

**Studies on Avocado Cultivation**

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**Introduction:**

Avocado, (*Persea americana*) also called alligator pear is a tropical and subtropical buttery fruit that belongs to the family Lauraceae. Avocado are native to the Western Hemisphere from Mexico south to the Andean regions and are widely grown in warm climates. Avocado is grown on tropical and subtropical regions, but the greatest consumers and producers are the Mexico in the world, accounting for 29.7% of the global production. According to recent data from the Agricultural and Fisheries Information Service 2021 avocado production in Mexico was 2,442,945 metric tons, an increase of 2.05% over 2020. Large areas of Avocado are grown in Mexico, Colombia, Peru, Indonesia, Dominican Republic, Kenya, Brazil, Haiti, Vietnam, Chile wild avocado trees can live for 200 to 400 years, when grown in the home landscape, the average lifespan of an avocado tree tends to be 50 years.

Avocado is the most nutritious fruits as compare to other common fruits and most important contribution of the new world to human diet, the pulp is rich in proteins (up to 4%), fat (about 30 %) but low in carbohydrate and also wide spectrum of vitamins (A,B complex and C) and minerals (K,P,Mg,S,Cl,Ca and Fe), it is a rich source of fat it generates 245 calories of energy (per 100 gram).

**Botanical Description**

Avocado, *Persea americana* is a multi-stemmed tropical evergreen tree is native to Mexico, Central America and South America & belongs to the family Lauraceae. It typically matures to 30-60 feet tall, however grafted varieties generally grow shorter. Avocado leaves are typically glossy, elliptic to ovate and dark green, leathery leaves are dull and dark green on the lower surface. They smell like aniseed when crushed. The small, greenish, fine-haired flowers grow in clusters at the end of branches. Avocado fruit is classified botanically as a berry comprising the seed and

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the pericarp.

### Economic Significance

Global avocado exports are anticipated to total 3.9 million metric tons and \$8.3 billion in 2030, which would make avocados the second most important tropical fruit item by trade volume and one of the most valuable fruit commodities. In 2021, Mexican exports of avocados contributed to \$3 billion in revenue for Mexico. Their largest consumer has been the United States as America imported about \$2.8 billion worth of avocados. In February 2022, projections indicated that avocados exports would generate \$300 million in revenue.

### Post-harvest Treatment

The fruit is highly susceptible to post-harvest diseases like **anthracnose, dothierella fruit rot, avocado stem end rot,** which contributes to the highest percentages of losses. **FASTANO 500 SC** is an excellent broad-spectrum post-harvest fungicide containing fludioxonil in the phenylpyrrole group for post-harvest treatment of avocados. **FASTANO 500 SC** is formulated in a safe suspension concentrate various post-harvest diseases with its unique interference with fungal growth.

### Post-harvest Storage

Optimum storage temperatures vary according to the variety, the period of the season (maturity) and the storage period

desired. In general, the temperature for mature avocado ranges from 5 to 12°C with atmospheric relative humidity of 85 to 95%. The more delicate end-of-season fruits are stored in the lower part of the temperature range. For 'Hass', physiologists advise maintaining fruits at 5 to 7°C at the beginning of the season and 4.5 to 5.5°C at the end. More than four weeks of storage at these temperatures is not recommended. The optimum temperature range for 'Fuerte' is 6 to 8°C but for no more than three weeks. In practice, professionals keep all the classic commercial varieties at between 5 and 6°C. Temperatures must be strictly controlled to prevent any fluctuation. Movement of air is also regulated. Heat is released during the beginning of the ripening process and this must be taken into account. Maintaining the cold chain is of crucial importance.

### Diseases

#### 1. Anthracnose

**Causal Organism** - *Glomerella cingulate*

**Symptoms** – Chlorotic and necrotic spots; dead leaf tip; defoliation; brown or purple lesions on new shoots.

**Management** – Prune dead twigs and branches from tree before fungi produce spores; knock dead leaves out of canopy; keep harvested fruit dry and cool.

#### 2. Phytophthora root rot

**Causal Organism** – *Phytophthora cinnamomi*

**Symptoms** – Black lesions on roots; black, brittle roots; small, yellow leaves; premature leaf drop; decline in fruit yield.

**Management** – Minimize water splash between trees by not working in a wet orchard; prune out dead limbs and twigs; remove fruit from the ground; dispose of dead wood and fruit away from trees.

### Disorders

1. **Grey pulp** - Moisture content of pulp down to 75%, it is prevalent in fruits grown in warmer areas.

**Cause**– Due to moisture stress, High Sunlight affect.

**Remedy** – Regular irrigation management.

2. **Tip burn** – Necrosis of the tips and margin of leaves, falling off of leaves, Most prevalent in spring season.

**Cause** – Chloride toxicity is responsible for this disorder, High temperature.

**Remedy** – Deep ploughing and incorporation of organic matter in soil, Regular irrigation.

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