

Immediate Release

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## Controlling Slugs

Slugs and voles (field mice) population increase during mild winters and flourish during wet springs, especially in no-till or cover crop fields. Scouting shows that slug populations are increasing and may be an issue this year. Slug control depends upon understanding slug biology, scouting, natural predators, and effective cultural practices.

**Biology:** There are over 80,000 slug species, but the main pest is the Gray Garden Slug which lays over 500 eggs in the Spring and Fall. Offspring from one gray garden slug could produce over 90,000 grand-children and 27 million descendants, so slug populations can explode quickly. Slugs mature in 5-6 months and may live 6-18 months with juveniles causing most crop damage, eating 2.5X their body weight daily. Slugs can survive without food for several months during hot summers, with most crop damage in the spring or fall. Slugs are dependent upon moisture, cool conditions, and lush vegetation for food and shelter. Crops usually outgrow most slug damage but during slow growing cold wet springs, slugs can decimate a crop. Fast crop emergence and growth is a key strategy to reducing slug feeding.

**Scouting:** Slugs prefer high protein diets (soybean seeds and new emerging cotyledons), low fiber, and high sugar or high carbohydrate seeds. Slugs hollow out seeds and feed on newly emerging seed leaves and roots. Slug feeding on or below the growing point of soybeans and corn may wipe out a crop. Poor seed slot closure usually leads to major slug feeding. To monitor slugs, put shingles in 5 field locations close to the soil surface and check after 1 week. There is no economic threshold, but more than 4-5 slugs per shingle may indicate a high slug feeding problem.

The following practices apply to both slugs and voles: **Scout for slugs 30-45 days before planting.** Slugs will significantly reduce corn or soybean stands during the first **21 to 28** days after planting. When planting cover crops, rotate mixes and do not broadcast cover crop seed, drilling is preferred. Select a cover crop mix that contains **50%** species that winter kill and are low growing. Mowing cover crops down to 8-12 inches will reduce shelter, allow higher predation, and reduces seed head formation as a food source.

**Natural predators:** Includes ground beetles, fire flies, centipedes and millipedes, Rove beetles, Soldier beetles, Wolf Spiders, and Daddy Long Legs (spider). Most birds including starlings (6% of their diet) and song birds (robins, blackbirds, thrushes, rooks, crows, jays). Toads and frogs

(25% of their diet), ants, worms, and many mammals eat slugs. Neo-nicotinoid seed treatment insecticides (Cruiser, Poncho, Goucho) have been shown to decrease soybean yields 5% where slugs are prevalent because they knock out beneficial insect predators (Douglas et al. 2015). Dr. Kelley Tilman Ohio State University researcher says that the neonicotinoids last only 21 days and are often overused. While the neonicotinoids are good for major soybeans pests like seed corn maggot and wireworms, if slugs are an issue, she suggests using alternative insecticides or untreated seed to allow beneficial insects predators to recover.

**Cultural Practices:** Eliminating food and shelter early or giving slugs something else to eat are two strategies, so kill a cover crop early (30 days before planting) or plant green into a cover crop. Planting corn (>2 inches) and beans (1.75-2.0 inch) deep reduces both slug and vole seed damage and allows the crop to outgrow feeding. Spreading chaff at harvest and using a rotary hole in the spring or fall to spread, fluff, and dry out residue reduces slug egg survivability.

Cover crops like cereal rye or winter peas planted as a trap crop in corn reduces slug feeding. Trap crops are not as effective in soybeans. Slugs like cereal rye, winter peas, rape, and soybeans but seem to dislike crimson clover, sunflower, chicory. Daikon Radish may be a natural fumigant due to a high sulfur and sugar content. Slugs are attracted to plants with a higher sugar content (Spaull & Eldon, 1990) but cannot process sulfur in radish, so they get sick and die. Baits (Metealdehyde and Iron Phosphate) are expensive, effectiveness varies, and they have to be used consistently. Baits often mold and need to be ingested high rates to terminate slugs, but slug bait avoidance may occur. Tillage may help, but no practice is more than 60% effective alone, so a combination of slug control practices are needed.