



BUG BIZ

Pest Management and Insect Identification Series



Toxoneuron nigriceps, Tobacco Budworm Parasitoid Wasp (Hymenoptera: Braconidae)

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Description

Parasitic wasps are small and difficult to distinguish from other small wasps and flies, but the tobacco budworm parasitoid can be easily distinguished because of its color and size. Adults of several braconid parasitoid wasps in Louisiana possess a black head and thorax with a reddish-orange abdomen. Also, they have black-tinged wings. Among these wasps, the tobacco budworm parasitoid has a relatively large head with large jaws and thicker body compared to other black and orange parasitoid wasps. Adults are about one-quarter inch (6 mm) in body length. The female wasps possess egg-laying organs, called ovipositors, that are about half the length of their bodies. Members of this species and related species possess cuplike projections at the tips of the hind tibiae, but these are difficult to observe without the use of a microscope.

Life Cycle

Female wasps insert a single egg into each tobacco budworm (*Heliothis virescens*) host caterpillar. When the wasp larva hatches inside the tobacco budworm's body, it slowly consumes the caterpillar as it grows. The behavior of the tobacco budworm is gradually modified by the wasp larva. Late season parasitoids overwinter as pupae within the dead host, and the adult tobacco budworm parasitoids emerge the following spring. During each growing season tobacco budworms may have four to five generations in Louisiana and may be parasitized by the wasp during each generation. Thus, tobacco budworm parasitoids may undergo many generations and reach large population densities as the season progresses.

Ecological Significance

Members of this wasp species primarily attack tobacco budworms and related caterpillars. These detrimental moth caterpillars attack not only tobacco, as suggested by the common name, but also soybeans and cotton, along with many other plant species. These

two crops are particularly important to the Louisiana agricultural economy, making their natural enemies important in integrated pest management of pest species. Tobacco budworms and related species of noctuid moths are among the most important of these crop pests based



Toxoneuron nigriceps, adult female, dorsal view. Museum specimen, Louisiana State Arthropod Museum.



Toxoneuron nigriceps, adult female, lateral view. Museum specimen, Louisiana State Arthropod Museum.

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on a number of classical life history studies and results of current research. Because of the narrow host specificity of tobacco budworm parasitoids, several species of these wasps are important to the natural control of tobacco budworm populations. Releases of tobacco budworm parasitoids in tobacco fields have been shown to be highly effective, and wasp rearing and release programs have great potential for improving pest management of these pests in many parts of the world.

References

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Contact Us

For advice about arthropod identification or diagnosis, contact the LSU AgCenter Department of Entomology. Reach the department through the Contact Us webpage:

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PUB 3739 online 5/20

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