University of Wisconsin-Extension

College of Agricultural & Life Sciences
UNIVERSITY OF WISCONSIN–MADISON

# GENERALIZED CALENDAR OF EVENTS FOR INSECTS AND DISEASES IN WISCONSIN

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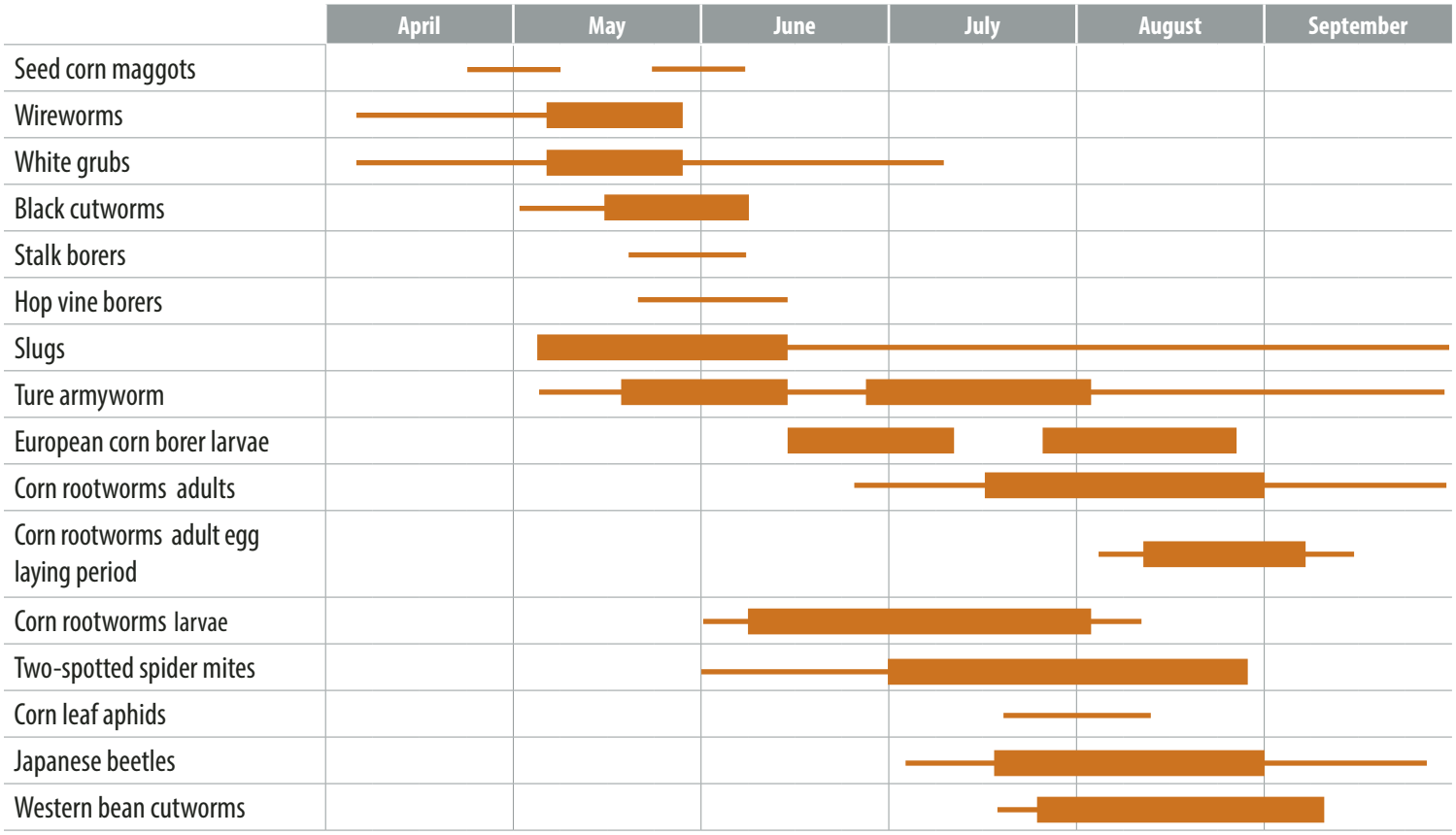
## CORN

### Generalized calendar of events for **insects & related pests on WI corn**

Timings shown are approximate and may fluctuate according to location within the state. Degree Day accumulations and timing of insect migrations need to monitored carefully. Narrow lines indicate that field damage is less likely to be detected.



**Seedcorn maggots.** 4-5 generations/year. Only the first and second generation adult flight periods (360 and 1080 DD, base 390 F) damage germinating corn. Consider using an insecticide seed treatment if you are planting during a peak flight.

**Wireworms.** Larvae damage both seed and seedling corn. Larvae move deeper into the soil profile during summer months. Economic thresholds have not been developed. Only preventive control methods are effective.

**White grubs.** Symptoms of root feeding are visible during the seedling stage. Economic thresholds have not been developed. Only preventive control methods are effective.

