



HORTICULTURE IN INDIA: GAINING MOMENTUM

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ABSTRACT

India has huge potential for horticulture industry for various agricultural products. Horticulture industry gained importance after fourth five year plan. The sector has not gained enough recognition in trade. The government of India has introduced various schemes to provide recognition and development to the sector. This research article is based on secondary data aims to discern various schemes of governments, annual reports and statistical data to of horticulture industry. The paper reveals that horticulture industry is showing upward trend in performance and trade contribution towards the country. The export of fruits and vegetable shows excellent performance in export, still the sector is facing various challenges for its survival.

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INTRODUCTION

The National Horticulture Mission was launched in the year 2005-06 as a centrally sponsored scheme to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies. The scheme has been subsumed as a part of Mission for Integration Development of Horticulture (MIDH) during 2014-15(Kallega, KarandMathur, 2015).

At present, India is the second largest producer of fruits and vegetables in the world. There has been a good impact of National Horticulture Mission (NHM) scheme both in respect of the area of coverage as well as the productivity of horticulture crops.

Horticulture crops have the inherent advantage of providing higher productivity per unit area of land as compared to other crops, resulting in higher income and employment generation in rural areas. Fruits and vegetables have been shown to earn 20-30 times more foreign exchange per unit area than cereals due to higher yields and higher prices available in the national and international markets (State Horticulture Mission, UttarPradesh., Action Plan, 2011-13).

Horticultural development has enabled in empowering the people by generating employment opportunities, improving economic conditions and providing nutritional security.

Moreover, it has become a sustainable and viable venture for small and marginal farmers. Since horticultural activities are intellectually satisfying and economically rewarding along with aesthetic value, they have attracted the youths and the sector is moving towards commercialization.

The scenario, which has proved the potential of horticulture in agribusiness, has encouraged the private sector activities and quality management has become important in this context.

Horticulture has emerged as an important sector for diversification from agriculture. It has proved its importance in improving income through increase in productivity, generating employment while contributing value addition to products and enhancing exports (National Rural Health Mission).

India is bestowed with rich bio-diversity and varied agro-climatic conditions, ideal for growing a large variety of horticultural crops. This sector which includes fruits, vegetables, floriculture, spices and medicinal and aromatic plants, has gained importance in the economy in terms of enhanced income per unit area, providing nutritional security, source of raw material for many food processing industries, earning considerable amount of foreign exchange and leading to socio-economic improvement of the people. The objective, therefore, is to formulate programmes aimed at developing the potential that exists for growing a variety of horticultural crops, to raise income and to generate employment and to achieve a higher growth rate in horticulture sector. This is also well known that horticultural produce like fruits, vegetables, spices, mushroom and honey play a major role in nutritional security. Increasing horticultural production activities right from sowing to its maintenance, irrigation, harvesting, cutting, marketing, processing and value addition etc. help in creating 860 man days per hectare per years (Annual Performance

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Report, Rashtriya KrishiVikasYojana RKVY, horticulture and Food processing, 2015-16).

METHODOLOGY OF THE STUDY

Horticulture comprises various variety of crops. These crops contribute towards trade in India. The paper is qualitative as well as quantitative in nature and based on secondary data from various government sites, reports on performance of horticulture industry in India. The present paper is based on reports from National Horticulture Mission (NHM) scheme, Agriculture and allied activities, Agricultural statistics at a glance 2013 and 2014, DES., Horticulture: Mission for integrated Development of Horticulture (MIDH), DAC and FW, GOI(2007), Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare., Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare. Indian Horticultural Database, Various issues, National Horticulture Board, MOA, GOI, Indian Council for Agricultural Research, Ministry of agriculture (ICAR), GOI Honey has not been included in total exports for 2015-2017, Agricultural and Processed food product Export Development Authority (APEDA) database, GOI and : Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

RESULTS AND DISCUSSION OF THE STUDY

Performance of the sector

Horticulture sector was identified by the Government of India in mid-1980s as an emerging sector for agricultural diversification promising enhanced profitability in primary sector by making efficient and most optimal utilization of land and natural resources along with increased employment opportunities for rural masses. The allocation in various plans for Horticulture has shown a continuous increase since the fourth Five Year Plan. Table 1 depicts the budget allocation for horticulture development in various five year plans.

