



**FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES**

- Botanical name : *Persea Americana*
- Family : Lauraceae
- Chromosome No :  $2n = 24$

## **Preamble**

- Avocado is one of the most nutritious fruits rich in fat, protein and minerals and low in carbohydrates. It can be safely eaten by diabetics.
- Fruit is used as a dessert in salads, ice creams and milk shakes.

## **Origin and Distribution**

- Avocado was originated in Central America.
- It might have been introduced into India from Ceylon about 50-77 years back.
- It is being grown in hill slopes of Tamil Nadu, Kerala, Karnataka, and Maharashtra.
- Leading producers of avocado are Mexico, USA, Dominican Republic, Brazil, Columbia, Indonesia, Venezuela and South Africa.

## **Composition and Uses**

- One of the most nutritious fruits rich in fat, protein and minerals and low in carbohydrates.
- It can be safely eaten by diabetics.
- Fruit is used as a dessert in salads, ice creams and milk shakes.
- Immature fruits may have a bitter flavour that may reduce on ripening; peel of avocado has 3 antifungal compounds.

## **Soil and Climate**

- Prefers well drained and well aerated acidic soils of sandy to clay loams with 4.5 to 5.5 pH.
- West Indian race can tolerate pH of 7.6 to 7.9.
- Uniformity of the subsoil texture is very important. Cannot tolerate any water logging. Climate requirements varies depending upon the race of Avocado.
- Mexican is more cold tolerant. Guatemalan is intermediate and West Indian is most tropically adopted.
- Fruits are very sensitive to freezing temperature; flowering is very much influenced by temperature, optimum being 28-31°C.
- Strong winds are very dangerous as the wood is soft and brittle.
- Cool moist subtropics are best for maximum production.

## **Cultivars**

### **Avocado has 3 races**

1. **West Indian**: No leaf scent, medium to large fruits, large seed, loose cavity, matures in 6 months. Varieties: Pollock, Simmond, Black Prince, Peterson, Waldin, Purple green.
2. **Guatemalan**: No leaf scent, moderate to large fruits, smaller seed, tight cavity, skin course materials in 9 months. Varieties: Taylor, Linda, Queen, Itsamma, Benik.

3. **Mexican**:- Leaves scented, small fruit, large seed matures in 6 months. **Varieties**: Gottfried, Duke, Pernod.

**Fuerte**:- is a cross between Mexican x Guatemalan- pear shaped.

Avocado **cultivars** are dichogamous and are of **two types** namely.

- Flowers functionally female in the morning and male in the next afternoon
- Flowers functionally female in the afternoon and male in the next morning.

#### **Propagation and planting**

Avocado is propagated by grafting. Mexican stocks are best and dwarfing in effect. Persea schiediana is a vigorous stock. Popular Root stock selections are duke-6, Duke-7, G-6, Hortalas, Dusa and Latas. Mexican race can be propagated by cuttings of young plants also.

#### **Planting**

- Spacing 5-6 m Different Races with overlapping blooming periods should only be planted together.
- High density plantings of 800 trees/ha gave double yield than normal **planting** of 400 plants/ha.

#### **Manuring and Irrigation**

#### **Manuring**

- Bearing trees of 10 years may be given 200 g N, 45 g P and 165 g K in addition to 50 kg FYM.
- Graded doses can be given from early stages depending upon the growth of the plant.
- Fertilizer should be applied 30cm away from the trunk only.

#### **Irrigation**

- **Irrigation** at 2 days interval will be optimum.
- Sprinkler **irrigation** to keep the top 60 cm of soil moist is the best.

#### **Pruning and Training**

- Better to train the plants to Pyramidal form.
- Regular **pruning** may be done to remove overcrowding, damaged & unproductive branches only.

#### **Flowering**

- Avocado flowers are entomophilous.
- Higher relative humidity may help in prolonging receptivity of stigma and retain viability of pollen.
- Temperature, rainfall, humidity, nutrition (N,ca) and hormone levels in the plant affect fruit growth and development.

#### **Harvesting and Yield**

- Fully mature fruits only should be harvested.
- Maturity can be known by change in colour size of fruit and reduce of glossy shine of the fruit.
- Average yield 100-500 fruits per tree.

#### **Ripening and Storage**

- Mature avocados ripen in about 5-10 days at 15-21<sup>0</sup>C.
- Ripening can be hastened with ethrel treatments.
- Mature avocados can be stored in controlled atmosphere with 9 % Co<sub>2</sub> & 1 % O<sub>2</sub> at 10<sup>0</sup>C for 60 days.

### **Physiological Disorders**

1. **Tip burn**:- Chloride toxicity- necrosis of leaf and edges and fall. Heavy irrigation at end of winter, deep ploughing, addition of organic matter may control this.
2. **Gray Pulp**: Mainly due to warmer temperatures which reduce the moisture content of the fruit below 80%.