

PASSION FRUIT (*Passiflora edulis* L.)

Passion fruit is commonly cultivated in warm and tropical regions. Recently its cultivation has been extended to some areas of North Eastern hill region and it is well suited in hill farming system. It is a good source of vitamin 'A' and 'C', and juice is used for making flavoured ice-cream, jam and refreshing drinks. Some home-scale products like squash and nectar can be prepared from its fruits. Further, an excellent flavour of juice can be utilized to enhance the overall quality of the blended products.



Cultivars

1. Purple (*Passiflora edulis*): more suitable for higher altitude.
2. Yellow (*Passiflora edulis* var. *flavicarpa*): susceptible to frost and suitable for lower altitude.
- 3 Kaveri: It is an F1 hybrid of purple and yellow types and is superior to its parents. Fruits are large (80-90 g) with 30-35 % juice, 12% total sugars and about 3% acidity. Plants are tolerant to brown leaf spot, wilt, and collar rot, root-knot nematode and thrips.

Soil and Climate

Light sandy loam to heavy loam rich in organic matter with good drainage having a pH of 5.5-6.5 is ideal for its cultivation. If planting is to be done in hills, the slope should not be more than 15 per cent.

It can be cultivated from 800 to 1500 m above sea level. The minimum rainfall should be 1200 mm per annum. The optimum temperature for its cultivation is 20⁰ to 30 °C.

Propagation

Seed: For raising seedlings through seeds, ripe fruits from vines yielding quality fruits should be collected and extracted. Seeds should be planted in nursery beds preferably under shade. When two to three leaves develop, seedling should be transplanted in polythene bags. Further, seedlings are planted in field when they become 3-4 months old.

Cutting: The mature 30-35 cm long cutting having 2-3 internodes of pencil thickness should be planted in nursery beds/polythene bags having suitable potting media in the month of January-February and June-July. Rooting takes place after about 30 days and the sprouted cutting can be transplanted to the main field after three months.

Planting

Pits of 45 x 45 x 45 cm at a distance of 5-6 m in rows spaced 2-3 m apart should be dug. Pits are left open for fifteen days and then filled with a mixture of soil and 10 kg well rotten compost. Plant the vines during rainy season. Passion fruit is well suited for planting on the ridges of terrace with a distance of 5-6 m plant to plant. Plants prepared from cutting should always be preferred over seedling for planting.

Training and pruning

Treated wooden poles, angle iron bars are used in its construction. Poles should be inserted 0.6 m into the ground with about 2 m above soil level at spacing of 3 m. Steel wire (3.25 mm in diameter) is drawn tight to form the top wire, about 10 cm below the upper tip of the poles. A second wire is strung about 60 cm below the top wire and third about 60 cm below the second wire. This will help to support the vine under strong winds.

The leader vine of each plant should be tied loosely at regular intervals up to the stake until it reaches the wire. When training the leader, all its side shoots must be removed, but certainly not the leaves. Flower and fruit development takes place only on the current season's growth; hence all vine growth older than one year is unfruitful. Pruning is normally carried out after harvesting the crop in November-December. Lateral shoots, which have completed their fruiting, are cut back to 30 cm from the main leader.

Manure and Fertilizer

Well rotten FYM @ 15 kg/vine/year are applied in February-March. 100: 50:100 g as N: PPs: K₂O per vine annually are to be given in 2 splits during the month of February-March and July-August. It should be evenly spread in a circle of about 45 cm radius from the stem and then watered if necessary.

Irrigation

Irrigation should start immediately after planting until the plants are well established, and thereafter at fortnightly intervals, especially during the dry spell (December-March).

Insect/Pests

Major insect pests are fruit fly, mealy bugs and aphids. Spray of Malathion 50 EC @ 2ml/litre of water control these insects-pests.

Diseases

Major diseases are brown spot, root rot and wilt. Spray of DithaneM-45 @ 2.5 g /litre of water controls brown spot disease. To keep root rot under control proper drainage of excess water is necessary.

Harvesting and yield

Passion fruit grown from seed begin to fruit within 9 to 12 months, whereas plants raised by cuttings/grafting begin to fruit earlier when they are around 7 months. Initially, the colour of the fruits is green that turns purple (*edulis*) or yellow (*flavicarpa*) when ripe. It takes 80-90 days for the fruits to ripe since their flowering. To achieve a better quality of essence, passion fruits must be harvested when they are fully ripe.

Average yield of purple type is 8-10 t/ha, yellow type 10-12 t/ha and Kaveri hybrid yields 16-20 t/ha.