

Growth trend in Area, Production and productivity of fresh Horticulture fruits in South Kashmir (J&K)

Rouf Ahmad wagay¹, Mohd Rayaz²

¹*Research Scholar, DAVV Indore, MP*

²*Department of Geography, GDC Mendhar, Poonch (J&K)*
gwagayrouf@gmail.com

Abstract

Horticulture is one of the important sector of economy in Kashmir division. More than 60% of population is directly or indirectly involved in this sector. In absence of industrial development, horticulture is one the important employments generating sector and contributes about 20 percent in SGDP. The area and production of horticulture fruits is continuously increasing and large agriculture area is getting diversified in to horticulture land due to good return from horticulture produce. South Kashmir districts have major contribution in horticulture sector particularly in fresh fruits. In present study we will try to find the growth trend in Area, production and productivity of fresh fruits in south Kashmir which covers three districts namely Anantnag, Kulgam and Shopian. The data has been collected from horticulture department of Srinagar from 2009-10 to 2018-19. The percentage change and CAGR was calculated for all the years. The CAGR in area, production and productivity for fresh fruits was highest in Kulgam with figure of 3.09, 7.19 and 3.97 in Apple, -1.05, 0.93 and 2.01 in pear, 5.14, 5.40 and 0.22 respectively for cherry. Except apple fruit which has major share in area occupied by horticulture crops, the percentage change was negative in other fruits (pear & cheery) in Anantnag and Shopian from last ten years.

Keywords: Area, Production, Productivity, Horticulture, CAGR, Fresh Fruits.

Introduction

Over the past decades, horticulture has become very popular and is developed into a potential enterprise of the agricultural sector. Besides addressing important aspects of the country related to nutritional safety, employment generation and poverty issues, the growth in the production of fruits and vegetables assumes critical importance nowadays due to the increase in the demand generated by the rapid increase in population. According to the data provided by the Government of India for 2016–17, horticulture crops occupy about 7 per cent of India's total cropped area which is about 24 million hectares of area and the annual horticultural produce is estimated around

295 million tonnes, which includes 175 million tonnes of vegetables and 92 million tonnes of fruits in 2016–17. There has been spectacular change in horticultural industry in terms of adoption of new technologies, production and availability of horticulture product. The importance of horticulture can be demonstrated by its benefits like high export value, high yields per unit area, high returns per unit area, efficient utilisation of wasteland, provision of raw materials for allied industries, better use of undulating lands, and stabilization of women's empowerment by providing employment opportunities through fruit and vegetable processing, floriculture

industry, seed production, nursery business and mushroom cultivation. Horticulture sector offers wide range of choices to the farmers, cultivators labourers of crop diversification and provides employment opportunities to about half of population directly and indirectly, making it most important employment generating sector in the state. Out of the total area of horticulture in the state, 90% is concentrated in the valley due to the favourable climatic conditions. Horticulture industry provides employment to about 6 lakh families comprising of about 30 lakh people which

Materials and Methods

For the present study fresh fruits among horticulture crops were selected to study trend analysis in area, production and productivity of apple, pear and cherry fruit. Three districts Kulgam, Anantnag and Shopian were selected purposively for analysis. Secondary data regarding Area, production and productivity of the horticultural crops for said districts were collected from various published and unpublished sources like Departments of Horticulture Srinagar, Directorate of

Results and Discussion

Trends in area, production and productivity of Apple Fruit in Anantnag, Kulgam and Shopian.

Apple is one of the important horticulture fruit of Kashmir valley and has the largest share in both area and production. More than half of the area of horticulture is occupied by apple crop. In Kashmir valley south Kashmir has major contribution in area, production and productivity of apple crop. From the table no.1 below its evident that there is

are directly or indirectly associated with horticulture. Years after year, there is a significant increase in area and production under horticulture crops. The continuous increase in production and productivity can be attributed to modal factors like commitment of orchardists towards this sector, continuous efforts of the department of horticulture and above all the agro-climatic conditions of valley, with the focused attention on development in horticulture during the last two decades has been rewarding in terms of increased production and productivity of horticultural crops.

