Beyond Slime

The least toxic control of slugs and snails

By Adelia Bles

Irregular holes in the leaves of your plants can have plenty of different causes, but the silvery trails of slime mean you have a slug problem. Slugs will destroy the leaves of established plants, but they prefer seedlings. They also feed on many fruits and vegetables prior to harvest, creating wounds in produce that makes it vulnerable to fungi and other diseases. Slugs can be most damaging in moist environments. To avoid desiccation slugs are most active at night or during wet weather. Slugs are closely related to snails; the main difference being the shell. A snail can barricade itself inside its shell, protecting it from drying out and from predators. While slugs do not have the protection of a shell, they also don't have its physical restraints, allowing them to squeeze through the tiniest spaces. To conserve moisture slugs will shelter in the soil or under debris during hot dry periods.

Slugs and snails are mollusks. They are more closely related to oysters and squid than insects or earthworms, so common insecticides are often useless. There is an incredible diversity of slugs and snails. Some are predatory, some herbivorous, some live on land and some are aquatic. Some are considered pests and some are considered a delicacy. If you are interested in protecting your plants instead of making escargot, there is no need to worry. Slugs and snails can be controlled effectively without any dangerous pesticides.

Moisture

The best way to prevent or control a slug or snail infestation is to reduce moisture, though it may take some time before you see results. Slugs and snails lack an insect's hard exoskeleton. Instead they require water to secrete a protective mucus or slime.

Clear away debris that may provide shelter, including wood piles, empty flower pots, and certain ground covers such as ivy. Snails and slugs may congregate in damp shady spaces, such as under a deck. These areas should be kept free of clutter and debris, and monitored regularly.

Water your plants in the morning instead of at night. On farms, using drip irrigation in addition to being efficient can also help control snail and slug populations on farms. Drip irrigation, also called trickle or micro irrigation, involves systems that slowly drip water directly on to the roots of a plant. Modern drip irrigation uses tubing or drip tape to channel water directly to crops. Compared to traditional irrigation where water is sprayed or allowed to flow over an entire field, resulting in losses from runoff and evaporation.

Trapping

Slow moving snails and slugs are easy to hand pick when they can be found. (To kill them you can drop them into a container of

Conventional Control

Is there anything more disgusting than those slimy sticky slugs? Yes there is Metaldehyde. Metaldehyde, a molluscicide or slug bait sold under the trade names Bug-Geta, Deadline, Corry's Slug and Snail Death, Slug-Fest, and Metarex, is approved for use on turf and various crops before the edible portion emerges. Like so many other commonly used pesticides it is toxic to humans, mammals, and birds. What makes metaldehyde so dangerous is its formulation. The pesticide is often mixed with food by-products such as molasses and bran to make it more attractive to slugs and snails. Unfortunately these added ingredients also make the bait more appetizing to children, dogs, horses, and other domestic animals.

Metaldehyde is neurotoxic. Symptoms of poisoning include ataxia or loss of coordination, twitching, tremors, and paralysis. Studies suggest Metaldehyde also has carcinogenic potential.

soapy water. Do not put dead slugs in the compost pile, they will give off a strong odor. Put dead slugs in a sealed container and throw them in the trash.) Trapping slugs can be as simple as providing a shady space for them to shelter during the day, such as an overturned flower pot, or board placed on the soil between plant rows. Check your traps in the morning and dispose of pests.

More elaborate traps can be bought from garden stores or online. You can also make a trap using a coffee can with a hole cut into the side about halfway up. Bury the can halfway so the hole is at ground level. Pour a few inches of beer into the can as bait. Slugs and snails are attracted to the yeasty smell, and will drown when submerged in alcohol. Yeast and water can also be used to attract snails and slugs, but they will not drown in the solution. The trap should be checked daily, and the beer solution should be changed every 4 days.

Exclusion

Slugs and snails will avoid crossing over acidic, basic or abrasive materials. Ash or diatomaceous earth can be used to create a barrier; however these materials are less effective when wet.

Copper bands or foils also create effective barriers to snails and slugs. The copper reacts with their mucus creating an electric shock. A copper band around a potted plant container will keep slugs and snails away. Just be sure there aren't any slugs or snails already in the container or you will be trapping the pest in with your plants.

Cultural Control

Slugs prefer tender young leaves. They tend to avoid plants with tough or spiny leaves. Plants with strong smells will repel snails or slugs. Ginger, garlic, mint, chives, red lettuce, red cabbage, sage, sunflower, fennel, foxglove, mint, chicory and endive may be unpalatable to them. These plants can be placed around the perimeter of your garden to prevent infestation.

Organic Pesticides

There is no need to resort to dangerous pesticides to control slugs or snails. There several organic products available, as well as numerous products you may already have in your house that can be used against slugs and snails.

Table Salt sprinkled on a slug can be very effective, but be careful, because it can also damage plants.

Caffeine is also an effective molluscicide. Scientists believe it acts as a neurotoxin. Caffeine concentrations of 1-2% are enough to kill slugs; however, such a high concentration can also damage plants. A much weaker concentration can still prevent feeding, without damaging crops. Caffeine, however, is not registered by EPA, so it is not available in commercial pesticides. A cup of instant coffee contains about .05% caffeine.

Many organic molluscicides contain Iron Phosphate. Iron phosphate when used properly is regarded as safe by EPA. In fact, it is the same compound found in vitamin supplements. However some commercially available and allowed for use in organic production can contain inert ingredients that have hazardous properties. The National Organic Standards Board is currently evaluating inert ingredients in some formulations and will be reviewing inert ingredients more broadly.

Mixing one part household ammonia with 10 parts water can be sprayed over the crown of the plant before foliage opens to prevent slug damage. If you spray on open foliage rinse with water.

For more information on least-toxic strategies for managing a wide variety of insects, plants and other unwanted creatures, contact Beyond Pesticides, 202-543-5450, or view least-toxic factsheets on the Beyond Pesticides website, www.beyondpesticides.org/alternatives/factsheets.