GOSS'S WILT: WHAT'S ALL THE HULLABALOO?

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Introduction

Goss's wilt, caused by the bacterium *Clavibacter michiganensis* subsp. *nebraskensis*, has made a resurgence through Midwestern corn fields recently. In affected fields, yields have been decreased, and many are scratching their heads on why this disease is making a reappearance in the Midwest.

Historical and Current Status

Originally named "leaf freckles and wilt", Goss's bacterial wilt of corn was first described in Nebraska in the 1970s (Wysong et al., 1973). The disease is caused by the bacterium *Clavibacter michiganensis* subsp. *nebraskensis*. During the 1970s and 1980s, Goss's wilt had been found identified in several Midwestern states, including Illinois and Wisconsin (Wysong et al., 1981).

Although Goss's wilt had been identified in states east of the Mississippi River in the 1980s, outbreaks of the disease in states like Illinois and Wisconsin have been sporadic to non-existent. Beginning in the late 2000s, Goss's wilt was beginning to re-appear in some Midwestern states such as Illinois and Indiana (Ruhl et al., 2009). In 2011, the University of Illinois Plant Clinic confirmed Goss's wilt in thirty-one Illinois counties (Fig. 1). Outbreaks of Goss's wilt also were severe in Iowa in 2011 (A. Robertson, personal communication). The recent resurgence of Goss's wilt in the Midwest is related to at least one factor of the "disease triangle". The disease triangle consists of the pathogen, the host, and the environment. More data are needed to better understand specifically which of the factors of the disease triangle are related to the recent outbreaks.

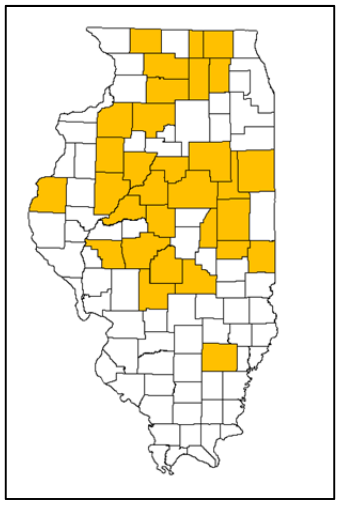

Fig. 1. Counties in Illinois with confirmed cases of Goss's wilt in 2011 (Source: University of Illinois Plant Clinic).

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Symptoms

Leaf symptoms of Goss's wilt appear as large tan to gray lesions with dark spots, often referred to as "freckles", within the lesions. Edges of lesions may appear "water-soaked", and bacterial exudates may be visible on the surface of affected leaf areas, giving the lesions a shiny appearance (Fig. 2). In severe cases, bacteria may become systemic, enter the xylem, and cause wilting. Because wounds on the plant tissue must be present for the Goss's wilt bacterium to cause infection, fields that have been subjected to hail, high winds, and heavy rainfall are more likely to be affected.

Fig 2. Symptoms of Goss's wilt on a corn leaf.

Management

No in-season control options are available to protect against Goss's wilt or to reduce the spread of disease within a field. The primary management methods are planting corn hybrids with higher levels of resistance to Goss's wilt, rotating to non-host crops, and tilling to bury and speed up the decomposition of affected residue.

References

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