OREGON STATE UNIVERSITY EXTENSION SERVICE

Omnivorous Leaftier

A ubiquitous and often minor pest of small grains and other seed crops of Western Oregon

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Introduction

The omnivorous leaftier, (*Cnephasia longana* Haworth), belongs to the family Tortricidae and is primarily represented by bell-shaped adult moths (Figure 1) and larvae with a tan head capsule, a black shield and a greenish-brown or yellowish-green body with lighter-colored stripes running along the side (Figure 2).

The omnivorous leaftier originated in Europe and is widely distributed in Asia, Africa and North America. The first appearance of this insect in Oregon was noted in 1929 on strawberries and Dutch bulbous iris plantations near Portland. Soon, it was reported in Washington and California feeding on strawberry and flax grown for seed, respectively. As the common name suggests, this insect pest has a wide host range and is known to cause damage to species from more than 20 plant families.

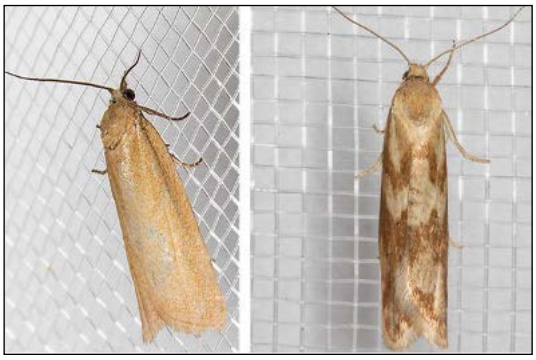


Photo: Joseph Highbee, © Bug-Guide.net

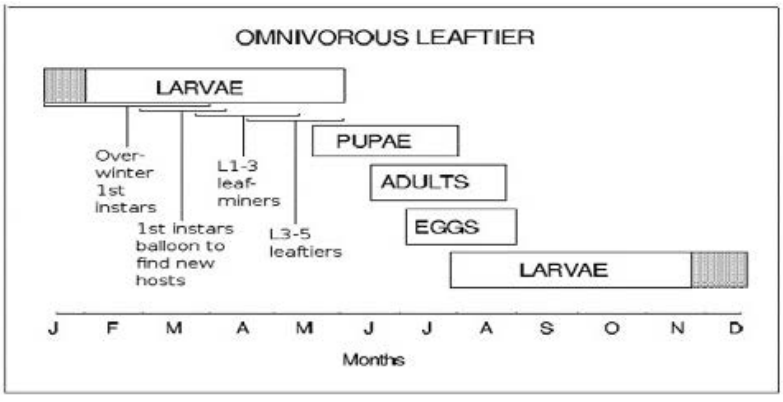
Figure 1. Male moth (left) and female moth (right).

Photo: Navneet Kaur, © Oregon State University

Figure 2. Larva.

Description and life cycle

There is only one generation per year (Figure 3). This insect has a complete metamorphosis: egg, larva, pupa and adult. An online degree-day model (http://uspest.org/cgi-bin/ddmodel.us?spp=olt) can be used to predict the occurrence of various life stages of the omnivorous leaftier.



Source: Ralph E. Berry. 1998©. *Insects and Mites of Economic Importance in the Northwest*.

Figure 3. The life cycle of the omnivorous leaftier.

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Eggs are laid in small batches or singly, often concealed in soil, debris or plant material. The eggs usually go unnoticed in the field. Eggs are about 1/32 inch in diameter, are light salmon in color when first laid, and eventually darken before hatching. One female can lay up to 200 eggs. Egg-laying in Oregon fields typically occurs during June and July.

Larva is the only damaging stage. Each larvae is roughly ½-inch long and can undergo color changes as it matures. After hatching, first instar larvae immediately construct a silk hibernaculum and hibernate for the remainder of the summer and the following winter near the egg site. Larvae leave the hibernaculum in early spring and disperse in search of a suitable host by ballooning with the aid of silk threads. Early instar larvae start feeding by mining in leaves at the bases of plants, usually in late March through April. Late instar larvae are frequently observed in fields in May and June webbing together seed heads (Figure 4) where they feed and live until pupation.

Pupation usually occurs within a silken cocoon inside the webbing on the host plant. Adults emerge two to three weeks later.

Adults are small moths with a ¾-inch wingspan. Male and female moths are morphologically distinct (sexually dimorphic, Figure 1). Males are a uniform white to yellowish-brown, while females are variably marked with light to dark brown bands. The yellowish, narrow, elongated forewings separate this species from other tortricidae moths.

Host plants and damage

Omnivorous leaftier is known to feed on several important crops in Oregon, including clover seed, grass seed, hazelnuts, hops, small grains, strawberry and vetch (listed in an alphabetical order here and in the PNW Insect Management Handbook 2020 available at https://pnwhandbooks.org/insect).

They are also known to cause damage to numerous plants in nurseries. This insect is usually considered to be a minor pest in these crops, except in "outbreak" years when the larvae are present in high numbers (Figure 5).

Many factors determine the pest status of this insect, including the cash value of the crop being damaged, available control options and the cost of control materials and machinery. High numbers of larvae feeding on the foliage of wheat and other small-grain crops could be alarming but cause only temporary injury, which the plants tend to recover from. In rare instances, when late larval feeding occurs on blossoms or developing seed heads, irreversible injury can occur. When this happens, it is often too late for chemical control.

Photo: Navneet Kaur © Oregon State University

Figure 4. Feeding behavior of late larval instars (webbing and feeding on seed heads).

Photo: Peter Kuenzi © Pratum Co-op

Figure 5. High number of larvae present on a field equipment.

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Management

Natural enemies: Several species of mainly native parasitoid wasps are known to manage this pest effectively in natural and cropland settings. Most of these species also attack one or more other common tortricids, including the orange tortrix, a major pest of caneberries.

Chemical management: Economic thresholds have not been established for crops in Oregon. If control measures are deemed necessary, consult the PNW Insect Management Handbook (https://pnwhandbooks.org/insect/crop-pests?combine=leaftier) to determine which insecticide products are registered for control of the omnivorous leaftier in the crop of interest.

References

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