

## Sapota Cultivation: An Overview

H. L. Chaudhary\*<sup>1</sup>, H. N. Leua<sup>2</sup>, Ankita Aman<sup>1</sup> and S.P. Chaudhari<sup>1</sup>

<sup>1</sup>Date Palm Research station, Sardarkrushinagar Dantiwada Agricultural University, Mundra-Kachchh- 370 421, Gujarat

<sup>2</sup>Department of Fruit Science, College of Horticulture, Sardarkrushinagar Dantiwada Agricultural University, Jagudan, Mehsana-382 710, Gujarat

ARTICLE ID: 72

### Abstract

Sapota is a slow growing tropical fruit tree. It attains a height of about of 9 metres. Sapota when fully ripe is delicious and is eaten as dessert fruit. It is commercially cultivated in India, Sri Lanka, Philippines, Venezuela, Mexico and other countries. In India, sapota is mainly cultivated for its fruits, while in South-East Mexico, Guatemala and other countries, it is commercially grown for the production of chicle which is a gum like substance obtained from latex and is mainly used for preparation of chewing gum. The fully ripe fruits are eaten with skin. The fruits are used for making mixed jams and manufacture of industrial glucose, pectin and fruit jellies.

**Keywords:** Sapota, *Manilkara achras*, Tropical Fruit, Chiku, Kalipatti, Cricket ball, Softwood Grafting, Inarching

### Introduction

Sapota (*Manilkara achras* (Mill) Fosb.) belongs to the family Sapotaceae, is one of the major fruit crops grown in India, Mexico, Guatemala and Venezuela (Kulkarni *et al.*, 2007). It is believed to have originated in Mexico and Central America and being a tropical crop, it was not known when it was introduced in India, but sapota cultivation was taken up for the first time in Maharashtra in 1898 in village named Gholwad and gradually it became a popular fruit in India. Sapota is grown on an area of 89,000 ha in India, with a yield of 10.03 lakh MT and a productivity of 11.26 MT/ha (Anon., 2019<sup>a</sup>). The major sapota producing states in India are Karnataka, Gujarat, Tamil Nadu, Maharashtra and Andhra Pradesh. It is grown on 27,827 hectares in Gujarat, with an annual yield of 3,10,012 MT and a productivity of 11.14 MT per hectare (Anon., 2019<sup>b</sup>). Sapota cultivation is also significant from socio-economic point of view. Both marginal and big farmers have been cultivating this crop. This is being cultivated as pure crop as well as in mixed orcharding system with mango and

coconut. Due to high production per unit area, ease of cultivation and freedom from major diseases and pests' farmers earn good profit and it has played important role in generating employment as workers are regularly required for harvesting, handling and marketing throughout the year (Chundawat, 1998).

**Tree Characteristics:**

It is evergreen tropical fruit tree. The plant main stem is strong and dark green, broad and thick leaves and spreading branches, solitary flower in leaf axils, produced over a long season. The bark is rich in a white gummy latex called chicle. The white flowers are inconspicuous and bell-like, with a six-lobed corolla.

**Fruit Characteristics:**

The fruit is a large berry, having 4–8 cm in diameter. The fruits are oval or round shaped, less seeded with sweet mellow flesh of excellent quality fragrance is mild. The skin of fruit is slightly rough resembling potato skin in appearance. Each fruit contains 1 to 4 black shining seeds. An unripe fruit has a firm outer skin and when picked, releases white chicle from its stem. A fully ripened fruit has saggy skin and does not release chicle when picked.

**Nutritional Value:**

It is a good source of digestible sugar which ranges from 12 to 18 percent (Bose and Mitra, 1990) and has appreciable amounts of protein, fibre, mineral, calcium, phosphorus and iron. It contains 73.7% moisture, 21.4% carbohydrates, 0.7% protein, 28 mg/100 gm calcium, 27 mg/100 gm phosphorus, 2 mg/100 gm iron.

**Health Benefits:**

It is rich in vitamin C and antioxidants that help build up immunity. In this fruit crop present polyphenol may combat detrimental toxins and lowers the risk of diseases. It also has antibacterial and anti-viral properties that act as safeguards for the system from harmful microbes.

