HILL COUNTRY MASTER GARDENERS

Slugs and Snails and Caffeinated Tales

by Carol Seminara, HCMG

One of HCMG's intrepid organic gardeners passed along an item in the Midland, Michigan MG newsletter The Green Scene about using caffeine to battle slugs and snails. While coffee grounds have long been recommended as an effective, nontoxic home remedy for repealing snails and slugs, the article touted the use of caffeine solutions as being more efficient since caffeine may be a slug neurotoxin.

The article referenced a report in the June 2002 Nature magazine citing the work of Dr. Robert Hollingsworth of the USDA's Agricultural Research Service in Hilo, Hawaii. Hollingsworth was testing caffeine sprays to control an introduced species of frog infesting potted plants. Caffeine solutions of as little as 1 to 2 percent killed almost all the slugs and snails in the test area within two days, while concentrations as low as 0.01 percent proved successful at repelling the pests.

To illustrate the strength of these concentrations, a cup of instant coffee contains about 0.05 percent caffeine and brewed coffee has about 0.07 percent. Dr. Hollingsworth reported that in some trials caffeine proved even more effective against slugs than metaldehyde products. The FDA classifies metaldehyde as a GRAS (generally recognized as safe) product; conversely, products containing this chemical are classed as Restricted Use Pesticides by the EPA and must carry label warnings against use around edible vegetables and because of potential effects on wildlife (particularly birds) and domestic pets, which can eat the molluscicide bait.

But the use of caffeine, too, has suggested warnings. As all organic gardeners know, just because a product is "natural" doesn't mean it's safe. Further study by Louise Simms and Dr. Michael Wilson at the University of Aberdeen suggests that caffeine might be less effective than previously thought. Too, their tests using lowdose caffeine sprays proved toxic to three earthworm species and generated some phytotoxicity (injury or damage to a plant due to chemical treatment). Simms and Wilson concluded that caffeine has "no environmental or efficacy benefits over metaldehyde," which has little effect on earthworms and no phytotoxicity.

So, what's a dedicated organic gardener to do? Even though coffee grounds may not be an actual slug or snail deterrent, they do make a good soil amendment, especially for plants that like a more acid soil. Added to the compost pile, coffee grounds – filter and all – decompose along with other organic materials into compost.

As for controlling slugs and snails, there are several natural methods. Here's a sampling:

- Adjusting your watering schedule. Since slugs and snails are most active at night, avoid watering your garden in the evening. In addition to warding off potential fungal problems, morning watering can reduce slug and snail damage by up to 75 percent.
- Setting a trap. Bury a shallow, wide jar up to its neck in the garden. Partially fill jar with flat beer. Snails and slugs love beer and, when they crawl into the jar for a sip, they drown. Make certain your container is deep enough so the snail or slug can't simply crawl out after knocking back a few.
- Mulching with seaweed. Probably not practical for the landlocked Hill Country gardener, however, seaweed not only makes a good soil amendment, but slugs and snails hate it, probably because it's salty. When using seaweed as mulch, keep it away from plant stems and pile it 3-4 inches thick.
- Placing copper barriers on your pots. Wrapping a wide strip of copper tape around a flowerpot theoretically makes a barrier that snails and slugs will avoid crossing because it generates a small electrical shock. This method works if the copper is wide enough so the snails can't raise their bodies over it and if there are no bridges (hanging leaves, etc.) for them to avoid contact with the copper. Also, the copper must be tarnish-free or it won't shock the slimy little buggers.
- Using a product containing iron phosphate, such as Sluggo or Es-Car-Go. A naturally occurring nutrient in the soil, iron phosphate doesn't have the toxicity issues of metaldehyde and can be safely used around people, pets, wildlife, and edible plants. The only beneficial harmed by using iron phosphate is the predatory decollate or snail-eating snails.
- Picking. As low tech as you can go, hand picking snails is easier than picking slugs, in part because the snail has a built-in handle on its back. You can then kill them, toss them over the fence (not neighborly) or drop them into a bucket of soapy water. Increase your success rate by placing an upside down flowerpot or hollow grapefruit half in a damp area of your garden as a snail/slug meeting place. The next morning, you can remove several at once.
- Raising ducks. Seriously, ducks love eating snails. Of course, you'll need to check your local city's regulations on keeping livestock before you bring home a Donald or Daffy.
- Attracting fireflies. Lightening bug larvae are mollusk feeders and primarily eat snails and slugs. And they're a cheerful sight.

While the last two suggestions might be a little fanciful, the best way to control snails and slugs in the garden is with a combination of methods. As for the caffeine, I like mine with extra cream, no sugar.