International Journal of Current Advanced Research

ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614 Available Online at www.journalijcar.org Volume 7; Issue 6(J); June 2018; Page No. 13769-13773 DOI: http://dx.doi.org/10.24327/ijcar.2018.13773.2472



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	ABSTRACT
Article History: Received 12 th March, 2018 Received in revised form 24 th April, 2018 Accepted 5 th May, 2018 Published online 28 th June, 2018	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 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.

**Corresponding author:* Naseem usshan khan Department of Geography, Gandhi Faiz-e-aam Degree College Shahjahanpur, U.P India 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

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.





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.



During 2016-17(2nd 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(2nd Adv Est) is shown in Figure.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 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

2016-17 and became 2480 thousand hectares (area), 92846 thousands metric tonnes (production) and 17.33 MT/hectare (productivity). In case of vegetables, area production and productivity also increased from 1991-91 to 2016-17. Their area was 5593 thousand hectares in 1991-92, which increased up to 10240 thousand hectares in 2016-17. Simultaneously, production, which was 58532 thousand metric tonnes in 1991-92, reached up to 175008 thousand metric tonnes in 2016-17. The area and production became more than double at a gap of twenty six years, but on the other hand, productivity has not reached that level, it was 10.47 MT/Hectare in 1991-92, became 17.01 MT/hectare in 2016-17. Area and production of flowers also increased from 1991-92, but productivity declined (5.05 MT/hectare in 1991-91 and 3.48 MT/Hectares in 2016-17). It is because of lack farmers as well as government interest, lack of technology and market for floriculture.

In case of plantation crops, area does not increased like the other crops, it was 2298 thousand hectares in 1991-92, which reached up to 3677 thousand hectares in 2016-17. The production of plantation crops became double at the gap of twenty six years (7498 thousand metric tonnes in 1991-91 and 16876 thousand metric tonnes in 2016-17). In case of productivity, growth is little, which increased from 3.26 MT/hectare in 1991-91 to 4.59 MT/hectare in 2016-17.

		L	able.1	IIV :	ndia A	rea, P1 the Y	roduct ears 19	ion ar 91-92	to 20	ducti 016-1	vity of 7(Prov	Hort	icultu	re Cro	vo equ	er		
															4 4	A : Productiv	Area in '0 ction in '0 ity: MT/H	000 Ha 00 MT fectare
Year		Fruits	1		egetables		Flowers	& Arot	natic	Planta	tion Cr	sdo	1000	Spices	Ĩ		Total	
	Α	Ρ	Pdy.	Α	Р	Pdy.	A	Р	Pdy.	A	Р	Pdy.	Α	Р	Pdy.	A	Ь	Pdy.
1991-92	2874	28632	9.96	5593	58532	10.47				2298	7498	3.26	2005	1900	0.95	12770	96562	7.56
2001-02	4010	43001	10.72	6156	88622	14.40	106	535	5.05	2984	7696	3.25	3220	3765	1.17	16592	145785	8.79
2002-03	3788	45203	11.93	6092	84815	13.92	70	735	10.50	2984	2696	3.25	3220	3765	1.17	16270	144380	8.87
2003-04	4661	45942	9.86	6082	88334	14.52	101	580	5.74	3102	13161	4.24	5155	5113	0.99	19208	153302	7.98
2004-05	5049	50867	10.07	6744	101246	15.01	118	659	5.58	3147	9835	3.13	3150	4001	1.27	18445	166939	9.05
2005-06	5324	55356	10.40	7213	111399	15.44	129	654	5.07	3283	11263	3.43	2366	3705	1.57	18707	182816	9.77
2006-07	5554	59563	10.72	7581	114993	15.17	144	880	6.11	3207	12007	3.74	2448	3953	1.61	19389	191813	9.89
2007-08	5857	65587	11.20	7848	128449	16.37	166	868	5.23	3190	11300	3.54	2617	4357	1.66	20207	211235	10.45
2008-09	6101	68466	11.22	7981	129077	16.17	167	987	5.91	3217	11336	3.52	2629	4145	1.58	20662	214716	10.39
2009-10	6329	71516	11.30	7985	133738	16.75	183	1021	5.58	3265	11928	3.65	2464	4016	1.63	20876	223089	10.69
2010-11	6383	74878	11.73	8495	146554	17.25	191	1031	5.40	3306	12007	3.63	2940	5350	1.82	21825	240531	11.02
2011-12	6705	76424	11.40	8989	156325	17.39	760	2218	2.92	3577	16359	4.57	3212	5951	1.85	23243	257277	11.07
2012-13	6982	81285	11.64	9205	162187	17.62	190	2647	3.35	3641	16985	4.66	3076	5744	1.87	23694	268848	11.35
2013-14	7216	88977	12.33	9396	162897	17.34	748	3192	4.27	3675	16301	4.44	3163	5908	1.87	24198	277352	11.46
2014-15	6110	86602	14.17	9542	169478	17.76	908	3143	3.46	3534	15575	4.41	3317	6108	1.84	23410	280986	12.00
2015-16	6301	90183	14.31	10106	169064	16.73	912	3206	3.52	3680	16658	4.53	3474	6988	2.01	24472	286188	11.69
2016-17 (Prov.)	6480	92846	14.33	10290	175008	17.01	943	3277	3.48	3677	16867	4.59	3535	7077	2.002	24925	295164	11.84

Source- Horticultural statistic 2017

There is fluctuation in area under spices (Table.1). it was 2005 thousand hectares in 1991-92 reached only up to 3535 thousand hectares in 2016-17.the area under spices became double in 2003-04, since then, it shows fluctuations. Productivity of spices also has not reached up to satisfactory level, it was 0.95 MT/hectares in 1991-92 and increased only up to 2.002 MT/hectare in 2016-17.

