

Biological control of insects is obtained largely by the introduction and establishment of insect parasites to prey upon the injurious species. Many examples of successfully established parasites could be cited.

In general, the parasites must be obtained from the same continent from which their host species originated. Since the sweet clover weevil, *Sitona cylindricollis*, and the European corn borer, *Pyrausta nubilalis*, both widespread in this country, came from Europe, a special effort is being made through cooperation with the Bureau of Entomology and Plant Quarantine of the U.S. Department of Agriculture to establish their insect parasites in this country.

Sweet Clover Weevil Parasites

Introduction of insect parasites to aid in control of the sweet clover weevil in North Dakota began in 1948. They have been released annually in the Fargo area by the North Dakota Agricultural Experiment Station as shown in Table I.

TABLE 1. INSECT PARASITES RELEASED TO AID IN CONTROL OF SWEET CLOVER WEEVIL

| Year | Number of Parasite Species Released* | |
|------|--------------------------------------|---------------------------|
| | <i>Microctonus aethiops</i> | <i>Campegaster exigua</i> |
| 1948 | 427 | 1,052 |
| 1949 | 19 | 17 |
| 1950 | 78 | 279 |
| | 524 | 1,348 |

*No common names. *M. aethiops* is a small hymenopterous species and *C. exigua* is a small dark-colored fly.

WEEVIL LARVAE PREY ON SWEET CLOVER ROOTLETS

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To what extent the larvae of the sweet clover weevil hinders development of the plants by feeding on the rootlets was indicated in a recent experiment conducted by the North Dakota Experiment Station. Heretofore, only the damage to foliage caused by the adult weevils was recognized.

The plants used in the experiment were grown in four rows, from seed sown on May 5 in a large outdoor cage covered with screen to exclude weevils and other insects. Eggs collected from caged weevils were scattered along two of the rows and barriers of tarpaper extending about six inches into the soil were laid down to keep the resulting larvae from moving to adjoining rows. The only further care given the plants was occasional watering and elimination of any weeds.

As the season advanced, it became apparent that the infested rows were making poorer progress than the check or non-infested rows. A checkup on July 27 showed the plants from the infested rows to average 35¼ inches in height and 1½ ounces in weight; while the plants from the check rows (non-infested) averaged 50 inches in height and 3½ ounces in weight. The results, although of preliminary nature, are fairly conclusive evidence of the harmful effect of the larvae upon the plants.

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