

Ryan Family Olive Orchard

A Senior Project

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Bachelor of Science

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Introduction

For ten years the Ryan Family has been growing seven acres of Merlot grapes on their property in the Napa Valley. One block of grapes is located on the side of a dam of a small pond in the middle of the property. This block of grapes contains many diseased plants with low crop yields. The Ryan Family decided they wanted to remove the grapes and plant olive trees at this location.

The family wants a variety of olives that produce high quality olive oil. Although the project is straight forward, one of the issues with the established location of the olive trees is that the ground has a steep, uneven slope so a retaining wall will need to be built and soil will need to be added to modify the angle of the slope. This project will research and develop a pilot olive orchard for the Ryan Family.

Background

Olive trees are one of the oldest cultivated trees in the world. *Olea Europea*, or olive, is part of the *Oleaceae* family and have been largely popular in Mediterranean areas for thousands of years (Kisan Central, 2018). Legend has it the first olive tree was planted by the Greek god Athena on top of the Acropolis. Olive trees have even been found in Egyptian tombs dating back to 2000 B.C. Olives were first introduced into California by Spanish settlers in the early 1800s. Today there are hundreds of olive orchards throughout California, most of them located in northern California (oliveoilsource.com, n.d.).

There are over 800 cultivated varieties of olives worldwide that have developed over thousands of years (olivetreegrowers.com, n.d). There are around 150 varieties that are commonly grown today that we eat and use for oil (Califonia Olive Ranch, 2017). Olive trees can be grown in most moderate climates around the world. For successful production and health of olive trees, winter temperatures should not fall below 23 degrees Fahrenheit.

This is ideal as the location of the Ryan family olive orchard the average winter low is around 40 degrees Fahrenheit (U.S. Climate Data, 2019). Olive trees prefer growing in clay or sandy soils, and also grow best with a pH level of around 5.5-8.5 and have a shallow root structure. Olive trees need good fertile soil but can also survive in low nutrient soil. Olive trees also do not like summer rainfall so that is why there are not many olive trees on the East Coast of the United States.

For supplying water to olive trees, surface irrigation is best, however drip irrigation can also successfully be utilized. During the summer it is important to supply a good amount of water but not let the root zone become saturated with water. If soil quality is poor, fertilizers that contain correct amounts of Nitrogen, Potassium and Phosphorous can be applied to improve nutrient balance. As the trees grow, it may be necessary to prune the trees to allow for air flow to avoid disease such as molds and mildew. A few other diseases and pests that can affect olive trees are root rot, root weevils, olive fruit fly and nematodes (Califonia Olive Ranch, 2017).

Methodology

Merlot grapes occupied the land where the olive trees will be planted, so the first step was to remove the grapes and trellis system. The process of removing the vineyard was done with a crew of skilled workers and a tractor. The chosen location for the olive trees was a very steep face slope of a dam. The location was leveled and smoothed out to help with uniform planting and olive tree layout. A retaining wall at the base of the dam was built to hold in the soil and to help make the terrain less steep. A large amount of topsoil was brought in to adjust the slope to make the orchard more visually appealing, ease the work of taking care of the olive trees, and aid in amending the native soil with additional nutrients. The soil that was brought in was ripped into the native soil to help it match the color and texture of the existing area.

Research was conducted to determine which type of olive tree would be best suited in this specific location and would produce the most desirable flavored olive oil. The author consulted with a tree expert, Sean McEntyre, Napa Valley Olive Oil Tree Management Co., a local olive tree grower and management company for proper tree selection and layout and irrigation support given specific planting area. The author then worked with the landowners on tree layout for proper spacing to determine how many trees will be needed for both production and visual appeal of the orchard. Finally when the weather permitted and the soil was dry and stable, the trees were planted and the drip irrigation system installed.

Results

The entire project cost around \$18,000 of materials, trees and labor. The previous Merlot grapes were removed and about 40 yards of soil were brought in and spread out to decrease the slope of the ground. The cost of soil was \$2,000. The homeowners had already a large pile of rocks from previous projects that were used to build a retaining wall at the base of the pond dam to hold soil in place. It was determined a mixture of Frantoio, Leccino and Pendolino species of olive trees were selected for the goals of the homeowners and given location.

A total of 43 trees were purchased costing \$15,000 (around \$350 a tree). Forty trees were planted leaving three leftover. Around ten yards of nutrient rich topsoil was brought in to fill in the base of the trees and provide nutrients. Previously there were grape vines in the location of the olive trees, therefore irrigation water supply was already in place so a surface drip line was installed.

Moving Forward

After a long wet winter, springtime brought a strong growth to the olive trees but weeds have erupted around the trees. Although the weeds are not harming the trees, the homeowners want a visually appealing orchard of olive trees. The homeowners are discussing the idea of either spraying the weeds with Roundup or regularly trimming the weeds. After all the rains there are no issues with erosion and the windy weather did not damage any of the trees. Moving forward, in about 2-3 years, when the trees produce olives, the homeowners are interested in making oil out of the olives and selling it as well and gifting the oil to friends.

References

- California Olive Ranch. "Table Olives vs. Olive Oil Olives." 2017 *California Olive Ranch*.
<https://californiaoliveranch.com/table-olives-vs-olive-oil-olives/>
- Kisan Central. Growing Olives, Cultivation Practices For Beginners. (2018, September 04). Retrieved from <https://www.kisancentral.com/growing-olivescultivation>
- Olive Oil Source. History of the Olive. (n.d.). Retrieved from
<https://www.oliveoilsource.com/page/history-olive>
- Olive Tree Growers. Classic Trees, Professionally Grown. (n.d.). Retrieved from
<http://olivetreegrowers.com/olivetrees.php>
- U.S. Climate Data, U. C. (2019). Temperature - Precipitation - Sunshine - Snowfall.
Retrieved from
<https://www.usclimatedata.com/climate/napa/california/united-states/usca2061>