Wireworm baits and preplant corn decisions

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Abstract
Wireworms can damage corn, resulting in stand loss during the seedling stage. Wireworms are the immature stage of click beetles and they range in length from 1/4 to 1 1/2 inches. Wireworms are found most often in grasslands or fields recently planted in sod. Occasionally, they are found in fields without any recent history of grasses. Why wireworms occur in damaging numbers in "clean" fields is a mystery that we have not yet been able to solve.

Keywords
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Wireworm, hard-bodied species (above) and soft-bodied species (below).

Wireworms probably will increase in significance as more set-aside land (Conservation Reserve Program) returns to corn production.

The presence of this pest in Iowa CRP was recently demonstrated in a study by Steve Lefko at Iowa State University. He intensively surveyed for wireworms in 89 CRP (grassland) fields and found wireworms in slightly less than half (45 percent) of the sampled fields. Additionally, he determined that wireworms are more likely to occupy well-drained soils commonly found on ridgetops or hillsides.

Wireworms can spend several years in the immature stage during which they feed on newly planted corn seeds as well as roots of established corn. There is no evidence that wireworms reduce yield in soybean fields. Unfortunately, wireworm damage is usually detected after corn has been planted and the opportunity for making preventive pest management choices has passed. This situation makes wireworm scouting prior to planting a wise decision.
Scouting for wireworms is most easily accomplished with a bait trap. An illustration of the University of Missouri wireworm trap is shown. The trap should be in the soil at least 1 week before planting. Wireworms are more likely to be near the soil surface as the soil temperature increases in the spring, so scouting close to planting will increase the likelihood of finding wireworms. The scouting technique consists of 1/2 cup of a 1:1 corn:wheat seed mixture placed in a hole and covered with soil. The seed mixture should be soaked in water 24 hours prior to placement in the hole to facilitate germination. A black plastic trash bag placed on the soil surface over the bait will help warm the soil and speed germination of the seed. The edges of the trash bag should be covered with soil to prevent wind from blowing it away.

The more traps you place in the field the more likely you are to detect wireworms. Research has shown that four traps per acre are ideal, but this trap density is probably unrealistic for most situations because of the time and effort involved in the scouting process. Although it is a compromise of accuracy, a minimum of 10 traps should be used in any field. The bait should be collected and examined after 1 week in the soil. The total number of wireworms per bait should be counted and the average number of wireworms calculated.

Several integrated pest management options are possible if wireworms are detected in the baits, including crop rotation, insecticides, and altered planting dates.

If more than one wireworm per trap is found, there is a high probability of damage to corn seeds and seedlings. Use a granular soil insecticide at planting with corn, placing the insecticide in the furrow, or rotate to a nonhost crop such as soybeans. If less than one wireworm per trap is found, the probability of wireworm damage is low but still possible. A seed treatment containing both diazinon and lindane should be used to protect corn seed in this situation, but seed treatments protect only the seed and will not protect the seedling. If no wireworms are found, the probability of wireworm damage is very low, but still possible; wireworms may be present but at very low densities and not detected in the bait traps.

For seed treatments to be effective, all seeds must be coated with the chemical. Incomplete seed coverage can result in inadequate seed protection and a poor corn stand. Be sure and follow all label directions regarding usage of either a seed treatment or soil insecticide.

Delayed planting is another method to reduce wireworm damage. If wireworms were detected in the baits or the cornfield has a history of wireworm problems, delayed planted should be considered. Early-planted corn is likely to germinate and grow slowly because of cool and wet soil conditions; these slow-growing plants are susceptible to wireworm damage. In contrast, planting later, usually during warmer soil conditions, allows faster seed germination and seedling growth. This rapid plant growth helps avoid serious damage caused by wireworms.

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