



## **HORTICULTURAL CROPS IN INDIA: TREND AND PATTERN OF GROWTH**

**Naseem usshan khan., Naveen Jaiswal and Ashfaq Ahmad**

Department of Geography, Gandhi Faiz-e-aam Degree College Shahjahanpur, U.P India

### **ARTICLE INFO**

#### **Article History:**

Received 12<sup>th</sup> March, 2018

Received in revised form 24<sup>th</sup>

April, 2018 Accepted 5<sup>th</sup> May, 2018

Published online 28<sup>th</sup> June, 2018

### **ABSTRACT**

Horticulture is the most profitable venture of all farming activities as it provides ample employment opportunities and scope to raise the income of the farming community. It also has tremendous potential to push the overall agriculture growth to more than the targeted per cent. The potential of horticulture in raising agricultural production, value added farm income and employment in the country has been recognized long ago. The Fourth Five Year Plan (1969-74) recognized the importance of horticultural sector can make significant contribution towards accelerating agricultural growth. Horticultural crops have a strong potential to raise returns to land, labour and capital and are labour intensive and thus are conjectured to be more pro-small farmers who have higher endowment of family labour in relation to land. In a holistic way of horticulture can be promoted as a means of agro-diversification for the second green revolution in India, providing the much needed impetus to the growth of agricultural sector, through increase in trade, income and employment. Keeping these understandings in mind, the present study estimates growth rates of the major agricultural crops, including the horticultural crops. The study reveals that the growth of area, production and yield of horticulture crops in the country was found to be statistically significant.

*Copyright©2018 Naseem usshan khan et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

### **INTRODUCTION**

Horticulture includes cultivation of fruits, nuts, vegetables, medicinal and aromatic plants, flowers, etc. Importance of horticulture lies in the fact that it generates much income per hectare of land as compared to other agricultural crops facilitates employment, food and nutritional security and industrialization too. The growth in the production of fruits and vegetables assumes critical importance now adays due to the increase in the demand generated by the rapid increase in population and has been accelerated by the rise in the levels of income of the people and the consequent changes in the pattern of consumption. Fruits play a unique role in developing countries like India both in economic and social sphere for improving income and nutritional status particularly of rural masses. Compared to field crops horticultural crops offer wider scope for income increaseto farmers. They are also amenable for higher value addition. Greater employment opportunities coupled with higher remuneration is an incentive to go in for horticultural crops. However the flip side is that they are highly resource intensive, perishable and seasonal in nature. Storability is limited and need special arrangements like cold storage with higher levels of investments, normally not affordable by farmers.

Yet, growing income levels of Indian population and increasing awareness of nutritional requirements have led to a gradual increase in the demand for horticultural crops.

India is the second largest producer of vegetables and fruits after China and is popularly known as Fruits and Vegetable Basket of the world (Gandhi & Nambordiri, 2002). Horticulture is a part of agriculture, which is concerned with the cultivation of “garden crops” and can be defined as the branch of agriculture concerned with intensively cultured plants directly used by peoples for food, for medicinal purpose or for aesthetic gratification (Singh 2012). The importance of horticulture in improving the productivity of the land, generating employment, improving economic conditions of the farmers and entrepreneurs, enhancing exports and above all, providing nutritional security to the desert dwellers, can hardly be overemphasized (Bhandari *et al.*, 2014).

#### **Objectives**

1. To analyse the growth trends of area, production and productivity of horticultural crops.
2. To identify the effects through which the production of horticulture crops has increased in the recent past, in India.

### **METHODOLOGY**

The data has been obtained from official websites and official records & documents; such as National Horticulture Board (NHB), Agricultural and Processed Food Products Export

*\*Corresponding author: Naseem usshan khan*

Department of Geography, Gandhi Faiz-e-aam Degree College Shahjahanpur, U.P India

Development Authority (APEDA), Handbook of Horticulture, Statistical Year Book and others. Different Books, Reports, and Research Papers have been consulted to generate the idea and of literature available. Statistical techniques and tools like trend analysis, Percentages, Growth rates have been applied in drawing results and analysis of data.

**Production**

India has witnessed voluminous increase in horticulture production over the last few years. Significant progress has been made in area expansion resulting in higher production. Over the last decade, the area under horticulture grew by about 3% per annum and annual production increased by 5.4%. During 2016-17, the production of horticulture crops was about 295.2 million tonnes from an area of 24.9 million hectares (Table. 1). The production of vegetables has increased from 58.5 million tonnes to 175 million tonnes since 1991-92 to 2016-17 (2nd Advance Estimate) as depicted in Figure-.....