Table. 2 Crop Wise Area and Production of Horticulture Crops for Three Years

Crops	2	014-15	2	015-16	2 (Pro	016-17 ovisional)
Fruits	Area	Production	Area	Production	Area	Production
Almond	21	10	12	8	12	8
Aonla/Gooseberry	95	1173	88	972	91	989
Apple	319	2134	277	2521	277	2242
Banana	822	29221	841	29135	858	29163
Ber	42	401	44	425	49	481
Citrus						
(i) Lime/Lemon	268	2950	245	2438	259	2789
(ii) Mandarin	299	3699	397	4113	429	4754
(iii) Sweet Orange (Mosambi)	275	4229	244	3468	209	3497
(iv) Others	111	777	138	1562	157	1706
Citrus Total (i to iv)	953	11655	1024	11581	1055	12746
Custardapple	30	228	37	298	44	367
Grapes	123	2823	122	2590	136	2683
Guava	246	3994	255	4048	262	3648
Jackfruit	118	2088	151	1732	156	1826
Kiwi	5	8	4	11	4	11
Litchi	85	528	90	559	92	583
Mango	2163	18527	2209	18643	2263	19687
Muskmelon	42	863	45	935	47	962
Papaya	115	4913	132	5667	136	6108
Passion Fruit	19	129	13	78	14	79
Peach	19	97	18	107	18	107
Pear	42	303	40	323	40	312
Picanut	1	0	1	1	1	1
Pineapple	116	1984	110	1924	121	2038
Plum	23	72	22	82	22	76
Pomegranate	181	1789	197	2306	209	2442
Sapota	106	1339	107	1294	107	1285
Strawberry	1	8	1	5	1	5

Source- Horticultural statistic of India 2017.

Crop Wise Area and Production of Horticulture Crops for Three Years (Contd.)

Crops	2	014-15	2	015-16	(Pre	016-17 ovisional)
Fruits	Area	Production	Area	Production	Area	Production
Walnut	115	238	92	229	92	228
Watermelon	84	2049	95	2325	101	2480
Others	349	2938	275	2386	272	2289
Total Fruits	6235	89514	6301	90183	6480	92846
Vegetables						
Beans	218	2204	232	2334	230	2278
Bittergourd	76	770	93	1046	96	1083
Bottlegourd	108	1826	149	2458	157	2572
Brinjal	673	12589	663	12515	669	12400
Cabbage	386	8585	394	8806	407	8971
Capsicum	32	183	46	288	46	327
Carrot	64	968	82	1338	86	1379
Cauliflower	411	7926	426	8090	452	8499
Cucumber	43	678	71	1202	78	1142
Chillies (Green)	181	1998	292	2955	287	3406
Elephant Foot Yam	24	678	28	733	26	659
Mushroom		51	170	436	183	459
Okra/Ladyfinger	504	5709	511	5849	528	6146
Onion	1173	18927	1320	20931	1270	21564
Parwal/Pointed gourd	18	347	18	264	18	252
Peas	476	4652	498	4811	546	5452
Potato	2076	48009	2117	43417	2164	46546
Radish	168	2307	199	2844	206	2927
Pumpkin/Sitaphal/ Kaddu	49	1122	68	1509	72	1582
Sweet Potato	107	1228	126	1454	135	1639
Tapioca	208	4373	204	4344	196	4096
Tomato	767	16385	774	18732	809	19697
Others	1654	25053	1625	22707	1628	21932
Total Vegetables	9417	166566	10106	169064	10290	175008

(Contd.)

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**

					A	rea in '000 Ha on in '000 MT
Crops	2	014-15	2	015-16	2 (Pr	016-17 ovisional)
Fruits	Area	Production	Area	Production	Area	Production
Aromatic	659	1000	634	1022	634	1031
Flowers Cut		484		528		593
Flowers Loose	249	1659	278	1656	309	1653
Total Flowers	249	2143	278	2184	309	2246
Honey		81		88		88
Plantation Crops						
Arecanut	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
Total Plantation	3534	15575	3680	16658	3677	16867
Spices						
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
Total Spices	3317	6108	3474	6988	3535	7077
Total	23410	280986	24472	286188	24925	295164

Provisional: 2nd Advance Estimate

												N.	INMAL	funning a mi
Crops	2010)-11 over 09-10	201	1-12 over 010-11	201	2-13 over 011-12	201.	3-14 over 012-13	201	4-15 over 013-14	201.2	5-16 over 014-15	2016 over	-17(Prov.) : 2015-16
	Area	Production	Arca	Production	Arca	Production	Arca	Production	Arca	Production	Area	Production	Arca	Production
Fruits	-1.4	4.4	5.0	2.1	4.1	6.4	3.4	9.5	-15.3	-2.7	3.1	4.1	2.8	3.0
Vegetables	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
Flowers	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
Aromatics	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
Plantation Crops	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
Spices	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
Total Horticulture Crops	4.5	7.8	6.5	7.0	1.9	4.5	2.1	3.2	-3.3	1.3	4.5	1.9	1.9	3.1

	2012-13		2013-14		2014-15		%age share
PRODUCT	Qty	Rs. Lacs	Qty	Rs. Lacs	Qty	Rs. Lacs	in 2014-15
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
Total	3701563	1059403	3694861	1436488	3322173	1382281	10.54

Table 4 Export of Horticulture Ptoduce From India

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:

- 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;
- To enhance horticulture production, 2. 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;
- To promote, develop and disseminate technologies, 4 through a seamless blend of traditional wisdom and modern scientific knowledge;
- To create opportunities for employment generation 5. 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