

A Case report on Walnut (*Juglans regia* L.) from Jammu & Kashmir

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Abstract

Juglans regia L. is one of the high yielding dry fruit crops grown in Union Territory of Jammu & Kashmir in India. Jammu and Kashmir UT is the largest walnut production and supply in India's share of total production. But in recent times, there has been a decline in India's export of walnuts, largely as a result of the importing of walnuts from China and California. Consumer acceptance of walnuts from California and China is higher than that of J&K walnuts, which negatively impacts the Indian walnut trade. Besides this, various other factors like less awareness to local fruit growers, highway connectivity, cutting of trees for timber, introduction of hybrid varieties, and other human interferences also contributed to less export and production of J&K Walnut. There are great challenges in J&K fruit industry to cope up with these problems and increase the quality fruit production in J&K. This current study is a special case report on walnut based on present trends and secondary data, exploring the walnut industry sector and marketing in J&K.

Keywords: Walnut; Horticulture; Challenges; Marketing; J&K

Abbreviations: UT: Union of Territory; MT: Metric Tonnes; M: Metres; G: Grams; Cm: Centimeters; JKKT: Jammu Kashmir Kisan Tehreek

Introduction

Juglans regia L. is commonly known as Walnut renowned for its high-quality nuts and timber make it an economical and nutritional important tree species. It belongs to the family Juglandaceae with sporophyte chromosome number $2n=2x=32$. Almost all plant parts and their by-products have been used in one or another way. It is the most widespread nut tree in the world [1]. Walnut fruit nuts are very famous for its high nutritional content used as food source. Also, they are rich in oil content composed of proteins, vitamins, minerals and unsaturated fatty acids. The kernels are very much attractive for its medicinal uses such as anti-cancer, anti-oxidant, anti-inflammatory, anti-atherogenic, anti-bacterial, and other important pharmacological properties that is all due to presence of phytochemicals such as flavonoids, phenolics and other polyphenols. A diet that includes walnut is supposed to have a cardiovascular protective effect. Bark has been used traditionally used for cleaning teeth as toothbrush due to anti-bacterial and anti-fungal property that protect the tooth from caries, decay and strengthen the teeth. It inhibits bacterial and fungal infection responsible for dental plaque and oral hygiene problems. Also, wood is very much priced due to its strong nature and is used as timber, making houses, furniture, and other common uses. The common walnut is a huge deciduous tree making up to a height of 25-40 meters with trunk diameters of 2-2.5 meters. It is a long-lived tree normally 100-220 years. But in some cases, the trees lived for up to 1000 years old also. It has a deep and strong tap root system that originated from its juvenile stage. The bark is grey-silver in colour, strong with wide fissures. The leaves are 25-50cm long having 5-8 leaflets with larger leaflets at apex position and smaller towards base

position of petiole. The fruit fully matures and ripens during hot summers (August-September) and is large rounded in shape having diameters of 4-6cm and 16-25g in weight. The walnut tree system requires suitable habitat for its well development and growth. It is usually grown as individual trees, requiring long growing season, sheltered site and warm conditions. Along with this, it also needs deep and rich nutrients soil having pH between 6-7.5, suitable light, prone to competition, and sensitive to winter and late spring frosts. Old trees are able to tolerate the chilled winter temperatures as low as -28 0C [2,3]. The aim of this case study is to present an insight in present challenges faced by J&K walnut fruit growers.

