Pests of germinating corn and soybean

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Abstract
Insect damage that occurs below the soil surface is difficult to predict. It is equally difficult to evaluate the need for an insecticide treatment with seed-attacking insects. Wireworms, seedcorn beetles, slender seedcorn beetles, and seedcorn maggots are minor soil-inhabiting pests that occasionally cause stand loss by feeding on germinating seeds or young shoots and roots prior to emergence.

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Pests of germinating corn and soybean

Insect damage that occurs below the soil surface is difficult to predict. It is equally difficult to evaluate the need for an insecticide treatment with seed-attacking insects. Wireworms, seedcorn beetles, slender seedcorn beetles, and seedcorn maggots are minor soil-inhabiting pests that occasionally cause stand loss by feeding on germinating seeds or young shoots and roots prior to emergence.

Determining an economic threshold for treatment with a soil insecticide is further complicated because no rescue treatments are available for these insects. Thus, control measures must be applied at planting if economic damage is anticipated, based on field history, farming practices, or cool weather that result in delayed germination. Once the seed is in the soil, the chance of insect damage increases the longer germination is delayed. If stand loss is sufficiently severe to warrant replanting, seed treatment with insecticide is usually recommended.

Wireworms infest corn throughout Iowa but are not a serious pest statewide in terms of acreage infested. However, economically significant populations can lead to severe damage in local areas anywhere in Iowa. Overall, the probability of a field suffering damage from wireworms is very low, except where the crop follows perennial grass stands, including pastures and CRP, or where problems have occurred in the past few years.

Early-season wireworm damage consists of hollowed-out seeds where larvae have entered during germination. Seedling plants also can be injured or killed by larvae tunneling into the plant below the soil line. Occasionally, wireworms bore into the stalks of larger plants and tunnel in a few inches, but the damage is not significant.

Seedcorn maggots are occasional pests of both corn and soybean seeds at germination. They are more of a problem in soybean than in corn. Yield reduction occurs because of stand loss and damage is more likely in cool, wet springs when the seeds are slow to germinate but the insects are still actively feeding. The greatest potential for seedcorn maggot damage
exists when weeds or fresh animal manure are incorporated into the soil just before planting. Decaying material attracts the adult flies where the females lay eggs. No-till fields are less likely to have seedcorn maggot problems because the germinating seeds alone are not sufficient to attract large populations of egg-laying females.

Seedcorn beetles and slender seedcorn beetles feed primarily on other insects and rarely attack seeds. They are most likely to be found under the same conditions and in the same areas that are infested with wireworms or seedcorn maggots.

Preventative treatments should be reserved for fields where the conditions listed above for each pest are met. A seed treatment containing both diazinon and lindane should provide protection against all but large populations of wireworms. For fields with a known population of wireworms, a soil-insecticide treatment applied in-furrow or in T-bands is needed.

If cover crops, significant weed flushes, or other green manure are plowed under prior to planting, a seed treatment for either corn or soybean may be advisable if seedcorn maggot is the only insect problem anticipated. Fields with crop residue remaining on the surface or that are no-tilled should not have problems from seedcorn maggots, seedcorn beetles, or slender seedcorn beetles.

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