

# Crop Yield and Production of Temperate Peach Cultivation in Western Himalayan Region of Kashmir Valley

Ruyida Mushtaq\*

Department of Agriculture, University of Kashmir, Jammu and Kashmir, India

## Research Article

Received: 10/08/2021

Accepted: 24/08/2021

Published: 31/08/2021

**\*For correspondence:**

Ruyida Mushtaq, Department of Agriculture, University of Kashmir, Jammu and Kashmir, India

E-mail: ruyidakhan611@gmail.com

**Keywords:** Peach, Temperate zone, Kashmir, Horticulture, Regression method

## ABSTRACT

In temperate regions of Kashmir valley, Peach is the important stone fruit crop and is considered as economically profitable crop, has a good nutritious value which belongs to Rosaceae family and occupies an important position in the horticulture industry of Jammu and Kashmir. There has been increasing demand for peach and their value added products because of various health applications and nutritious values. Investment in peach and its products is much profitable and financially viable which has a tremendous potential for processing of primary products and through entrepreneurship development, more employment opportunities will enhance its production to meet the demand in domestic markets. The aim of this paper is to examine the growth in area, production and yield of peach in Kashmir valley since 2007-08 to 2016-17 and forecast area, production and yield of peach for year 2018-25 in Kashmir valley. For this study regression method was used to examine the best fitted model. From the result it has been observed Peach area and production has been increasing and productivity reflects a fluctuations. It has been observed that for quadratic trend R-square =0.981 and for cubic trend R-square =0.989 which can be used for prediction purpose.

## INTRODUCTION

Peach is temperate and economically important fruit species and is in third position among temperate fruits after apple and pear. Most countries that produce peaches are China, Italy, Spain and the USA. In Brazil peach has a great socio-economic importance [1]. It is consumed in fresh form and processed drinks for commercial purposes. Brazilian consumers use peach juice and nectar increasingly approximately 8.5% of volume of juices or nectars ready to drink are sold in the country. Among the stone fruit Peach is the most important temperate in nature (Abbott, 2016; Henry, 2016). It probably developed in Persia and is the native of china. Peach is grown widely and

enjoys a ready market nationally as well as internationally and is a rich source of carbohydrates, vitamin A, C, minerals, organic acids, phenolic compounds, carotenoids and volatile compounds which give flavour and aroma to it. Mostly it is used in fresh form but can preserve it in cans and prepare jams and jellies from it. As per FAO production data, peach production in India was 1.5 lakhs tonnes, because of its valuable functions and qualities particularly health promoting ones, refreshing and delicious nature and is popular all over northern India. The peach fruit are of great economic importance and are rich source of carotenoids and minerals [2]. By developing various supply chains, Peach producers can make their orchards and the farms more economic feasible to the market. One way of achieve this is through direct marketing to the increasing population in the state where local farmers are interested in producing food locally. The peach producers can add value to their products by adopting methods of integrated pest management and Supply Chain Collaborations. In Utah, peach production witnessed a 12% reduction in the number of peach producing acres decreasing from 1792 to 1594 acres from 2007 to 2012. However yield per acre increased from 2.87 tons to 3.53 tons/acres. Thus a change in overall peach production from 4200 tons to 5300 tons annually (U.S Department of agriculture within the state as each year urbanization increases. Also noteworthy is the increase in nonbearing age peach acres as it has increased 18% from 287 acres in 2007 to 341 in 2012 showing a potential increase in producing acres in the future. Prices for per ton peaches also increased and \$1080 were estimated in 2012 per ton, 36% up from 2007 with a total state peach production value of \$5.7 million(U.S Department of Agriculture, National Agriculture Statistics service, 2014). Peach covers an area of 35531 hectares in India and total production over the area is 237921MT. The area under peach production in Himachal Pradesh is 5195 hectares and production is 5162(Annon, 2010). Non-parametric regression to study the growth rates of total foodgrain production of India during the period 1987 to 2001 and to find out the growth rate trends of various crops. Peach cultivation in India is mostly found in Himachal Pradesh, Jammu and Kashmir, Uttarakhand and northeastern states. J and K is the fourth largest peach producer in India with 4.5% production capability of overall capacity. The area under peach along with nectarine which is a close relative of peach is about 40762 hectares with total production of 287778 tonnes and productivity of 7.17 tons/hectares in India. Brazil has a great market potential for peach production since domestic production of peach is not so much to meet domestic demand however efforts are underway especially in tropical and subtropical regions. 14th largest producer of peach of peach in world is Brazil where 217706 tons of peach were produced in an area of 18091 hectares in 2013 [3]. Peach is one of the most popular fruit consumed worldwide. It has a nutritious value and economically viable. Peach is not only consumed but also processed into juices, jams and sliced or dried product. In India Peach is cultivated upto an altitude of 1000ft and is mostly cultivated in West Asia, Europe and Himalayas. China is the largest producer of peach fruits in the world (11.9 million metric tons, 2013 FAO data). Presently China has approximately more than 1000 peach cultivars. The annual production of peach in Spain is 162000 tonnes from the cultivated area of 11151 hectares and is thus leading peach producer and two important regions in Spain which produces peaches, Catalonia and Aragon. Southern china is well known for peaches having a soft texture, juicy flesh and sweet taste; this makes them quite competitive in fresh fruit market. Trend Analysis is useful for planning and decision making purposes of appropriate policy measures.

