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insect answers

THE BLACK BLISTER BEETLE

The black blister beetle, *Meloe niger*, is 1/2 to 1 1/2 inches long. It is found throughout most of North America. Larvae feed on the pollen, egg, and larvae of various wild bees and have recently adapted to the alkali bee, *Nomia melanderi*. Even though it has been collected in Washington for many years, 1972 was the first it was seen emerging from alkali bee beds. By the spring of 1973 tremendous numbers were found in the Lowden-Touchet area beds.

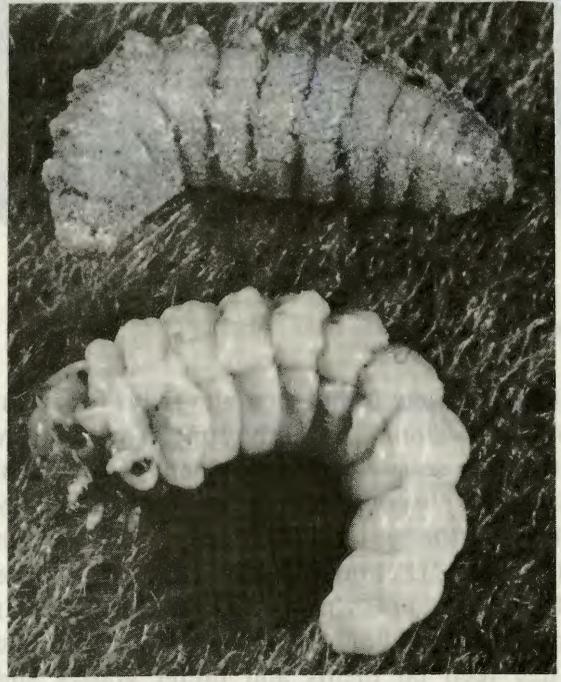
Life Stages

The larvae have four distinct stages which are different in appearance and habits. The first stage is the triungulin, a tiny (1/16") dark

and then changes to the first grub stage. This stage feeds on the egg and pollen and in later stages burrows through the soil to find and eat at least one more bee larva. The beetle larva then constructs a cell 9 to 12 inches below the soil surface. From this point on it no longer feeds of



Triungulin feeding on alkali bee pollen ball



Top—Alkali bee prepupa
Bottom—Late first grub stage



Nonfeeding, resistant stage

brown to black insect found on flowers. It attaches to alkali bees visiting these flowers and hitches a ride back to the bee's nest. In the alkali bee cell it detaches itself, feeds on the pollen,

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bee larvae. In the cell it changes to an immobile, nonfeeding, resistant stage. Fifteen to 20 percent will remain in this form until the following summer while the rest change to second grub, pupa, and adult without feeding. These stages remain in the cell constructed by the first grub.



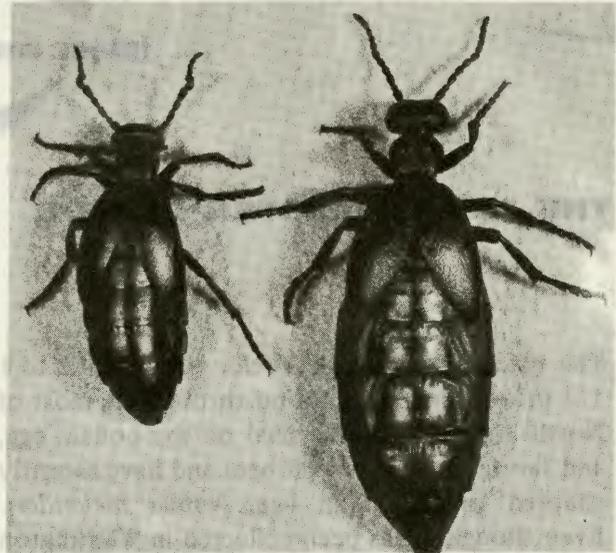
Egg mass

Seasonal History

Triungulins were found in alfalfa fields for about a month beginning in early June. They require most of the season for development to the pupal stage. Most become adults by early fall. They remain in the soil cell through the winter. In early spring (February-April) they dig to the surface. They are wingless and cannot fly, but disperse by crawling, tending to head north. The beetles feed on plants and prefer grasses and weeds rather than alfalfa. After mating, females dig shallow burrows in the ground and deposit egg masses, generally during April and May. Each egg mass has 3,000 to 5,000 eggs. After a month the eggs hatch and the emerging triungulins crawl up plants and wait for bees.

Control

1. An effective control is a straight-sided ditch lined with plastic dug around the bee bed in late



Left—Adult male Right—Adult female

winter. When beetles start emerging, azinphosmethyl (Guthion) can be applied at 10 lb. AI/acre into the ditch. Beetles will be trapped in the ditch with the insecticide. If a ditch is not feasible, apply Guthion at 10 lb. AI/acre (20 gpa) in a single swath around but *not* on the bee bed at 5- to 6-day intervals from the middle of February until beetle emergence is completed.

2. Heavy populations of beetles in fields can be treated in March or April with dimethoate (Cygon or De-Fend) at 1/2 lb. AI/acre.



Beetle control ditch lined with plastic.

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