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Export of Horticultural Products–The Path Ahead

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ABSTRACT

With the help of record production, India, the second largest producer of fruits and vegetables in the world, have achieved record horticulture exports to the tune of Rs 14,000 crores in 2011-12. Major destination for India's products are Netherland, UAE, UK, Malaysia, Saudi Arabia, Kuwait, USA etc. Blessed with multiple agro climatic zones, India grows almost all types of Fruits and Vegetables. The 2011-12 horticulture production has crossed all time high of over 240 million tons. Occupying 13.08 per cent of the total cropped area, their contribution to gross agricultural output is more than 30 per cent. The year 2012 is being dubbed as the "Year of Horticulture" to highlight the horticulture development in India.

However, the export competitiveness among the Indian producers remains low. But with new marketing initiatives, the post-harvest losses and the wastage due to poor infrastructure facilities, such as storage and transportation, have been reduced to a considerable extent. Yet a lot needs to be done in this sector: Further strengthening of the back-up infrastructure facilities like cold-storages, refer vans, roads and distribution and management of horticulture products. Improvement in Packaging and timely marketing of horticulture products. Simplification of Export Documentation & initial registration process and later traceability charts required by importers. They are time consuming and tedious, making farmers and many exporters hesitant. Training of Labor Oriented Sector for Pre-harvest processes, Harvesting, Handling of crop and Storage. Providing solutions for these and other problems will see Horticulture exports further surge ahead in the years to come.

KEY WORDS

Horticulture, Exports, Fruits, Vegetables, Challenges, Solutions.

Review Article

INTRODUCTION

'*Horticulture' is defined* as "the science of growing and management of fruits, vegetables including tubers, ornamental, aromatic & medicinal crops, spices, plantation crops and their processing, value addition and marketing". India ranks second in the world after China in the production of fruits and vegetables. Its diverse agro-climatic regions are ideal to grow a large variety of horticultural crops. Occupying 13.08 per cent of the total cropped area, their contribution to gross agricultural output is more than 30 per cent. Vegetables, Fruits, Plantation crops and spices contribute around, 60, 31, 7, and 2% of the total horticultural production (Singh & Mathur, 2008). It also provides about 37% of the total exports of agricultural commodities. While India is a large, low cost agricultural producer, its share in global agriculture exports is minuscule. India produces nearly 11 per cent of all the world's vegetables and 15 per cent of all fruits, yet its share in global exports of vegetables is only 1.7 per cent and in fruits a meagre 0.5 per cent and indicates towards vast opportunity for Indian horticulture sector in WTO regime (World Bank, 2007).

The major horticulture crops that are exported from India are – mango, grapes, orange, apple, banana, mosambi, onion, potato, tomato and pumpkins. The biggest buyers of Indian horticulture products are Bangladesh, Nepal, UAE, UK and Malaysia. Many of the South East Asian countries have great similarities with India in terms of both the magnitude of agricultural goods as a share of total exports, and ratios of exports from these countries to others countries. India faces severe competition in case of trade in high value crops from these countries as the products are very similar. China and Thailand account for 32 per cent of developing countries exports of processed fruits and vegetables. India's rank in terms of global exports in the year 2008 was 14 and 15, respectively for fruits and vegetables. Potato is the leading vegetable produced in India with a share of over 20 percent of total vegetables production. Other major vegetables produced in India include eggplants, tomatoes, cassava, cabbage, dry onions and cauliflower. As regards fruits, banana

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is the major fruit grown in India, accounting for over one third of total fruit production. Other major fruits produced in India include mangoes, oranges, apples, grapes, pineapples and papayas. At present fresh onions account for 30 per cent of agricultural export earnings for India and mangoes account for 12 per cent while floriculture accounts for 4 per cent (*Bhattacharya, 2011)*.