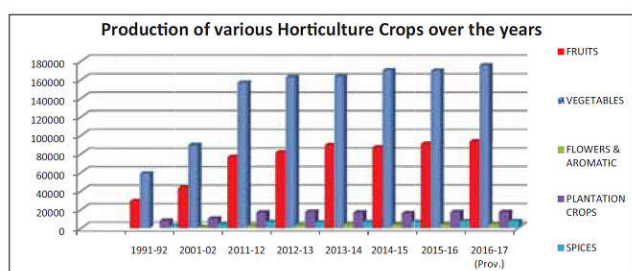


Fig 1

The annual growth of the custard apple is quite high (23%) during 2016-17(2nd Adv Est). As indicated in the later part (Table .1), in 2015-16 (2nd Adv. Est.), the total fruit production was highest in case of Andhra Pradesh (120.98 Lakh Tonnes) followed by Maharashtra (103.78 Lakh Tonnes) may be seen in the following figure. 2.

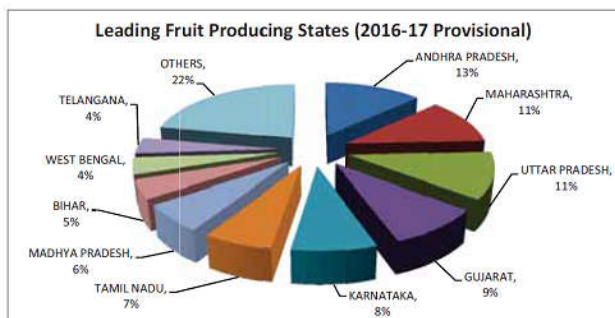


Fig 2

Apart from the health improvements, the production of vegetables improves the economy of a country as these are very good source of income and employment. The contribution of vegetables remains highest (59 – 61%) in horticulture crop productions over the last five years as shown in Figure.2.

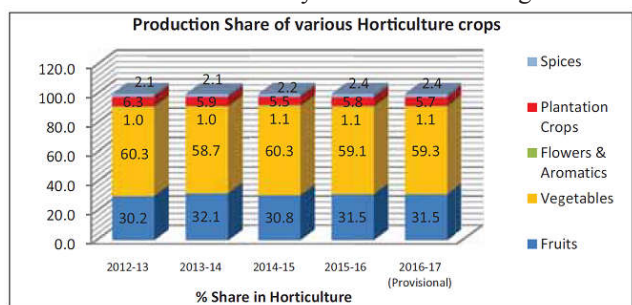


Fig 3

During 2016-17(2<sup>nd</sup> Adv Est), the area under vegetables is estimated at 10.3 million hectares with a production of 175 million tonnes in India (Table 1). For this period the total vegetable production was highest in case of Uttar Pradesh (26.4 million tonnes) followed by West Bengal (25.5 million tonnes) (Table. 1). The graphical representation of production share of leading vegetable producing states in 2016-17(2<sup>nd</sup> Adv Est) is shown in Figure.4.

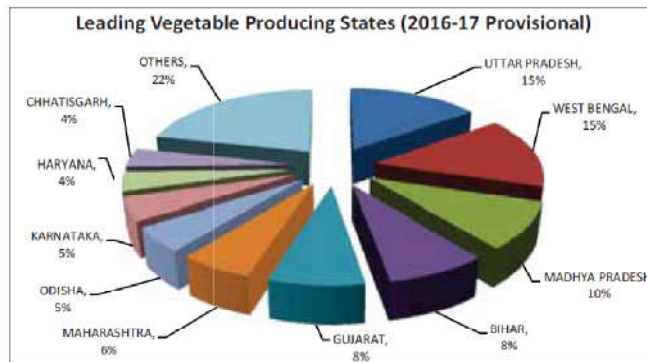


Fig 4

Great potentialities exist for cultivation of flowering plants. Increasing trends in area and production of flowers has been observed since 2003-04 onwards (Table. 1). In addition to the beautification of the local landscape, great scope exists for export of flowers; and floriculture is important for beekeeping industry which too provides an alternate source of income to the Indian farmers. The highest production of Flowers was recorded in Tamil Nadu (416.63 Thousand Tonnes) followed by Karnataka (280.92 Thousand Tonnes). The graphical representation in regard to leading flowers producing states in 2016-17(2nd Adv Est.) is shown at Figure.6.

