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EXPERIMENTAL CONTROL TECHNIQUES USING AVICIDE 3, CHLORO-P-TOLUIDINE

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Bird depredations in Virginia have been estimated by the Extension Service, State Department of Agriculture, and the Division of Wildlife Services to be approximately $5,000,000 annually. As part of a continuing program to reduce this damage, these agencies have tested certain experimental techniques using the avicide, 3, chloro-p-toluidine, chosen for its relative selectivity, low secondary hazard, and slow action. The situations in which the avicide was tested were feedlots, decoy crops, roost reduction, and pigeon control.

Feedlots

3, chloro-p-toluidine was tested under a variety of conditions in feedlots and poultry ranges throughout Virginia. Success of the control operation, based upon the percentage of birds eliminated, ranged from above 99% to less than 10%. In most cases, the degree of control was determined by three factors: 1) type of bait 2) placement of bait, and 3) weather.

Type of Bait

In most cases, birds, especially starlings, rejected any 3, chloro-p-toluidine treated bait if that bait did not closely resemble their normal food. For example, if starlings were accustomed to eating pellets, they would not accept treated cracked corn, and vice versa. In fact, starlings would reject treated pellets if these pellets were of different size or color from the pellets they normally fed upon. In one test, starlings picked out and consumed untreated pellets from a mixture of treated and untreated pellets simply on the basis of color. Thus, in each situation, the type of feed being consumed had to be carefully determined in order to prepare an identical bait material. This procedure was often difficult because the birds sometimes selected a certain portion of a mixed feed, such as the protein supplement in silage feed. Bait

was prepared by treating the food material being consumed with enough chemical to make one particle lethal, or approximately 1% by weight. The chemical was dissolved in hot water and syrup, which served as a sticker, and mixed with the bait. This treated material was then diluted 10 to 1 with untreated material of the same type. Where particles were extremely fine, such as in soybean meal, the dilution was reduced to 2 to 1 or 3 to 1 since the bait material was not one-particle lethal.

Placement of Bait

Depredating birds usually would not accept bait material unless it was exposed very near to where they normally fed. For example, birds normally ignored bait placed on roofs, on exterior fence posts, outside feedlots, etc. Some places which were usually successful were fenced off portions of feeders or feed bunkers, spillage outside of feeding areas, especially in alleyways, and on top of feeders. If baiting could not be accomplished safely in places such as these or similar places, then bait was exposed in troughs 4 feet long, 12 inches wide, and less than 4 inches deep placed as close as safely possible to the normal feeding sites. These baiting troughs were especially effective in trench silos where birds were picking out grain along the face of the exposed silage.

Dew and rain also affected placement of pelleted bait, since these baits quickly decomposed when exposed to moisture. Cracked corn bait was not affected in such a manner.

Weather

In Virginia, the time when the bait was exposed in relation to the weather affected the degree of control. The warmer the weather, the more the natural foods were available to starlings, the less likely the birds were to accept treated bait and vice versa. Under snowy conditions well below freezing, starlings accepted almost any bait anywhere and control was usually excellent. Since such conditions occur only occasionally in Virginia, the type of bait chosen and its placement were critical. However, if these conditions were carefully considered, 3, chloro-p-toluidine baits were effective in reducing consumption of livestock feed.

Decoy Crops

Since blackbirds feeding in cornfields do not feed on the ground in large numbers, it is impossible to reduce damage by reducing the number of birds with a ground-applied toxic bait. Thus, the only way to reduce the number of birds would be to treat the ears themselves. However, this practice is not safe unless the treated ears are on corn separate and distinct from the regular crop that will be plowed under when no longer effective, a decoy crop.

In the test conducted, twelve rows of corn were planted separate from the normal crop. The variety chosen was one that would mature earlier than the normal

crop and that had an upright ear with a loose husk. This decoy crop was planted in a location between the normal crop and the place where the birds usually enter the field. As soon as the birds began to damage this corn, the ears were sprayed with a 3% solution of chloro-p-toluidine containing syrup as a sticker. This high concentration was chosen because only the upper part of each kernel could carry the poison and more than the normal amount was deemed necessary to be effective. Prior to spraying, the husks were striped back, and in some cases the stalk was broken off just above the ear.

