

To: Eastern Oregon Growers and Field Reps

RE: Mint Pest Alert Newsletter and Coragen



Mint Pest Alert Newsletter

As in years past, an electronic newsletter will be delivered during the growing season with larval insect development information in the form of growing degree-day models. The information is meant to help maximize the efficacy of insecticide applications based on the life cycle of larval pests in mint production. Specific application timing recommendations will be given with respect to the use of Coragen, but the insect development information will also be useful for the traditional approach of using Orthene or Lorsban.

What are degree-day models?

Degree-day models are based on the fact that most insects' growth is influenced by their surrounding temperature. Insects have lower development thresholds (eg. 50°F for MRB), and only temperatures above this threshold result in growth. Because a specific number of heat units is needed for an insect to complete a certain physiological process, heat-unit accumulation beyond the lower threshold can be used to predict insect growth stages. Degree-day models use both observed and predicted temperatures to calculate heat-unit (degree-day) accumulation.

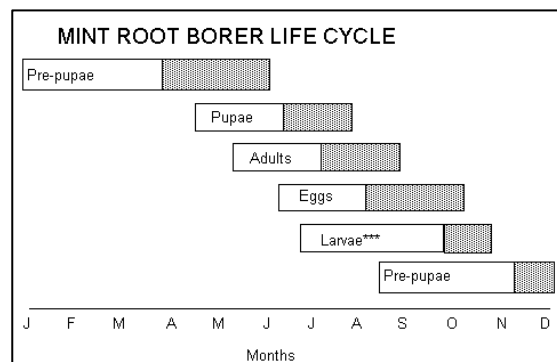
Insect Life Cycles

The e-Newsletter focuses on mint root borer (MRB) and variegated cutworm (VC), but the recommended application timings will also control loopers and armyworms.

Mint root borer feed on underground mint rhizomes in the fall and can kill or seriously injure a stand. They overwinter as prepupae below the soil surface, and begin emergence as adult moths in June. Moth wings vary from cream to chocolate-brown and are marked with darker lines. MRB moths are ~½" long and have enlarged labial palpi that look like a snout. Eggs are laid on leaf surfaces and hatch within 5-10 days. Early instar larvae feed on the leaves briefly and then drop to the soil and tunnel into rhizomes where they can feed through October. In-season control (eg. Coragen) targets the pest before it drops to the ground.



Mint root borer adult (top left), larva in mint rhizome (bottom right), and figure of general life cycle.



Variegated cutworm feed on foliage and can be extremely destructive when populations are high. Cutworms overwinter as partially mature larvae, begin feeding in early spring, and then mature and pupate in April/May. Adult moths emerge in May/early June and deposit eggs on the underside of leaves. Adult moths are large and brown to reddish-brown with dark spots on the wings. Eggs hatch in 4-7 days and larvae feed on foliage for 4-6 weeks before dropping to the ground to pupate. Mature larvae are up to 1.5" long and are a mottled color with a yellow band along the side. If treatment threshold is reached, larvae should be controlled before they start feeding heavily in the 4th instar.



Variegated cutworm adult (left) and larva (right).

Coragen is an environmentally friendly insecticide for control of pests on peppermint. Application timing is based on degree-day insect development models to increase precision for maximum control. Timing is similar to in-season Orthene application for Cutworms, but differs from the traditional fall application of Lorsban for Mint Root Borer (MRB).

Benefits:

- Control eggs and early instar larvae before damage occurs
- Control multiple insect pests with single application
 - MRB, Cutworm, Armyworm, Looper

Environmentally Friendly:

- Extremely low application rates (5 oz/acre)
 - 2 week residual control
- Translaminar movement through leaf tissue
 - Control eggs & larvae feeding on both top and bottom of leaves
- Low toxicity, easy on beneficial insects
 - 4 hour REI

Application Timing:

Based on degree-day insect development models for MRB and VC

Research on MRB indicates:

- Application window of 10-14 days from peak flight to peak egg-laying
- Target peak flight for most consistent control of MRB
- Peak flight provides best control of both MRB and Cutworms with single application
- Post-harvest control has been less effective than earlier application timings

Sign-Up

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