As evident from the Table 1, significant improvement in plan investment can be observed from Eighth plan onwards. In the Ninth Five Year Plan, it has approximately doubled. In subsequent FYPs the increase has been manifold as compared to the previous plans.

Report of the working group on Horticultural Development for Tenth Five Year Plan, 2001 mentions that keeping in view vast expansion mode and the future scope which horticulture crop offer in alleviating poverty, improving employment potential, nutritional security and above all earnings of foreign exchange Hi tech horticulture is need of the hour and for which high public investment is inevitable. This would increase the productivity and quality of horticultural crops to meet domestic and export demand. Thus considering the need for horticultural development the financial allocation has regularly been increased in various Five Year Plans.

Table 1 Budget Allocation For Horticulture Development In Various Five Year Plans

Five Year Plan	Budget Allocation (Rs. In crores)
IV	2.1
V	7.6
VI	9.1
VII	24.2
VIII	789
IX	1453

X	5025
XI	15800
XII	16840

sources: 1) Agriculture and allied activities, Agricultural statistics at a glance 2013 and 2014, DES. 2) Horticulture: Mission for integrated Development of Horticulture (MIDH), DAC and FW. 3) GOI (2007)

Over the past few years, horticulture has made remarkable progress in terms of expansion in area and production under different crops, increase in productivity, crop diversification, technological interventions for production and post-harvest and forward linkages through value addition and Marketing (Singh et al., 2015). The focused attention on Horticulture development started in Post-1993 period due to which marginal progress in productivity was observed (Mittal, 2007). The decade of 1990 termed as golden revolution but the real attention on horticulture sector was clear after 2000-01 onwards. In Table 2 data for Area under cultivation reveals higher value during 2000-01 to 2011-12 compared to 1991-92 to 2000-01. This may be the result of National Horticultural Mission, NHM (2004-05) which emphasized on holistic development of the horticultural sector. Since the beginning of NHM (2004-05) as there had been continuous increase in area under cultivation and production of horticultural crops hence it appears to be a success. The average production per hectare from 2007 onwards assumed a larger value in comparison to period between 1993 -94 to 2006-07 possibly because by that time results of NHM started pouring. The table from 1993 to 2007 the average productivity per hectare of horticulture crops grown seemed to be consistent with minor fluctuations except for 2003-04 where the average productivity dipped to 7.98. This was because from 2003 to 2004 the area under cultivation increased by 18 percent whereas production increased by 6 percent. Hence can be concluded that National Horticulture mission succeeded in increasing area under cultivation but it is difficult to say with firmness whether it had the same effect with respect to yield level. From the table 2 it is evident that after launch of NHM (2003-04) the area under cultivation for horticultural crops and the production has continually increased for subsequent year. The increase in average production per hectare since 2004 onwards was observed as the rate of increase in production outpaced the increase in area under cultivation.

Table 2 Data on Area and Production of Horticulture

Year	Area (in '000 hectare)	Production ('00 tonne)	production per hectare
1993-94	13033	114661	8.80
1994-95	13080	118394	9.05
1995-96	13723	125483	9.14
1996-97	14362	128482	8.95
1997-98	14754	128611	8.72
1998-99	15103	146200	9.68
1999-00	15247	149224	9.79
2000-01	15694	150197	9.57
2001-02	16593	145784	8.79
2002-03	16271	144379	8.87
2003-04	19207	153301	7.98
2004-05	18445	166938	9.05
2005-06	18707	182815	9.77
2006-07	19390	191812	9.89
2007-08	20207	211235	10.45
2008-09	20661	214716	10.39
2009-10	20876	223089	10.69
2010-11	21825	240532	11.02
2011-12	23243	257277	11.07
2012-13	23695	268847	11.35
2013-14	24198	277352	11.46
2014-15	23216	277743	11.96