Case Presentation

Jammu and Kashmir struggling walnut Industry need immediate attention

Jammu & Kashmir's walnuts crop has recently experienced massive demands on both the global and domestic markets. The cost of walnuts produced in J&K, however, decreased significantly once producers from California, Chile, and China entered the Indian market. The sector is currently on the edge of diminishing as a result of the local market's collapse. Despite the fact that the quantity of walnuts has declined by 50% over the past ten years, the horticultural department has struggled to save the J&K walnut sector. Doubts regarding the industry's future have emerged as a result of the current situation of the sector. Therefore, it is essential to implement policies in line with the demands of the global market and evolving walnut production trends in order to maintain the J&K walnut industry's viability and maintain its ability to compete in the global agricultural market [4]. Also, due to inclusion of hybrids cultivation, high nut demands, timber demands, illegal cutting of the tress, less plantation of trees species, human exploitation, habitat destruction, less awareness among local peoples and various other anthropogenic factors leads to extinction of the botanical [5]. The walnut production has a particular position in the horticulture sector of JKUT. It shares the largest area and production of walnut

98% in India covering an area of 60,000 hectares [6]. India has achieved 8th rank in quality walnut production in the world. The national horticulture board reported in 2017 that Jammu and Kashmir produced 206.43 thousand metric tonnes of walnuts, whereas the rest of the nation only produces 21.8 metric tonnes [7]. All the regions of J&K produce walnuts except the district of Samba and Jammu. Rest Anantnag, Kupwara, and Kulgam, Ramban stand at the top by producing 41021MT, 25000MT, and 21319MT and 33452MT respectively, followed by Budgam, Baramulla, Ganderbal, Buderwah, and Srinagar [3,8]. The walnut from these regions has the highest quality as compared to hybrid varieties and other cultivars.

Challenges

The walnut industry in J&K is experiencing significant difficulties, resulting in it being in decline. Due to the industry's recent struggles, which have brought it to the point of collapse, many farmers and sellers are greatly indebted. The fact that the new season of walnut cultivation has begun while the previous crop is still sitting unsold in the stores of farmers and traders because they were unable to find a suitable buyer. Relevantly, during the past ten years, both domestic and international, demand for walnuts has increased significantly. However, since Californian, Chilean, and Chinese walnuts invaded the Indian market, the indigenous production of walnuts has been confronted with significant difficulties. The imports haven't decreased and are harming local walnut industry despite the government imposing import taxes of 132 percent on US-bound shipments of walnuts and 110% on shipments from Chile [8]. In October 2022, Jammu Kashmir Kisan Tehreek (JKKT) was told that their fruit industry has a great loss due to bad road connectivity. The fruit trucks carrying the fruits from hilly areas to main markets are not reaching on time as roads are blocked due to highway construction work and their fruits are rotten on the way and they are having great losses (Figure 1).



Figure 1: Fruits of walnut from J&K.

Discussion

Jammu and Kashmir UT is located in north-western region of India. With an average altitude of more than 5700 meters above sea level, the region's geography is predominately hilly. The area is an example of a highland ecosystem because of its fragile ecological system and linked physiographic features. The mountainous area of

the UT makes it suitable for growing various cash crops, including saffron, dry fruits, apples, and basmati rice. Both dry and fresh fruits have become significant economic factors for the UT over time, and the government has developed a number of plans and initiatives to support the expansion of the fruit sector. The walnut has observed growing demands and recognition in the domestic and

international market since it is organic in nature, as no fertilizers or sprays are used on walnut botanicals, and it is high in nutrients with significant health advantages. On the other hand, production is declining every day. The sharp fall in process resulted in trouble for growers and traders both associated with this industry sector. According to traders, the importation of walnuts from the United States and other countries is the main reason for the current drop in prices. As a result, J&K UT walnut costs and demand dropped by half. Industry must also struggle with the lack of a continuous power source. Facilities such as transportation, electricity, roadways, marketplaces and infrastructure for packing and handling are lacking. Similar concerns include a lack of high-quality planting, inadequate orchard maintenance, and longer gestation. Farmers' harvesting and post-harvest practices are inadequate, which reduces the crop's yield and quality. The government's lack of export-focused policies has limited the growth of exports.

Competing Interests

The author declares no conflict of interest. The manuscript has not been submitted for publication in another journal.

Author Contribution

All the authors have contributed equally to this work

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