

Citrus 101

How Citrus Trees are Grown



Plant a citrus seed from a Valencia orange and what do you get? A Valencia orange tree just like the one your seed came from? Nope -- you can never be sure exactly what you'll get because plants grown from seed are all slightly different. (There are, however, some exceptions.) Trees

vary in individual size and in the size and sweetness of their fruit. And, some trees may be more resistant to diseases.

Naturally, citrus growers, to ensure the best possible crop, want to make sure all their trees are of the same

high quality. To do this, each new tree they plant is grown, or propagated, not from a seed but by grafting or budding. In most citrus trees, the scion, or top of the tree, is a different variety from the roots or rootstock of the tree. Citrus growers plant trees whose tops will grow certain citrus on a rootstock that has special characteristics. For example, some rootstock may be especially disease resistant, quick to bear fruit or size restricting for easier access during harvesting.

Nurserymen begin the process of propagating a new citrus tree by planting a seed for the rootstock. Most citrus have an unusual characteristic -- they can produce trees that are genetically identical to the parent through a natural process in seed development called nucellar embryony. While many rootstocks are produced by seed, because of nucellar embryony, they are all the same.

After the rootstock is a year old, a single bud is taken from a branch of the desired scion variety and inserted into the bark of the young seedling. This bud grows into the top of the tree that produces the fruit.





FRUIT DEVELOPMENT

Citrus flower buds begin to form in early winter and develop through late winter and spring. Most flowers don't result in the formation of fruit because more than 99% of them usually fall off. The number that do become fruit depends largely on temperature and moisture, so adequate water is very important during and immediately after flowering.

Most pollination is done by insects, but due to a rather interesting process natural to some citrus called parthenocarp, fruit can develop without pollination. Some varieties, such as the Clementine Mandarin, require cross pollination with another citrus variety.

Why do some citrus, like Valencia oranges, have seeds, and others, like Washington navels, generally have none? Parthenocarp is the main reason. If parthenocarpic flowers are not pollinated, they generally don't produce seeds. Some, like the Washington navel, don't produce viable pollen.

After bloom, fruit develops from five to 18 months, depending on the variety and growing area. Unlike many other

types of fruit, most citrus can be left on the tree without becoming overripe.

SOIL TYPE

Citrus will grow in most soils from sandy to adobe clay, provided it drains well. Sandy soils must be watered and fertilized more frequently than soils with higher clay contents and growers can add organic matter such as manure or compost to improve water and nutrient holding abilities.

IRRIGATING AND FERTILIZING

Water quality is very important. Water high in salt content, common in some desert regions, can cause injury to leaves, burning leaf tips and margins. Lower levels of salts can cause the tree to grow poorly or to produce fewer or smaller fruit.

The nutrients that citrus plants need in relatively large amounts are nitrogen, phosphorous, potassium, sulfur and calcium. In lesser amounts, citrus requires iron, magnesium, copper, zinc, manganese, molybdenum, boron and chlorine. In California and Arizona, soils usually only need nitrogen to be added, most often in late winter to meet the demands of spring bloom.

PRUNING

Unlike most other fruit trees, citrus trees don't require regular pruning. Commercial growers trim tree tops to keep them smaller so they are easier, safer and less expensive to pick, and "hedge" the sides to let more sunlight into the trees to improve yields. Hand pruning opens up the trees to allow more sunlight into the center.

FROST CONTROL

Protection from frost is critical. Most citrus will freeze when fruit temperature drops to 27-28°F. The main methods of frost protection in California and Arizona are by wind and water. Wind machines -- large fans on poles about fifty feet above the grove -- are turned on when the temperatures near freezing. The fans mix the slightly warmer air above the grove with the colder air near the ground, which warms the air around the tree.

By applying water, the heat built up in the soil during the day is lost more slowly, and air temperatures around the fruit stay warm a little longer. A few growers still use oil-burning orchard heaters, but this once common method is seldom used now because of the cost. 🌳