting:** Linear and exponential models are used to make forecast with 95 percent confidence interval for cutflower exported from Bangladesh and are given in Table.4 and 5.

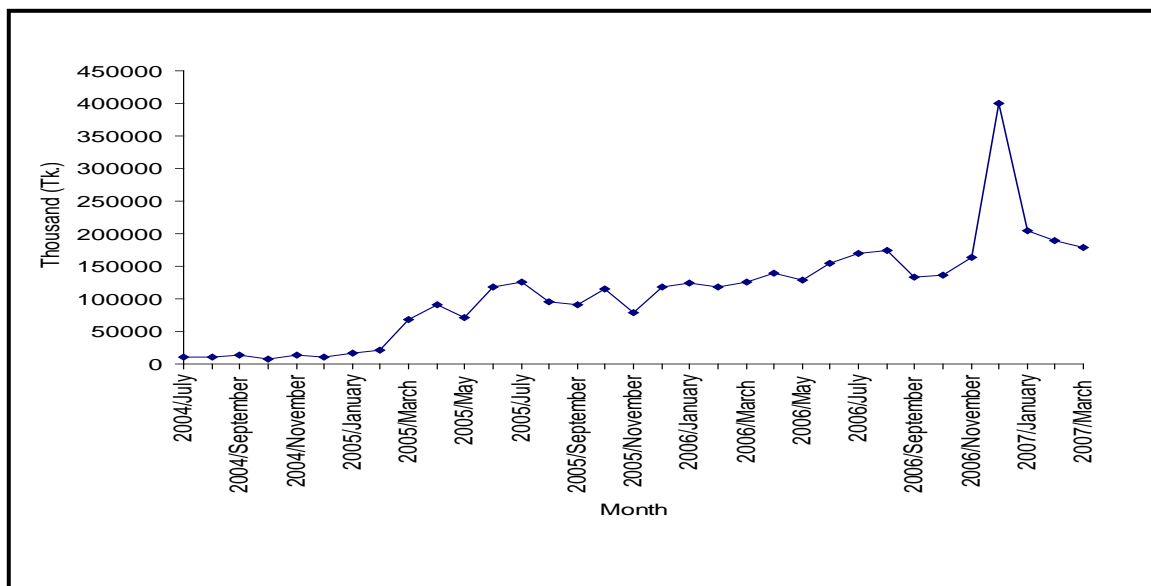


Figure 1. Value of exported cutflower from Bangladesh over the period from July, 2004 to March, 2007.

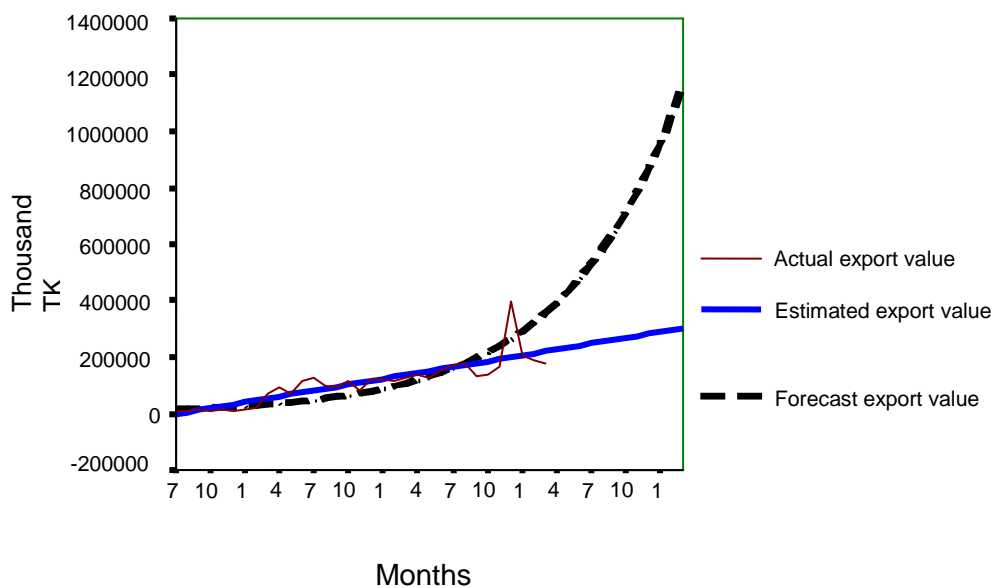


Figure 2. Exponential model based on Export trend of cut flower from Bangladesh

Table 4. Twelve months forecasts of value of cutflower exported based on linear model

