



Early season soil pests

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Soil pest problems seem to be increasing each year. This may be a result of using reduced-tillage, since mechanical tillage brings soil insects to the surface and physically damages insects. Another factor may be the presence of annual weed cover in the spring, especially in systems using Roundup Ready crops. Annual weeds may serve as food for soil insects like grubs, plus act like a cover crop or green manure, attracting seedcorn maggot as the weed decays in the soil. Fields planted under cold, wet conditions are often most vulnerable to early season soil pests. These fields emerge slowly or not at all, giving insects a greater chance to feed on seeds and seedlings. Here is a reminder of some of the soil pests that could be a problem under such conditions.

Seedcorn maggot

Seedcorn maggot adults are flies, which emerge in late April to May. The adults cause no damage, but the white, legless larvae (maggots) feed directly on seeds and on roots of seedlings. Females prefer fields with high organic matter, hence mucky, mulched, manured, or weedy areas are at a greatest risk for attracting egg-laying females. Fields with less organic matter may suffer damage if cool, wet weather delays plant emergence, and maggots have a longer time to attack the seed. When damage occurs, a large part of the field is usually involved because the conditions attractive to egg-laying females are present over most of the area.

Skips or strips with poor emergence may indicate seedcorn maggot damage. Unfortunately, there are no rescue (post planting) options once maggot damage is identified. If planting late into wet soil with high organic matter from manure, annual weeds, or a cover crop, you may need to use treated seed or a soil insecticide. There are many options for corn. Seed treatments like Kernal Guard, Poncho, and Cruiser can be used at planting, and most of the soil insecticides registered for corn rootworm control will take care of maggots. Options are more limited for soybean. Although planter box treatments can aid in maggot control. If replanting a damaged field, tillage can bring maggots up to the surface, killing them.

Wireworms

Wireworms are the larvae of click beetles. The adult is harmless, but the long, brown larvae feed on both seeds and seedlings. Wireworms are most often found in fields with little disturbance, for example, in sod, pasture, or hay fields going back into production. Wireworms have a long life span, up to four to five years in some cases, so infrequent disturbance gives them a chance to complete development. Like the seedcorn maggot, cool, wet weather increases the amount of wireworm damage by exposing seeds and seedlings to feeding for a greater time. But unlike maggot, wireworm damage is often patchy in a field, since wireworms cannot move very far in the soil.

There are no effective rescue treatments for wireworms in corn or beans. However, there are thresholds based on bait traps placed out early in the spring. In a 40-acre field, the recommendation is to use 10 - 12 bait traps, set out two weeks before planting. The traps consist of a hole, 3 to 4 inches deep and 10 inches wide at soil surface. Dump in one cup of corn and untreated wheat seed, fill the hole, and mound the dirt on the surface. Cover the mound with a square piece of black plastic to heat the soil and hasten seed germination. Cover the black plastic with a larger, protective piece of clear plastic, burying the edges in soil to hold it in place. The corn and wheat germinates, attracting wireworms

in the surrounding soil. A few days before planting, remove the plastic and soil covering the bait trap and count the number of wireworm larvae found in each station. The threshold for using a seed treatment or soil insecticide is an average of one or more wireworms per trap.

For corn, there are many options for wireworm control. Seed treatments, such as Kernel Guard, Cruiser, and Poncho protect the seed until germination. Corn rootworm soil insecticides protect both seeds and the seedlings. Note that Bt corn for rootworm control is NOT effective against wireworms. For rowed-soybeans, Thimet (phorate) banded at rate of 6 oz. per 1,000 row feet will aid in control of wireworms, although wireworms are not specifically listed on the product label. Thimet cannot be broadcast over drilled beans.

White grubs

True white grubs are larvae of May/June beetles, while annual grubs are the larvae of Japanese beetle, European chafer, and several other species. Adults may feed on plants later in the season, but the larvae generally do the most damage, feeding on crop roots. Like wireworms, many true white grubs have a long life cycle, up to two to three years, and thus are found in higher numbers in undisturbed areas— sod, pasture, etc. Therefore, fields planted after sod or pasture may be at higher risk for true white grub damage. Annual grubs have a 1-year life cycle. Japanese beetle and European chafer damage has occurred under many different field conditions and in many crops over the last few years. Like wireworm damage, grub damage is often patchy. For example, chafer damage is often found in sandy parts of the fields. Delayed emergence can also increase grub, especially annual grub, damage.

There is no rescue treatment for grubs in field crops. Corn planted into grub-infested fields may need to be treated with a soil insecticide to protect plants until grubs stop feeding before pupation, or enough root mass is formed to withstand damage. Poncho seed treatment has also worked well under low to moderate grub pressure. There is no threshold for grubs in corn. However, a history of grub damage in an area, plus seeing large numbers of grubs during field preparation, is a good indicator to use a soil insecticide.

Slugs

Slugs are a particular problem in wet areas with high crop residue (no-till and reduced tillage fields), and they can heavily damage young plants. There are no specific treatment guidelines for this pest, but a history of slug damage coupled with the right soil conditions (cool, wet, high residues) are a clue that you may have a problem. Slug baits with the active ingredient metaldehyde (for example, Deadline MP) are registered for corn and soybeans, and they work very well. A low rate [10 lbs. per acre] is adequate.

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