

Rodent Management at Kelsey See Canyon Vineyard's Estate in Creston, California

A Senior Project

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Introduction

Just over the grade, east of Atascadero in Creston, California, there are 160-acres belonging to the Kelsey See Canyon's estate. Of those 160-acres, roughly five are the home to Syrah, Zinfandel, and Cabernet Sauvignon grape vines. Due to the arid climate in Creston, these vines thrive. The growing conditions on this estate are ideal, except for one issue: pests. Laurie Kelsey, owner of this vineyard, has been battling a rodent infestation that is devastating this vineyard. These squirrels, voles, and pocket gophers are causing problems with irrigation in the field, burrowing through the root systems of vines, eating fruit, and stripping young vines of their bark. The author will be researching ways to effectively kill these rodents.

Background

Kelsey See Canyon Vineyards started as a retirement project by Laurie Kelsey's father-in-law, Mr. Dick Kelsey in 1999. To his amazement, the winery became a hit among locals in Avila, California. Over the last 19 years, the winery has grown exponentially, now producing nearly 6,000 cases of wine a year and has retained nearly 1,700 club members. With all this growth, Laurie Kelsey decided to expand production and add five acres of grapes at her home in Creston. Realizing that rodents are a huge issue on her ranch, she attempted to elevate the problem by poisoning the rodents with *chlorophacinone bait*. In the process of managing these pests, the Kelsey ranch dogs have paid the price. Three of the vineyard dogs have died as a result of eating the poisoned ground squirrels. This is why Laurie has come to me and asked to find some alternatives to the rodent issue that will keep her dogs protected.

Cost

My recommendations are: fumigating the ground squirrel burrows, using large traps with poison to keep the vineyard dogs from having access to their bodies, and adding another owl house on the vineyard. Fumigating the ground squirrels will be the most effective but can only be used during late winter and early spring. Aluminum phosphide, the fumigate to be used, costs roughly \$2.00 for a gas cartridge (ANR). Aluminum phosphide is a restricted chemical that must be applied by a licensed pest control adviser, PCA (ANR). The cost for a PCA varies, but in San Luis Obispo country, a PCA averages about \$20/hour for labor (). Trapping is the next best option for managing ground squirrels. This can be done when fumigation is not an option. Traps vary in price and can be purchased at many different locations, from Walmart to Amazon. A trap usually ranges from \$30 to \$100 depending on the size and complexity (Guise, et al., 2012). Using 1/2 a cup of diphacinone bait in the traps is desired. A 25 pound pail of diphacinone costs roughly \$100. The bait should be replaced every 5 days, and the traps cleaned daily. The final option to control voles and pocket gophers is adding another owl house at the other end of the vineyard. This is a cost effective option, to install one owl house including the material and labor costs a roughly \$200-450 depending on the materials used (Browning, 2013).

Methodology

This senior project will include both quantitative and qualitative data that will explore different ways to manage squirrel damage and protect the dogs on the vineyard in Creston. The main purpose was to determine how to effectively kill these squirrels, voles, and pocket gophers to ensure the longevity of the vineyard, without harming any other species on the property, specifically the Kelsey's dogs. This study was conducted by identifying the pest control methods used on other vineyards in California and coming up with three different remedies to effectively kill these rodents and present these findings to Laurie Kelsey. The participants in this study were online resources, the Kelsey's vineyard manager, and Laurie Kelsey. Several instruments were used in the data collection process, including: phone calls, in-person interviews, and online research. The data obtained were analyzed by categorizing interview answers and online research. After the data were analyzed, the pest control methods were narrowed down to see which would make the most sense for Kelsey's vineyard.

Results

After spending extensive time in the Creston vineyard with Laurie Kelsey, three recommendations will be made to deal with the rodent issue on this vineyard. The main rodents causing significant damage are California ground squirrels, pocket gophers, and California voles. The ground squirrels are the worst offenders on the Kelsey vineyard. They nest under oak trees which line the entire vineyard. Removing these trees are not an option, not only because of their natural beauty, but because oak trees are protected in California and it would be illegal to remove them.

The author recommends gassing the squirrels as the best option to minimize their presence. Fumigating with aluminum phosphide will significantly reduce their numbers. This simply means using a gas cartridge which will cause them to asphyxiate. Gas cartridges are sold commercially and can be purchased at the county agricultural commissioner's office (Baldwin, 2017). Fumigation works best during late winter and early spring when the squirrels are starting to become active and later in the year if the ground is still moist (Baldwin, 2017). This process involves placing gas cartridges in the squirrel burrows and sealing off all openings so the squirrels cannot escape. For the size of Kelsey's estate, two cartridges would adequately manage the squirrel problem. Compared to trapping, this method requires less labor overall, because it only needs to be done bi-annually at most compared to daily with trapping. The only drawback to fumigation is that the vineyard will be inaccessible for several days while the chemical is active.

Another method Laurie Kelsey and the author agreed upon is implementing large traps around the vineyard to catch ground squirrels. This practice can be done from mid-spring through fall, but only as a back-up to fumigation due to the high labor demand (Baldwin, 2017). The traps would be able to capture multiple ground squirrels at once. Once they enter the trap, they would consume poisonous bait that would kill them inside the trap. This would protect the vineyard dogs from eating the poisoned squirrels. This practice will require daily observation since ground squirrels are repelled by the scent of dead ground squirrels. The benefit to this method is that the vineyard dogs will be protected and ground squirrels will be taken care of. However, large traps are labor intensive because the traps must be checked and cleaned daily.

The final method the author recommends is adding another barn owl house to the vineyard. California barn owls are predators to pocket gophers and voles. Barn owls are nocturnal and only hunt at night. Pocket gophers and voles are also nocturnal, whereas ground squirrels are not, which means this method is only useful to control voles and gophers (Browning, 2013).

Implementing another owl house will help the problem, but not fix it, which is why gassing and trapping is need for the ground squirrel issue. According to a study conducted by PG&E, barn owls kill an average of 1,200 rodents per year and primarily feed on pocket gophers and voles (Hoffman et al., 2018). The Creston vineyard currently has one owl house on the property which has lowered the rodent populations. Adding one more on the other end of the vineyard would be ideal to lower the gopher and vole populations even more.

Resources:

ANR. Fumigation, California Ground Squirrel. *University of California, Agriculture and Natural Resources*.

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Guise, V., Mangini, G., Mendoza, M. (2012). Live Trap Versus Treated Grain Bait Ground Squirrel Control Methods. *Department of Agriculture*.

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Hoffman, M., Ingels, C., Browning, M., Best, M., Beal, K. Barn Owl Nesting Boxes and Best Management Practices. *Pacific Gas and Electric Company*. Obtained May 2018 from:

<http://www.vineyardteam.org/files/resources/Barn%20owl%20box%20leaflet.pdf>