

# Trend Analysis of Cherry Cultivation

Diksha Bali<sup>1\*</sup>, Parul Barwal<sup>1</sup>, Ravinder Sharma<sup>2</sup>, Akshay Deep<sup>1</sup> and Parveen Kashyap<sup>3</sup>

<sup>1</sup>Division of Agricultural Economics and ABM, SKUAST, Jammu, India

<sup>2</sup>Department of Social Sciences, Dr YSPUHF Nauni, Solan, Himachal Pradesh, India

<sup>3</sup>Department of Environmental Sciences, Dr YSPUHF Nauni, Solan, Himachal Pradesh, India

\*Corresponding author: balidiksha7@gmail.com

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## ABSTRACT

The present study is an attempt to study and analyse the trends in cherry production with the help of secondary data collected from various publications & official websites. It is inferred that even though global production of cherries changed significantly over past 30 years due to new developments; yet at overall level productivity of cherry is not growing at good rate globally and nationally i.e. 0.3 per cent and 0.6 per cent respectively. Production is increasing with 1.8 per cent CGR (Compound Growth Rate) where Turkey is leading the world followed by USA, Iran & Chile while its harvested area is growing with 1.5 per cent CGR in which Uzbekistan and Turkey is growing with the highest rate of 8 per cent to 7 per cent. Top five countries viz. Turkey, Chile, USA, Syria and Italy contributes 48.72 per cent of the total area under cherry in world. India ranked 25<sup>th</sup> and 31<sup>st</sup> in terms of area harvested and production growing at 3.6 per cent and 4.2 per cent CGR respectively, mainly contributed by Jammu & Kashmir and Himachal Pradesh. Jammu & Kashmir harvested 15555 MT of cherries from 2700 ha area in 2019-20 while Himachal Pradesh contributed only 12 per cent of national cherry production and 26 per cent of harvested area with -1.0% and 2.6% CGR respectively. Countries like Nepal, Australia, Sri Lanka and UAE were the top cherry importing countries for India in 2020-21 export to Nepal grew with negative rate and export to UAE increased 183.33 per cent this year. Total production showed more fluctuation as compared to cherry prices revealed by continuous decrease in arrival of cherry in different markets of India and lack of growth in its export.

**Keywords:** Compound Growth Rate, Productivity, importing, export

Cherry belonging to genus *Prunus* of family Rosaceae is a fleshy stone fruit and majority of edible cherries are derived from either *Prunus avium*, the sweet cherry (sometimes called the wild cherry), or from *Prunus cerasus*, the sour cherry (Webster and Looney, 1996). Highly specific in climatic requirement; the sweet cherry needs comparatively warm temperature as that of sour cherry, because sour cherry can tolerate more cold than the sweet cherry about 1,000 chilling hours annually. Sour cherry requires 15°C mean temperature during the growing period and don't thrive well in the warm climate and are well adapted at an elevation above 1500 meters. It bloom relatively late in spring, so frost is less of a hazard for this stone fruit than others such

as peaches or apricots however, late in the spring too much frost may adversely affect cherry production and during harvest there should not be excessive rain because it can cause crack to the fruit (particularly sweet cherries). The preferable site for the cherry plantation is the hill slope where the cold air may drain down. It gives better performance on highly fertile, well drained warm, deep, free working and sandy loam soil. Cherries are not able to tolerate wet feet; therefore soil with water logging is avoided,

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therefore it is a marginal fruit of temperate zones of Asia, Europe, and North America (Webster and Looney, 1996). Global production of cherries has changed significantly over the past 30 years. To restrict vegetative growth, to allow high density planting, as well as earlier fruiting new root stocks were introduced and new varieties have been developed that self-pollinate to give tougher and larger fruit.

In India cherries are attaining popularity as an alternative crop in the temperate regions, where apple is the commercial crop due to change in climate as it provides crop diversification which ultimately gives additional income and economic gains and has remarkable impact on the agro-socio-economic upliftment of resource-poor farming communities besides it extended employment and productivity. Sweet cherry is distinctively separated in three groups: dark, red, and yellow and cultivars are most popular for direct consumption. In India, Cherry is mainly grown in the North-Western Himalayan region of Jammu and Kashmir (J&K), Himachal Pradesh (H.P.) and Uttarakhand hills. Jammu & Kashmir harvested 15555 MT of cherries from 2700 ha area in 2019-20 (Anonymous, 2022) while Himachal Pradesh contributed only 12 per cent of national cherry production and 26 per cent of harvested area with -1.0% and 2.6% CGR respectively (Diksha, 2018). Many cultivars of sweet cherry had been introduced from Europe, British Columbia and former USSR before India's independence in 1947, while commercial cultivars of sour cherry had been brought mainly from USA (Ghosh, 1999).