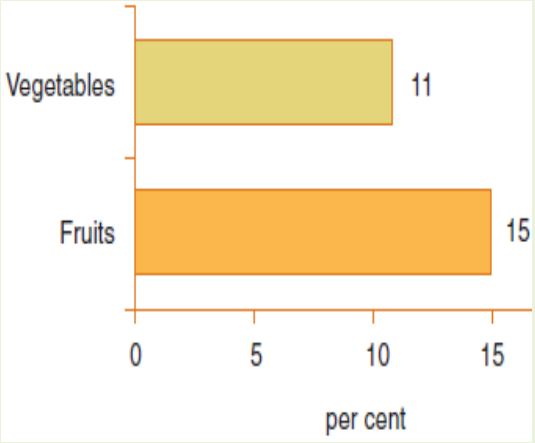


Fig. 1: India's Share in Global Production (*Source: UN COMTRADE STATISTICS: Staff Estimates).*

Apart from bringing in revenue from exports, horticulture plays a significant role in improving the livelihood of the rural populace. It is well documented that agricultural diversification reduces rural poverty and enhances the sustainability of agricultural systems (Singh, 2001: Kar et al, 2003) Being labour intensive, it generates a lot of direct and indirect employment opportunities. According to estimates, there is more than 200 million hectares of wasteland in India which can be brought under cultivation. This move, if implemented, will help the country in a big way to tackle the nutritional crisis. Horticultural products are a rich source of vitamins, proteins and carbohydrates and minerals. According to estimates, the per capita consumption of fruits and vegetables in India is only around 46g and 130g which is far below the stipulation of a minimum of 92g and 300g respectively as recommended by the Indian Council of Medical Research and National Institute of Nutrition, Hyderabad. The performance of the Indian horticultural sector in the last decade has been remarkable. Some have described it as a 'golden revolution', presumably to distinguish it from the earlier 'green revolution' (Bannerjee, 2005). The number of commodities as well as the number of varieties produced and traded have increased manifold during the past 25 years (Mittal, 2007).

Cropping Pattern Change in India

Agricultural diversification is an important instrument for economic growth. Diversification largely depends upon the opportunities and responsiveness of farmers to technological breakthrough, consumer demand, government policy, trade arrangements and development of irrigation, roads and other infrastructure (Kumar and Mittal, 2003). Changes in cropping patterns are responsive to these factors. The aggregate cropping pattern of the country is represented by the gross cropped area allocation among different crops and commodity groups. India has experienced a considerable degree of crop diversification in term of changes in the area under various crops since the Green Revolution which was largely in favour of food grains to meet the objective of self-sufficiency and country's food security. In past one decade, the changes in cropping pattern are more towards the horticulture sector and commercial crops like cotton.

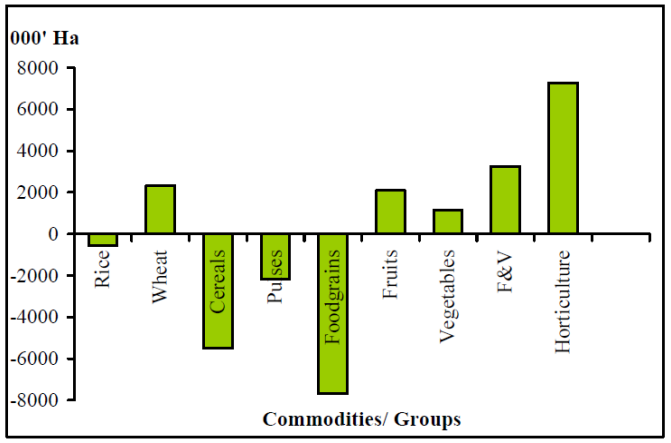
Fig.2: Presents the change in cropping pattern between 1990 and 2004. The changes are presented between the sub-periods 1990-95, 1995-2000 and 2000-04. The shift in area away from food grains -- rice, coarse cereals and pulses is evident from the table. The area under rice has shown an increase till 2000 and after that the area has declined by 2,590 thousand hectares. The area under coarse cereals has declined tremendously in 1990-95 and further in 2000-04. Area under pulses has also seen a decline till 2000 which later revised due to shortfall of pulses and also implementation of the mission to revise the pulse sector. But overall the food grain sector had experienced a decline in area of about 7,680 thousand hectares in last one-and-a-half decades. This shifting area from food grains is towards the oilseeds, cotton, fruits and vegetables. The change in cropping pattern from food grains to horticulture is illustrated in Figure 3. The overall magnitude of decline in area under food grain (-7,680 thousand hectares) is very close to the magnitude of increase in area under horticulture2 (7,270 thousand hectares) in the period 1990-2004.