**Black cutworms.** Overwinter in southern states and migrate to Wisconsin. Timing of migration is hard to predict. However, V1-V4 corn is most susceptible to larval feeding.

**Stalk borers.** Overwinter as eggs on perennial grasses. At hatch, larvae will feed on these grasses for a short period of time before migrating to seedling corn.

**Hop vine borers.** Like stalk borers, hop vine borers overwinter as eggs laid on perennial grasses. Eggs hatch in spring and larvae feed on these perennial grasses before migrating to seedling corn. Unlike stalk borers, all feeding in corn is below ground. Control applications need to be timed to coincide with migration from grasses to corn.

**Slugs.** Can be active the entire growing season. However, the greatest risk to corn is during the seedling stage. Fields with the greatest potential for damage have high amounts of crop residue on the surface, are wet for long periods of time and/or have heavy soils and heavy weed pressure.

**True armyworm.** Adult moths migrate to Wisconsin from southern states. There are two generations/year. However, exact timing of moth arrival is difficult to predict.

**European corn borers.** Depending on location, there may be either one (northern WI) or two (southern WI) generations/year. First generation is attracted to the earliest planted corn and second generation is attracted to the latest planted corn. Degree days (base 50° F) accurately predict European corn borers development. Economic thresholds for first and second generation European corn borers are published in A3646, *Pest Management in Wisconsin Field Crops*. Copies may be downloaded free or purchased from the UW's Pesticide Applicators Training Program's website https://patstore.wisc.edu/secure/browse_cat.asp?category_id=39

| **First Generation** | **Degree day accumulations** (January 1) |
|---|---|
| Peak adult flight | 600 |
| Best treatment period for larvae | 800-1000 |
| **Second Generation** | |
| Adults flight period | 1550-2100 |

**Corn rootworms.** One generation/year. Adults are active until early fall, however, the majority of eggs are laid from early/mid-August to early September which is the best time to scout for control needs in continuous corn. Larvae hatch in early June and some may feed until late August. However, the majority of root feeding will take place in July.

**Two-spotted spider mites.** Hot/dry weather, not degree days or time of year, will have the greatest influence on spider mite populations. Begin spot checking corn after 1 ½ weeks of unseasonably hot and dry weather. Concentrating early scouting activities on field edges and drought stressed areas of fields. Control is suggested when the lower 1/4 to 1/3 of canopy is injured, live mites are present and corn is not in the dent stage.

**Corn leaf aphids.** Rarely an economic pest. Populations within a field tend to peak during pollination.

**Japanese beetles.** Adults feed on green silks which can reduce pollination. Scout fields for Japanese beetles (and corn rootworm adults) when silks are green. The economic threshold for silk clipping is 3 beetles/plant and green silks are being clipped.

**Western bean cutworms.** Begin scouting for eggs at approximately 1320 degree days (base 500 F.) Eggs will be laid on the surface of leaves in the upper portion of corn plants. The economic threshold is to treat when 5% of the corn plants have either unhatched egg masses or larvae are present on the plant but before they burrow into the ear.

# Generalized calendar of events for **common diseases in WI corn**

Timings shown when the disease is typically visible and are approximate, varying according to location within the state.


**Anthracnose leaf blight.** Extremely common early in the season in Wisconsin. This disease will not need to be controlled on most hybrids. Contact your local extension office for management recommendations for inbreds or specialty corn hybrids.

**Common rust.** Extremely common mid-to-late season in Wisconsin. This disease will not need to be controlled on most hybrids. Contact your local extension office for management recommendations for inbreds or specialty corn hybrids.

**Common smut.** Can be found in many types of corn including field corn and sweet corn. Hybrids vary in susceptibility, but severity will not reach economic levels in most fields. Management is not needed for this disease.

**Eyespot.** Favored by cool wet weather that persists in fields under reduced tillage and not rotated. The fungus is residue-borne, thus managing residue and rotating with a non-host can reduce levels of the eyespot pathogen. Fungicides are labeled for control of eyespot, but will not be economical unless disease severity reaches 50% or more on ear leaves.

**Goss's Wilt.** Caused by a bacterium, thus fungicides are not effective in managing this disease. The bacterium overwinters in corn residue and some grassy weeds. Manage corn residue in fields with a history of the disease, rotate with a non-host crop, and manage weeds. Resistant hybrids are available and care should be taken to choose the most resistant ones for fields with a history of the disease.

**Gray leaf spot.** Warm humid conditions favor this disease. It is more common in fields where corn follows corn and in reduced tillage situations. Rotating to non-host crops and managing residue are recommended in fields with a history of gray leaf spot. Choose hybrids with a high level of resistance. Fungicides are available to manage this disease. Contact your local extension office for recommendations on fungicide product.

**Northern corn leaf blight.** Cool wet conditions favor this disease. It is more common in fields where corn follows corn and in reduced tillage situations. Rotating to non-host crops and managing residue are recommended in fields with a history of northern corn leaf blight. Choose hybrids with a high level of resistance. Fungicides are available to manage this disease. Contact your local extension office for recommendations on fungicide product.

