

CONTROL of VETCH BRUCHID in ALABAMA

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The vetch bruchid, or vetch weevil, does severe damage to vetch grown for seed in Alabama. The insect has no effect on the amount of foliage produced, but it may seriously reduce the germination of seed. Seed that appear sound at harvest may be worthless or very low in quality. Visible damage appears a few weeks after harvest, when the bruchids emerge from the seed, leaving only empty seed coats.

LIFE HISTORY

The vetch bruchid adult is a small, almost black, chunky beetle about 1/8-inch long, resembling the pea weevil, but less than half as large. The bruchids pass the winter in the adult stage, and begin to come out of hibernation during the first warm days of spring. By the time vetch is in bloom, all of the adults are out of hibernation and widely distributed in vetch fields. When the first vetch pods are formed, the females begin to lay eggs, which are attached to the outside of the pods. They continue to lay eggs on new pods as they are formed.

The newly hatched larvae penetrate the pod and feed inside the seeds. The insects remain inside the seed until the seed are harvested, or until the pods burst open, when they emerge as adults. There is only one generation of bruchids per year. They do not infest seed in storage.

CONTROL

Results of experiments show that fumigation of newly harvested vetch seed will prevent emergence of adult bruchids. However, these results proved of no value in control of the bruchid, since by the time seed were harvested their viability already had been destroyed by the larvae. Therefore, both fumigated and non-fumigated seed failed to germinate. From these results it was concluded that control measures must be taken in the field to prevent egg laying.

Field experiments on control of the vetch bruchid have been conducted at the Tennessee Valley Substation for 3 years. Five and 10 per cent DDT, 5 and 10 per cent chlordane, 10 per cent toxaphene, 2.5 per cent aldrin, 1 per cent rotenone, and 1 per cent parathion were tested during this period to determine the materials and number of applications most effective for con-

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trol of the bruchid. These materials were applied to vetch as dusts during pod-forming time at rates of 25 to 35 pounds per acre per application. The first application was made when the vetch was beginning to bloom freely. The seed were harvested by combine and held for bruchid emergence. The degree of control was measured by the number of adults emerging from the seed after harvest.

One application of the dusts had no significant effect on the number of bruchids emerging from the seed. Two applications of all the insecticides, except parathion, caused a significant reduction in the number

high.

Dusts of 2.5 per cent aldrin and 10 per cent DDT were used in an experiment to determine the number of applications needed for most effective control of the bruchid. Two, three, and four applications of these two insecticides were applied to vetch during the blooming period with 7 to 10 days between applications. Two, three, and four applications of each material caused significant reductions in emerging bruchids when compared with no insecticidal application. The degree of control increased as the number of applications increased (Figure 1).

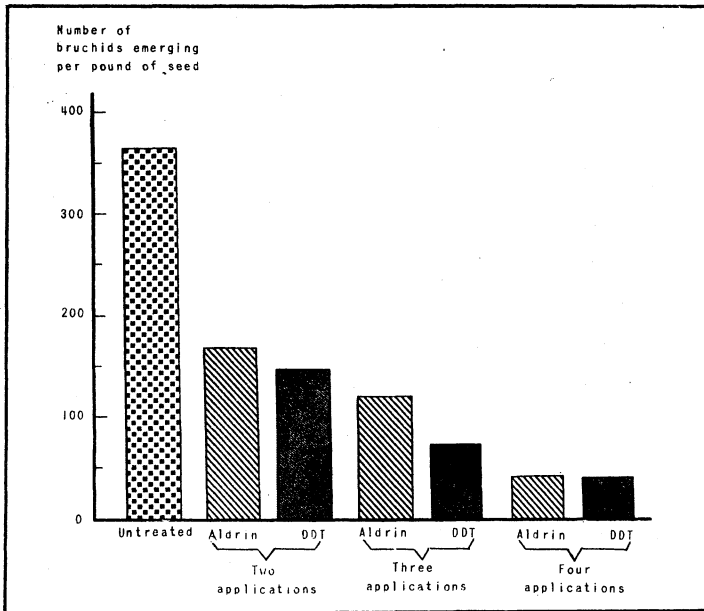


Figure 1. Number of bruchids emerging from seed of untreated vetch and of vetch treated with two, three, and four applications of DDT and aldrin.

of emerging bruchids. The 2.5 per cent aldrin and 10 per cent DDT were more effective than the other treatments. Although two applications of insecticides caused significant reduction of bruchid infestation, this infestation was still rather

Four applications of 2.5 per cent aldrin or 10 per cent DDT applied at the rate of 25 pounds per acre and at weekly intervals, beginning when the vetch is blooming freely, are recommended for control of the vetch bruchid.

SUMMARY

1. Unless control measures are employed, the vetch bruchid does severe damage to vetch seed produced in Alabama.

2. Fumigation of newly harvested seed prevented emergence of adult bruchids, but it had no effect on the germination of the seed.

3. One application of the insecticides tested had no effect on the number of bruchids emerging from the seed.

4. Two applications of 5 or 10 per cent chlordane, or 2.5 per cent aldrin significantly reduced bruchid damage. The aldrin and 10 per cent

DDT were more effective than the other treatments.

5. Two, three, or four applications of 2.5 per cent aldrin or 10 per cent DDT at 25 pounds per acre caused significant reductions of bruchid infestations.

6. As the number of applications of insecticides increased from two to four, the degree of control of bruchids increased significantly.

7. Four applications of 2.5 per cent aldrin or 10 per cent DDT applied at the rate of 25 pounds per acre per application and at weekly intervals, beginning when the vetch is blooming freely, are recommended for vetch bruchid control.

