

Managing Goss's Wilt in Western Canada

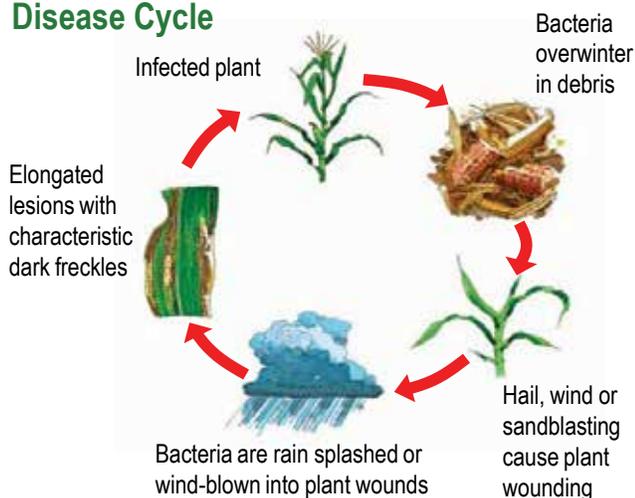
Disease Facts

- Disease is caused by a bacterial pathogen that over-winters in residue of corn and grassy weeds.
- In recent years, Goss's wilt has been observed moving across the Central and Northern Corn Belt states.
- In 2013, Goss's was confirmed in Louisiana, Montana and Alberta, Canada (see map at right).
- Depending on conditions, disease may cause only minor problems or devastating damage with grain yield losses approaching 50%.

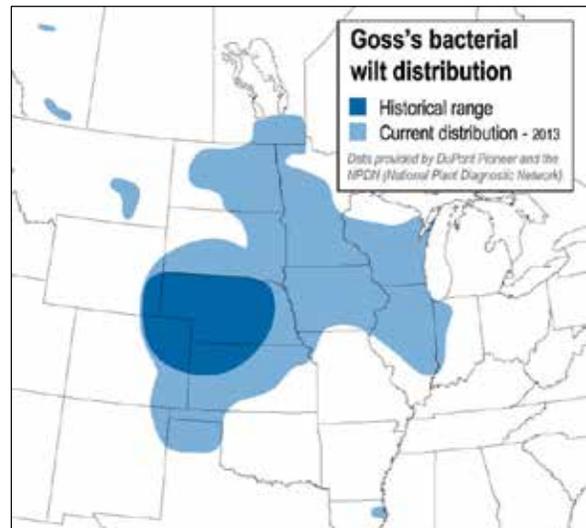
Goss's Wilt Development

- Bacteria infect plant tissue through wounds caused by wind, hail, sandblasting, etc.
- Lesions develop along leaf vascular tissues and may progress rapidly under wet or humid conditions.
- Goss's wilt can affect the plant at early growth stages and can spread throughout the canopy after infection.
- Scout for symptoms near silking.
- Yield reduction is caused by reduced healthy leaf area, leading to premature plant death.
- Bacteria are transported from infected fields to near-by fields by wind carrying infected soil or stubble.
- Goss's survives in corn residue & several grassy weeds.