Statistics and Economic Srinagar. Data was collected from 2009-10 to 2018-19. The CAGR and Absolute change was calculated to show the trends in area, production and productivity by formula:

$$CAGR = \left(\frac{EV}{BV} \right)^{1/n} - 1 \times 100$$

EV= End Value

BV= Beginning Value

N= Number of years

$$Absolute\ change = \frac{EV - BV}{BV} \times 100$$

fluctuating trend in area, production and productivity of apple crop among three districts of south Kashmir. In district Anantnag, the area, production and productivity of apple has increased by 34.79, 92.55, and 42.78 percent, respectively in the year 2018-19 over the area, production and productivity under total horticultural crops in the year 2009-10 in Anantnag. The compound growth rate in area, production and productivity of apple crops for Anantnag were recorded as

3.03, 6.77 and 3.62 percent respectively. The area and production and is showing increasing trend over the time period of 2009-10 to 2018-19, except in the year of 2015-16 because of flood (sept.2014) , which has affected horticulture very badly. However productivity is showing fluctuating trend. Similarly in Kulgam, the area, production and productivity of apple has increased by 35.65, 100.3 and 47.68 percent respectively in the year 2018-19. The compound growth rate in area, production and productivity of Apple crops in Kulgam was recorded as 3.09, 7.19 and 3.97 per cent respectively. The area and production in showing increasing trends over the time period of 2009-10 to 2018-19, but productivity was fluctuating up to 2014-15. From 2015-16 productivity is showing increasing trend which is a positive sign for the apple cultivators. In Shopian the area, production and productivity of apple has increased by 6.41, 38.95 and 30.63 per cent respectively in the year 2018-19 from last ten years. The compound growth rate in area, production and productivity of apple crop was recorded as 0.62, 3.34 and 2.70 percent. From the table it's evident that the Shopian has more area under apple than Anantnag and Kulgam but from last ten years there has been increase of 34-35 percent of area in both the Anantnag and Kulgam. Similarly in production, there has been 100 percent increase in Kulgam, 92 percent in Anantnag from last ten years. While it was 38.95 percent in Shopian. From last ten years same trend is in productivity, were 47.68 percent increased in Kulgam, 42.78 percent in Anantnag and

30.63 percent in Shopian in the year 2018-19.

Table no. 1: Trend in Area, production and productivity of apple fruit in south Kashmir- Kashmir Division									
Years	Anantnag			Kulgam			Shopian		
	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)
2009-10	13603	109384	8.04	13347	106663	7.99	20363	196191	9.63
2010-11	13875	147668	10.64	13614	143995	10.57	20770	264858	12.75
2011-12	16523	128264	7.76	15842	143095	9.03	21615	236129	10.92
2012-13	16539	150285	9.08	16766	120734	7.20	21625	191506	8.85
2013-14	17119	151492	8.84	17442	146426	8.39	21641	219395	10.13
2014-15	17217	149391	8.67	17153	57518	3.35	21595	183412	8.49
2015-16	16971	214406	12.63	18192	209205	11.49	21607	248044	11.47
2016-17	17062	188148	11.02	18207	207259	11.38	21663	237001	10.94
2017-18	18235	221636	12.15	19148	223893	11.69	21663	288809	13.33
2018-19	18336	210619	11.48	18106	213653	11.80	21669	272620	12.58
Average	16548	167129	10.03	16782	157244	9.28	21421	233796	10.90
% change over 2009-10	34.79	92.55	42.78	35.65	100.3	47.68	6.41	38.95	30.63
CAGR	3.03	6.77	3.62	3.09	7.19	3.97	0.62	3.34	2.70

Source: Directorate of statistics and economic department Srinagar- Kashmir

Trends in area, production and productivity of Pear Fruit in Anantnag, Kulgam and Shopian.