Fig. 2: Change in cropping pattern in India, 1990-2004

Commodities	1990-95	1995-2000	2000-04	1990-2004
Rice	150.1	1873.3	-2590.0	-566.6
Wheat	843.9	719.0	760.0	2322.9
Coarse Cereals	-5365.4	11.1	-300.0	-5654.3
Cereals	-4500.0	2000.0	-3000.0	-5500.0
Pulses	- 2380.0	-1930.0	2120.0	-2190.0
Food grains	-6830.0	40.0	-890.	-7680.0
Oilseeds	1810.0	-3190.0	4230.0	2850.0
Cotton	1595.3	-505.3	390.0	1480.0
Jute and Mesta	-90.0	90.0	-120.0	-120.0
Sugarcane	461.4	172.6	-680.0	-46.0
Fruits	483.0	512.0	10.95.0	2090.0
Vegetables	-258.0	915.0	506.0	1163.0
Fruits and Vegetables	225.0	1427.0	1601.0	3251.0
Horticulture	900.0	1856	4514.0	7270.0
				Unit : 000' hectares

Source: Indian Horticulture Database, published by the National Horticulture Board (NHB).

Figure 3: Change in cropping pattern, 1990-2004



Source: *Indian Horticulture Database, published by the National Horticulture Board (NHB)*

Fig. 4: Change in area under horticulture groups in India, 1990-2004

Commodities	1990-95	1995-2000	2000-04	1990-2004	% change in area
Fruit	483	512	1095	2090	28.75
Vegetables	-258	915	506	1163	16.00
Plantation	435	129	240	804	11.06
Spices	211	284	2655	31150	43.33
Flower	29	16	18	63	0.87
Horticulture	900	1856	4514	7270	100.00
					Unit : 000' hectares

Source: Report of Planning Commission Working Group on Horticulture and Plantation Crops for XIIth Plan- November 2011.

Within the horticulture sector, the change in area under cultivation for different groups is presented in Fig.4. In total area spices have seen a maximum area shifting under them from the conventional cropping. The gain of area under spices has been 3,150 thousand hectares, the maximum change seen is after 2000. The gain in area under spices is 43.3per cent of the total area gain under horticulture. The total area gain for plantation has been 11.06 per cent with only 0.87 per cent area gain under flowers. The total area shift under fruits and vegetables is 44.75 per cent which is almost equivalent to the spices are again. Vegetables have seen a small decline in area under it in 1990-95, which later recovered.

A significant change for area under vegetables is seen in 1995-2000 with an additional increase in area in 2000-04. The most prominent is the fruits group, which sees an increase of 28.7 per cent in total horticulture area gain. The gain in area in last 4-5 years is equivalent to the change in area in the 1990s. This gain in area under horticulture and mainly under fruits and vegetables is a collective impact of the diversification of production pattern of the producer and the increased demand of consumers due to shift in their consumption pattern.

Production Trend- estimated production figures for fruits, vegetables, spices and plantation crops (cashew nut, coconut, cocoa, areca nut) for period from year 1991-92 to year 2009-10 have been tabulated in Fig. 5and shown in graphical form as Fig. 6. It can be observed that there has been general increase in production of fruits, vegetables, spices and plantation crops (Ray, 2011).

In the backdrop of record horticulture production in recent years and particularly last year, the exports have been showing a growing trend.

