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Managing Bird Pests of Fruit Grown in the Foothills

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Introduction. Several bird species can be severe pests of fruit grown commercially in the foothills. Most damage is caused by birds feeding on ripening fruit, making it unmarketable, but species such as house finches and crowned sparrows may also invade orchards to feed on fruit buds during the dormant season or just prior to bloom, also decreasing yield. Bird damage can be particularly severe in the foothill-growing environment, where many orchards and vineyards are adjacent to wild or brushy areas where birds find refuge, breeding sites and other sources of food.

To effectively manage birds and prevent damage, it is important for growers to:

- Identify the primary bird pest species,
- Understand their legal status and restrictions,
- Monitor bird activity for correct timing of control strategies, and
- Employ the control options in the most effective manner.

Pest Species

Common bird pest species in stone fruits include: crowned sparrow, starling, crow, house finch, scrub jay, and yellow-billed magpie. Attached is Table 3.1 from UC Publication 3389, *Integrated Pest Management for Stone Fruits*, listing the description, legal status and control options for these species in stone fruits.

In vineyards, the house finch and starling are the primary bird pests. Starlings in particular have a voracious appetite for grapes so even small flocks can do considerable damage. Other birds occasionally damage grapes and some are protected under law. California quail, Western bluebird, and scrub jay are among species found in vineyards but often are there for the cover and nesting sites.

Monitoring

Monitoring is important since once birds are established and used to feeding in a vineyard or orchard they are more difficult to control. Therefore, control strategies should be employed early, at the first sign of bird activity. It is much easier to monitor movement of birds than actual bird damage. This is particularly true of bud damage that may go unnoticed until bloom. To monitor, look for movement of birds into or within the orchard, especially during early morning. Monitoring is especially important as grapes or stone fruit reach maturity. House finches may be monitored by observing places they congregate before entering the orchard or vineyard such as along rivers, in windbreaks and weedy areas and on power lines.

Bird counts can help on decision-making for control and whether controls are being effective. When birds move into an orchard from an adjacent habitat, records of species, counts, location and date can be useful for planning control.

Legal Status

Once a bird pest species has been identified it is important to check with the local Agricultural Commissioner on the legal status and restrictions for that species before employing control options. For example, Starlings are classified as nongame birds that may be killed at any time without Federal restrictions, but House Finches are classified as migratory nongame birds and can only be controlled with a depredation permit from the U.S. Fish and Wildlife Service or under the supervision of the County Agricultural Commissioner.

Control Methods

Frightening. Noisemakers (cracker shells, propane exploders and electronic devices) and visual repellents are the primary means of controlling bird damage in stone fruits and may also be effective for controlling starlings in vineyards. Frightening devices have only given short-term results for controlling house finches in vineyards. The best methods employ a combination of noisemakers that are rotated on a weekly basis.

Stationary noisemakers are most effective if at least one device per every 5 acres is used and elevated above the plant canopy. Starlings are particularly difficult to frighten once established and so the devices should be in place and operating *before* damage occurs. Placement is critical: ensure that the sound carries over the vines or trees and that all areas are protected. Move the devices every 3-5 days so that the birds will take longer to get used to them. Starlings acclimate rapidly to sounds so the frequency that the sound goes off and the location the sound is generated should be changed often. Shooting cracker shells can reinforce stationary noisemakers.

Roving patrols that fire shell crackers, bird bombs or whistler bombs are most effective in frightening birds from orchards.

Distress calls and biosonics may be effective for starlings, which are a vocal species, however, these types of noisemakers have not been proven effective for most other vineyard bird pests (Taber and Martin, 1998). Some distress calls may actually attract birds to the area in an attempt to locate the supposed predator.

Visual repellents such as large “scare-eye” balloons or mylar streamers should be attached to poles so that they are above the plant canopy and used in combination with noisemakers to increase effectiveness.

A suggested strategy for a frightening program is as follows:

Week 1: Patrol orchard firing cracker shells.

Week 2: Propane exploders.

Week 3: Propane exploders and patrol orchard firing cracker shells.

Week 4: Electronic noisemakers and visual repellents near trees where damage is most severe.

Trapping. Well-planned trapping can be effective for controlling house finches in vineyards and starlings, especially if conducted over a large area. For house finches and crowned sparrows, trapping must be conducted under the supervision of the County Agricultural Commissioner.

The modified Australian crow trap is the most effective trap and details of its use are given in the California Dept. of Food and Ag. *Vertebrate Pest Control Handbook*, listed in the references. Starlings are relatively easy to trap with this trap or with converted cotton trailers. These traps work best with live decoy birds inside and a desirable food placed in the trap and on the entrance board. Decoy birds need to be supplied ample food, water and shelter to be kept healthy. If a trap with live decoy birds does not catch starlings within a week it should be relocated.

Trapping should be carried out by someone experienced with the technique. It is usually ineffective with larger migrant flocks later in the season. Trapping may also fall short of many growers' standards and expectations for the elusive "quick fix". Most trapping programs are not feasible for growers either because of public relations or the lack of available qualified personnel to implement the program successfully (Taber and Martin, 1998).

Netting. Birds can be excluded from grapes and backyard fruit trees by the use of ½ to ¼-inch mesh plastic netting. This is not practical for commercial orchards but there have been recent innovations with using netting effectively in vineyards. A grower's general management practices including irrigation, cover crop, disease and insect control can be affected by the use of netting, however, so planning is important.

Cost of the netting and labor may be significant factors, depending on the benefit received due to the amount of bird pest pressure. A cost of roughly $350/acre has been estimated (Taber and Martin, 1998), and reusable netting with a 5-7 year life expectancy is now available. The reusable netting is more expensive initially but over time can reduce the cost below $100/acre.

For row application, the netting can be applied two basic ways. Most growers unroll the net the length of the row and then lift it in sections, placing it on the top of the vines. It is then spread down the sides of the canopy and either allowed to touch the ground or fastened underneath to prevent birds from entering from below. The use of row application equipment is also an option. This equipment requires the use of a tractor and is less labor intensive.

Repellents. Chemical repellents' effectiveness have not been proven for starlings and have given sporadic results for control of other bird pests. Furthermore, fruit treated with chemical repellents may not be marketable (many wineries will not accept fruit treated with such chemicals) and the economics of this type of control may not be feasible. Also, a variety of factors, including the availability of alternate food sources, can influence the effectiveness of chemical control.

Habitat Modification. Some bird populations such as house finches can be reduced by eliminating nesting and loafing sites such as large brush piles, stacks of irrigation pipe, and piles of boxes. However, given the proximity of the wild to agriculture in the foothills, eliminating all

habitat is obviously not possible. In addition, birds such as starlings can fly up to 60 miles to find food.

Concluding Remarks. Bird damage is a growing concern for foothill fruit growers. Present day California supports an impressive and imposing resident population of birds such as non-native starlings that can be severely damaging if not managed. Growers need to identify their primary bird pest species and understand their biology in order to choose the legal and most appropriate control measures. Effective bird control requires investment of time, money and effort and the sole use of one approach or one piece of equipment may not result in effective control.

References

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