# International Competitiveness and Market Access of Indian Floriculture products: an Extension perspective

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**Abstract**

*This article attempts to elucidate the contemporary changes in the floriculture sector in the last two decades, especially, after the liberalisation, globalization and implementation of trade reforms which has brought structural changes in the floriculture sector. Most of the floriculture products are produced for export. The first aim of the article is to estimate the effects of the trade reform measures in terms of trade elasticity of regulations and competitiveness of Indian floriculture exports. In spite of the generalized acknowledgement of the growing liberalisation of trade between countries, there are still numerous obstacles to trade, more of the nontariff type. It also aims to contribute to the literature on quantifying the economic impact of Indian trade reforms related to the floriculture industry. The constant market share (CMS) model has been used to obtain insight into the overall dynamics of the export markets, trade flows and competitiveness of Indian floriculture exports. Based on the results, a suitable international market oriented extension approach can be suggested for the floriculture sector.*

## Introduction

India implemented economic reforms since 1991 and made drastic changes in the trade policy to reorient itself to integrate with the global economy. Reviewing the Indian trade policy measure, it has a different scale, phase and level of implementation in each sector in the Indian context. The impact of reforms also varies with respect to different sectors and sub sectors as India has a complex system of governance and approach towards the implementation of reforms. The floriculture industry, which is one of the major sub sectors in India, has shown considerable growth after the Indian trade reforms (Subash2010).

Commercial floriculture industry began in the late 1800's in England. Now it has spread to other countries on the globe. The floral industry today has grown to larger proportions and offers a wide scope for growth and profits (Santosh 2011). India is one of the active countries in the international floriculture trade in the last three decades, especially after the Indian trade reform measures since1991.

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The trade policy measures for floriculture trade are unique in India. These measures have brought significant changes in the Indian floriculture industry and the international trade of floriculture products. Though there was a growth in area, production, export volume and value, it has not met the desired targets of the policy makers as well as the stake holders of the industry.

**Definition of Floriculture Industry**

The floriculture industry involves the cultivation and distribution of bulbs, cut flowers, foliage and plants to both local and international markets. According to the Harmonized Code System, floricultural products are classified under code 06 (live trees and other plants). In this context, it appropriate to understand the international and national scenario of the floriculture industry.

**Current status of Indian Floriculture Industry**

According to United Nations Comtrade database (2011), the total world imports of floricultural products were US$ 8.376 billion in the year 2000 and had risen to US$ 17.518 billion in the year, 2010. This indicates that the value of global trade of floriculture products doubled in a span of ten years. However, the share of India in the world trade of floriculture products increased marginally from 0.40 per cent in 2000 to 0.50 per cent in 2010. However, the global market share of Netherlands was 65 %. Columbia, Italy, Israel and Kenya had a global market share of 12%, 6%, 4% and 1% respectively in the year, 2010. In other words, in spite of the increase in world trade of floriculture, India's exports accounted for just 0.5 per cent of the global trade of flowers compared to other flower exporting countries (Negi 2000).

Considering the immense export potential and growth opportunities for floricultural products in the international market, the Government of India has started offering many special initiatives and policy measures to enhance the institutional infrastructure for growers and facilitate exporters to export floriculture products on a large scale (Parliamentary Standing Committee 2005).

In the 8$^{th}$ Five year plan, the Central Government has allotted a sum of ₹17 Crores for the establishment of 11 model floricultural centres. These Model Floricultural Centres (MFCS) in the public sector have been opened in the states of Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal, Andra Pradesh and Himachal Pradesh. In the 9$^{th}$ five year plan also, it was proposed to set up another 5 MFCS in addition to strengthening the existing ones with an outlay of 40 crores under the centrally sponsored scheme for promotion of commercial floriculture. However, many of these are not operational till now (GOI 1996).