Results of this test were difficult to ascertain. Although consumption of the treated ears indicated some degree of effectiveness, the amount could not be determined. Furthermore, once the husks were striped back, the exposed kernels hardened faster than unstriped ears. The birds, preferring soft kernels, then turned to unstriped, untreated, ears. Damage to the normal crop was estimated at 12% volume loss, which was less than in previous years, but this decrease could be attributable to normal yearly variation. Although the decoy crop was damaged more heavily than the normal crop, this could be attributable to the fact that the decoy crop was a more susceptible variety made more susceptible by the striping of the husks. In any case, the effectiveness of this method is doubtful because of the cost of material and labor involved. Perhaps additional control could have been achieved by discing the corn and applying treated cracked corn to it, but this procedure was deemed too dangerous to local populations of quail and doves.

Roost Reduction

Because blackbirds and starlings tend to stop and feed briefly in a pre-roost or staging area before going to roost, the possibility exists that the numbers of depredating birds could be reduced by applying 3, chloro-p-toluidine treated baits to these areas. Three such tests were conducted, two involving winter roosts and one involving a summer roost.

The first winter roost treated contained an estimated 50,000 birds. Several staging areas were located and pre-baited with a variety of baits. One area seemed to attract more birds than the others, so it was selected as the main treatment site and disced to make it more attractive. It and several other smaller sites were then baited with 1% 3, chloro-p-toluidine treated cracked corn, the pre-bait material consumed most readily by the birds. After two days of treatment the roost dispersed, and neither it nor any fragments of it could be found. Mortality in the roost was not heavy, primarily because only enough bait was consumed to kill 15,000 birds. The fate of the roost and its cause could not be determined.

The second winter roost treated contained approximately 350,000 birds. Prior to treatment the roost was moved from a residential area to a less developed area to avoid public disturbance. A primary staging area was located and baited without prebaiting with 1% 3, chloro-p-toluidine treated cracked corn and bread cubes, the two baits most readily consumed by the birds in another test nearby.

After a month of treatment, approximately 50,000 birds had been killed. Baiting was then discontinued because the roost began to break up due to warming weather and because the continuation of such treatment did not seem to be feasible at this point.

The summer roost was treated much the same as the two winter roosts. Results, however, were extremely poor because the great variety and amount of natural foods present permitted most of the birds to go directly to the main roost on a full crop without staging. Furthermore, all mortality was quickly made up by increasingly large numbers of surrounding birds moving into the roost area.

Consequently, roost reduction by baiting seems feasible only in the winter when a staging area can be located where large numbers of birds regularly feed before going to roost.

Pigeon Control

Because 3, chloro-p-toluidine does not cause sudden mortality on or around the baiting site, it should not frighten pigeons or people during a pigeon control operation. Its low secondary hazard makes it ideal for use in urban areas. Therefore, several tests were made throughout Virginia to evaluate this technique.

Whole kernel corn was treated with 1% 3, chloro-p-toluidine by weight, and diluted by 50% with untreated corn. The two best stickers appeared to be syrup and corn starch. The pigeons were pre-baited before the treated material was applied. Percent control as determined by number killed varied from approximately 30% to near total.

The main cause of this variation appeared to be rejection of the treated bait by some birds. Birds were observed to pick up several pieces of bait but then quickly drop each one. This rejection appeared to be caused by three factors: 1) a different texture of the bait caused by the sticker, 2) a darkening of the bait caused by the 3, chloro-p-toluidine, and 3) smell or taste of the bait.

Tests on acceptability of bait as influenced by the sticker alone indicated that any effect caused by the sticker was minimum. The darkened color was significant, however because in two tests, pigeons completely rejected darkened bait. Smell or taste for pigeons was not evaluated, but the odor of 3, chloro-p-toluidine baits was apparent.

Subsequent tests showed that better than 90% control could be achieved if: 1) only a minimum amount of sticker is used and that the sticker dry hard and smooth, 2) only freshly mixed bait was used, and 3) baiting was persistent.

Persistence proved to be especially important. Control was increased to near total if baiting was continued after the initial kill. Untreated bait alternately applied with a mixed bait of treated and untreated corn eliminated most of the pigeons not killed by the initial baiting.

Additional testing is required to see if the odor or taste factor can be eliminated. However, 3, chloro-p-toluidine appears to be an excellent pigeon control tool.