## MATERIALS AND METHODS

Present study is an attempt to study the global and national trends of cherry production and trade for recent years by using secondary data. Primary data collected by someone else which is reused for the other study is the secondary data. Secondary data was collected from various sources such as Food and Agricultural Organization (FAO), Ministry of Agriculture, Govt. of India, Database of National Horticulture Board, DGCIS Annual Export, APEDA Agri Exchange and MSAMB, AGMARKNET and Observatory of Economic Complexity (OEC) etc. To study the trends and growth rates, long term data for last 30 years pertaining to the area, production

and productivity of cherry is collected in present study. For analyzing the collected data effectively and efficiently to draw sound conclusions, certain statistical tools and techniques were used. Tools like as SPSS (Statistical Package for Social Science) 16.0 version and MS-Excel for analysis purpose were also used. The data has been analyzed and interpreted through trend analysis, graphical analysis, tabulation and compound annual growth rate was calculated using SPSS.

## RESULTS

The overall growth in production, harvested area, trade around the world & India and demand-supply forecasts have been described here in results. The growth rate for world area under cherry is 1.5 per cent while the production grows at a rate of 1.8 per cent and the yield was growing only at 0.3 per cent CGR during 1990-2019 (Table 1). So it can be inferred that the increase in production was only due to the increase in area under cherry cultivation while in actual the yield is growing at very low rate and focus should be more on improving the yield. Top 5 countries with highest area, production and productivity in cherries are presented in Table 2 and it can be observed that top five countries producing highest amount of cherry were Turkey, USA, Iran, Chile and Uzbekistan. Top five countries with highest harvested area included Turkey, Chile, USA, Syria and Italy contributing 48.72 per cent of the total world area. During 2019-20 top countries with highest yield were Suriname, Austria, Guyana, Switzerland and Netherlands (FOASTAT, 2021).

India ranked 25<sup>th</sup> and 31<sup>st</sup> in terms of area harvested and production of cherry; production is growing at the rate of 4.2 per cent while harvested area is growing with 3.6 per cent CGR during 1990-2019 but we have been ranked very low in terms of the yield i.e. 49 showing growth rate of only 0.6% between 1990 and 2019 (Table 1, 2). Most of the production is mainly contributed by Jammu & Kashmir and Himachal Pradesh. Jammu & Kashmir produced 15555 MT of cherries from 2700 ha harvesting area in 2019-20. Himachal Pradesh contributed only 12 per cent of national cherry production and 26 per cent of harvested area having -1.0 per cent and 2.6 per cent CGR respectively.

**Table 1:** Global and National Scenario of Cherry Cultivation

Year	Area (ha)		Production (tonnes)		Yield (hg/ha)	
	World	India	World	India	World	India
1990	292481	1300	1397332	3200	47775	24615
1995	313892	1625	1626965	4400	51832	27077
2000	335468	2805	1897048	7800	56549	27807
2005	355457	3059	1843478	8771	51862	28673
2010	396328	3226	1997615	9554	50403	29616
2015	411908	3599	2246577	10945	54541	30411
2019	443771	3595	2595812	11107	58494	30896
CGR	1.5	3.6	1.8	4.2	0.3	0.6

Source: FOASTAT.

**Table 2:** Top 5 countries with highest area, production and productivity in cherries

Countries	Area (ha)	Countries	Production (tonnes)	Countries	Yield (hg/ha)
Turkey	83447	Turkey	664224	Suriname	295476
Chile	38392	United States of America	321420	Austria	268214
United States of America	35210	Chile	233929	Guyana	187500
Syrian Arab Republic	29961	Uzbekistan	175861	Switzerland	149815
Italy	29210	Iran (Islamic Republic of)	128354	Netherlands	149811
India	3595	India	11107	India	30896

Source: FOASTAT.

Exports of fresh cherries have more than doubled since 2011-12, rising above 350,000 tons to 622,000 in 2020-21, declining only once by a nominal amount in 2018. In 2019, Cherries (fresh) were the world's 833<sup>rd</sup> most traded product, with a total trade of \$3.72B representing 0.021% of total world trade. While Chile was the largest exporter of sweet cherries worldwide with most of its shipments to China, contributing 42.5% exports of world's export (\$1.58B), followed by Hong Kong 20.6% (\$765M), United States 13.5% (\$501M), Turkey 5.26% (\$196M), and Spain 2.92% (\$109M). In 2019, largest importers of fresh cherries, was China amounting \$2.33B (62.5%) followed by Germany (\$179M) 4.81%, South Korea (\$135M) 3.62%, Russia (\$125M) 3.37%, and Canada (\$124M) 3.32%. Other countries have also successfully strengthened their exports, 11 countries have seen growth, while 5 have had exports contract during this time (Canada, European Union, Kyrgyzstan, Ukraine, and United States) (OEC, 2021). According to USDA Chile had been expanding production in 2011-12 till 2013-14 while as United States was the

lead exporter in those years, and Chile's export is dominating the trade since 2014-15 as it surpassed the United States since then. However between 2011-12 and 2020-21, Turkey also nearly doubled its exports after achieving the role of top producer with their shipments often close to and sometimes more than United States. USDA also forecasted drop in Turkey exports for 2021-22, than those of the United States after edging above them in 2020-21. They also forecasted global exports up once again for 2021-22, to 638,000 tons. In 2018 the average tariff for Cherries, fresh was 21.6%, making it the 464<sup>th</sup> lowest tariff using the HS6 product classification.