According to the statistics of the National Horticulture Board (2011), the total area under floriculture in the year, 2010, was 1, 90,896 hectares in India. It was twice the area under flower cultivation in the year, 2000. In fact, the area under floriculture production in India is relatively high compared to the major floriculture exporting countries. However, the area under protected cultivation is low in India. For example, the proportion of protected area to total area of floriculture cultivation is 99 per cent in Colombia, 70 per cent in Netherlands and 57.51 per cent in Italy. In India, it is only 0.56 per cent. In other words, the vast potential in the country does not seem to have been fully tapped till now.

**India's Exports of Agricultural and Floriculture Products vs. National Exports in values**

Table 1 gives India's Exports of Agricultural and Floriculture Products vs. National Exports in values (Rs. Crore). Subsequently the graphs no. 1 and 2 give the agriculture and floriculture export values trend. The values of table 1 clearly indicate that neither the agriculture nor the floriculture exports are growing at the phase of India's total export growth.

The value of Indian floriculture exports in the local currency and its percentage share in the total Indian agriculture exports in value terms indicates that the value of Indian floriculture exports increased from INR.127.43 crore in 2001-02 to INR. 368.81 crore in 2008-09 , that is, there was a threefold increase in export earnings. Even, in the year 2006-07, the export value was at its peak. There was a fivefold increase in export value in 2006-07 as compared to that in 2001-02. The percentage share of Indian floriculture exports to total Indian agriculture exports also gradually increased from 2001 to 2007 and started declining from 2007 onwards.

In fact, after the year 2006-07, the percentage share of floriculture as well as agriculture export value is declining sharply. This indicates that these sectors have to be studied in detail in order to re-instate the growth of the sector. The export revenue of floriculture and agriculture may be low when comparing to the total earnings. However, these sectors are the livelihood for most of the Indians.

**Growth Drivers of Floriculture Sector**

Growing demand and a much higher return per unit of land than any other agricultural activity has prodded farmers to take this sector. The growing demand for this product has also increased on account of rapid urbanization, increase in individual purchasing power among middle-income groups, increase in the number of IT Units, Hotels, Tourists, Temples, increase in GDP, per capita incomes, change in life-styles and social values of the people, greater awareness among the people to improve the deteriorating environment and economic up-liftment of the people.

**Table 1. India's Exports of Agricultural and Floriculture Products vs. National Exports in values** ( Rs. Crore)

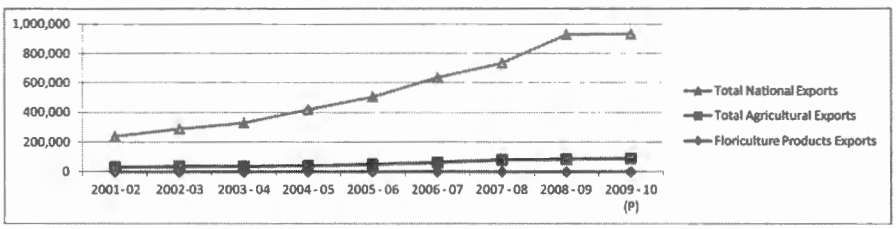
| Commodity | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
|---|---|---|---|---|---|
| Floriculture Products Exports | 127.43 | 180.77 | 250.47 | 222.92 | 301.45 |
| Total Agricultural Exports | 29728.61 | 34653.94 | 37266.52 | 41602.65 | 49216.96 |
| Total National Exports | 209017.97 | 255137.28 | 293366.75 | 375339.53 | 456417.86 |
| % Share of Agricultural Exports in National Exports | 14.22 | 13.58 | 12.70 | 11.08 | 10.78 |
| % Share of Floriculture Exports in Agricultural Exports | 0.43 | 0.52 | 0.67 | 0.54 | 0.61 |
| % Share of Floriculture Exports in National Exports | 0.06 | 0.07 | 0.09 | 0.06 | 0.07 |

