



Do I need to apply an insecticide to manage early-season corn insects?

Some insects that injure corn seed or seedlings can be difficult to manage due to the absence of developed sampling programs and/or rescue treatments to respond to economic damage. And often is the case with these pests, plant injury is the only clue of the presence of the pest. Acceleron® Seed Applied Solutions offers an advanced portfolio of products for corn that protect against early-season insects that feed directly on the seed or seedling, such as seed corn maggot, seed corn beetle, and southern corn rootworm. Including insecticide protection is particularly beneficial to control these insects as they do not currently have sampling programs or rescue treatments available.

What insect pests can attack corn seed in my area?

While it is difficult to predict which, if any, early-season insect pests may cause economic injury, there are some situations where the risk of injury is increased. For example, fields coming out of sod or grass-alfalfa mixtures have a higher risk of injury by white grubs, billbugs, sugarcane borer, Japanese beetle grubs, and wireworm. Fields high in organic matter (manure applied or cover cropped) and tilled close to planting have a higher risk of injury by seed corn maggot and seed corn beetle. Black cutworm moths can migrate from southern Texas and Mexico on winds associated with storms. Females seek fields with winter annual weeds to deposit eggs; therefore, fields with these weeds would be at higher risk.

While field history is not always a predictor of future insect injury, if a field or specific area on the farm has a history of economic injury by a particular pest, it should be considered in the decision-making process as risk is assessed.

Can planting timing influence the type of insect pest and the pest levels?

Yes. Planting timing can impact the insect species as well as the population density. For example, early planting may decrease the risk of injury by black cutworm, billbugs, and chinch bugs but increase the risk of injury by seed corn beetles and wireworms from delayed seedling emergence at a time when temperatures are cooler.

What other factors can contribute to higher risk of early-season injury?

Soil type and weather conditions can impact insect injury risk. Sandy or coarse-textured soils are associated with a higher risk of injury by lesser corn stalk borer, particularly under dry conditions and when corn is planted late. Corn produced in reduced tillage systems has a higher risk of injury by stink bug and corn flea beetle, but a lower risk from lesser corn stalk borer, seed corn beetle, and seed corn maggot.

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What should I look for when scouting for some of these pests?

Often with seed or seedling insect pests, the first clue is a reduced stand or reduced seedling vigor. Black cutworms hide under clods of dirt or just beneath the soil surface, so gently looking under clods or using a hand rake to “till” the soil can help find larvae. A pocketknife can remove soil near the base of the seedling to look for injury to the stem. On very hot days, stink bugs seek cooler conditions in soil cracks and under debris, making detection difficult.

Is there a rescue treatment that can be used for early-season pests?

For some insect pests that attack the seedling, such as black cutworm, billbugs, and stink bugs, sampling programs and thresholds are available through local extension recommendations. However, there are many early-season pests that currently do not have sampling programs and treatment threshold recommendations. Table 1 provides a summary of the major early-season corn insect pests in the southern states.

Table 1. A summary of major early-season corn insect pests in the South.^{1, 2, 3}

Insect	Type of Injury	Risk	Control
Wireworm	Larvae consume the seed, burrow into the developing seedling	Higher risk following sod	Seed treatment, insecticide applied at planting, tillage
White grubs	Larvae consume emerging seedling and roots	Higher risk following sod	Seed treatment, insecticide at planting
Japanese beetle	Larvae consume emerging seedling and roots	Higher risk following sod	Seed treatment, insecticide at planting
Corn seed maggot	Maggots consume the seed	Higher risk in high organic matter soils and fields planted immediately after tillage	Seed treatment
Sugarcane beetle	Adults burrow into the stalk above the base of the roots	Higher risk with later planting and corn planted after sod	Seed treatment and insecticide applied at planting
Southern corn rootworm	Larvae feed on roots	Higher risk in reduced tillage systems and corn following peanuts	Seed treatment to protect seedling, insecticide at planting
Lesser corn stalk borer	Burrow into seedling	Higher risk with later planting, dry conditions, weedy fields	Control weeds, apply irrigation if available
Billbugs	Adults feed on lower part of stem	Field margins next to fields where corn was planted the previous year, fields with nut sedge	Seed treatment may only suppress populations, foliar insecticides may be needed at 5% stand loss
Chinch bug	Adults and nymphs feeding on stem may result in stunting or seedling death	Water stress increases impact of injury	Seed treatments or insecticides applied at planting, foliar insecticide applications
Black cutworm	Larvae clip and may tunnel seedlings	Higher risk in weedy fields in early spring as they are attractive to migrating females	Seed treatment, corn products that contain Cry 1F protein and the Vip3A protein are labeled for control, sample 20 plants in 5 locations throughout the field. Consider treatment if 3 to 5% of the plants show injury and 2 or more cutworms are found.
Stink bugs	Adults feeding on seedlings may result in seedling death	Higher risk in no-till fields and rows along border, crop rotations of soybeans-wheat-corn	Sample as you would for black cutworm and if 10% of the seedling corn is infested (10 plants/100 sampled) a rescue treatment should be considered

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Sources:

- ¹ Reay-Jones, F.P. 2023. Corn insect control. 2023. South Carolina Pest Management Handbook for Field Crops. Clemson University Cooperative Extension Service. <https://www.clemson.edu/extension/>.
- ² Brown, S. 2023. Corn insect guide. The University of Tennessee Institute of Agriculture. <https://guide.utcrops.com/corn/corn-insect-guide/>.
- ³ Reisig, D. 2014. Stink bugs in corn. North Carolina State University Extension. <https://entomology.ces.ncsu.edu/2014/07/stink-bugs-in-corn/>.

Legal Statements

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and environmental conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on their growing environment.

The recommendations in this material are based upon trial observations and feedback received from a limited number of growers and growing environments. These recommendations should be considered as one reference point and should not be substituted for the professional opinion of agronomists, entomologists or other relevant experts evaluating specific conditions.

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