**Climate:**

Sapota is tropical fruit and it come up well up to 1000 m mean sea level up to in the hills. It prefers warm and moist weather and can be grown in both dry and humid area. Costal climate is also best suited. The optimum temperature lies between 11-34 °C for sapota production. High temperature above 41 °C during summer causes flower drop and fruit

scorching (Radha and Mathew, 2007). Sapota needs warm (10 to 38 °C) and humid (70 % relative humidity) climate, where it flowers and fruits throughout the year.

**Soil:**

It can be grown in almost all types of soils but with good drainage. It comes up well in alluvial soils of the river banks, sandy loam near coastal area, red laterite soil of heavy rainfall area and medium black soil.

**Manure and Fertilizers:**

10 kg FYM and 100:50:50 g of N:P: K should be given to the one-year-old plants. Increase these ratios every year until the plant is ten years' old. After 10 years and above old plants should be given 100 kg FYM and 1000:500:500 g of N:P: K.

**Propagation**

It is not usually propagated from seed, as plant raised from the seed grows very slowly, takes longer time to fruit and does not inherit the true characteristics of parent tree. It is therefore commercially propagated by vegetative method such as inarch grafting and softwood grafting.

**Value added products:**

The pulp of sapota is sweet and melting. Value added product of sapota are jam, juice, squash, slices, candy, powder, nectar, milk shake and chocolate.

**Cultivars:**

- ✚ **Cricket Ball:** It is also known as 'Calcutta Large,' that produces large, round fruits. The pulp of these fruits has a distinctive gritty and granular texture, offering a delightful combination of sweetness and flavor.
- ✚ **Kalipatti:** It's had dark green, broad, and thick leaves. The oval-shaped fruits of this variety boast a sweet and luscious pulp that is both aromatic and satisfyingly pulpy.
- ✚ **Pili Patti:** This variety has unique small fruits found in Maharashtra and Gujarat. These fruits are oblong, elongated with soft sweet pulp.
- ✚ **Kiribati:** Popular in state of Andhra Pradesh. These fruits are oval type, medium-sized and the peel is rough and thick.
- ✚ **Gutthi:** This variety fruits are oval type and small-sized with apex broadly pointed. Pulp is very sweet and fruits are borne in clusters.

✚ **Pala:** Popular variety in state of Tamil Nadu and Andhra Pradesh. Fruits are very small to medium with oval/egg shape borne in clusters.

#### **Harvesting:**

Fruits are harvested at full maturity stage. Fruit develops dull orange or potato coloration of the skin. Disappearance of brown scaly materials from fruit surface and easy falling of spine like stigma present at the tip of the fruit.

#### **Insect-pest:**

Bud worm (*Anarsia epotias*), Fruit fly (*Dacus dorsalis*), Stem borer (*Plocaederus ferrugineus*), Leaf Webber (*Nephotyrix eugraphella*) and Green Scale (*Coccus viridis*) Found in Sapota Orchard.

#### **Diseases:**

Leaf spot, Sooty mould, Fasciation and postharvest diseases like as soft rot and fruit rot found in sapota fruits.

#### **Yield:**

The average yield per plant of about young tree like four to five years old gives 50 to 70 kg and mature tree above ten years old around gives 100 to 150 kg.

#### **Conclusion:**

Sapota farming presents a promising opportunity for farmers due to the high demand for its sweet and juicy fruits. By implementing proper cultivation techniques, such as grafting and maintaining suitable climatic conditions, farmers can establish thriving orchards. With patience and investment, sapota farming has the potential to be a profitable venture for farmers in the tropical and subtropical regions.

#### **References:**

- Anonymous, (2019<sup>a</sup>). Horticultural Statistics at a Glance. National Horticultural Board Database. Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, GOI.
- Anonymous, (2019<sup>b</sup>). Area and production of horticultural crops in Gujarat. <https://doh.gujarat.gov.in/horticulture-census.htm>.
- Bose, T. K. and Mitra S. K. (1990).In: Fruits: Tropical and subtropical, *Naya Prakash*, Calcutta.pp.565-591.
- Chundawat, B.S., (1998). Sapota. *Agrotech Publication Academy*.India. PP. 120.



Kulkarni, P. A., Policegoudra, R.S. and Aradhya, S.M. (2007). Chemical composition and antioxidant activity of sapota (*Achras sapota* Linn.) fruit. *J.Food Biochem.*, 31: 399-414.

Radha, T. and Mathew, L. (2007). Fruit crops. *New India Publishing Agency*, New Delhi.

