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Seedcorn Maggots Get an Early Start

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Seedcorn Maggots Get an Early Start

Abstract

Seedcorn maggot is a seed and seedling pest of corn and soybean. The larvae, or maggots, feed on germinating corn and soybean seeds or seedlings (Photo 1). Feeding can delay development or kill the plant. Plant injury is especially prevalent during cool and wet springs when plants are growing slowly. Infestations tend to be field-wide instead of in patches like for many other pests. To confirm seedcorn maggot injury, check field areas with stand loss and look for maggots, pupae and damaged seeds (hollowed out seeds or poorly developing seedlings).

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Seedcorn Maggots Get an Early Start

April 12, 2021

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Photo 1. Seedcorn maggot on soybean. Photo by University of Minnesota Extension.

Biology

Seedcorn maggots overwinter in Iowa as pupae in the soil. Adult flies emerge and mate in April and May, then females lay eggs in soil. Once the eggs hatch, maggots feed for 2 to 3 weeks before pupating in the soil, where they remain for 7 to 14 days before emerging as adults. The entire life cycle can take as little as 21 days to complete, resulting in 4-5 generations per year in Iowa. Maggot densities are higher in soils with high organic matter. Land that is heavily manured and soil that has been recently tilled, regardless of residue type, is attractive to egg-laying females.

This fly species has a lower developmental threshold of 39°F and upper threshold of 84°F. Peak adult emergence for the first generation occurs at 360 accumulated degree days since January 1. Based on current accumulated degree days, the first generation of adult seedcorn maggot has likely emerged throughout most of Iowa (Figure 1). Forecasted cooler temperatures may slow development.

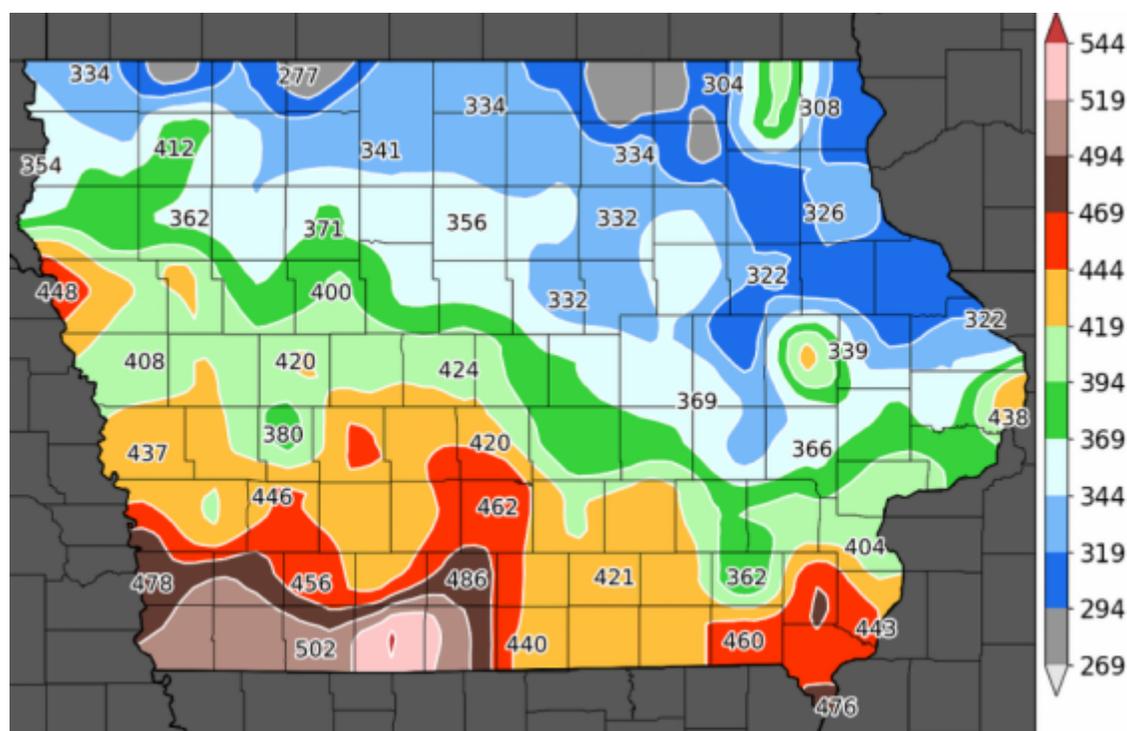


Figure 1. Accumulated growing degree days (base 39°F) in Iowa from January 1 – April 8, 2021. Map courtesy of Iowa Environmental Mesonet, ISU Department of Agronomy.

Identification

Seedcorn maggots are white or pale, legless and 1/4 inches long with a tapered body (Photo 1). The maggots have a black mouth with hook-like mouthparts to feed. The pupa is brown and looks like a “wheat seed” (Photo 2). The adult fly is grey to brown in color with

red eyes. Adult seedcorn maggots are 1/5 inches long and look like a small house fly (Photo 3).



Photo 2. Seedcorn maggot (left) and pupa. Photo by Brian Lang.



Photo 3. Seedcorn maggot adult. Photo by www.ipmimages.org.

Damage

Corn and soybean seeds injured by seedcorn maggot larvae can show a range of symptoms. The most obvious is reduced stand or gaps in the row. This happens when maggots burrow into the seed and consume the embryo, preventing germination. Even if plants germinate, seedlings are typically weak and may die. Any condition that delays germination or causes slow plant growth may also increase damage from seedcorn maggot.

Management

There are no rescue treatments for seedcorn maggot. No-till fields are less attractive to egg-laying females. Target planting when soil and moisture conditions are conducive to quick germination and vigorous growth to reduce seed and seedling pest problems. Farmers with persistent seedcorn maggot infestations should consider a later planting date, shallower planting, higher seeding rates, and earlier termination of cover crops (Bessin 2004). Waiting two weeks (or 450 growing degree days) after tillage or manure applications to plant corn or soybean should provide enough time for the seedcorn maggots to complete development and move to another host (Gessell and Calvin 2000).

Insecticidal seed treatments can adequately manage seedcorn maggot, unless there are high densities of maggots. If an insecticidal seed treatment is not used, tracking GDD and modifying planting date is the best option. If significant stand loss occurs, replanting the field is an option. A replant decision should be based on percent stand loss and cost of additional seed. Resources for replant decisions are available:

[Replant resources for Corn](#)

[Replant resources for Soybean](#)

References

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Category: [Insects and Mites](#)

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Crop:

[Corn](#)

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