| Commodity | 2006 - 07 | 2007 - 08 | 2008 - 09 | 2009 -10(P) |
|---|---|---|---|---|
| Floriculture Products Exports | 652.70 | 340.30 | 368.81 | 293.98 |
| Total Agricultural Exports | 62411.42 | 79039.72 | 85951.67 | 89522.59 |
| Total National Exports | 571779.28 | 655863.52 | 840755.06 | 845125.2 |
| % Share of Agricultural Exports in National Exports | 10.92 | 12.05 | 10.22 | 10.59 |
| % Share of Floriculture Exports in Agricultural Exports | 1.05 | 0.43 | 0.43 | 0.33 |
| % Share of Floriculture Exports in National Exports | 0.11 | 0.05 | 0.04 | 0.03 |

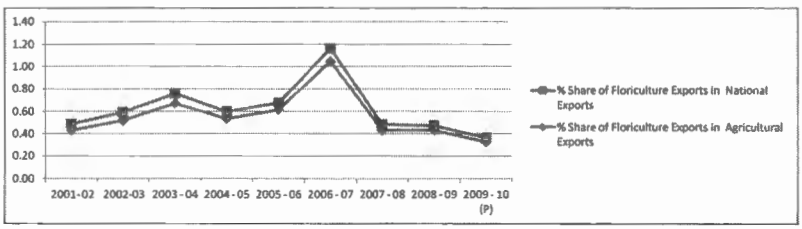
P-Provisional

**Source :-** Director General of Commercial Intelligence & Statistics, Ministry of Commerce, Kolkata.

**Graph 1. India's Exports of Agricultural and Floriculture Products and Total National Exports in values**




**Graph 2. India's % Share of Exports of Agricultural and Floriculture Products in National Exports in values**



## Scope of the article

This article attempts to elucidate the contemporary changes in the floriculture sector in the last two decades, especially, after liberalisation, globalization and implementation of trade reforms which has brought structural changes in the floriculture sector. Most of the floriculture products are produced for export purposes. The first aim of the article is to estimate the effects of the trade reform measures in terms of trade elasticity of regulations and competitiveness of Indian floriculture exports. In spite of the generalized acknowledgement of the growing liberalisation of trade between countries, there are still numerous obstacles to trade, more of the non tariff type. This article aims to contribute to the literature on quantifying the economic impact of Indian trade reforms related to the floriculture industry. The constant market share (CMS) model has been used to obtain insight into the overall dynamics of the export markets, trade flows and competitiveness of Indian floriculture exports. Based on the results, a suitable international market oriented extension approach can be suggested for the floriculture sector.

## Objectives of the study

- To measure the overall export performance of the Indian floriculture industry with major importing countries
- To assess the effect of competitiveness and market access on Indian floriculture exports in major importing countries.
- To offer market oriented extension strategies for the floriculture sector

Data on international trade are sourced from the commodity trade data base (COMTRADE) of the United Nations Statistics Division. The data are for the period 1991 to 2009 (10 years). As CMS analysis covers a long period, especially, base and current years, the composition of the countries varies. The selection of the countries in the analysis is also based on the value of the trade (with regard to relevant years in the analysis) with India. The commodities covered are the floriculture products under the HS Code 06.

## Export Performance of Floriculture Products

Table 2, Graphs 3 and 4 reveal India's total export value of floriculture products from 1991 to 2009. India has performed reasonably well in the export of floriculture products since 1990 as compared to the pre trade reform period. There was a steady growth in floriculture exports from India till 2007. Subsequently, it

