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## NEW MATERIALS FOR BIRD CONTROL

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A variety of methods is necessary to solve the many bird damage problems that occur in agriculture and other fields of interest. It is apparent that no one method can be used to provide answers for all damage situations; each problem and problem area is unique and requires thorough knowledge and investigation before intelligent measures of bird control can be applied. Thus, basic research in the laboratory and initial field studies are necessary to arrive at the most safe, efficient, and economical method of bird damage control possible for each situation.

The use of chemicals for damage control is one of the major approaches in solving bird damage problems, and personnel of the Denver Wildlife Research Center rely heavily on this line of attack. The following is a resume of the various chemical agents that (1) are in the initial phases of investigation and show promise, and (2) are nearing the final stages of research and hopefully will become operational.

### RESEARCH IN THE INITIAL STAGES

#### 1. *DRC-736 as a Frightening Agent for Use in Standing Sorghum*

Recent field studies with DRC-736 [4-(methylthio)-3,5-xylol N-methylcarbamate] have been conducted in Oklahoma on red-winged blackbirds (*Agelaius phoeniceus*) and brown-headed cowbirds (*Molothrus ater*) feeding in standing grain sorghum. The results of broadcasting cracked corn treated with DRC-736 and diluted with untreated corn indicated that damage can be reduced considerably. Flocks of blackbirds ranging from 20,000 to 75,000 were frightened from fields 1 or 2 days after they were baited and these birds were never a problem in these fields thereafter. Birds that fed on treated bait became affected within 30 minutes and remained immobilized for several hours. Hawks were the chief cause of mortality and frequently fed on immobilized birds, greatly aiding the fright-producing properties of the chemical. Additional field tests in sorghum are being planned to determine fully the value of DRC-736 as a control agent.

Proc. 4th Bird Control Seminar, Bowling Green, Ohio,  
September 16-18, 1968

## 2. DRC-1347 as a Contact Perch Toxicant

Several field trials in the Denver area have provided information on the utility of DRC-1347 (3-chloro-*p*-toluidine) as a perch toxicant for starlings (*Sturnus vulgaris*). In one test where a bead formulation of DRC-1347 was applied in a barn cupola where about 100 starlings were roosting, only 3 birds remained after 3 days. In another test about 70 percent of 1,200 starlings were killed from coming into contact with DRC-1347 when entering an outdoor advertising sign to roost. Although initial field trials with DRC-1347 as a perch toxicant show promise, more research needs to be done on the effects of light and temperature on the compound and its formulation. No field tests have been conducted on large concentrations of roosting birds.

## 3. DRC-736 as a Seed Repellent

As a seed repellent on newly planted corn, DRC-736 was evaluated in several geographical areas on common grackles (*Quiscalus quiscula*), boat-tailed grackles (*Cassidix mexicanus*), common crows (*Corvus brachyrhynchos*), and pheasants (*Phasianus colchicus*). In both 1967 and 1968, pheasant damage to sprouting corn in test fields in South Dakota was reduced more than 90 percent by DRC-736 treatments. Similar treatments in south Texas also reduced feeding by boat-tailed grackles on sprouting corn. Studies were also initiated on crows in Tennessee and common grackles in South Carolina. More field testing is planned in these different geographical areas.

## RESEARCH APPROACHING COMPLETION

### 1. DRC-1339 for Baiting Preroosting Areas

DRC-1339 (3-chloro-*p*-toluidine hydrochloride) was developed as a starling toxicant at the Denver Wildlife Research Center. It is now being extensively used under the trade name of Starlicide<sup>1</sup> as an agent for controlling starlings at animal feedlots. It has also been used to reduce a wintering starling population causing damage to cattle feedlots near Denver by baiting preroosting areas with treated poultry pellets. A population of about a quarter million birds that occupied a single roost was reduced more than 60 percent by baiting two congregating areas, a feedlot and a pasture adjacent to the roost. Baiting preroosting areas with DRC-1339-treated rolled barley has also been successful in control starlings that caused damage to holly orchards in Oregon.

### 2. DRC-736 as an Area Repellent in Feedlots

Extensive field testing in cattle feedlots north of Denver has shown that baiting with DRC-736-treated cracked corn is a safe and effective method of discouraging redwings from frequenting feedlots. The treated bait was diluted with untreated bait and broadcast in alleys and pens. One feedlot was protected for an entire winter with only four baitings.

<sup>1</sup>Reference to trade names in this publication does not imply endorsement of commercial products by the Federal Government.

### 3. *DRC-1327 as a Frightening Agent in Field Corn*

Many methods have been tested to alleviate blackbird damage to ripening field corn near Sand Lake National Wildlife Refuge, South Dakota: blackbird-resistant varieties of grain sorghum and tight-husked hybrid corn, marsh vegetation control, mechanical frightening devices, contact toxicants used in roosts, and various chemical agents applied to grain baits and standing crops. The most successful results have been obtained with DRC-1327 (4-amino-pyridine).

DRC-1327 is a fright-inducing chemical that causes affected birds to fly erratically and emit distress cries. Flocks have been cleared from fields when less than 1 percent of the population was affected. In our field tests, cracked corn bait diluted with untreated corn has been broadcast at the rates of 1 pound of treated corn per 30 acres or 1 pound per 100 acres. In 1965, damage was reduced by about 85 percent on more than 1,100 acres of corn. In 1966 and 1967, the study area was enlarged to 508 sections surrounding Sand Lake, and landowners were allowed to purchase treated baits and have them applied by operators of high-clearance tractors equipped with electric seeders. Damage was reduced by about 52 percent in 1966 and by about 73 percent in 1967. It is worthy of note that the higher effectiveness attained in 1967 was achieved at the lower treatment rate, 1 pound per 100 acres. A similar study is being conducted this year.

#### DISCUSSION:

FITZWATER: John, how long does it take for DRC-736 to take effect?

DE GRAZIO: About 15 minutes.

FITZWATER: What is the psychological background on acting as a frightening device when it immobilizes the birds? We "immobilized" with TEPP.

DE GRAZIO: Yes, well, the same thing as TEPP, only it's a lot safer than TEPP. You're getting this reaction of birds. They don't go into violent convulsions, but they do go into mild convulsions and sometimes utter distress cries. We feel it's a real good chemical for redwings in feedlots.

OCHS: John, I missed what your application of 736 is. How do you use it?

DE GRAZIO: 736 is a carbamate. It was 1% on cracked corn.

JACKSON: John, maybe you might answer one other question. Some of your tests are coming to completion on some of these materials; then what?

DE GRAZIO: Then, I guess is when the problem begins-with registration and all these other things that I'm not too familiar with. I guess the people in Washington have to go to work.