Pear is second most important temperate fruit among horticultural fruits in Kashmir valley both in production and varieties diversity. Pear fruit having good taste and flavour is largely grown for consumption purpose as a fresh fruit. Pear can tolerate a wide range of climatic condition and that is the reason it is grown in both temperate and sub-tropical conditions. Almost in all districts of valley pear is grown but pear occupies less area in comparison to apple. If we look at the data of last ten years collected from horticulture department Srinagar, we can easily conclude that the area share of pear among total horticultural crops is decreasing, similar trend is followed in south Kashmir. From the table analysis of Table no.2, it's clear that the area under pear is decreasing in all the three districts of south Kashmir. The possible reason is that people are shifting to apple farming for good returns. In production and productivity Kulgam is only district showing positive sign of improvement, in rest of districts production and productivity is decreasing. In Kulgam the area has decreased by 10.0 percent over the years from 2009-10 to 2018-19, but production and productivity is showing positive trend and the respective figures are 9.77 and 22.09 percent. The compound growth rate for the area, production and productivity was -1.05, 0.93 and 2.01 percent from the time period of 2009-10 to 2018-19. In remaining two districts like in Anantnag, the area, production and productivity of pear decreased by 30.0, 60.62 and 40.12

percent respectively. The compound growth rate is also negative and the respective figures are -4.10, -8.89 and -4.99. In Anantnag, people are mainly shifting to apple which is a main reason that area of other horticulture crops is decreasing. Similarly in Shopian, the area, production and productivity of pear shows declined trend and the respective figures are -5.71, -13.77 and -8.53 percent over the years from 2009-10 to 2018-19. The compound growth rate of pear in area, production and productivity are -0.58, -1.47 and -0.88, negative trend in Shopian is also due to reason that about 90% of horticulture area of Shopian is devoted to apple farming making it the largest apple producer district of valley. Although the pear is second important fresh fruit of Kashmir valley but its apple fruit which has dominated the horticulture industry of whole Kashmir particularly south Kashmir. However lack of processing industries and lack of attractive shape, color and perishable nature are serious barriers in the cultivation of pear on large scale in Kashmir valley.

Table no. 2: Trend in Area, production and productivity of Pear fruit in south Kashmir- Kashmir Division									
Years	Anantnag			Kulgam			Shopian		
	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)
2009-10	839	5399	6.43	656	5257	8.01	420	2904	6.91
2010-11	856	5669	6.62	669	5520	7.80	429	3049	7.10
2011-12	981	5252	5.35	884	3420	3.86	396	1591	4.01
2012-13	1057	4472	4.23	894	6592	7.37	396	1816	4.58
2013-14	1800	6240	3.46	902	6623	7.34	396	3044	7.68
2014-15	1800	13204	7.33	935	2463	2.63	396	2717	6.86
2015-16	1088	6209	5.70	932	8011	8.59	396	4090	10.32
2016-17	1098	5048	4.59	943	7445	7.89	396	3177	8.02
2017-18	547	2107	3.85	850	7795	9.17	396	3302	8.33
2018-19	552	2126	3.85	590	5771	9.78	396	2504	6.32
Average	1062	5572.6	5.14	825.5	5890	7.24	402	2819	7.01
% change over 2009-10	-34	-60.62	-40.12	-10.0	9.77	22.09	-5.71	-13.77	-8.53
CAGR	-4.10	-8.89	-4.99	-1.05	0.93	2.01	-0.58	-1.47	-0.88
Source: Directorate of statistics and economic department Srinagar- Kashmir									

Trends in area, production and productivity of cherry Fruit in Anantnag, Kulgam and Shopian.

Cherry occupies unique position among temperate fruit in Kashmir valley. The cultivation of sweet cherry is done on the commercial basis. Cherry is considered to be the native of turkey and south east European region and as far as east of northern India and china. Cherries are well adopted at an elevation above 1500 metres and the preferable site for the cherry plantation is the hill slope where cold air may drain down. The area, production and productivity of cheery has similar trend like that of pear. Except Kulgam, the growth trend of cheery is negative in the remaining two districts aspects. In Kulgam, the area, production and productivity has increased by 65.21, 69.31 and 2.49 percent respectively over the time period from 2009-10 to 2018-19. The compound growth rate was also positive in area, production and productivity and the respective figures are 5.14, 5.40 and 0.22 percent. Kulgam district has only positive trend in all the three categories. In Anantnag the area, production and productivity is showing negative trend over the period from 2009-10 to 2018-19. The respective figures are -1.68, -67.05 and -66.60 percent's. The compound growth rate was -0.16, -10.50 and -10.38 percent's. Overall the table analysis shows that the area of cheery is decreasing in Anantnag which directly impacts its production and productivity. In Shopian similar trend is followed in area, production and productivity like Anantnag. From 2009-10 to 2018-19, the area, production and productivity decreased by -26.03, -36.91 and -14.75 respectively. The

compound growth rate during the same period was in area, production and productivity was -2.97, -4.50 and -1.58 percent's. Overall from table analyses it's clear that except Kulgam, in remaining districts the trend of growth is negative, which directly impacts the horticulture sector of the region.