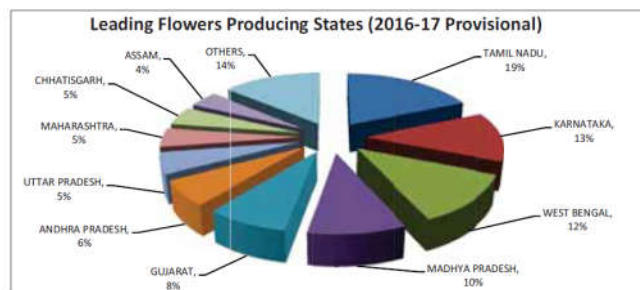


Fig 5

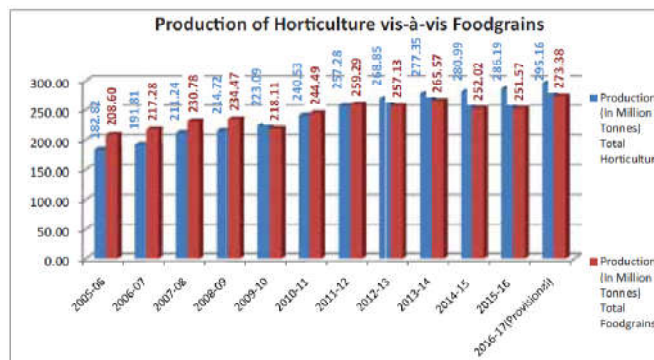


Fig 6

Table. 1 is showing area, production and productivity of horticultural crops in India from 1991-92 to 2016-17(provisional). It is clearly shown in the table that area, production and productivity in case of fruit crops was 2874 thousand hectares, 28632 thousand metric tonnes and 9.93 MT/hectare respectively, which increased continuously up to



Table 4, Shows the total value of India's horticultural exports in 2014-15 was Rs 13,82281lakh (nearly \$2.8 billion). Despite being the world's second-largest producer of fruits and vegetables, India accounted for just 0.36% and 1.03% of exports, respectively, in terms of value, in 2012. Overall horticultural exports from India to rest of the world is increasing year by year. Processed fruits and vegetables, accounts Rs 256991.89 lakh in the year 2014-15. The percentage share of onions in the year 2014-15 is 1.75 per cent followed by cucumber (0.92 per cent) and grapes (0.83 per cent) in the year 2014-15 respectively. Total exports of all horticulture commodities have increased from 1059403 lakh INR in the year 2012-13 to 1,436488 lakh INR in the year 2013-14.

Crop Wise Area and Production of Horticulture Crops for Three Years

Crops	2014-15		2015-16		2016-17 (Provisional)	
	Area	Production	Area	Production	Area	Production
Area in '000 Ha Production in '000 MT						
<b>Fruits</b>						
Aromatic	659	1000	634	1022	634	1031
Flowers Cut		484		528		593
Flowers Loose	249	1659	278	1656	309	1653
<b>Total Flowers</b>	<b>249</b>	<b>2143</b>	<b>278</b>	<b>2184</b>	<b>309</b>	<b>2246</b>
Honey		81		88		88
<b>Plantation Crops</b>						
Areca nut	450	747	474	714	466	730
Cashewnut	1030	745	1036	671	1035	779
Cocoa	78	16	81	17	83	19
Coconut	1976	14067	2088	15256	2092	15339
<b>Total Plantation</b>	<b>3534</b>	<b>15575</b>	<b>3680</b>	<b>16658</b>	<b>3677</b>	<b>16867</b>
<b>Spices</b>						
Ajwain	24	16	24	16	24	14
Cardamom	100	24	86	24	84	27
Chillies (Dried)	761	1605	811	1520	831	1872
Cinnamon/Tejpata	3	5	3	5	3	5
Celery, Dill & Poppy	24	21	26	23	36	35
Clove	2	1	2	1	2	1
Coriander	553	462	582	585	663	609
Cumin	890	486	808	503	760	486
Fenugreek	123	131	219	247	218	220
Fennel	39	60	76	129	75	125
Garlic	262	1425	281	1617	274	1271
Ginger	142	760	164	1109	165	1081
Nutmeg	21	14	21	14	23	16
Pepper	129	65	129	55	131	72
Vanilla	6	1	4	0	5	0
Tamarind	54	202	53	194	49	191
Turmeric	184	830	186	943	193	1052
<b>Total Spices</b>	<b>3317</b>	<b>6108</b>	<b>3474</b>	<b>6988</b>	<b>3535</b>	<b>7077</b>
<b>Total</b>	<b>23410</b>	<b>280986</b>	<b>24472</b>	<b>286188</b>	<b>24925</b>	<b>295164</b>