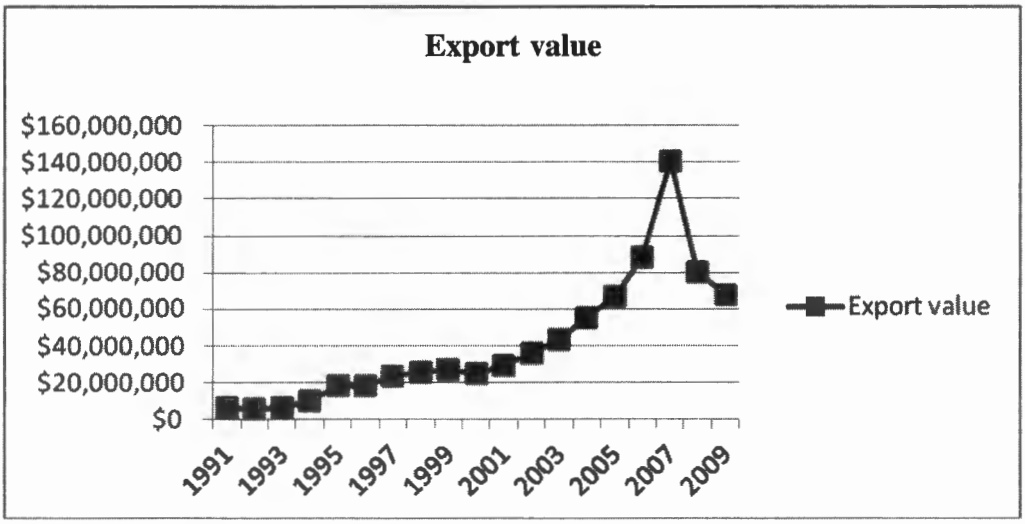
dropped by 44 percent in value terms. After the sub prime crisis in the year 2008, the Indian floriculture trade had witnessed a negative growth. The year to year growth rate of floriculture was also highly instable and fluctuating in the last two decades. This necessitates analyzing India's export performance of floriculture products and understanding the key factor for the growth in floriculture exports. In turn, that key factor has to be strengthened by way of extension services for the floriculture sector. For identifying the key factor, Constant Market Share analysis is used.

**Table 2. India's Total Export Value of Floriculture Products and Growth Rate**

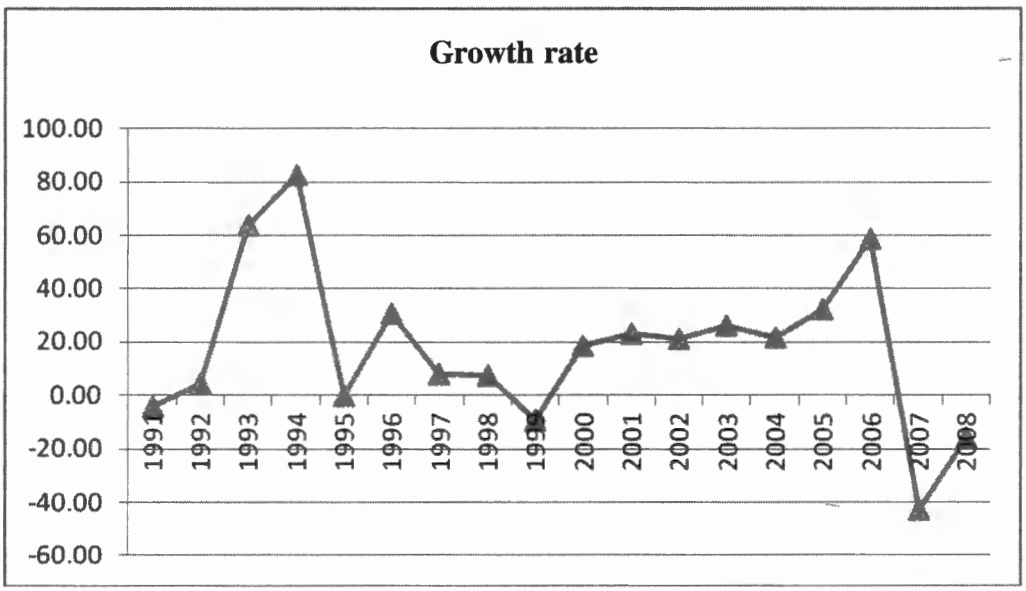
| Year | Export value | Growth rate |
|---|---|---|
| 1991 | $6,015,835 | -4.41 |
| 1992 | $5,750,565 | 4.43 |
| 1993 | $6,005,058 | 63.55 |
| 1994 | $9,821,221 | 82.51 |
| 1995 | $17,925,076 | -0.37 |
| 1996 | $17,858,024 | 30.74 |
| 1997 | $23,347,270 | 7.84 |
| 1998 | $25,177,584 | 7.64 |
| 1999 | $27,100,184 | -9.35 |
| 2000 | $24,565,092 | 18.74 |
| 2001 | $29,168,567 | 23.14 |
| 2002 | $35,916,977 | 21.16 |
| 2003 | $43,518,422 | 26.00 |
| 2004 | $54,832,086 | 21.89 |
| 2005 | $66,835,990 | 32.52 |
| 2006 | $88,568,581 | 58.68 |
| 2007 | $140,538,674 | -42.87 |
| 2008 | $80,295,815 | -15.80 |
| 2009 | $67,611,725 | na |

