

Ohio Grape-Wine Short Course, Columbus Marriott North, 18 February 1997

Dolbeer, Richard A. Controlling bird damage in vineyards and other fruit crops. U.S. Department of Agriculture, Animal Damage Control, National Wildlife Research Center, 6100 Columbus Avenue, Sandusky, Ohio 44870 (419-625-0242)

Abstract. A number of bird species, of which the European starling (*Sturnus vulgaris*), American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), common grackle (*Quiscalus quiscula*) and cedar waxwing (*Bombycilla cedrorum*) are the most common, damage grapes and other commercial fruits in Ohio. These are all familiar birds to Ohioans with the possible exception of the house finch, a species from the west coast that arrived in Ohio about 20 years ago. With the exception of the starling (an introduced species) and grackle (a member of the blackbird family), these birds are fully protected by federal law and international treaty and thus cannot be killed without a federal permit. Control methods include trapping and shooting for non-protected species, exclusion by netting, use of sonic and visual frightening devices (e.g., propane exploders, electronic sound devices, mylar reflecting tape, eye-spot balloons, animated predator effigies), and cultural practices such as timely harvest. No chemical bird repellents presently are registered for fruits but registration efforts are underway for two products (Mesuro^R [methiocarb] and Rejex-it^R [methyl anthranilate]).

INTRODUCTION

Bird damage to grapes can be a significant problem, particularly to certain cultivars. Damage caused by birds feeding on ripening grapes was observed in 108 of 128 vineyards in the Niagara Peninsula of Ontario in 1962-1963: 14 of the vineyards had over 10% loss (Stevenson and Virgo 1971). Interestingly, 11 of 58 French-hybrid cultivars had >10% loss whereas only 1 of 66 Concord or related American cultivars had >10% loss. A survey of 4 vineyards on Long Island, New York in 1986-1987 indicated losses to birds averaging about 10% in both years (Fuller-Perrine and Tobin 1993). Dolbeer et al. (1994a) summarized bird damage data for 17 plantings in vineyards in 3 states (California, New York, Ohio): plantings treated with the bird repellent chemical, Mesuro^R, averaged 9% loss compared to 33% loss in nearby untreated plantings.

SPECIES CAUSING DAMAGE AND LEGAL CONSIDERATIONS

One of the difficulties of controlling bird damage in vineyards is that damage is caused by a number of species, each with different behavioral characteristics. The European starling, American robin, house finch, common grackle and cedar waxwing are the most common depredators in Ohio. These are all familiar birds to Ohioans with the possible exception of the house finch, a species from the west coast that arrived in Ohio about 20 years ago. These species generally nest from April-June with young fledged by late July. Thus, these bird populations are at their annual maximum in late summer when the grapes become vulnerable to damage.

Another major challenge of controlling bird damage is that most of these species are fully protected by federal law and international treaty and thus cannot be killed without a federal permit. Exceptions are the starling (an introduced species) and grackle (a member of the blackbird family). The starling has no protection. Grackles are protected by federal and state law but can be killed "when doing damage or about to do damage to agricultural crops.." (Dolbeer et al. 1994b).

METHODS OF CONTROL

Lethal control (trapping and shooting) – Starlings, especially recently fledged juveniles, can sometimes be captured in large numbers in large, drop-in cage traps referred to as decoy traps (described by Dolbeer [1994] and Johnson and Glahn [1994]). Care must be taken to humanely euthanize captured starlings and to release protected species that are captured. Shotgun shooting of starlings and grackles in vineyards can reinforce other scare devices deployed. As noted above, species other than starlings and blackbirds (including grackles) are protected.

Exclusion by netting – Fuller-Perrine and Tobin (1993) determined that vineyards could be fully protected by removable, elevated netting for about \$210/acre/year (prorated over 10 years). Portable netting draped directly over the vines for short periods would cost even less. Netting is a viable option for high-value cultivars in locations with serious bird-depredation problems.

Sonic and visual frightening devices – There are a variety of devices marketed for repelling birds. The propane exploder, which emits a loud bang similar to a shotgun at timed intervals, is the most popular sonic device. Several electronic noise devices, that emit a variety of sounds and bird distress calls, are also available but their effectiveness for more than a few days has generally not been demonstrated (Bomford and O'Brien 1990). As a general rule, species of birds that form large flocks such as starlings and grackles are much easier to frighten with loud noises than are robins, finches, and waxwings. Another general rule is that birds tend to habituate to sonic devices; thus devices should be varied and backed up with occasional lethal control (shotgun shooting) when possible (non-protected species only) to reinforce the frightening effect. There is no experimental evidence that ultrasonic devices (that emit sounds above the threshold of human hearing [about 20,000 cps]) repel any species of birds (Woronecki 1988).

Reflecting tapes made of mylar stretched above crops have had mixed success in repelling birds (Dolbeer et al. 1986; Tobin et al. 1988). Eyespot balloons have shown only limited effectiveness (Woronecki 1988, Avery and Matteson 1995). Inanimate predator effigies (such as plastic owls) have no effect. Animated predator effigies, such as hawk-kites hung from poles, may have some deterrent effect for a few days (Conover 1984).

Chemical repellents – No chemical bird repellents presently are registered for use in grapes or other fruits but registration efforts are underway for two products (Mesuro^R [methiocarb] and Rejex-it^R [methyl anthranilate]). Mesuro^R, a proven-effective bird repellent (Dolbeer et al.

1994a), was previously registered for use on cherries (1978-1989) and blueberries (1983-1988) and was used on grapes under various experimental use permits. Presently, Gowan Company, Yuma, Arizona, (520-783-8844) owns the marketing rights for Mesurol[®] in the United States and is pursuing reregistration of this product as a bird repellent for various crops, including fruits. Rejex-it[®] is a relatively new bird repellent that is registered for use on turf and in water. RJ Advantage, Cincinnati, Ohio (513-482-7320) is pursuing Rejex-it[®] registrations for fruits (Avery et al. 1996).

SOURCES OF SUPPLIES, INFORMATION AND ASSISTANCE

Hygnstrom et al. (1994), in a 2-volume handbook entitled Prevention and Control of Wildlife Damage, provide comprehensive discussions for controlling damage by various bird species. The handbook also has a detailed listing of bird and mammal control devices and chemicals and their sources of supply. Most County Farm Service Agency (Cooperative Extension Service) offices in Ohio have this reference book. Dolbeer et al. (1994b) also provide a comprehensive discussion of wildlife damage management.

The U.S. Department of Agriculture (USDA), Animal Damage Control (ADC) Program, has offices in Ohio in Columbus (614-469-5681) and Sandusky (419-625-9093). These offices can be contacted for assistance in dealing with bird and other wildlife damage problems. The USDA/ADC Program also has a research field station near Sandusky (419-625-0242) that develops and evaluates control techniques.

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