2015-16	24472	286188	11.69
2016-17	24369	287323	11.79

Source: Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

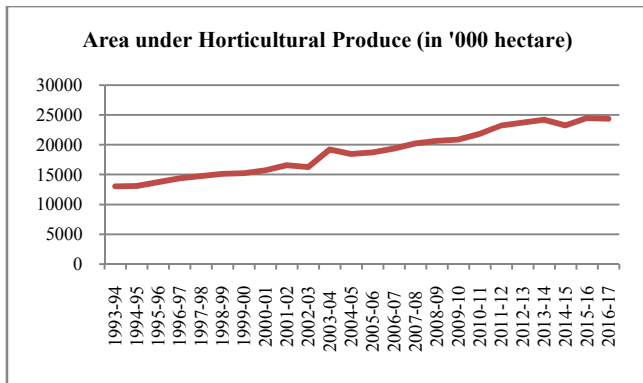


Figure 1 Area under Horticultural Produce

Source: Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

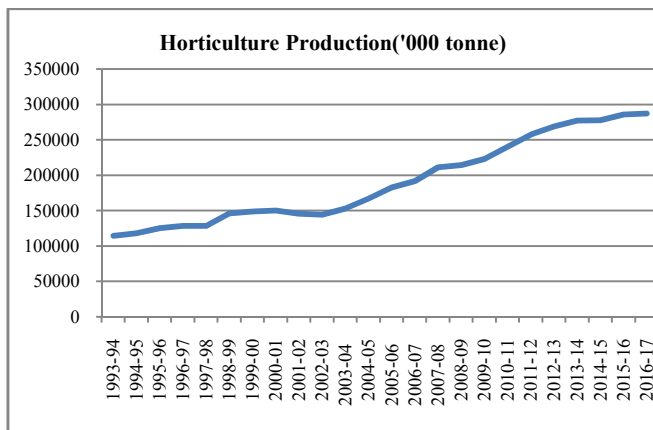


Figure 2 Horticultural Production in India

Source: Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

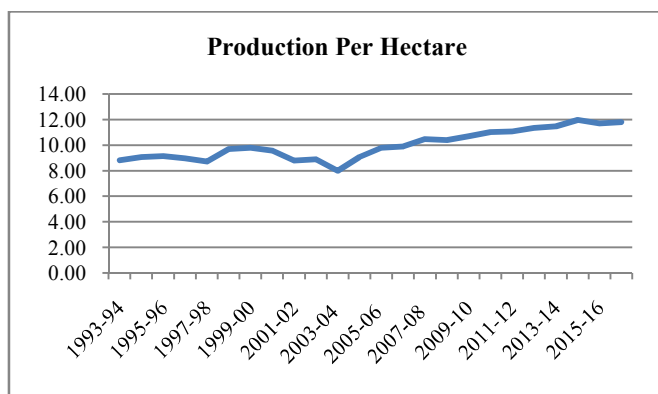


Figure 3 Horticultural Production per Hectare

Source: Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

Table 3 Export of horticulture produce in India

Year	Exports (in Rs. Lakhs)
1995-96	112597.3
1996-97	116384.1
1997-98	148291
1998-99	140469
1999-2000	182995
2000-01	238926.4
2001-02	2268.15
2002-03	2272.87
2003-04	28862.2

2004-05	30365.8
2005-06	34104.9
2006-07	49145.9
2007-08	482182
2008-09	676915
2009-10	766962
2010-11	715738
2011-12	895593
2012-13	1059403
2013-14	1436487
2014-15	1556741
2015-16	1804306
2016-17	1911445

Source: 1) Indian Horticultural Database, Various issues, National Horticulture Board, MOA, GOI 2) Indian Council for Agricultural Research, Ministry of agriculture (ICAR), GOI Honey has not been included in total exports for 2015-2017

Agricultural and Processed food product Export Development Authority (APEDA) database, GOI

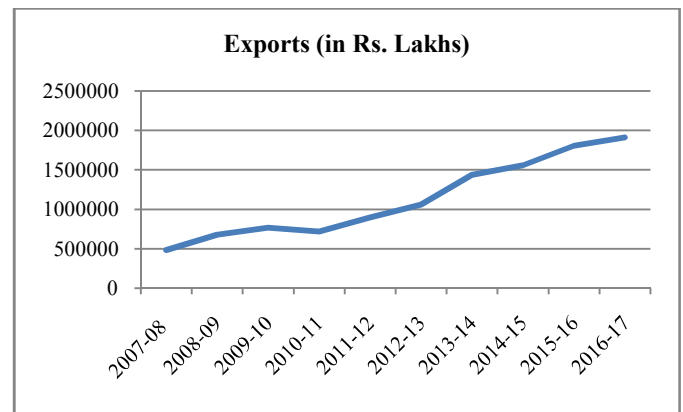


Figure 4 Value of Exports from Horticulture from 2008 to 2017.