**Source: UN Comtrade statistics (Annual)**

**Graph 3 India's Total Export Value of Floriculture Products**




**Graph 4 India's Export Growth Rate of Floriculture Products**




## CMS Model specification

The following analysis throws light on India's export performance in the major floriculture importing countries, Netherlands, USA, France, Germany and Japan. The method of CMS analysis, modified for a single commodity case, is an ideal complement to the gravity analysis. It should be emphasized that the CMS analysis is merely a measurement technique for decomposing the growth of the

variable and should not be viewed as a behavioral relationship. This model decomposes the source of export performance and distinguishes between changes in market penetration (market share) and changes in the size of these markets (market size). $(x^1-x^0)$ in the equation refers to the growth in exports i ( individual destination countries), which is decomposed into three components of export performance on the right hand side of the equation. The method is applied to individual markets, so that the country composition effect term is dropped, producing the following decomposition of export growth:

$$x^1-x^0= S^0(X^1-X^0) +"_i (S_i^0-S^0)*X_i^1+(X^1-"^iS_i^0X_i^1)$$

Where,

x = value of India's exports of floriculture to major export markets.

S = India's market share of the total export of floriculture to major export markets

Si = India's market share of total exports of floriculture to member countries i in major export markets

X = total exports of floriculture to major export markets

Xi = value of total exports to the member countries i in major export markets; the subscripts 0 and 1 refer to the base period and current period respectively.

Size of the market effect refers to the change in the quantity of total exports to i over the period, $(X^1-X^0)$. If this increases/ declines, then even with a constant market share ( $S^0$ ), exports will increase / decline by $S^0 (X^1-X^0)$. The size of market effect results from a shift in the demand in major export markets. Market composition effect refers to the changes in the export shares in individual member countries i compared to its overall share in the group, in the base period $(S_i^0-S^0)$. Competitiveness effect, measures the difference between actual exports in the subsequent period, $x^1$ and the level of exports that would have occurred had the same base period market share in each country $(X^1-"^iS_i^0X_i^1)$ been maintained. It indicates the extent to which a country is able to gain international market share in spite of adverse world demand movements. It is often interpreted as an indication of the dynamic ability of a country to respond to the changing environment and adapt its supply situation accordingly. Thus, it decomposes the export growth into the size of the market and market composition effects, thereby isolating competitiveness effect $(X^1-"^iS_i^0X_i^1)$ which is a residual term in the equation.

The underlying assumption of the CMS approach is that base period export shares are maintained in other market periods. The three structural components of the market share are calculated under this assumption. The total growth effect

($X^1$-$X^0$) is equal to what the country's growth in export would have been, if it had just maintained its share of total world exports. The market composition effect accounts for any additional growth (positive or negative) which takes place because the focus country's exports have grown in pace with the total growth in exports of the commodity to the importing region as a whole. These three effects all hypothesize constant export shares. The residual effect ($X^1$-"$^iS_i^0X_i^1$), which proves the identity, accounts for all the growth, from changes in export share.

