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Volume 9 Number 23 April 2020

Slowing Spring Slug Activity to a Snail's Pace

Slugs (and snails) are an occasional pest in ornamental and edible greenhouse crops as they thrive in damp, humid environments - ideal conditions found in production and retail settings. Extended wet periods this spring across the Midwest have contributed to enhanced slug activity.

There are several species of slugs that you might encounter in greenhouse and garden centers across the US (Image 1). These include the gray garden slug (*Deroceras reticulatum*), the marsh slug (*Deroceras laeve*), and the banded slug (*Arion fasciatus*). Another common slug encountered in Midwest gardens, and occasionally in greenhouse and garden centers, is the leopard slug, *Limax maximus*. This one is hard to miss as it can become quite large at 4 to 8 inches in length.

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Image 1 (left). Numerous slug species can persist in greenhouses and garden centers. Slugs overwinter and hide in soil, plant debris, or leaf litter where it is cool and moist. Photo by Beth Scheckelhoff



Image 2. The shiny silver trail on this leaf is a telltale sign of slug activity. Photo by Beth Scheckelhoff.

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Slugs are small, soft-bodied animals also known as gastropods. They have two pairs of tentacles that help them sense light and smell. They slowly inch across surfaces by contracting a muscular foot that also secretes a gelatinous goo to help with movement. When dried, the goo leaves a shiny, silver slime trail - the telltale sign of slug activity (Image 2).

The sticky goo secreted by slugs is comprised of mucus, water and salts. It coats the surface of the slug to prevent desiccation and helps slugs move along their route - acting as both a glue and a lubricant.

Interestingly, slugs contain both male and female reproductive organs. Mating does occur but is not essential for all species to reproduce. Slug eggs are small, round and clear (Image 3). They are often clustered together within crevices found in the soil or potting medium, under leaves or other plant debris, along walls, and in containers.

Damage

While slugs are not known to transmit any plant pathogens, they cause considerable damage to both ornamental and food crops. Slugs feed on fungi, earthworms, decaying plant material, as well as succulent, herbaceous plant material both above and below ground. They are notorious pests of many herbaceous perennials including hosta, but also feast on ornamental and edible seedlings, foliage, roots, tubers, and fruits.

The radula is a slug's rasping tongue-like body part that is covered with tiny teeth. The radula scrapes plant tissue leaving small, irregular holes throughout the foliage (Image 4). Many times, slug damage is mistaken for caterpillar activity.



Image 3. A small mass of slug eggs are adhered to the roots of an overwintering container shrub. The clear eggs can easily be overlooked. Photo by Beth Scheckelhoff.



Image 4. Slug damage as visible on *Ajuga* 'Chocolate Chip' foliage can be mistaken for caterpillar damage. Caterpillars will generally leave fecal deposits around feeding sites while slugs do not. Photo by Beth Scheckelhoff.



Image 5. A peek into the canopy of a recently watered container of *Ajuga* 'Chocolate Chip' reveals the presence of a Marsh slug (*Deroceras leae*). Photo by Beth Scheckelhoff

Slug damage almost exclusively occurs at night, or occasionally on dim, cloudy days. As opposed to snails, slugs do not have a shell where they can retract and maintain their moisture when it is sunny and hot. Therefore, slugs retreat to cool, moist areas such as within the soil profile, under pots, stones, or other items to keep from drying out. They can be difficult to locate during the daytime when workers may be actively scouting plants.

Careful observation and removing plants from their containers can help locate slugs deep within the soil profile (Image 5).

Managing Slug Populations

Successful slug management requires a combination of cultural controls, natural predators, and chemical control measures.

Cultural Controls. The following cultural practices can help to reduce slug populations and crop damage.

- Identify and remove common shelter areas for slugs such as boards, unused containers, debris, weeds, or other items where they can hide.
- Install a barrier to slug movement - such as gravel, sand, diatomaceous earth, or copper strips along walls, paths, or around sensitive crops.
- Identify consistently wet areas on floors and under benches, sanitize, and allow them to dry them down. Remove excess moisture to remove slugs.
- Install live traps by placing boards, squares of roofing material, or moistened folded newspaper as shelter areas to attract slugs and snails. Check daily by lifting and observing any slugs or snails underneath. Remove and destroy those found.

Natural Predators. Slugs do have many natural outdoor predators including ground beetles, harvestmen, beetle larvae, birds, toads and frogs. While it is not commercially practical (or available) to employ natural predators as a sole control for slugs and snails indoors, their presence can be helpful, especially in outdoor production or retail environments.

Chemical Controls. Several active ingredients in bait formulations are labeled for slug (and snail) control.

- Metaldehyde is a systemic toxin that results in dehydration resulting in death. This active ingredient can be fatal to both children and pets.
- Methiocarb is a carbamate (nerve toxin) that is labeled for ornamental crops. It is toxic to mammals, fish, honeybees, and birds.

The following baits inhibit feeding once ingested by slugs. Although feeding stops almost immediately, death may take several days. These include:

- Iron phosphate
- Iron phosphate + spinosad
- Ferric sodium EDTA
- Sulfur

Resources

If you would like more information on slugs, please see these resources:

- Snails and Slugs, UC IPM, How to Manage Pests. <http://ipm.ucanr.edu/PMG/PESTN/OTES/pn7427.html>
- Slugs as Pests of Field Crops <https://ento.psu.edu/extension/factsheets/slugs-as-pests-of-field-crops>
- Terrestrial Mollusc Tool <http://idtools.org/id/mollusc/index.php>

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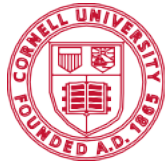
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