SANDY OAKS
OLIVE ORCHARD

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Starting An Olive Orchard

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SOIL TYPE

The olive tree is a tremendously adaptable plant that can grow in almost any soil that drains well. An extremely pH tolerant plant, olive trees grow successfully in pH ranges from 5.0 (acid level) to 8.5 (alkaline level). Since the trees don't require a lot of organic matter in the soil, they even grow successfully in sand and gravel. A soil that is underlain by a shallow hardpan or a layer of clay could create drainage issues for the trees if water becomes trapped in pockets due to poor absorption. This will result in the roots rotting. Olive trees do not like wet feet.

WATER SUPPLY

Olive trees are extremely drought-tolerant. Actually, more trees suffer damage due to over-watering than to drought. It's difficult to state a general rule for the amount of water your trees will require since the amount varies according to the water-holding capacity of the soil in which they are planted. The suggested range is 24 to 52 gallons a week per tree, with sandy soil (sugar sand) requiring the most water, and sandy loam requiring the least.

Olive trees are shallow rooted. The roots range from a depth of 1' to 4' below the surface and spread well beyond the canopy of the olive tree. The roots at the 1' level are the feeder roots and the most critical roots to the tree. It is crucial to supply a sufficient amount of water so that it will permeate or soak the soil down to the 4' level and to spread well beyond the canopy. This encourages the roots to reach for their water and thus spread and grow to the appropriate depth. A soil moisture sensor or meter that reaches a depth of 4' is a beneficial tool in an olive orchard, since it allows you to verify that your trees are receiving sufficient water to grow to their maximum potential.

Olive orchards around the world use flood, drip, or spray heads to irrigate. Flood irrigation is an option that will work with any type of soil. Drip irrigation will work in your orchard if your soil is sandy loam or rocky. If you are planting trees in sand (as at Sandy Oaks) you will need to use a type of spray head such as a frame jet emitter. Drip irrigation won't work with sugar sand because the water does not spread; it tunnels straight down to the aquifer. As a consequence, the roots will stay near the water source at the base of the tree and fail to spread. They will girdle the tree, wrapping around each other and forming an impenetrable ball. This eventually causes the tree to strangle. Spray heads such as frame jets spray a gentle mist that covers a wide area around the tree.

Most drip or frame jet emitters are calibrated to provide a specific amount of water per hour. Emitters adjust to the level of pressure (the psi) necessary to deliver the amount of water they are designed to deliver. This is important because the level of pressure needed at the start of the line that is closer to the water source is different from the level of pressure required at the end of the line. *Note:* When you receive ½" or more inches of rain, it is not necessary to irrigate for a week.

There are parts of the world where irrigation is not used in the orchards. In this case, the plants are spaced widely between trees, as much as 45 feet between the centers of the trees. If you don't intend to use irrigation, make certain that your area receives a minimum average rainfall of 30" annually. Also, the rainfall should be spread out over the year. In Texas, we can have 30 inches in one week and then a drought the rest of the year. Keep in mind that it is generally accepted that olive trees produce more olives when they are irrigated, and alternate bearing (fruit production one year heavy and one year light) isn't as pronounced in trees that are irrigated as those that are not.

It should be noted that, just as with any other plant, newly planted olive trees require more frequent watering in order to establish their roots. Usually, newly planted olive trees should be watered every other day, but when in doubt, you can test the soil by putting your index finger into the ground to see if it is dry the depth of your finger. If it is, water. Again, a soil moisture sensor is the

most accurate method to use to assure that your trees are receiving the correct amount of water. Once the roots are established, you can refer to the guidelines stated above.

For a more specific and precise dissertation on your own individual watering requirements, we suggest that you consult pages 61-69 in the Olive Production Manual, which is available in our gift shop and by phone or email order in our online gift shop.

USDA TEMPERATURE ZONE

Olive trees grow best in Zones 8 and above. Except as a decorative plant in a pot, which can be moved to a protected area in the winter, olive trees won't survive in Zone 7 or lower. There are varieties of olive trees that are extremely cold hardy and can withstand temperatures as low as 10°F. However, most varieties suffer damage when the temperature drops below 20°F and remains at that level for a period of days. The greatest damage occurs when the temperatures fluctuate between warm for days and then cold for several days.

If you spray your trees with water when the temperature is predicted to fall below freezing, the ice that forms on the leaves and branches insulates the tree and holds the temperature at freezing, a level of cold the olive tree tolerates. Additionally, a good watering before a hard freeze helps the root system retain heat. Smudge pots can be used if they are allowed in your area or butane heaters can be used. There are also fans that can be used to circulate the air and keep the cold air from sinking around the trees.

We've heard that in Sicily they use strings of outdoor Christmas tree lights throughout the orchard to provide heat for the trees during cold snaps. While we cannot verify that the Christmas lights actually keep the trees warm, we can imagine that they must make an orchard look incredibly beautiful!

Finally, healthy trees survive the cold better than unhealthy trees. So, keep your orchard healthy!

PLANTING DENSITY

The layout of the orchard is based on a number of considerations from how you intend to harvest to what varieties you intend to plant. Another factor affecting density is whether or not you intend to irrigate.

Certain varieties of olive trees that top out at 12′ to 15′ high, such as Arbequinas, Koroneiki, and Arbosanas, adapt well to hedgerow (super high density) planting, where each row is set 13′ apart and each individual tree in a row is set with 5′ between trees. With hedgerow planting, olives can be picked mechanically with grape harvesters or hand harvested; there is not adequate room between trees and rows to use a tractor-mounted shaker.

If grape harvesters are used to harvest the trees, the trees must be pruned to the shape of Christmas trees and topped to maintain a height of 8′ to 10′. This type of planting also requires using more water and fertilizer in the orchard to accommodate the closeness of the trees.

The number of trees that can be planted in the super high-density configuration is 670 trees per acre.
All other varieties of olive trees are planted in 12′x16′ grids (high-density) or 20′x20′ grids (traditional). In the 12′x16′ grid, the trees are planted 12′ feet between trees and 16′ between rows. The 20′x20′ grid is self-explanatory. Trees planted in these two configurations can be machine harvested by using a tractor-mounted shaker. There are also handheld harvesters that work by shaking only the limbs and not the trunk. They can also be harvested the old fashioned way — by hand, of course.

The number of trees that can be planted in the high-density orchard is around 300 trees per acre and the number of trees that can be planted in the traditional orchard is between 120 to 150 trees per acre.

If you do not plan to irrigate your orchard, you will want to plant the trees at least on a 30′x30′ grid. In the desert, the trees in orchards without irrigation are planted 45′ between trees and 45′ between rows.