Source: Horticulture Statistics Division, Department of Agriculture, Cooperation and Farmers Welfare.

The data about export of horticulture products before National Horticulture Mission (2004-05) reveal large amount of fluctuations exhibiting sometimes high positive growth rate whereas sometimes it was negative. However post NHM period experienced high positive growth rate of exports except in year 2011 when it became negative at around 7 percent. A drastic decline is visible in 2002 and 2003 but a remarkable restoration of horticultural exports is again visible in 2004 with the advent of National Horticultural mission.

Challenges in horticulture industry

Under this sector, India exports vegetables and fruits in fresh and processed forms but despite of being the second largest horticultural producer in the world, it happens to be a failed exporter mainly due of the incapability to meet the food safety standards to succeed in horticulture sector, the production has to increase by fourfold through excellent agricultural practices to generate marketable surplus (Sinha and Thomas, 2012).

Many government institutions and certain universities have merged horticultural science department into plant science department which might discourage research on horticultural crops further increasing the complexities in the sector. This may negatively affect affordability, safety and continuity of supply of horticultural produce given to the demand also social researches are required to find answers to challenges originating from uneven climate, loss of low cost labour and loss of productive soil through urban intrusion. Another challenge for horticultural science is to find improved methods for short term storage of horticultural produce rather than long

run storage increased consumers interest towards the eating of fresh produce rather than the frozen ones. Plant germplasm need to be conserved for the future generations. Transfer and adoption of knowledge and technology is the need of the hour due to the ongoing globalization of the horticultural industry. The process also requires involvement of governments before the incidence of food scarcity increases (Sharma and Alam, 2013).

It is necessary to amend outdated laws that are restricting establishments of modern supermarkets by cooperatives and also private entrepreneurs. Direct marketing model linking farmers to the supermarkets will prove a key driver for industrialization of agriculture a sit will save farmers from transport, marketing cost and other charges and would eliminate middlemen ensuring maximum benefit to farmer (Dastagiri and Immanuelraj, 2012).

Operational and procedural problems related to horticultural data collection and estimation is also a mention-worthy challenge for the sector. However in 2013-14, the ministry discontinued the earlier methodology and replaced it with what is known as CHAMAN (Coordinated programme on Horticulture Assessment and Management using geoinformatics). This uses a combination of remote sensing technology, sample surveys and market arrivals to estimate horticulture output and area but still more initiatives are needed in the direction.

CONCLUSION

Horticulture sector has numerous opportunities, which if channelized properly, may promise huge economic hence social welfare. The advent of organized retailing in horticulture commodities would lead to fast markets for different crops as well as the better returns for the farmers. Also, the logistics and infrastructure investments by these organized players as mandated by the Government would help in improving the overall system and would ensure the quality, reinventing the supply chain and reduction of wastage in horticulture retail (Sinha and Thomas, 2012).

Protected cultivation is another upcoming area with which increasing demand of growing population can be fulfilled. Also because urban areas has high demand of horticulture and may since ensure market value so protected cultivation which is advanced technology of 21st century provides an opportunity to grow off-season fruits and flowers etc. With requirement of minimum water and less labor compared to open field cultivation it can provide an answer to most suitable business for marginal farmers (Tyagi *et al.*, 2015).

At present horticulture sector accounts for about 30 percent of India's agricultural GDP and 37 percent of the total exports of agricultural commodities (Kallega, Karand Mathur, 2015). To achieve an impressive growth rate and holistic development of horticulture sector the diversification plan of horticultural produce should identify region-wise or area-wise potential crops and emphasize upon its development. Horticultural research should concentrate upon region-specific knowledge based technology generation well suited and adaptable to its agro-climatic and socioeconomic condition.

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