Fig.5: Estimated production figures for fruits, vegetables, spices and plantation crops.

Year	Fruits	Vegetables	Plantation Crops	Spices
1991-92	28632	58532	7498	1900
1992-93	32955	63806	8347	2291
1993-94	37255	65787	8866	2515
1994-95	38603	67286	9767	2477
1995-96	41507	71594	9630	2410
1996-97	40458	75074	9730	2805
1997-98	43263	72683	9449	2801
1998-99	44042	87536	11063	3091
1999-00	45496	90831	9204	3023
2000-01	43138	93850	9458	3023
2001-02	43001	88622	9697	3765
2002-03	45203	84815	9697	3765
2003-04	45942	84815	13161	5113
2004-05	50867	101246	9835	4001
2005-06	55356	111399	11263	3705
2006-07	59563	114993	12997	3953
2007-08	65587	128449	11300	4357
2008-09	68466	129077	11336	4145
2009-10	71516	133738	11928	4016

Production in 000 MT

Source: Report of Planning Commission Working Group on Horticulture and Plantation Crops for XIIth Plan- November 2011.

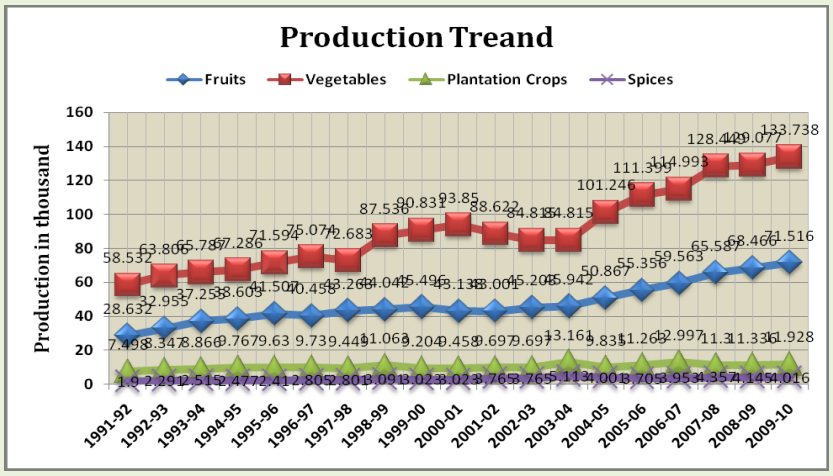


Fig. 6:
Graphical Representation of Estimated production figures for fruits, vegetables, spices and plantation crops.

India's, horticulture exports has helped the country to earn Rs 14,000 crores in 2011-12. India's horticulture production has crossed all time high of over 240 million tons and the year 2012 is being dubbed as the "Year of Horticulture" to bring horticulture development in the country to centre stage. Despite the good showing in the recent past Indian horticulture still needs help in certain quarters. The Indian horticulture sector is facing severe constrains such as low crop productivity, limited irrigation facilities and underdeveloped infrastructure support like cold storages, markets, roads, transportation facilities, etc. There are heavy post-harvest and handling losses, resulting in low productivity per unit area and high cost of production. However, on the other hand, India's long growing-season, diverse soil and climatic conditions comprising several agro-ecological regions provide ample opportunity to grow a variety of horticulture crops. Thus, efforts are needed in the direction to capitalize on our strengths and remove constrains to meet the goal of moving towards a formidable horticultural growth in India.

Proposed interventions to enhance Horticultural exports from India are listed below.