**Northern corn leaf spot.** High rainfall and moderate temperatures mid-to-late season can favor northern corn leaf spot development. Various races of the fungus that causes this disease do exist. However, active disease management is often not needed as resistant hybrids are common. In fields where northern corn leaf spot has been problematic rotating with a non-host and managing corn residue can help control northern corn leaf spot. Fungicides are available to manage this disease. Contact your local extension office for recommendations on fungicide product.

**Southern rust.** The southern rust fungus does not overwinter in Wisconsin. Thus, spores have to be blown in from southern states each season. Extended periods of wet and warm conditions favor disease. In years when southern rust is typically observed in Wisconsin, it is usually too late to cause economic losses. However, progress should be monitored in case it affects a field prior to the dough growth stage. Fungicides are available to manage this disease. Contact your local extension office for recommendations on fungicide product.

**Stewart's disease.** Occurrence of Stewart's disease is linked to the overwintering survival of corn flea beetles. If winter temperatures are relatively warm and mild, more flea beetles survive, resulting in the increased likelihood of Stewart's disease. Most hybrids are resistant to Stewart's disease. This disease is caused by a bacterium; thus fungicides are not effective in managing it. Insecticides will rarely be needed to control flea beetle populations in Wisconsin. Contact your local extension office for recommendations on insecticides if you believe flea beetle populations are high early in the season.

**Fusarium crown and root rot.** This disease is usually favored by conditions that cause stress to the corn plant. Fusarium crown and root rot is typically more severe on corn plants in compacted soil or under low fertility. Alleviating plant stress and reducing compaction can help manage Fusarium crown and root rot. Fungicide seed treatments can control early infections, but do not persist long enough to manage the crown rot phase of the disease.

**Pythium seedling blight and root rot.** Planting early in cool wet soil, or in fields that are poorly drained, favor Pythium seedling blight and root rot. Managing corn residue, improving drainage, and planting into warmer soils can help reduce damage from Pythium seedling blight and root rot. Standard fungicide seed treatments are typically effective in reducing damage from Pythium seedling blight and root rot, early in the season.

**Root lesion nematode.** Very common nematode in many soil types in Wisconsin. However, damage from root lesion nematode can be worse in sandy soils. Resistance is not known in commercial hybrids. Reducing plant stress and managing weeds can reduce damage caused by root lesion nematode. Seed treatment nematicides are available for managing root lesion nematodes. Contact your local extension office for seed treatment recommendations.

**Anthracnose stalk rot.** Typically more problematic in fields under reduced tillage and where corn follows corn. Rotating with non-host crops, managing corn residue, and planting resistant hybrids are all effective management strategies for anthracnose stalk rot.

**Fusarium Stalk rot.** Typically more problematic in fields under reduced tillage and where corn follows corn. Rotating with non-host crops, managing corn residue, and planting resistant hybrids are all effective management strategies for Fusarium stalk rot.

**Gibberella crown rot and stalk rot.** Typically more problematic in fields under reduced tillage and where corn follows corn. Disease development is favored by warm and wet conditions 2-3 weeks after silking in fields where corn plants are under stress. Rotating with non-host crops, managing corn residue, and planting resistant hybrids are all effective management strategies for Gibberella crown rot and stalk rot.

**Aspergillus ear rot.** Mycotoxins can be produced by the fungus that causes Aspergillus ear rot. In Wisconsin, Aspergillus ear rot is typically only a problem in years where drought persists throughout much of the season. Reducing plant stress and managing insects that can damage corn ears will reduce the occurrence of Aspergillus ear rot.

**Diplodia ear rot.** In Wisconsin, NO mycotoxins are associated with the fungi that cause this ear rot. Diplodia ear rot is favored by wet weather during grain fill. Occurrence is favored in fields under reduced tillage and/or where corn follows corn. Rotating to non-host crops, managing residue, and harvesting in a timely fashion can help manage Diplodia ear rot.

**Fusarium ear rot.** Mycotoxins can be produced by the fungi that cause Fusarium ear rot. Fusarium ear rot fungi can overwinter in corn residue. Can be more problematic in fields under reduced tillage and/or where corn follows corn. Rotating to non-host crops, managing corn residue, managing insects that can damage corn ears, and harvesting in a timely fashion can reduce damage caused by Fusarium ear rot.

**Gibberella ear rot.** Mycotoxins can be produced by the fungus that causes Gibberella ear rot. The Gibberella ear rot fungus can overwinter in corn residue. Can be more problematic in fields under reduced tillage and/or where corn follows corn. Rotating to non-host crops, managing corn residue, and harvesting in a timely fashion can reduce damage caused by Gibberella ear rot.

**Penicillium ear rot.** Mycotoxins can be produced by the fungus that causes Penicllium ear rot. Typically, this ear rot does not need to be actively managed. However, if it is observed, testing grain for mycotoxins is recommended.