Trades in provisionally preserved cherries also represent 0.00057% of total world trade. In 2019, the top exporters of provisionally preserved Cherries were Spain, Bulgaria, Italy, Greece and Turkey and Italy, United Kingdom, Germany, United States, and Mexico were the top importers. Cherries that are otherwise prepared or preserved were the world's 3376<sup>th</sup> most traded product representing 0.0015% of

**Table 3:** Global Scenario of top Cherry Trading Countries

Export(\$)		Import (\$)	
China	1.58B(42.5%)	China	2.33B(62.5%)
Hong Kong	765M (20.6%)	Germany	179M(4.81%)
United States	501M(13.5%)	South Korea	135M(3.62%)
Turkey	196M(5.26%)	Russia	125M(3.37%)
Spain	109M(2.92%)	Canada	124M(3.32%)

Source: OEC,USDA.

**Table 4:** Country wise-export of cherry products from India (Value in ₹ Lacs Qty In MT)

Country	2018-19		2019-20		2020-21	
	Qty	Value	Qty	Value	Qty	Value
Nepal	40.23	33.03	9.4	2.36	3.49	0.72
Australia	0	0	0	0	0.05	0.65
Sri Lanka	0	0	0	0	0.22	0.36
U Arab Emts	0.13	0.62	0.08	0.06	0.2	0.17
Nigeria	0	0	0	0	0.03	0.06
Saudi Arab	0	0	0	0	0.06	0.06
Oman	0	0	0	0	0.08	0.04
Baharain Is	0.01	0.01	0	0	0.03	0.03
Maldives	0.03	0.11	0	0	0.01	0.02
Trinidad	0	0	0	0	0.01	0.01
Qatar	0.1	0.12	0	0	0	0
Seychelles	0	0	0.01	0.02	0	0
Singapore	0	0	0.05	0.06	0	0
Turkey	0.01	0.03	0	0	0	0
<b>Total</b>	<b>40.51</b>	<b>33.92</b>	<b>9.54</b>	<b>2.5</b>	<b>4.18</b>	<b>2.12</b>

Source: DGCIS Annual Export report.

total world trade in 2019, with a total trade of \$272M. Between 2018 and 2019 the exports of Cherries, otherwise prepared or preserved decreased by -8.18%, from \$296M to \$272M. The top exporters of such Cherries, were Hungary, United States, Bulgaria, Italy, and Germany and Germany, United States, France, Canada, and United Kingdom were the top importers (OEC, 2021).

During 2020-21, India exported fruits worth ₹ 4,971.22 crores/ 674.53 USD Millions (APEDA, Agriexchange, 2021). As shown in Table 4 countries like Nepal, Australia, Sri Lanka and UAE were the top cherry importing countries for India in 2020-21. Among which Australia and Sri Lanka were new importers while export to Nepal grew with negative rate in 2020-21, export to UAE increased 183.33 per cent this year. Overall export grew negatively with -15.2 per cent growth rate during 2020-21 which

may be attributed to the pandemic. Overall we can say that export of cherries from India is very less compared to import which had increased over the time period. Arrival of cherry in different markets of India has decreased continuously over last few years growing overall with -0.7% rate, whereas the export also did not grow at a very good rate which indicates a decrease in the production of cherry (Diksha, 2018).

## DISCUSSION

According to USDA Foreign Agricultural Service since 2011-12, fresh cherry production has increased almost 1.0 million tons to 4.0 million in 2020-21. Among top 17 producing countries; 11 countries extended their output where China, Chile, and Turkey top the list with average increases of over 30,000 tons per year. However, 6 countries (European Union, Japan, Kyrgyzstan, Serbia, Ukraine, and



United States) had output decline during this period. In 2011-12 European Union was the top producer but next year Turkey overtakes and its output drop 16 percent since then while Turkey retained its prime position, followed by the European Union and China in terms of output extension. China continues to expand and improve its own industry and is moving ever closer to EU volumes. USDA forecasted global production to be slightly above 4.0 million tons in 2021-22 as Turkey gained market access to China in 2019, and though COVID-19 related restrictions remain burdensome, exports to China increased from 900 tons in 2019-20 to 1,400 in 2020-21. They anticipated exports to top markets United Kingdom and Switzerland remain steady at 15,000 tons on sustained shipments.

Cherry got popularity around the globe due to its high return. Its importance can be judged from the fact that farmers had replaced apricot, pear and even apple with cherry plants. In past several years growers are also planting or grafting new varieties in order to extend the growing season and shelf life, yet total production showed more fluctuation as compared to cherry prices in India as revealed by continuous decrease in arrival of cherry in different markets of India and lack of growth in its export. The cherry has great advantages like short production duration, less water requirement and high value in the market. Cherry producers need to be encouraged to sell it at the market in India. Village and market infrastructure needs to be improved besides the provision of transport facility.

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