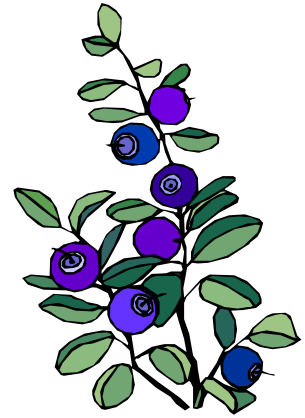


THE BLUEBERRY BIRD PROBLEM - OPTIONS FOR CONTROL

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Birds are a major pest of fruit crops such as cherries, blueberries and some grape varieties. In a recent survey, blueberry growers in the northeastern United States estimated that nearly 30% of their crop is lost to bird depredation. Across the country, 10% of the blueberry crop is probably lost - at a cost of \$10 million. Since the loss of Mesurol, no effective chemical repellent has been available. Netting is expensive and difficult to install, so most growers would like to avoid using it if possible.

For the past several years, with the cooperation of Paul Curtis, wildlife management specialist in the Department of Natural Resources, we have been examining the effectiveness of chemical repellents and audio scare devices for birds in blueberries and cherries. What follows is a summary of our experiences with these new technologies.

Chemical repellents

Methyl anthranilate - this product is chemically similar to the major flavor component of Concord grapes, and is manufactured in large quantities by food processors. Birds are repelled by its taste, and since it is generally regarded as safe for human consumption by the FDA, it would seem to be a viable alternative to Mesurol.

This product is now registered for use in blueberry plantings (Bird-Shield and Rejex-It). However, we have found several problems with this material. First, it is a volatile compound and has a short residual on exposed fruit. We have found good repellency for about 3 days, but the material loses its effectiveness later. Similar results have been reported from Oregon and Florida. Second, to repel birds, a large amount must be consumed in one bite. It is less effective when applied uniformly as it would be with an air blast sprayer.

Although methyl anthranilate works well as a goose repellent in turf, our expectation is that these formulations will not be widely used in fruit plantings until further improvements to the formulation are made.

Sugar - Applications of sugar syrup have been shown to repel birds from blueberry plantings. The exact mechanism of repellency is unknown, but may relate to the inability of many bird species to digest disaccharides. (Most bird-

dispersed fruits contain simple monosaccharide sugars.) The sugar is applied when the fruits begin to turn blue, and reapplied after episodes of rain. We dissolved 230 lbs of sugar in 21 gallons of hot water, yielding 40 gallons of solution. Olympic Spreader Sticker was added at 310 ppm.

Birds damage was 50% less where sucrose was applied. Although each treatment cost \$40 - \$50 per acre, and we applied sugar 4 times during the season, the total expense (\$160) was far less than the losses to birds that an adjacent field experienced.

In field trials this summer, the sugar also repelled birds, although an increase in Japanese beetles and yellow jackets was observed in treated plots.

Audio scare devices

Distress tapes, cannons and firecrackers are audio devices to which birds rapidly acclimate. They are effective for only short periods of time unless moved regularly and supplemented with visual scare devices.

Recently, a new electronic device named "Bird-Gard" has been developed with digitized, species specific bird distress calls. The device we tested emitted distress calls of crows, robins and starlings every minute during daylight hours. We tested the device in two blueberry fields with high bird pressure, and found it to be effective for about 7 to 10 days. In one field, we added hawk models after a couple of weeks and observed a reduction in feeding. When the device was turned off, feeding increased dramatically. A new version of the Bird-Gard includes a shriek of a hawk prior to the distress calls, and elicits calls randomly. These modifications seem to enhance the effectiveness of the device.

Even though feeding by certain bird species was reduced, many birds still fed in the plantings, especially ground-feeders like sparrows and finches. Because blueberries ripen over such a long period of time, the birds have ample opportunity to habituate to the sounds. Furthermore, species composition changes over time, so sounds that work early in the harvest may not work at the end of the season.

One blueberry grower reported that an owl model was very effective for him. The owl mounts on a bearing on top of a post, allowing the owl to swivel in the slightest breeze. In addition, the owl emits a loud shriek at intervals, powered by a solar cell. Combinations of audio and visual scare devices seem to be most effective.

Other devices

We have surrounded a planting with strobe lights, but found they were not effective. We also tested "Bye-Bye Birdie" - a device from Japan that looks like a bird, but contains a powerful magnet purported to disrupt the natural sense of

direction of birds, which they purportedly avoid for distances up to 70 ft. After hanging many of these magnets over a blueberry field, we found them to be ineffective. In addition, we tested a special machine that laid out a sprayable "biodegradable" netting. It is effective on vegetable crops for insect control, and seemed to have potential for blueberries as well. However, the application was too slow and likely to be uneconomical.

Bottom line

Combinations of visual and audio scare devices with taste deterrents are the most practical substitute for netting at this time.