



Sapota Cultivation

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Sapota [*Manilkara achras* (Mill.) Forsberg] is one of India's most important tropical fruit crops and belongs to the Sapotaceae family. This plant is native to tropical South America, particularly southern Mexico and Central America. It has also taken root in India's coastal tropics, where it is some times considered a native crop (Shirol *et al.* 2009). Sapota's chromosome number is $2n = 26$. The sapotaceae family, which comprises 50 genera and 1200 species, is a tropical one (Armstrong *et al.* 2012). In India, it is mainly cultivated for its fruits, while, in South East Mexico and other countries "Chickle" is commercially produced. India is the world's largest producer of sapota. Sapota fruits contain water (73.7%), carbohydrates (20-22 g/100g), fibre (1-5 g/100g), mineral matter (0.25-0.50 g/100g) and calcium (28 mg), phosphorus (27 mg) and iron (1-5 g/100g). These are the major chemical and nutritional compounds of sapota fruits as reported by Kulkarni *et al.* (2011). In India, sapota cultivation covers 163.90 thousand hectares (2.34%) of fruit area, producing 1495 thousand metric tonnes (1.83%) of fruit production with a productivity of 9.1 tonnes per hectare (Anon., 2019). Maharashtra, Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Uttar Pradesh, West Bengal, Punjab, Haryana and some humid regions of Rajasthan are among the regions in which it is commercially cultivated.

Varieties of Sapota / Cultivars: Important varieties cultivated in different states of India are listed below :

State	Varieties grown
Andhra Pradesh	Cricket ball, Kalipatti, Calcutta round, Kirthibharathi, Dwarapudi, Pala, PKM-1, Jonnavalasa I & II, Bangalore, Vavi Valsa
Bihar	Baramasi
Gujarat	Kalipatti, Pilipatti, Cricket Ball, PKM-1
Karnataka	Cricket ball, Kalipatti, Calcutta round, DHS-1, DHS-2
Maharashtra	Kalipatti, Dhola Diwani, Cricket ball, Murabba
Orissa	Cricket ball, Kalipatti
Tamil Nadu	Pala, Cricket ball, Guthi, Co 1, Co 2, PKM-1
Uttar Pradesh	Baramasi
West Bengal	Cricket ball, Calcutta round, Baramasi, Baharu, Gandhevi Barada

Agro-climatic requirements: As a tropical crop, sapota can be grown up to 1200 meters above sea level. It may be grown all year round but requires a warm (10–38°C) and humid (70% relative humidity) environment to thrive. Its cultivation thrives in coastal climates. Sapota grows well in alluvial, sandy loam, red laterite, and medium-black soils that drain well. It produces just one crop from summer flowering in April and May at higher elevations, such as in Punjab and Haryana.

Land Preparation and Planting for Sapota Farming: The land is ploughed two to three times and then leveled. Undulating land is divided into terraces and leveling is done. Since it takes longer for the plants to grow and form the canopy, a 6 x 6 m spacing is maintained between them.

Propagation Methods: In general, air-layering is carried out in June, and approach grafting is carried out in February and March or prior to the onset of the monsoon. A 45–60 cm long, healthy shoot that is 1-2 years old is chosen for the air-layering procedure. A 3-cm-wide, circular slice of bark is cut from the stalk. This component is taken out of the shoot beneath the bud. Over its remaining portion on the parent plant, rooting hormones are given. To stop moisture loss, we cover this section with moist sphagnum moss and wrap it in a polythene sheet. The development of the roots on the section takes four months. The exposed portion of both the plants is tied with a polythene strip and left undisturbed at least 3-4 months. The rooted graft has to be slowly detached from the parent plant.

Manure and Fertilizer Requirements: Manure and fertilisers are necessary for the proper growth and development of sapota plants. Twice a year, in June and January, these plants receive fertilisation. 100 kg of FYM, 10 kg of biomeal, and 1 kilogramme of micronutrient mixture are required for fully grown sapota trees. In order to increase fruit size during the fruit set phase, Sapota trees require a foliar spray of NPK, Mg, and Zn. Nitrophoska 8: 12: 24:4 @ 100 g/tree has been shown to be advantageous for Sapota tree growth. 10 kg of FYM, 0.2 kg of N, 0.2 kg of P, and 0.3 kg of K are required for a one-year-old plant. Each tree should receive FYM @ 10 kilogramme of manure, N @ 0.2 kg, P @ 0.2 kg, and K @ 0.3 kg of fertiliser annually. The trees need 50 kg of FYM, 1 kg of N, 1 kg of P, and 1.5 kg of K starting in the sixth year. September and October are the best times to give the plants all of these fertilisers. 45 cm from the tree's base, the fertiliser is sprayed all the way up to the leaf drop.

Irrigation: Irrigation is provided at an interval of 30 days in winter and 15 days in summer.

Intercultural Operations: Weeds are a prevalent problem in young orchards. For 10–12 months, weeds can be effectively controlled by applying a pre-emergence spray with 2 kg of bromacil and 2 kg of diuron per hectare.

Growth regulators: In sapota, fruit drop is a major issue. In order to improve fruit set and avoid fruit drop, it is quite useful to spray GA₃ at 50–100 ppm during flowering.

Improving Fruit Set: Applying GA₃ @ 100 ppm both during full bloom and after fruit set can enhance fruit set. Better fruit set was obtained by spraying NAA at 25–100 ppm at blooming and repeating after 15 days.

Pruning: Pruning is done to remove diseased and dead branches and to expose the trees to sunlight. The primary goal is to control vegetative growth in order to increase fruit yield and quality.

Plant Protection Measures

Insect Pests: Leaf webber, hairy caterpillars and bud worm are the common pests. Spraying with phosalone 35 EC (2 ml./l.), chloropyriphos 20 EC or endosulfan 35 EC have been found to be effective in controlling the pests.

Diseases: The main diseases reported are leaf spot (*Phleopheospora indica*), base rot (*Ceratocystis paradoxa*), heart rot (*Phytophthora parasitica*) and anthracnose (*Colletotrichum gloeosporioides*). Application of Dithane M-45, copper oxychloride (3 g./l.) etc. have been found to be effective.

Physiological disorders: Fruits that are misshaped: fruit shape is correlated with seed count, which again depends on appropriate pollination during anthesis. Fruits become oblong when there is high temperatures or rains during blossoming.

- A furrow or depression forms in the fruit's calyx end. This happens right after a lot of rain and is made worse by frequent irrigation. In these circumstances, excessive irrigation should be avoided.
- Fruit corkiness development: Intense sunlight causes fruits to improperly ripen, resulting in corkiness later in the winter.

Harvesting: Harvesting is done in July-September month. Unripened fruits are not harvested. Mainly harvesting is done when fruits are having to fade orange or potato color and fruits having a less sticky milky color product and it is gets easily plucked from the tree.

Yield: Generally, 5-10 years old tree gives 250 to 1000 fruits.

References

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