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USING CONDITIONED TASTE AVERSIONS TO PROTECT BLUEBERRIES FROM BIRDS: COMPARISON OF TWO CARBAMATE REPELLENTS

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ABSTRACT

This study compared the effectiveness of two carbamate repellents, trimethacarb and methiocarb, in preventing bird damage to blueberry fields by establishing in birds a conditioned taste aversion to treated berries. These experiments were conducted during 1982 and 1983 at the Lockwood Farm in Hamden, Connecticut, where these repellents were tested on a 0.05 ha blueberry planting and at Rose's Berry Farm in Glastonbury, Connecticut, where five 0.4-1.0 ha fields were used. To test the efficacy of these repellents, the plot at the Station's farm was divided in half; and the plots at Rose's Berry Farm were divided into thirds. Bird damage in each of these sections was first measured during a one-week pre-treatment period. Thereafter, one of the sections in each field was randomly selected and treated with one of the repellents. Two weeks later, another section in each field was sprayed with the other repellent. Bird damage in the treated sections and in the nearby untreated sections was compared to that occurring in these same sections during the pre-treatment period, using a Student's t-test for statistically significant ($P < 0.05$) differences.

My results indicated that methiocarb and trimethacarb significantly reduced berry loss in the treated plots by 25% and 52%, respectively, during the first week after application. The difference in repellent effectiveness, however, was not statistically significant. Moreover, neither repellent significantly reduced berry loss in adjacent untreated plots. These results indicate that both repellents caused birds to avert only from treated berries and not from the taste or sight of blueberries themselves.

DISCUSSION

Question: You said that in all your plots in the second and third weeks you observed significant differences compared with pre-treatment levels; but were these differences, when compared with controls, significant?

Conover: They were significant. However, the strongest control, we believe, is to compare damage in a plot to pre-treatment levels. Many variables affect bird damage among plots. We give more credence to what happens over time in one plot than what's happening in different plots at the same time.

Question: How big are the fields?

Conover: The fields range in size from 0.1 to 1.0 hectares.

Question: What kind of birds do you deal with?

Conover: Mockingbirds and starlings take about 80% of our berries. Robins and orioles are involved to a lesser degree.

Question: Does trimethacarb have the same physiological effects on the birds as methiocarb?

Conover: From our preliminary results, yes.

Question: What is the cost/benefit pattern between these two chemicals?

Conover: We don't know, because the market cost of trimethacarb has not been established.

Question: I have found that house finches will generalize among fields and thereby reduce their consumption, whereas starlings will not. They may have some kind of tolerance; I have seen them eat both treated and untreated grapes.

Conover: I haven't looked at that question. We have found that these chemicals are effective against all species that bother our blueberries.

Question: Are they reacting to the residue on the berries?

Conover: I don't know. I cannot detect a visual or taste difference between treated and untreated berries. Work at Monell Chemical Senses Center suggests taste, sight, even locational cues may be important.

Question: What is the cost of netting vs. chemical treatment?

Conover: In a paper several years ago (Wildlife Bulletin 10:211-216) I determined the yearly cost of netting was \$300-\$400/A (including maintenance, annual handling, and initial cost). Cost of methiocarb application was \$132/ha for the chemical; most farmers made two applications. Thus the cost is approximately \$100/A. This does not include labor.

Question: What is registration status of trimethacarb?

Conover: It's just beginning.