

—MECHANICALLY-HARVESTED—

Super-High Density Olive Orchards

FOR THE PRODUCTION OF
California Extra-Virgin
Olive Oil



Tree Varieties

Arbequina Clone i+18®

Arbequina is one of the principal varieties in Spain. This clone has an upright habit, ideal for high density, machine harvested plantings. It is a highly productive tree that bears fruit quickly. The fruit is small and it has a high oil content. Excellent flavor. Fruity and delicate aroma. Very good oil to blend with others or stand alone. Uniform ripening. Adapts well to cold and poor soil conditions. Self-fertile.



Arbosana Clone i+43®

This clone has low vigor and high productivity lending it to high density orchard design. The tree is small in stature and has an open growth habit. Fruit is presented in clusters resembling grapes. Late maturing and very good oil yield efficiency. The oil is high in polyphenol content and low proportion in Linoleic acid, this makes it very stable, ideal to blend with other oils. It has a strong character and expresses a unique fruity flavor.



Koroneiki Clone i+38®

This clone is selected from a Greek variety. Fruit is very small. It adapts very well to warm areas. Early and high production. Blooms at the same time as Arbequina i-18 and harvest one week later than the Arbequina i-18. Highly valued for its characteristic green color, high stability and high oleic acid content. The oil flavor is rich and complex with a peppery finish, ideal to blend with Arbequina i-18 for an early, premium oil.



A Revolution in Olive Oil Production

Worldwide, traditional olive cultivation methods have been creating serious economic problems for growers. The high cost associated with hand-harvesting old-world styled orchards has challenged olive growers seeking profitability. Thus, the development of a super-high density planting system where over-the-row mechanical grape harvesters can effectively harvest olives with minimal labor. Over the past ten years, this new super-high density system for planting olive trees for the production of olive oil has become very popular in Spain, Italy, France and now California.

Why super-high density?

■ Excellent Quality Olive Oil Varietals

- Arbequina Clone i+18®
- Arbosana Clone i+43®
- Koroneiki Clone i+38®

These semi-dwarf olive tree clones have a compact growth habit ideal for super-high density growing and the quality that makes them produce a premium extra-virgin olive oil.

■ Efficient Harvests

Utilizing over-the-row mechanical grape harvesters eliminates expensive hand labor, and means faster harvest time, equaling increased oil quality.

■ Greater Yields

More trees per acre equals greater yields. Four to six (4 - 6) tons per acre on mature blocks with olive oil yields of 40 gallons per ton.

■ Produce Faster

Orchards begin yielding early, with an initial harvest in the second year—full cropping by the fifth year.



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Super-high Density Olive Orchard Specifications

Tree Spacing & Planting

Super-high Density Olive Orchards are most commonly planted at spacings of 4'-6' in between the trees and 12'-13' in between the tree rows. This spacing has been determined to be the most efficient considering sunlight penetration, equipment use, and tree shape while maximizing fruit yield. See Tree Spacing chart to determine the number of trees per acre with typical spacings.



TREE SPACING - Distance between trees within a row.					
ROW SPACING Distance between rows	4	5	6	7	8
10	1089	871	726	622	545
11	990	792	660	566	495
12	908	726	605	519	454
13	837	670	558	479	419
14	778	622	519	444	389
15	726	581	484	415	363

Spring and Fall have proven to be the best seasons to plant, allowing the small olive trees to establish themselves before either the heat of summer or the cold of winter. However, growers have successfully planted orchards almost year-round provided that irrigation systems are in place and ready to work immediately after the trees are planted. Olive trees are semi-deciduous, so trees will arrive from the nursery in small 3"x3"x4" pots, varying from 12" to 24" in height for easy transplanting to the field. There are 20 trees per flat.

Orchard Irrigation

Typically, Super-high Density Olive Orchards are developed using drip irrigation with in-line emitters. Emitters can either be continuous along the drip tape to create a solid band of irrigated coverage, or they can be placed immediately next to trees. Typically, emitters deliver .50 g.p.b. each. Drip tape can either be buried, on top of the ground, or suspended from the wire trellis system.

Tree Training

Typically, growers install a bamboo, wood, or metal stake at the time of planting with each tree. The tree is tied to the stake every 10"-12" to promote the growth of the central leader. Each tree stake is secured to a single-wire trellis system installed down every tree row. The wire trellis is installed 4'-5' above the ground, and is anchored at the end of each tree row and connected to intermediary line stakes down the row. Wood or metal can be used for the trellis anchors and line stakes. While the trellis system will not support the crop load, it is important to keep each tree upright and maintained in a straight hedge.

Pruning

Trees in a super-high density orchard are pruned to a central leader, with an emphasis on fruitwood rejuvenation. The tree canopy is kept to about two feet above the orchard floor and topped to a height of 6'-8'. Mechanical topping is easily achieved in this pruning system, while all other pruning is currently being done by hand in existing orchards.

Bloom

At full bloom, typically mid-late April to early May, flowers are delicately poised for pollination, a critical event to determine fruit set. Super-high density olive varieties are considered "self-fertile" but can also be cross-pollinated. Orchard trials are indicating that having a small percentage (10%-20%) of differing varieties within an orchard will help cross-pollination and result in better yields. With self-pollination, the pollen simply falls from anther to pistil in the same flower. Wind is the primary agent of olive cross-pollination, as bees are not universally present in sufficient numbers or attracted to olive flowers to be a factor in pollination. In addition to pollination, environmental conditions have a bearing on fruit set. Wind, rain, and temperature will affect fruit set.

Harvest

One of the biggest advantages to super-high density orchards is the ability to efficiently harvest the crop with mechanical over-the-row grape harvesters. A typical grape harvester with a bank-out tractor wagon can be used to effectively harvest 1 to 1.5 acres per hour. This is a substantially more efficient and less costly method versus hand harvests, shaking, or any other method used to date.



Contact a
Sierra Gold Nurseries
Field Representative
today to plan the
development of your
Super-high Density
Olive Orchard—



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