Corn Disease Profiles

Diseases Favored By Wounding

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EC3032

EXTENSION

1. Bacterial Leaf Streak

2. Goss's Bacterial Wilt and Blight

2a Blight

2b. Systemic Wilt

3. Holcus Spot

4. Bacterial Stalk Rot

4a. Lesions

4b. Stalk Rot

4c. Lesion at soil line (left) and plant collapse

5. Common Smut

5a. Galls on ear

5b. Galls on a leaf

6. Stalk and Crown Rot Diseases

6a. Stalk Wound

6b. Crown Rot

6c. Stalk Lodging

7. Ear Rot Diseases

7a–e. Ears wounded by insect feeding (left) and hail.

Diseases of Corn Favored by Wounding

Extreme weather events are predicted to become increasingly common and could bring periods of more intense storms that include hail and high winds. Wounds created by severe weather events or insect feeding can favor disease development by providing infection points for pathogens. Seasonal timing when wounding events occur, as well as other factors such as temperature and moisture, impact which diseases develop. Listed below are descriptions of some common corn diseases favored by wounding, especially hail.

Timing	Disease	Description
Early Season	**1. Bacterial Leaf Streak** *Xanthomonas vasicola* pv. *vasculorum* Management: **C, N**	Can develop anytime during the season. The pathogen overwinters in crop debris and uses the plants' natural openings and wounds (less frequently) to infect. Look for narrow interveinal streaks that may appear bright yellow when backlit. *(Figure 1a and 1b)*. Disease is also favored by humid and wet conditions.
	2. Goss's Bacterial Wilt and Blight *Clavibacter michiganensis* subsp. *nebraskensis* Management: **C, N, R**	Primarily causes disease in wounded plants. Disease can develop anytime during the growing season, but is most commonly a leaf blight disease *(Figure 2a)*. Lesions may be small to very large and often have dark "freckles" near the edges of water-soaked lesions. Shiny spots of bacterial exudate may be on the lesion surface. Disease can also be systemic through the plants, killing them in early stages *(Figure 2b)*. Bacteria overwinter in infested crop debris from the previous season(s).
Mid-Season	**3. Holcus Spot** *Pseudomonas syringae* pv. *syringae* Management: **C, N**	Can appear as single or several elliptical cream-colored lesions randomly scattered on leaves *(Figure 3)*. Rarely causes yield loss, although hybrids may vary in susceptibility. Lesions may appear similar to those caused by some other diseases or chemical drift, such as gramoxone herbicide. Use symptom development timing and distribution to differentiate between biotic and abiotic causes. The bacteria may overwinter in the soil or crop debris so lesions usually develop on lowest leaves first.
	4. Bacterial Stalk Rot *Pectobacterium chrysanthemi* pv. *zeae* (formerly *Erwinia carotovora* f. sp. *zeae*) Management: **C, N**	Water-soaked lesions *(Figure 4a)* on plants are common, often have a foul odor and can progress rapidly in only a few days to lead to stalk degradation *(Figure 4b)* and eventually whole plant collapse and death *(Figure 4c)*. Warm and wet conditions can hasten disease development. Infection can occur low on the plants in standing water or enter through upper nodes and rot the upper plant.
	5. Common Smut *Ustilago maydis* Management: **C, R**	Fungus infects through wounds or silks. Fleshy, mushroom-like galls can develop on any plant part with larger galls more common on the ears *(Figure 5a)* and stalks versus small wart-like growths on wounded leaves *(Figure 5b)*. Large amounts of dusty black spores develop inside galls that eventually dry and burst open, releasing spores that overwinter in soil.
Later Season	**6. Stalk and Crown Rot Diseases** Multiple, such as: *Fusarium* spp. *Diplodia* spp. Management: **C, R, N**	Stalk wounding *(Figure 6a)*, moisture stress during the season (too wet or too dry), pest pressure, fertility imbalances, and other crop stresses can promote disease development in stalks or plant crowns belowground *(Figure 6b)*. Degradation of stalk quality, especially with high wind events, can lead to lodging *(Figure 6c)*, ear contact with the ground and delayed or difficulty during harvest. Early disease symptoms may be discoloration or premature death of random or groups of plants.
	7. Ear Rot Diseases Multiple, such as: *Fusarium* spp. *Gibberella* spp. *Diplodia* spp. Management: **C, R, N**	Caused by common pathogenic fungi that overwinter in crop debris or soil and can infect ears via wounds created by insect feeding *(Figure 7a)*, hail *(Figure 7b-e)*, or other causes. Disease development can also be favored by premature plant death due to frost, and wet conditions. Cottony fungal growth and/or discoloration may be evident on or between kernels, cobs, and/or husks. Most ear rot pathogens can continue to grow in storage bins, and some may produce mycotoxins that can impact livestock health and marketing of grain.

Management Codes: C – cultural practices, such as use of crop rotation or tillage; F – fungicides; R – resistant hybrids; N – management may not be necessary, practical, or possible.

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