Persea American Production Manual

Ecology

In Kenya and some hybrid varieties are best adapted to a lowland tropical climate and relatively frost-free areas of the subtropics. Mexican varieties are more cold tolerant and not well adapted to lowland tropical conditions. Guatemalan x Mexican hybrids are generally more cold tolerant than West Indian x Guatemalan hybrid varieties. Some of the more cold-tolerant varieties in Florida include 'Brogdon', 'Gainesville', 'Mexicola', and 'Winter Mexican'. However, it may be difficult to find plants of these varieties. Moderately cold-tolerant types include 'Tonnage', 'Choquette', 'Hall', 'Lula', 'Taylor', 'Monroe', and 'Brookslate'. Varieties with little cold-tolerance include 'Simmonds', 'Pollock', 'Dupuis', 'Nadir', 'Hardee' and 'Waldin'.

Tree management

Planting distances depend on soil type and fertility, current technology, and economic factors. In commercial groves, trees are planted from 5-7 m in rows and 7-9 m between rows. Pruning during the first 2 years encourages lateral growth and multiple framework branching. Commercially, after several years of production it is desirable to occasionally reduce canopy width of the trees to 5-6 m, to reduce spraying and harvesting costs and reduce storm damage. Severe topping and hedging do not injure trees. Planned tree removal is an option that should be seriously considered for commercial plantings.
An avocado tree grown for its fruit production should either be from budded or grafted trees that will produce fruit within 2 or 3 years as compared to the 8-10 or more years required of seedling avocados. The fruit does not generally ripen until it falls or is picked from the tree. Strong winds or a heavy crop easily breaks limbs.

The seeds are recalcitrant; lowest safe mc is 57% mc for slow-drying, 57.4% mc for rapid drying; are only viable for 2-3 weeks after removal of the fruits. Storage is however possible in using several methods such as, 8 months in dry peat at 5 deg. C provided they are not permitted to dry out, or for several months by dusting seeds with copper fungicide and storing in damp sawdust or peat in airtight bags at 4-5 deg. C. A germination percentage of 53-75% was observed after 1 year in moist storage and fungicide at 4.4 deg. C.

Germination is hypogeal. Most avocado varieties do not come true from seed and must be propagated vegetatively. Young, vigorously growing seedlings are used for rootstocks and terminals of leafy shoots are used for scion material. Established trees may be top-worked by cleft-grafting scions of the desired varieties on stumps of cut-back trees or by veneer grafting new sprouts arising from stumped trees. Rootstock plants, which are to be budded or grafted, are usually seedlings 4-8 months old. Scion material for buds or grafts is taken from a mature, bearing tree of the desired variety.

Poison: The unripe fruit is poisonous and the ground-up seed mixed with cheese is used as a rat and mouse poison.

The tree is grown for its nutritious fruit that has long been important in the diets of the people of Central America. Consumption is most often as an uncooked savoury dish mixed with herbs and/or spices, as an ingredient of vegetable salads, or as a sweetened dessert. However, its texture and colour can be used to enhance the presentation and consumption of many foods. Cooking impairs flavour and appearance of avocados. The flesh represents 65-75% of the total fruit weight. The contents vary widely in different cultivars. The approximate content per 100 g of edible portion are: water 65-86 g, protein 1-4 g (unusually high for fruit), fat 5.8-23 g (largely mono-saturated and documented as an anti-cholesterol agent), carbohydrates 3.4-5.7 g (of which sugars only 1 g), iron 0.8-1 g, vitamin A and vitamin B-complex 1.5-3.2 mg. The energy value is 600-800 kJ/100 g. The high oil content of the mature fruit gives the flesh a buttery texture which is neither acid nor sweet. The easily digestible flesh is rich in iron and vitamins A and B; providing a highly nutritious solid food, even for infants.

Surplus fruit is an important food source for pigs and other livestock.

Apiculture: Bees, important for pollination and honey production, visit the avocado tree.The honey produced is dark with a heavy body.

Timber: Wood of Persea has been used for house building (especially for house posts), light construction, furniture, cabinet making, agricultural implements, carving, sculptures, musical instruments, paddles, small articles like pen and brush holders, and novelties. It also yields a good-quality veneer and plywood. More popular for its fruits the wood of avocado is seldom used. The wood is brittle and susceptible to termite attack.

Lipids: The pulp and the seeds contain fatty acids, such as oleic, lanolic, palmitic, stearic, linoleic, capric and miristic acid which constitutes 80% of the fruits fatty content. The oil is used by the cosmetic industry in soaps and skin moisturizer products.

Medicine: Recently anti-cancerous activity has been reported in extracts of leaves and fresh shoots of avocado. Oil extracted from the seeds has astringent properties, and an oral infusion of the leaves is used to treat dysentery. The skin of the fruit has anti-helmintic properties. The avocado is also said to have spasmolitic and abortive properties. The seed is ground and made into an ointment used to treat various skin afflictions, such as scabies, purulent wounds, lesions of the scalp and dandruff. The flesh is also used in traditional medicine.

Essential oil: Watery extracts of the avocado leaves contain a yellowish-green essential oil.