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Can Sonpari be a Blessing for Farmers?

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Abstract

In the last two or three years, farmers have faced extremely challenging circumstances, particularly in the mango industry. This is because of climate change, specifically storms or cyclones, which have severely damaged mango crops during the pea-sized fruiting and flowering stages in Gujarat. As a result, farmers have lost a significant amount of mango yield and their financial worth. Mango cultivation entails several challenges, as evidenced by the fact that nearly every variation exists. Mango production is eventually losing money for farmers owing to factors such as alternate bearer, limited shelf life, major or minor diseases, and lack of resistance to climate change. For over two or three years, the sonpari variety of mango has gained widespread popularity among consumers because of its outstanding flavour, resistance to disease, pests, and disorders, and ability to withstand harsh weather conditions.

Introduction

The mango, or *Mangifera indica* L., is a fruit that is widely grown in tropical and subtropical regions. It is a member of the Anacardiaceae family, which originated from the Indo-Burma region and is now cultivated worldwide. It is an evergreen tree that is also known as the "king of fruits" and the "National fruit of India" because of its exceptional palatability, taste, and flavour, enticing scent, and health-promoting or nutritional properties (Chalak et al, 2022, Patel et al, 2023). India accounts for 40% of the world's mango production, resulting in the top producer. Mango production in India is 208.99 lakh MT and occupies 23.15 lakh/ha of land, with a yield of 9.03 MT ha-1. Uttar Pradesh, Andhra Pradesh, Bihar, Karnataka, Gujarat, Maharashtra, and Tamil Nadu are India's principal mango-growing states. The largest state in terms of area is Uttar Pradesh, followed by Andhra Pradesh and Karnataka. Mango production in Gujarat is 12.19 lakh MT, with 1.66 lakh hectares under cultivation. Gujarat's principal mango-growing regions are Valsad, Navsari, Surat, Gir Somnath, Kutch, etc. Few farmers in the Valsad and Navsari districts of South Gujarat produce the Sonpari variety of mango, although now days it's more widely available in the market because of its excellent taste.

In spite of their willingness to pay a premium price for this mango type, farmers are still not receiving sonpari graft after the product's introduction 23 years ago. Due to its high quality and marketable worth, sonpari is a crop that many farmers wish to grow but there isn't sufficient graft. The diversity of mango varieties differs based on the geographical region of India. The majority of North Indian varieties are self-incompatible, monoembryonic, alternate bearers, and self incompatible, whereas South Indian varieties are regular and polyembryonic. The severe case of alternate bearing, erratic flowering, low yield, poor fruit quality, short availability

and high pest, diseases and physiological disorders in most Indian cultivar of mango has led to growing wore among mango growers (Chaudhari et al, 2016).

Characteristics of Sonpari Variety

- ✓ Early maturation period and heavy yield.
- ✓ High market price and profit in comparison to alphonso and kesar varieties along with the excellent taste compared to alphonso and kesar.
- ✓ The trees are free from diseases and pest viz., mango malformation, spongy tissue, shoot borer and mealy bug.
- ✓ This variety is best suited for export due to its longevity.
- ✓ It stands strong against the environment and climate.

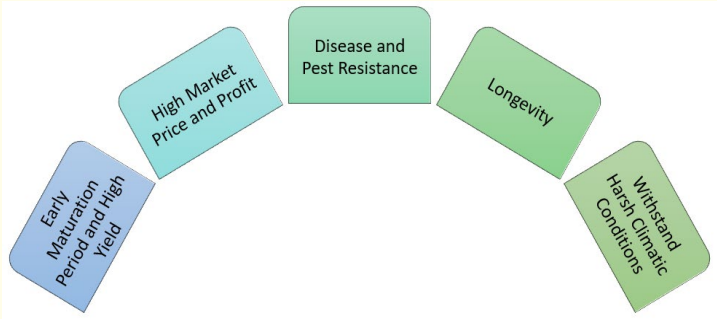

Figure 1: Characteristics of Sonpari Variety.

In terms of mango varieties, the Sonpari variety was introduced in 2000 by the Agriculture Experimental Station, Paria, Navsari Agricultural University, Navsari, Gujarat, India. It developed from a cross between Alphonso's female parents and Baneshan's male parents.

The trees of Sonpari are vigorous in growth, have dense foliage of lanceolate leaves with sub-erect branches which gives the dense round canopy structure. The tree bears fruits singly. Chalak et al. in 2022 stated that the major highlighting thing of this investigation was maturity of Sonpari cultivars stared earlier flowering comparatively late than early flowering varieties *viz*., Alphonso, Kesar and Rajapuri and Sonpari early maturing than Kesar, Rajapuri, Dashehari, Totapuri and Amrapali. Cultivar Sonpari took minimum duration to in case of Alphonso, Kesar and Rajapuri.

Sonpari is heavy yielder and regular in bearing. Fruits are obliquely oval in shape like its male parent Baneshan, Big in size (360-550 g). Peel colour is smooth and turning attractive golden yellow colour on ripening. The pulp is firm, fibreless, content is 75-77 % and taste is excellent and resembles to that of its female parent Alphonso and very good for table purpose with excellent keeping quality. The fruit has good blend of sugars and acids which are desirable for consumer preference. (Chaudhari et al. 2016) stated that the fruit weight (270 to 357 g) and yield (9.22 to 18.97 t/ha) without or with soil drenching of different application.

The TSS is greater than 19 % with lower acidity 0.18 % and higher total sugars 16 %. The keeping quality is very good and fruits remain in good condition for more than 12 to 16 days at room temperature. The fruits are mature in second week of June. TSS (17.43 to 20.22 °Brix), Acidity (0.26 to 0.13 %), Total sugar (15.98 to 18.92 %) and ultimately shelf life (15.67 to 18.67 days) go to high (Chaudhari et al. 2016).

Mango malformation is one of the most destructive malady of mango in nature. This malady has variously been ascribed to be acarological, viral, fungal and physiological in nature (Joshi et al. 2014). It is a major constraint to mango production in India and other mango growing countries of the worldwide causing heavy economic losses depending on cultivar type and susceptibility (Crane and Campbell, 1994). It causes 50 to 60 % economic loss every year and in severe cases it may extent up to 100 % (Misra et al. 2000). Sonpari cultivars free from disease & physiological disorder (mango malformation) and pest (shoot borer and mealy bug). The fruits are also free from spongy tissue disorder. The Sonpari type is unique to South Gujarat and is grown nowhere else in the globe. According to some farmers, it has withstood the harsh conditions and has even been resilient to cyclones during the past two or three years.

Farmers' story (Feedback)

According to Valsad based farmer Dinesh Desai, Sonpari tastes remarkably like alphonso but lacks the spongy texture. Additionally, the fruit is large in size. A handful of the fruits on his farm weighed 400 grammes, making them larger than alphonso. Customers were willing to pay a higher premium for sonpari variety after tasting it. According to Divyesh Chauhan, a Mahuva based farmer from Surat reported that after three years of planting, the trees on his land began to yield fruit. It was also observed that the fruit contains more pulp and a smaller seed in comparison to alphonso or kesar.

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Volume 7 Issue 2 August 2024