Provisional: 2nd Advance Estimate

Table 3 : Annual Growth Trends of Area and Production of Horticulture Crops (2010-11 to 2016-17)

Crops	2010-11 over 2009-10		2011-12 over 2010-11		2012-13 over 2011-12		2013-14 over 2012-13		2014-15 over 2013-14		2015-16 over 2014-15		2016-17(Prov.) over 2015-16	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
<b>Fruits</b>	-1.4	4.4	5.0	2.1	4.1	6.4	3.4	3.4	9.5	-15.3	3.1	4.1	2.8	3.0
<b>Vegetables</b>	6.4	9.6	5.8	6.7	2.4	3.7	2.1	0.4	1.6	4.0	5.9	-0.2	1.8	3.5
<b>Flowers</b>	4.4	1.0	33.0	60.2	-8.3	4.7	9.5	1.5	-2.6	-6.7	11.6	1.9	11.4	2.9
<b>Aromatics</b>	0.2	5.6	-0.8	-6.4	10.1	62.2	-11.4	-2.5	34.0	12.0	-3.8	2.2	0.0	0.8
<b>Plantation Crops</b>	1.3	0.7	8.2	36.2	1.8	3.8	0.9	-4.0	-3.8	-4.5	4.1	7.0	-0.1	1.3
<b>Spices</b>	19.3	33.2	9.3	11.2	-4.2	-3.5	2.8	2.9	4.9	3.4	4.7	14.4	1.8	1.3
<b>Total Horticulture Crops</b>	<b>4.5</b>	<b>7.8</b>	<b>6.5</b>	<b>7.0</b>	<b>1.9</b>	<b>4.5</b>	<b>2.1</b>	<b>3.2</b>	<b>-3.3</b>	<b>1.3</b>	<b>4.5</b>	<b>1.9</b>	<b>1.9</b>	<b>3.1</b>

Source: Horticulture Statistics Division, Department of Agriculture, Coopn & Farmers Welfare

**Table 4** Export of Horticulture Ptoduce From India

PRODUCT	2012-13		2013-14		2014-15		%age share in 2014-15
	Qty	Rs. Lacs	Qty	Rs. Lacs	Qty	Rs. Lacs	
Floriculture	27121.86	42344.6	22485.21	45590.62	22947.27	46077.23	0.35
Fruits & Vegetables Seeds	17168	34772.39	17816.7	41053.76	12499.31	42703.8	0.33
Fresh Onions	1666873	196662.7	1482499	316961.3	1238103	230054.14	1.75
Other Fresh Vegetables	768627.2	151633.6	953731.2	229332.3	835501.2	240223.6	1.83
Walnuts	5295.47	19983.57	6726.36	32453.5	2665.85	13645.24	0.1
Fresh Mangoes	55584.99	26471.78	41279.97	28542.85	42998.33	30253.66	0.23
Fresh Grapes	172744.4	125942.8	192616.9	166647.5	107257.8	108648.99	0.83
Other Fresh Fruits	263970.3	77975.78	240552.5	102159.2	274436.1	124588.02	0.95
Cucumber and Gherkins (Prepd. & Presvd)	238624.9	85659.18	218749.8	95520.18	251183	120242.24	0.92
Dried & Preserved Vegetables	68520.25	63795.76	56158.38	74271.74	63701.77	84713.55	0.65
Mango Pulp	147815.7	60855.73	174860.3	77294.76	154820.7	84138.54	0.64
Other Processed Fruits & Vegetables	269217.3	173305.5	287384.6	226660.3	316059.4	256991.89	1.96
<b>Total</b>	<b>3701563</b>	<b>1059403</b>	<b>3694861</b>	<b>1436488</b>	<b>3322173</b>	<b>1382281</b>	<b>10.54</b>

Source: APEDA, Ministry of Commerce and Industries GOI

**National Horticulture Mission (NHM)**

National horticulture mission was launched during the year 2005-06 to provide a thrust to the development of horticulture in the country. It is a centrally sponsored scheme in which government of India contributes 85% and 15% is met by the state governments. For its successful implementation mission is divided into three levels: 1) National level 2) State level and 3) District level.