1. ***Identification of Focus Crops and Estimating Export Opportunity-*** There is a need to strengthen export oriented production of focus crops in selected production clusters in a project mode. The selection of focus crops may be made on the basis of critical analysis of the export potential of crops for identified potential export destinations. This needs to be followed by collecting information about market's preference for quality standards for produce in terms of size, shape, weight, colour, flavour, texture etc which shall then be required to be converted into extension message for production and PHM protocols. Market intelligence in terms of nature of competition and expected price realization to needs to be gathered and made available to producers and exporters so that the producers may undertake production accordingly and logistic support too can be ensured by concerned players.
2. ***Varietal Introduction, Quality Planting Materials, Farm Chemicals and Farm Mechanisation -*** In a number of cases, suitable variety of crops has to be introduced to promote exports, a number of which may require import of planting materials. Import of farm chemicals and farm machineries too may be required to produce export quality horticulture produce.
3. ***Technology Development and Transfer for Export Competitiveness-*** There is a need to increase farm level productivity and quality of produce in terms of size, colour, texture, physical appearance, TSS, TSS: acid ratio, fruit pressure, insect damage etc. A study by (Raghunath et al, 2005) has estimated that with strengthening the supply chain the benefits to consumers and producers can increase by 20-25 per centin the most perishable commodity like tomato.
4. ***Post Harvest Management (PHM) Practices-*** PHM protocols have to be developed. In a number of cases, protocol for transport of horticulture produce by sea route needs to be prescribed in order to cut down on transport cost by air cargo.
5. ***Developing Irrigation-***A large part agricultural land in India is still dependent on monsoons. Developing irrigation facility must be a priority area for the government.
6. ***Development of IPM protocols-*** Similarly, IPM protocols for horticulture produce have to be prescribed particularly for pesticide residue monitoring.
7. ***Quality Regime for Horticulture Produce-*** There is a need to put Quality Regime in horticulture produce which will enhance capacity of stakeholders to undertake export quality production, packaging, transport and storage.
8. ***Packaging-***Packaging and marketing of horticulture products is another area that leaves a lot to be desired and people engaged in the sector should be made aware of the two.
9. ***Agricultural Credit-*** The farmers involved in horticulture sector should have easy access to financial instruments like micro-credits and loans.
10. ***Investment in Capital Intensive, hi-tech infrastructure-*** Infrastructure creation to fill up the deficiency in the supply chain, which may include pack house, ripening chambers, collection centers, reefer transport, irradiation and VHT facilities etc. Modernization and up gradation of old processing plant in the clusters,

if given priority, may also increase the production capacity and bring down the cost of production.

11. ***Market Sector Reforms and Contract Farming-*** The contract farming with improved regulations, to cover the interest of both the farmers and the exporters, could actually be used as a tool to promote investment in agriculture. This would also help in promoting the exports of agro products by achieving better quality produce meeting the global standards.
12. ***Organic farming***- must be encouraged so that Indian horticulture products are able to compete with those arriving from other countries in the international market. (Srivastava, 2010).
13. ***Export Support Infrastructures-*** Focus should be on development of export support infrastructure at ports (seaports, air ports, inland ports) under schemes of horticulture development. At times, long queues of trucks carrying cargo of perishables for export to neighboring countries through inland ports result in delay and corresponding deterioration of quality of export produce.
14. ***Manpower Development-*** Capacity building exercise, which may include training, workshops for the farmers, service providers, entrepreneurs' etc. in areas of cultivation, preservation, logistics, exports etc. continues should be adopted. Special training courses for potential exporters and farmers organizations regarding export procedure and opportunity needs to be designed and introduced.
15. ***Tax structures-*** on horticulture products need to be rationalized so that the cost of the end products can be kept within reasonable limits.

CONCLUSIONS

The horticulture sector in India is set for growth. To sustain the growth the interventions suggested in this paper need to be adopted. The horticulture sector in particular has to prioritize development of research in the issues of genetics, biotechnology, integrated and sustainable production systems, post-harvest handling, storage, marketing and consumer education. Technological up-gradation and associated institutional changes are identified as thrust areas for future development of the horticulture sector. India can look forward to emerge as a major producer of horticultural products and thus secure reasonable market access for its agro exports. Blessed with various agro-climatic zones that can produce almost all kinds of horticultural produce, rich biodiversity, huge tracts of arable lands, developing technology, trained manpower and cheap labour, India can be a name to reckon with in horticultural exports.

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