

Bird Management in Fruit Crops - Risk Factors and Management Strategies

Catherine Lindell, Associate Professor

Integrative Biology Department, Center for Global Change and Earth Observations

Risk Factors for Crop Damage by Birds

When there is less fruit in a given area, there will be a higher proportion of bird damage to the crop that is available. One should expect higher proportions of damage in: 1) low-yield years, 2) early-ripening varieties, and 3) small blocks. Blocks near resources important to fruit-eating birds are at higher risk for damage. One should expect higher proportions of bird damage in the following contexts: 1) blocks under wires, 2) at edges of blocks, particularly those near non-fruit areas, 3) near night roosting sites, 4) isolated blocks with little human activity and 5) blocks near dairy farms. Each farm is unique and should be assessed for risk factors. For example, wooded edges of blocks can provide “staging areas” for fruit-eating species like American robins. The birds enter the blocks from the woods, eat, and then return to the woods. If a low-yield year is anticipated, or if your farm has some of these risk factors, it is recommended that you prepare to invest in bird management early in the year.

Bird Management Strategies

Bird management strategies can be grouped into several categories: 1) scaring strategies, 2) barrier strategies, 3) cultural management practices, for example encouraging natural predators, 4) deterrent sprays and 5) lethal control.

Scaring Strategies

Birds habituate quickly to sounds and visual devices that are supposed to scare them. Simply placing decoys of predators or scare-eye balloons is not likely to deter birds for long. If one employs scaring devices, they should be deployed early in the season. Also, they are more likely to deter birds if there is some random component to their movement or sound. For example, inflatable tubemen should be moved within or around a block and, ideally, go on and off randomly (although one needs to be careful that they do not get caught in the crop). Propane cannons and devices that play recordings of distress calls or predator calls can be programmed to go on and off randomly. Some scaring strategies, like lasers, work in particular situations. For example, lasers deter Canada geese in low-light situations. However, lasers are not likely to deter many of the pest birds seen in crops during the day. Effigies (dead birds hung in the crop) may deter crows.

Barriers

Many growers use netting to deter birds; it was considered the most effective bird deterrent in a survey of 1500 fruit-growers (Anderson et al. 2013). Netting requires considerable effort and materials and is generally only a reasonable strategy for low-stature, high-value crops. If one employs netting, it is important that the

netting enclose the vulnerable fruit. Birds will easily get under the netting if there is a gap left between the bottom of the netting and the ground. Also, ideally, the netting will be on a frame to maintain some distance between the fruit and the netting. If the netting lies on the fruit, birds will simply reach the fruit through the netting.

Increasing resources for predators of birds

American kestrels, small predatory birds, can be attracted to orchards with nest boxes. Kestrels prey on insects, small mammals, and birds and we have good evidence that they deter pest birds in Michigan sweet cherry orchards (Shave et al. 2018). Occupancy rates of kestrel boxes vary across the state. Eighty to 90% of nest boxes in Leelanau County sweet cherry orchards attract kestrels each year while in blueberry fields in Van Buren and Allegan Counties, occupancy rates are generally between 30-35%. The difference in occupancy may result from the more open nature of cherry orchards compared to blueberry fields and greater amounts of short, grassy areas in Leelanau County compared to western Michigan. Given the lower occupancy in western Michigan, and the high rates of use of kestrel nest boxes by starlings, a fruit-eating species, growers in western Michigan should install the boxes only if they have time to monitor them and remove starling nests when necessary. Starling occupancy is not a problem in northern Michigan. At the end of this section are links to plans for building nest boxes and points about the best locations and maintenance of boxes. An important consideration is that kestrels in orchards eat voles and mice, so rodenticides should not be used in orchards when kestrels are present. Kestrels migrate out of the northern lower peninsula of Michigan in August but some kestrels may stay in the southern lower peninsula year-round. As a final point, our research shows that consumers are enthusiastic about this type of bird management and so informing your customers about your use of predator nest boxes may be valuable in marketing (Herrnstadt et al. 2016).

Building, Installing and Monitoring American Kestrel Nest Boxes

Plans for the “Spartan” kestrel nest box and mounting tower (designed by Tom Comfort) can be found here: <http://www.nestbox-builder.com/nestbox-article-spartan.html>. Additional plans for a simple kestrel nest box can be found here: <https://nestwatch.org/learn/all-about-birdhouses/birds/american-kestrel/>. Boxes should be installed away from wooded areas to reduce the risk of occupancy by European starlings. Open habitat with sparse trees/shrubs is desirable. Boxes mounted on their own poles/towers can be installed within the orchard itself, either at the end of a row or within a row in an open spot if there is a missing plant. Boxes

should be installed at least one-half mile apart to allow for kestrel territoriality. Boxes should be installed 10 – 20 feet from the ground. The box entrance should face the southeast; kestrel nests are more likely to produce young from boxes facing southeast. Kestrels do not build nests, so the bottom of nest boxes should be lined with wood shavings or animal bedding. Boxes that were occupied during the summer should have the wood shavings replaced during the following fall/winter or early spring in preparation for the next breeding season. If a European starling occupies a box, it will add grass and other materials to the box and lay 5 – 7 pale blue eggs. An identified starling nest should be removed from the box, and new wood shaving should be added to the box if needed. European starlings are not native to North America so no permits are needed to remove their nests. Please consider contributing to the nationwide kestrel nest box monitoring effort by registering your boxes with the American Kestrel Partnership. You can get started here: <http://kestrel.peregrinefund.org/begin-obs>

Deterrent Sprays

Bird deterrent sprays (there are several on the market) contain methyl anthranilate because it is the only chemical currently allowed for use on fruit. Methyl anthranilate is also a food additive that imparts a fruity odor to products. The method of action of methyl anthranilate is that it irritates the trigeminal nerve in the bill of birds. Generally, tests of the efficacy of methyl anthranilate products have not produced strong evidence that it deters birds in field situations. If sprays containing methyl anthranilate are used, they should be applied following the label as closely as possible to increase the likelihood of effectiveness. For example, bird deterrence may be improved if they are applied with foggers, which produce smaller droplets, than typical sprayers. Also, the sprays need to be reapplied after it rains.

Lethal Control

Although potentially appealing, lethal control doesn't have a strong track record for reducing bird damage although it may be warranted in specific contexts. Whether or not one needs a permit to kill pest birds depends on the bird species and the context. Please see the following MSU extension article for regulations concerning permits: https://www.canr.msu.edu/news/do_i_need_a_permit_to_control_wildlife_on_my_farm.

References

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