**NHM Objectives**

The main objectives of the Mission are:

1. To provide holistic growth of the horticulture sector through an area based regionally differentiated strategies which include research, technology promotion, extension, postharvest management, processing and marketing, in consonance with comparative advantage of each State/region and its diverse agro-climatic feature;
2. To enhance horticulture production , improve nutritional security and income support to farm households;
3. To establish convergence and synergy among multiple on-going and planned programs for horticulture development;
4. To promote, develop and disseminate technologies, through a seamless blend of traditional wisdom and modern scientific knowledge;
5. To create opportunities for employment generation for skilled and unskilled persons, especially unemployed youth;

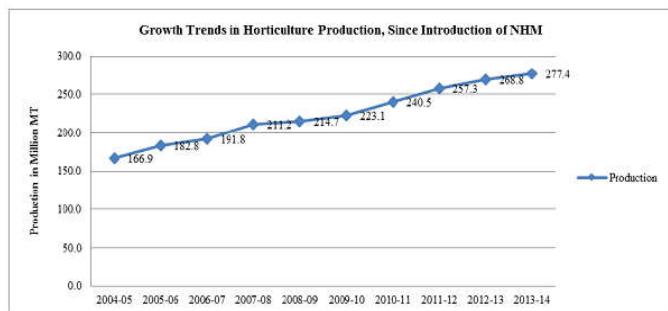


Fig. 7: Growth Trends in Horticulture Production, Since Introduction of NHM

**CONCLUSION AND SUGGESTIONS**

The horticulture sector has become one of the driving forces for overall development of agriculture sector. Its products have more demand in local, national and international markets. It occupies an important position in terms of providing livelihood options, meeting the required amount of demand for food and nutritional security. The study reveals that there is positive relationship between area and production of

horticulture crops in India and there is also a positive, significant and high relationship between horticultural production and horticulture exports in the country compared to other combinations of variables. In order to reduce the imports from abroad, to boost the area under the cultivation of horticulture crops and productivity through adopting modern technology is a pre-condition in Indian horticulture sector, to overcome this phenomenon. Despite significant growth in production, the yield growth rate of fruit was not very impressive. Therefore, it calls for technological innovation in the sector. On the policy side, as the issues of environmental degradation, sinking of arable land and urbanization have been at the forefront of national debate now, more emphasis should be given to enhance the yield level with the help of innovations and technology. Secondly, to enhance production and meet ever increasing demand of horticulture crops, cultivable waste lands of the bigger States could be brought under horticulture cultivation. Thirdly, the problem of storage should be solved by setting up more and more warehouses and cold storages facilities in all districts and sub districts in the country.

**References**

Bhandari DC, Meghwal PR, Lodha S. Horticulture Based Production Systems in Indian Arid Regions, Springer International Publishing Switzerland 2014 D. Nandwani (ed.), Sustainable Horticultural Systems, Sustainable Development and Biodiversity, 2014; 2, DOI 10.1007/978-3-319-06904-3\_2

CSO. State-wise Estimates of Value of Output from Agriculture and Allied Activities with New Base Year 1999-00. Ministry of Statistics and Programme Implementation, Central Statistical Organisation, Government of India. New Delhi, India, 2010.

Gogoi M, Borah D. Baseline Data on Area, Production and Productivity of Horticulture Crops in North-East and Himalayan States - A Study in Assam. Agro-Economic Research Centre for North-East India Assam Agricultural University, Jorhat – 785013, Assam, 2013.

Kondal K. Trends in Area and Production of Horticulture Sector in India. ANVESAK, 2014; Vol. 44, No. 2.

Kumar Choudhary. Contribution Of National Horticulture Mission In Agricultural Development. International Journal of Advanced Research in Management and Social Sciences ISSN: 2278-6236, 2013.

Mittal S. Can Horticulture be a Success Story for India? Working Paper No. 197, Indian Council for Research on International Economic Relations, New Delhi, India, 2007.

Nanda N, Goswami A, Choudary S. Export Potentials of Indian Horticultural Products in the US and EU, Energy and Research Institute New Delhi, 2008.

NHB. Indian Horticulture Database 2010. National Horticulture Board, Ministry of Agriculture, Government of India, Gurgaon, India, 2012.

NHB. Indian Horticulture Database 2011. National Horticulture Board, Ministry of Agriculture, Government of India, Gurgaon, India, 2013.

NHB. Indian Horticulture Database 2010. National Horticulture Board, Ministry of Agriculture, Government of India, Gurgaon, India, 2014.

www.nhb.gov.in  
 www.nhm.nic.in  
 www.agricoop.nic.in  
 www.actahort.org  
 www.planningcommission.nic.in