**Result and Interpretation**

The constant market share analysis is performed for the exports (value in USD) of floriculture products to the major twenty export markets in the world for the period 1991-2009. The analysis covered the whole period as annual arithmetic averages for the three consecutive years. For example, 1991-2009, implies that it has covered the period 1991, 1992 and 1993 for the base period and 2007, 2008 and 2009, for the current period. The results are summarized in table 3.

**Table 3. Constant Market Share Analysis of Indian Floriculture Export from 1991 to 2009 (in percentages)**

| COUNTRY | Market Effects | Market Composition Effect | Competitive Effect |
|---|---|---|---|
| ALL 20 | 8 | 12 | 80 |
| USA | 15 | 0 | 85 |
| Netherlands | 21 | 0 | 79 |
| Germany | 3 | 0 | 97 |
| United Kingdom | 82 | 0 | 18 |
| Japan | 1 | 0 | 99 |
| Canada | 1 | 0 | 99 |
| United Arab Emirates | 146 | 0 | -46 |
| Australia | 14 | 0 | 86 |
| Spain | 12 | 0 | 88 |
| New Zealand | 6 | 0 | 94 |
| China | 16 | 0 | 84 |
| Thailand | 0 | 0 | 100 |
| Colombia | 0 | 0 | 100 |
| Singapore | 5 | 0 | 95 |
| Greece | 2 | 0 | 98 |
| Malaysia | 25 | 0 | 75 |
| Rep. of Korea | 5 | 0 | 95 |
| Saudi Arabia | -32 | 0 | 132 |
| Ireland | 65 | 0 | 35 |
| Sweden | 0 | 0 | 100 |

The decomposition of the overall export growth of floriculture products in terms of market size, market composition and competitiveness effect using CMS indicates that the competitiveness of the Indian floriculture industry is the key component for export growth, ie. 80%. It reveals the strong supply side of the Indian floriculture industry. However, the competitiveness cannot be attributed to a single factor.

It also indicates that the international demand for floriculture products, in other words, the growth of the market size had minimum impact in the Indian export growth in the study period 1991 to 2009, ie. 8%. It indicates that the international market growth pace is faster than the Indian export growth pace. It may be due to the structural infirmities or international trade barriers to Indian exports or locational disadvantage to the international floriculture market.

The market composition effect, which is 12%, indicates that India is losing the international market growth of floriculture products to exporters of competing countries. At best, these figures are modest indicators of the different forces that are in action at the international markets for the Indian floriculture industry.

The CMS analysis result for the top twenty countries also reveals a similar scenario except for a few markets like United Kingdom, Ireland and United Arab Emirates where the market effects are strong for the export growth of floriculture products.

**Expected Extension Services**

The CMS analysis indicates that India has strong supply side competitiveness. Hence, Indian extension strategies have to focus more on strengthening the quality parameters, environmental issues, product diversification, product differentiation and supply chain infrastructure. These are briefly discussed below.

**Quality parameters and Environmental issues**

The regulations and standards of MPS, GLOBAL-GAP, ICC, and FLP are applicable in floriculture trade in recent times. Hence, the extension wing is expected to educate the Indian flower growers on these standards.

**Product Diversification and Differentiation**

The product differentiation strategies are extensively used by international buyers in the global market. The retailers also prefer to have competitive advantages of new product variety. The extension wing must constantly encourage the florist to explore the production of new varieties.

## Supply Chain infrastructure

Temperature and humidity controlled transportation is needed for effective supply chain of flowers in order to fetch high prices. The post harvest losses are also high due to ineffective storage conditions. Hence, extension services need to be extended in this direction at the field level.

The customs clearance procedures continue to be time consuming and are still posing a challenge to the exporters in the supply chain network.

## Conclusion

Despite strong supply side competitiveness, India is unable to capitalize on the international market growth. This may be due to the structural infirmities in international floricultural trade which need to be further investigated in detail.

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