## MATERIALS AND METHODS

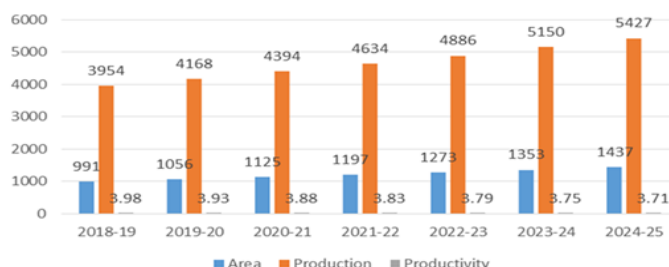
The state of Jammu and Kashmir is the north-westernmost part of India. It is located between 32°17'N and 37°5'N Latitudes and 73°26'E and 80°30'E Longitudes. Horticulture is an important sector in the Jammu and Kashmir and is considered as the backbone of the state economy. Kashmir is agro climatically suited for the cultivation of almost all kinds of temperate fruits. Peach is basically a temperate zone plant. It is grown on a commercial scale in mid hills of Jammu and Kashmir, Himachal Pradesh Uttarakhand, as well as in a limited scale in north-eastern states. It has been observed that peach production in Kashmir valley has been increased from 2007-08 to 2016-17 which reflects positive growth rate from Directorate of Horticulture, Jammu and Kashmir (J and K), 2018-19. Therefore, conducting a research study in the region to assess the predominance of peach cultivation is not only becoming important from the viewpoint of potential income generating activities, but also as the key contribution to the GDP of the J and K state economy.

In the present study, secondary sources of data were used. The main sources of data collection include Economic survey 2018, Directorate of horticulture J and K, magazines, reports and Digest of statistics. For analyzing the area and production of peaches, regression analysis was used. Regression Analysis is a form of predictive modelling technique which gives us the relationship between dependent variable and independent variable and is used for finding casual effect relationship between the variables. The data collected was analysed, tabulated and interpreted statistically using statistical software SPSS (Version 20).

**Table 1.** Area and production of peach in Kashmir valley 2007-008 to 2016-17.

Years	Area(Hectares)	Production(metric tonnes)	Yield per hectares
2007-08	553	2522	4.560579
2008-09	580	2631	4.536207
2009-10	597	2710	4.539363
2010-11	609	2845	4.671593
2011-12	674	2810	4.169139
2012-13	739	2836	3.837618
2013-14	777	3291	4.235521
2014-15	814	3745	4.600737
2015-16	901	3570	3.962264
2016-17	905	3597	3.974586
Average	714.9	3055.7	4.308761

Figure 1. Forecasted values of area, production and productivity of peaches in Kashmir upto 2018-25.



## RESULTS AND DISCUSSION

For analyzing the area and production of peaches, regression analysis was used. Regression Analysis gives us the relationship between dependent variable and independent variable used. The model summary and parameter estimates. We observe that with increase in number of years, area and production of peaches also increases and yield depicts a fluctuations in peach. Line of best fit in terms of area, production and yield of peaches respectively for years 2007-008 to 2016-17. Line of best fit implies line through a scatter plot of data points that establishes the relationship between two variables [4]. It has been observed from graph that there is an increasing trend in area, production and yield though to a small extent. Productivity in peach is most often assessed by measures of crop yield and is commercially most important temperate fruit which indicates efficiency in production. The study and facts show that peach productivity in Kashmir valley is associated with changes and fluctuations due to erratic rainfall patterns and unpredictable high temperature spells affects peach productivity. Its productivity depends on climate, soil, topography, irrigation facilities, orchid management and pesticides [5]. The overall peach area and production has been increasing reflects a positive growth rate which is an indicator of use of farming knowledge, technology infrastructural development, farm investment and suitable price policy. To achieve the productivity, there is need for strengthen the efforts and maintaining the increasing production of peach.

## CONCLUSION

It has been concluded that peach is the main temperate fruit crop grown in Kashmir region provides a great opportunities for employment generation and processing of peach products give a huge opportunity for entrepreneurship development in agricultural economy and also great health benefits which has enormous scope and potential for further improvement in future with suitable agro climatic conditions of the area by inducing post-harvest technologies. We should introduce high yielding and diseases resistance varieties peach varieties for better results. This will bring good returns to the orchardist which ultimately improves socioeconomic conditions.

## REFERENCES

1. Abbott AG. Peach genome initiative. In principles and practices of plant genomics. Routledge. 2016;3:311-340.
2. Ahmad MF, et al. Temperate fruit scenario in Jammu and Kashmir: Status and strategies for enhancing productivity. Indian Horticult J. 2011;1:1-9.
3. Chadha TR. Temperate fruits in India: A retrospect and prospect. Indian Horticulture. 1987;32:2-5.
4. Despoudi S, et al. Does collaboration pay in agricultural supply chain? An empirical approach. Int J Prod Res. 2018;56:4396-4417.
5. Fideghelli C, et al. The peach industry in the world: Present situation and trend. In IV International Peach Symposium. 1997;465:29-40.