Months	Forecast Value	Lower Limit (95% confidence)	Upper Limit (95% confidence)
April/2007	227513.6932	134745.3016	320282.0848
May/2007	234447.5201	141198.8747	327696.1654
June/2007	241381.3469	147627.6797	335135.0141
July/2007	248315.1738	154032.1146	342598.233
August/2007	255249.0007	160412.5875	350085.4138
September/2007	262182.8275	166769.5153	357596.1398
October/2007	269116.6544	173103.3224	365129.9864
November/2007	276050.4813	179414.4395	372686.523
December/2007	282984.3082	185703.3024	380265.3139
January/2008	289918.135	191970.3505	387865.9195
February/2008	296851.9619	198216.0264	395487.8974
March/2008	303785.7888	204440.7741	403130.8034

**Table 5. Twelve months forecasts of value of cut flower exported based on exponential model**

Month	Forecast Value	Lower Limit (95% confidence)	Upper Limit (95% confidence)
April/2007	392817.1	120341.4	1282229
May/2007	433555.2	132010.7	1423900
June/2007	478518.1	144765.9	1581723
July/2007	528143.9	158704.2	1757585
August/2007	582916.4	173931.3	1953596
September/2007	643369.1	190562.2	2172120
October/2007	710091.3	208721.7	2415799
November/2007	783733.1	228545.6	2687593
December/2007	865012	250181.3	2990815
January/2008	954720.2	273789	3329172
February/2008	1053732	299542.7	3706819
March/2008	1163012	327631.5	4128406

The prediction period extends from April 2007 to March 2008. An important limitation of making forecasts is that the forecasting errors increase as the period of forecast increases. For this reason, short term forecast is more reliable compared to long term forecast. Close examination of the forecast values and confidence intervals given in Table 4 and 5 would reveal that forecasting errors are sufficiently small and consequently the intervals are not too large. We can use this figure for the verification of the prediction performance of our estimated model for cutflower export from Bangladesh. In table 5 we see that our forecast cutflower export from Bangladesh for the April 2007 was Tk. 392817.1 thousand with a 95 percent confidence interval (120341.4 and 1282229). The estimated flower export of EPB is close to our forecast value and it also lies within the confidence interval.

The prediction performance of the model can be considered as reasonable. The analysis found that if the present growth rate continues the value of cutflower exported from Bangladesh would lie between Tk. 204440.77 thousand and Tk. 403130.80 thousand based on linear model or would lie between Tk. 327631.5 thousand and Tk. 4128406 thousand based on exponential model (Table 4 and 5).

#### **Constraints of Export of Floriculture**

Constraints identified in flower export were-Substandard quality of planting material, insufficient incentives and support from the government, poor marketing systems, non-availability of standardized packing and post-harvest technology, lack of scientific information and extension services, lack of infrastructure facilities for scientific handling, transportation and marketing, lack of sufficient direct air transportation (Bangladesh Airlines) to key European market destinations and comparatively high air freight rates, discontinuous supply of products, poor quality of product due to absence of modern technologies, absence of cooling facilities in the airport

cargo complex and feasibility study of export market has not yet been done properly.

#### **Future Potentials**

- The area under flower cultivation and ornamental plants has an increasing trend meaning its future potentiality for covering more areas.
- The number of flower growers and nurserymen are increasing with the increase of area under floriculture.
- The traders have positive perception towards floriculture business.
- Possibility of export of flowers from Bangladesh is high but needs maintenance of quality of international standard.
- The net return from flowers and ornamental plants compare to other field crops is high.
- Floriculture industry could contribute towards alleviation of poverty.
- Flowers and ornamental plants have both medicinal and industrial values.

#### **Conclusion and Recommendations**

As a young nation, Bangladesh is striving hard for the future and the government policy is one of inducement and facilitation for promotion investment and export. In response to this policy, entrepreneurs have already started investing in commercial farming of flowers and exporters are getting increasingly involved in changing the produce to all potential market destinations. As a result, Bangladesh lanced cutflower export activity since one decade ago. Farmers produce flower for international market with aims at bringing about socio-economics improvement in rural Bangladesh and earn foreign currency for the country. From the study it is clear that there is a lot of opportunity to increase export of cutflower from Bangladesh.

A few recommendations are put forward for consideration by the concerned persons.

- i. For storage of export consignments at international airports, walk-in type cold storage should be set up.
- ii. Subsidy on air-freight should be provided for the cut flowers and pot plants.
- iii. Market surveys should be done for the guidance of the growers and exporters and flowers must be grown and packed according to the international standards.
- iv. Concerned manpower should be trained up in respective fields (production, processing, packaging, handling and post harvest technologies).
- v. Export processing zones especially for floricultural products with all the essential facilities should be established.
- vi. Government policy regarding export and import should be simplified, so that green house materials, pesticides, liquid fertilizer, post harvest handling equipment can be imported without taxes. The government and other concerned agencies should arrange regular 'Export Fair' to attract buyers.
- vii. Effective cool chain system should be developed.
- viii. An arrangement should be made to ensure cargo capacity for flower transportation.
- ix. Coordination among the growers, exporters and EPB should be strengthened.
- x. Government assistance should be rendered in R and D and export market development.

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