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Slugs and Snails

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Learn about these common garden pests and how to identify and minimize their presence in and damage to your garden.

Species

Slugs and snails belong to the animal group called mollusks. They feed on a variety of living plants as well as on decaying organic material. Slugs and snails are typically considered a nuisance around the home and garden and can cause extensive damage to a wide range of crops and ornamental plants, especially in mild, wet years.

Slug. (Photo credit: www.flickr.com/ creative commons)

Snail. (Photo credit: www.flickr.com/ creative commons)

Description

Slugs and snails are similar in form except that slugs do not have the snail's protective spiral shell. Both have soft, slimy, legless bodies with rasping mouthparts and two pairs of tentacles on the head. The lower, shorter tentacles are sensory organs used for feeling and tasting, while the upper, longer pair are optic tentacles with eyes located on their tips. These mollusks move using a muscular "foot" that encompasses the entire bottom of the body. The foot secretes a sticky mucus, which allows slugs and snails to crawl upside down or up vertical surfaces. When the mucus dries, it can leave a silvery, slimy trail that indicates the animal's path. Slugs and snails range in color from whitish-yellow to shades of brown, gray, or black, and species range in size from about ½ inch to several inches.

Life cycle

Terrestrial slugs and snails are hermaphrodites (having both male and female reproductive organs in a single individual), so they are all capable of laying eggs. Adults lay clusters of spherical, gelatinous eggs in the soil or other protected areas. Upon hatching, the young feed for several months before becoming

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sexually mature. Most slugs and snails that hatch in the spring can begin laying eggs in the fall; however, some snails may require two years to become mature. In general, slugs and snails are most active and damaging in the spring from April to June, and then again in the fall during September and October. They prefer moist soils with high mulch content and are primarily active at night or during damp, cloudy days.

Damage

Slugs and snails often feed on tender, succulent plant tissue. They scrape ragged, irregular holes in leaves and flowers and can clip developing shoots. These pests can also damage fruits that ripen close to the ground, such as strawberries and tomatoes, by scraping small, shallow pits on the fruit's surface. However, most of the damage caused by slugs and snails occurs when they kill plants by feeding directly on seeds or on seedlings that have germinated and emerged from the soil.

Snail feeding on plant tissue leaves creates ragged holes. (Photo credit: www.flickr.com/creative commons)

Control measures

Cultural

Since slugs and snails prefer cool, moist conditions in undisturbed locations, limiting these habitats can be an important first step in preventing damage. To minimize snails and slugs, eliminate places where these pests can hide during the day such as under debris, in dense weedy areas, or under leafy branches growing close to the ground. In addition, allow the soil to become as warm and dry as possible by thinning heavy mulch and watering plants in the morning so that the soil has time to dry by evening. Since slugs and snails will also feed on decaying plant material, do not place weed remains or fresh grass clippings in the garden or around trees. Tilling the soil between rows and in garden beds may also help to disrupt slug and snail habitat.

Mechanical/physical

Removing slugs and snails by hand can be both simple and effective if done thoroughly and on a regular basis. Look for these pests in the early morning as they return to their daytime hiding spots, or at night with a flashlight. They can also be lured to and captured from underneath artificial shelters consisting of boards, shingles, wet cardboard, or other similar materials placed in the garden or landscape. When handling slugs, be sure to wear disposable or rubber gloves. Captured slugs and snails can be placed in a plastic bag and disposed of in the trash, or killed in a bucket of soapy water and placed in a compost pile.

Several types of barriers can be used to repel slugs and snails from planting beds. Copper foil wrapped around garden bed frames, planting boxes, and trees is particularly effective. A barrier of diatomaceous earth, dry ash, or other abrasive materials mounded in a band 1 inch high and 3 inches wide around garden beds can also work well as long as it remains dry.

Beer or yeast traps placed at ground level have been recommended by some to capture slugs and snails. These traps are not particularly effective given the time and labor involved. The bait in these traps must be replaced every few days and slugs and snails must be within a few feet of a trap to be attracted to it.

Chemical

Various types of molluscicides (pesticides used to control mollusks) formulated as baits are available to the public for slug and snail control. Products containing the active ingredient iron phosphate are made from naturally occurring elements and are fairly safe for use around people, pets, and other non-target organisms. Baits containing metaldehyde are also common, but are toxic to pets and wildlife. These chemicals should be used with extreme caution and only in locations where non-target animals and children cannot reach them. For best results, baits should be applied after a rain or after the garden is watered to promote slug and snail activity. All bait products should be applied only as directed on the label. For more information, please contact your county WVU Extension Office.

Further Reading

Douglas, M.R. and J.F. Tooker. 2012. Slug (Mollusca:Agriolimacidae, Arionidae) Ecology and Management in No-Till Field Crops, With an Emphasis on the mid-Atlantic Region. *Journal of Integrated Pest Management*. Vol. 3(1). Pp. C1-C9.

Perez, K.E. and J.R. Cordeiro, Eds. 2008. *A Guide for Terrestrial Gastropod Identification*. Marla L. Coppolino, Illus. American Malacological Society. Carbondale, IL.

Thomas, A.K., R. J. McDonnell, T.D. Paine and J.D. Harwood. 2010. *A Field Guide to the Slugs of Kentucky*. University of Kentucky, Ag. Exp. Station Publication SR-103.

For more information

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