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KANSAS STATE AGRICULTURAL COLLEGE
EXPERIMENT STATION—CIRCULAR 1.

DEPARTMENT OF ENTOMOLOGY
T.J. HEADLEE, ENTOMOLOGIST AND ZOOLOGIST IN CHARGE

**TREATING SEED-CORN TO PROTECT IT FROM
BURROWING ANIMALS**

BY

THEO. H. SCHEFFER,
Assistant in Zoological Investigation.

At this season of the year a great many inquiries are being received at the Station concerning methods of so treating seed-corn as to prevent its being taken in the ground by moles and other burrowing animals. It is partly to supply timely information on the subject and partly to secure the cooperation of farmers in trying out some of the more promising methods of procedure that this preliminary bulletin is published. It is only fair to state at the outset, however, that plans and methods with us are still following experimental lines, and that no final recommendations can yet be made.

MICE, NOT MOLES, GUILTY.

That the mole is directly responsible for few if any of the numerous and varied depredations laid to his charge, our research the past year has proven conclusively. The mole is a predaceous animal, living chiefly on insects, insect larvae (particularly white grubs), and earthworms. This conclusion is based on the careful analysis of the stomach contents of over one hundred fifty specimens taken in all months of the year. Three or four species of field mice and the common house mouse habitually frequent the runways which range over the mole's hunting-grounds, and feed on the grains and seeds planted by man and by nature. If one will take the pains to set a few small mouse traps, properly baited, in shallow excavations scooped out in the surface burrows of field and garden, he can do a little detective work on his own account. The excavation containing the trap should be covered by a board or piece of sod.

METHODS OF DEALING WITH THE MICE.

Experiments in methods of preventing the theft of seed grain

in the ground have all followed one of three lines--baiting the

pests some days in advance of planting, regular planting of poisoned seed, and surface coating of seed with ill-flavored substances.

Poisoned Bait.--By baiting we mean the introduction of poisoned grain baits into the mole runways through small opening made with a stick. This is the plan that succeeds best with pocket-gophers, for it places the bait where it is sure to be found. The location of the mole's runways is readily indicated by the surface ridging of the earth, especially after a rain. The sharp stick used for making the openings through the roof into the burrow should be no larger than one's finger. Close this opening with a clod after dropping in the kernels of poisoned grain. Either corn or wheat treated with the poisoned syrup used for destroying pocket-gophers will make efficient baits. Ordinary white arsenic may also be used by first wetting the corn with water in which a little gum arabic has been dissolved and then dusting the arsenic over the grain and stirring it thoroughly. If this plan is followed the grain may be allowed to dry before using. The bait may be put out with a hand planter if the grain has been poisoned by some substance that does not render it sticky. To prepare a bait that will work in a planter, dissolve one-eighth of an ounce of strychnia sulphate in two quarts of hot water, preferably rain water. Soak the corn in this for 48 hours and then spread it out and dry thoroughly.

Poisoned Seed.--A limited number of experiments recently performed seem to indicate that the treatment last mentioned does not in the least injure the germinating powers of the corn, and that seed so treated could be used for the regular planting. We cannot recommend the method, however, until we have given it more thorough test under varying conditions. It is one of our most promising solutions of the problem, and we hope that interested farmers will cooperate with us in making trials of the method on a small scale and report results in detail. Of course, if grain for the regular seeding can be so treated, baiting with poisoned grains will be unnecessary. In testing the method, do not put the corn to soak until the water has cooled and use only so much grain as, after allowing for swelling, will be completely covered by water; otherwise the kernels that are above water will germinate and the germ will kill on drying.

Coating the Seed With Offensive Substances.—The past season we made an extensive series of tests in treating seed-corn with various ill-tasting substances calculated to deter burrowing animals

from taking it. The results in most cases were negative—that is, the seed was taken about as readily as though it had not been treated at all. Some of the methods of treatment originated with us, others were recommended. In every case a counted number of kernels of treated corn were put out in not less than twenty different locations and the trial repeated one or more times during the season. All locations were accurately marked and carefully examined at regular intervals. Our notes show that none of the substances used prevented the kernels of corn, or a portion of them, from being eaten or carried off. In most cases the grain was introduced directly into surface runways through an opening made by a lead-pencil or small stick. We had no opportunity to test these substances with crows or spermophiles (striped gophers or ground squirrels). The results of these tests are here briefly summarized :

Substances Which Have Been Found to Injure the Germ of the Seed.

Kerosene, crude petroleum, copperas, crude carbolic acid, fish oil, and spirits of camphor, when used in sufficient quantity or strength to impart an odor to the corn, seriously injure the germinating powers of the grain. To treat the seed with any of these substances in such small quantity or dilute form as not to injure the germ is a waste of time, for the slight taste or odor imparted is soon dissipated in contact with the soil.

Substances not Injurious to the Seed but of no Value or not Available.

Mixing pulverized gum camphor with the dry grain and storing it in a closed vessel for some days has been recommended as an efficient treatment. With us the results were entirely negative. Little or no odor was imparted to the grain. Pine tar was used in our experiments. It has a strong odor, but leaves the grain too sticky to work in a planter.

Substances Which Promise Success and Merit Further Trial.

Coal-tar makes an ideal coating of a rich brown color and a persistent gassy smell. It dries nicely, is not in the least sticky, and will work well in a planter. Wet the grain with a little warm water before stirring in the tar. A teaspoonful of the latter will be sufficient for a peck of corn. The mass must be thoroughly mixed and then dried before attempting to plant. Soaking corn in strong tobacco decoction for a few hours, or simply wetting it with the liquid, seems to promise good results. Of course, the grain must be thoroughly dried before planting., It will have a strong odor and will not be sticky.

REQUEST FOR CO-OPERATION.

Again we express the hope that all who are interested in the matter of treating seed-corn will cooperate with us in making tests under the varying conditions that different localities, different methods, different soils, different animals and differing weather will present. Later we confidently expect to be able to offer more definite and certain recommendations and suggestions.

Approved:

ED. H. WEBSTER

Director.

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