Conclusion

Among fresh fruits in south Kashmir, area of apple is increasing and rest of two crops are losing area share among total horticulture crops which is not a positive sign for growth of horticulture. Majority of farmers are getting diversified towards apple for better income. Horticulture is major economy generating sectors, in order to maintain the growth and development, government need to pay focused attention towards the crops which area losing area through proper planning and policy measures. Availability of better-quality planting material, mechanization, quality research and development, more public and Private sector investments in this sector will be of great use.

Years	Anantnag			Kulgam			Shopian		
	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)	Area ('000 ha)	Production ('000T)	Productivity (tonnes/ha)
2009-10	119	695	5.84	69	277	4.01	822	4738	5.76
2010-11	119	730	6.13	70	291	4.15	838	4975	5.93
2011-12	119	1381	11.60	69	272	3.94	745	3077	4.13
2012-13	199	466	2.34	72	284	3.94	745	2962	3.97
2013-14	168	787	4.68	75	288	3.84	744	2916	3.91
2014-15	173	605	3.49	79	393	4.97	758	2979	3.93
2015-16	147	483	3.28	36	54	1.5	608	2952	4.85
2016-17	167	262	1.56	38	105	2.76	608	1453	2.38
2017-18	125	230	1.84	142	472	3.32	608	2930	4.81
2018-19	117	229	1.95	114	469	4.11	608	2989	4.91
Average	145	587	4.27	76.4	290.5	3.65	708	3197	4.45
% change over 2009-10	-1.68	-67.05	-66.60	65.21	69.31	2.49	-26.03	-36.91	-14.75
CAGR	-0.16	-10.50	-10.38	5.14	5.40	0.22	-2.97	-4.50	-1.58

Source: Directorate of statistics and economic department Srinagar- Kashmir

References

1. Bhat, Mudasir Hassan. (2017). Diversification towards Horticultural crops in Jammu and Kashmir: Micro- level analysis of economics and non- economic factors, *IOSR journal of business and management*, volume: 19 P-ISSN: 2319-7668.
2. Bhat, Tariq Ahmad. (2014). Economic of Apple Industry: A primary survey in District Shopian Kashmir (India). *Research on Humanities and social science*, volume IV, ISSN No: 2224-5766.
3. Darzi, Dr. Mohd Iqbal. (2016). Horticulture sector towards Economic Development of Jammu and Kashmir, *International Journal of Multidisciplinary Research and Development*, Volume 3, ISSN No: 2349-4182.
4. Jha, G. K., Suresh, A., Punera, B., and Supriya, P. (2019). Growth of horticulture sector in India: Trends and prospects. *Indian Journal of Agricultural Sciences*, 89 (2): 314–321.
5. Digest of statistics, 2011, Statistics and Economic Department of Jammu and Kashmir.
6. Sangral, Chinky. (2015). District wise production of fresh and dry fruits in Jammu and Kashmir. *EPRA International journal of economic and business review*. Volume 3, ISSN No: 2349-0187.
7. Malik, Zahoor Ahmad. (2013). Assessment of Apple Production and Marketing in Kashmir valley, *Journal of Economic and Social Development*, volume IV, ISSN No: 0973-886X.
8. Wani, Mohammad Younis. Bhatt, Dr. Prabha. (2015). A study on impact of climatic change on Horticulture sector in Jammu and Kashmir: An economic overview, *International journal of Scientific Research and Management*. Volume 5, ISSN: 2321-3418.
9. Islam, Rather Tajamul. And Shrivastava. (2017). A study on area production and productivity of apple in j&k from 2006-07 to 2015-16, *International journal of scientific Research and Management*, volume 5, ISSN No: 2321-3418.
10. Dar, Farouq Ahmad. (2017). Production of Fresh and Dry fruits, A District wise Analysis in Jammu and Kashmir, *International journal of Applied Research*. ISSN No: 2394-5869