Disease Cycle

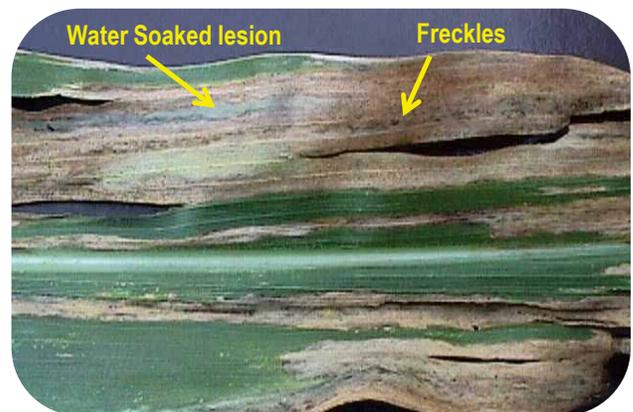


Presence of Goss's Wilt in Corn in North America



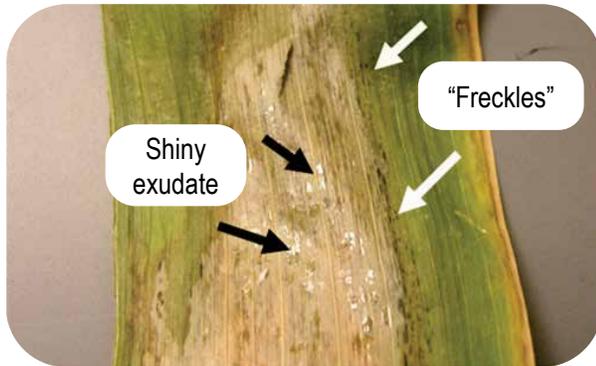
Goss's Wilt Symptoms

- Early leaf symptoms are elongated lesions of water soaked, grayish-green tissue that progress to long, wavy lesions with water-soaked margins.
- Look for dark green or black freckles within the lesions.
- Under wet and humid conditions, the bacteria appear as a shiny exudate on lesion surface.
- Symptoms often appear on upper leaf canopy and spread downwards with wet conditions.
- Symptoms often first appear in small patches along field edges where debris from adjacent fields blow in.



Distinguishing Features of Lesions

- **Freckles** – dark green to black water-soaked spots, often near lesion edges (white arrows).
- **Shiny Exudate** – bacteria ooze to leaf surface and may appear shiny after drying (black arrows).



Field of Pioneer® hybrid 39V05 (RR2) planted into a previous field of corn that was susceptible to Goss's wilt.

Aerial photo was taken in August 2012 courtesy of Arty's Air Service, Winkler, Manitoba.

Breeding for Resistance

- DuPont Pioneer has been screening and breeding for Goss's wilt resistance for decades in the Western U.S.
- Over the last few years, this bacterial disease has spread into the Northern Corn Belt of the U.S. as well as Manitoba and Alberta in Canada.
- DuPont Pioneer researchers in Canada were able to leverage the vast experience and knowledge available within Pioneer to diagnose, characterize and select resistant early-maturity genetics.
- Research work has led to, and will continue to improve, Goss's wilt resistance in corn hybrids sold in western Canada.



Hybrids have inherent genetic differences in tolerance to Goss's wilt.

Pictured above is a sampling of three different Pioneer® brand hybrids exhibiting varying degrees of tolerance to Goss's wilt in a PKP trial.

Photo courtesy of Adam McKnight, Bud McKnight Seeds.

Goss's Wilt Management

1. Genetic Resistance

- Use as a primary management method.
- DuPont Pioneer researchers inoculate, screen and rate hybrids for resistance.
- Hybrids are also rated under natural infestations in affected states.
- DuPont Pioneer researchers screen hybrids locally in Manitoba to increase levels of resistance.
- See your local Pioneer sales professional for help in selecting appropriate hybrids for your field.

2. Reduce Corn Residue

- Disease can become problematic in corn-on-corn, high-residue fields.
- Crop rotation is effective in reducing residue.
- Tillage encourages residue breakdown.

3. Control Grassy Weeds

- Several grassy weeds are hosts for the bacteria, including green foxtail and barnyardgrass.

4. Prevention/Avoidance

- Harvest and till affected fields last, and clean equipment to avoid spreading the pathogen to uninfected fields.

5. Fungicide application is NOT effective for this bacterial disease.

¹ Pioneer® brand products are provided subject to the terms and conditions of purchase which are part of the labeling and purchase documents.

² Product responses are variable and subject to a variety of environmental, disease and pest pressures. Individual results may vary.

³ RR2 - Contains the Roundup Ready® Corn 2 gene that provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. Roundup Ready® is a registered trademark used under license from Monsanto Company.

