

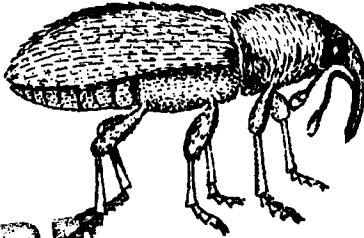
MAY 13 1950

Control of the

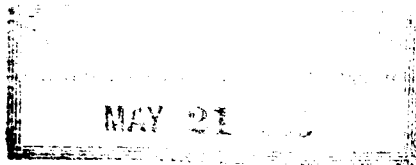
DOCUMENT
COLLECTION

OREGON
COLLEGE

CLOVER SEED WEEVIL



~~DISCARD~~



Agricultural Experiment Station
Oregon State College
Corvallis

Circular of Information 485

May 1950

630.7
Or32ci
no. 485
c. 3

OREGON STATE LIBRARY

DOCUMENT
COLLECTION

OREGON
COLLECTION

Control of the

CLOVER SEED WEEVIL

By M. M. Reeher, L. P. Lockwood, E. A. Dickason
and D. C. Mote*

The clover seed weevil, Miccotrogus (Tychius) picrostris (Fab.), a European pest of white clover, ladino clover, and alsike clover, was first found in the Pacific Northwest at Puyallup, Washington in 1929. From this location in the Puget Sound area the weevil has now spread into most of the important clover seed-growing areas of Washington, Oregon, and Idaho. In Oregon the weevil is now known to occur throughout the Willamette Valley and has been found as far south as Ashland. This species has been present in the Bend area since 1939 and it is now known to be present in the Klamath Falls area.

Life History Information Is Essential to Control

HABITS OF THE WEEVIL:

The drawing on the cover is enlarged to nearly 20 times its natural size. The clover seed weevil is a small gray weevil about 1/10-inch long. It is very active and is able to fly considerable distances as indicated by its rather rapid spread in the Pacific Northwest. The adult weevils feed at the base of the calyx on the florets of the clover heads. The feeding punctures are quite conspicuous and often penetrate into the stem, the developing pods, and sometimes into the young seed.

The egg punctures are inconspicuous and quite difficult to find. They are higher up on the calyx than the feeding punctures and are usually about midway of the calyx. The eggs hatch in about a week and the young larvae feed on the developing seeds. Each larva destroys from 2 to 4 seeds before reaching maturity. The larvae mature in about 2 weeks and drop to the ground to pupate in individual earthen cells. The larval stage in the ground requires about 4 days, the pupal stage about 10 days, and the newly-formed adult takes about 4 days to color and harden.

* Cooperative studies carried out by M. M. Reeher, entomologist, and L. P. Rockwood, entomologist (retired), U. S. Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, U. S. Department of Agriculture, and E. A. Dickason, research assistant, and D. C. Mote, entomologist, Oregon Agricultural Experiment Station.

SEASONAL HISTORY:

The seasonal history varies with the conditions of the different seasons. Generally eggs are found in early June, larvae in mid-June and new adults in late June or July. Weevils continue to emerge throughout the season until fall. Approximately $1\frac{1}{2}$ months elapse between the time the eggs are laid and the new generation of weevils emerge from the soil to begin feeding on the clover heads.

As the clover dries up in the fall the new generation of weevils seeks hibernation cover around the edges of the fields. Here they pass the winter and emerge in the spring about the time the first white clover begins to bloom. Although adults do considerable injury to the clover by feeding on the florets in the spring and on irrigated clover in the fall, the worst injury is done by larvae feeding on the developing seeds.

How to Control

WHEN TO TREAT:

1. Treatment is applied when the weevils are out of hibernation and present in the fields, yet not late enough to expose many of the seeds to attack.

Clover development varies in different localities and at different elevations according to the variety. The proper timing of insecticidal control, therefore, depends on the development of the clover rather than on a definite date.

2. Studies have indicated that the best time to apply treatment is when about 20 per cent of the clover heads in the field have withered and turned brown. This is about the time the first seed pods are forming in the heads.

The percentage of brown heads can be measured by selecting small areas in several representative parts of the field and counting the brown heads and the heads in full bloom.

3. To avoid killing honeybees and other insect pollinators the treatment should be applied in the early morning or late evening when these insects are not working on the blossoms.

Although bees usually avoid fields for several days after they have been treated with DDT, extreme care should be used not to apply this insecticide to clover in bloom at times when bees are working in the field.

4. It may be necessary to apply a second treatment in some seasons when the flight of the weevils from hibernation is delayed, or when the first treatment is subject to heavy rains soon after application.

Studies to date have indicated that one treatment, if properly timed and applied, will control the weevil in most seasons.

Note: With irrigated ladino clover it is not necessary to treat the clover until the crop to be saved for seed is starting to set pods. This crop develops later in the season than the common white and alsike clovers from which the first crop is saved for seed and usually is not so heavily infested with weevils. If many clover heads have been allowed to develop in the first crop of irrigated clover raised for hay or pasture, some injury to the seed crop by new weevils coming from these heads may result. Usually this feeding injury has not been serious enough to require additional treatment. In the ladino clover seed areas where treatments have been made with DDT for Lygus bug control very little trouble from the clover seed weevil has been reported.

WHAT TO USE:

1. One application of 20 pounds of 5 per cent DDT dust per acre will control the clover seed weevil when properly applied and timed.
2. No apparent difference in control of the weevil has been observed between applications of dust by airplane and by ground machine if the dust has been evenly distributed in the fields.

Care should be taken with either method to see that the dust is evenly distributed and that no areas are missed. Areas that have been missed appear to be more common when the dust is applied by airplane than when applied by ground machines.

Residue Hazard

No residue studies have been made, as the clover straw has not been used for feeding livestock. The straw from fields that have been treated with DDT should not be fed to dairy cows or for fattening stock that is being finished for slaughter.