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Outbreak of southern rust on corn

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Abstract
Over the past two weeks, severe leaf blighting due to southern rust has occurred throughout central and southern Iowa. The last severe outbreak of southern rust in Iowa was in 1999. This disease was reported in Nebraska and Kansas earlier in the growing season; however, it was only in mid- to late August that we started to notice a few lesions in our field trials. Temperatures and precipitation in Iowa throughout August were well above normal and thus highly favorable for southern rust.

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Outbreak of southern rust on corn

by Alison Robertson, Department of Plant Pathology

Over the past two weeks, severe leaf blighting due to southern rust has occurred throughout central and southern Iowa. The last severe outbreak of southern rust in Iowa was in 1999. This disease was reported in Nebraska and Kansas earlier in the growing season; however, it was only in mid- to late August that we started to notice a few lesions in our field trials. Temperatures and precipitation in Iowa throughout August were well above normal and thus highly favorable for southern rust.

Southern rust is caused by the fungus *Puccinia polysora*. Like all rusts, *P. polysora* spores are windblown to Iowa from the South each season. High humidity and temperatures in the 80 to 90° range favor the development of the disease. Under these conditions, new infections can occur every seven days, resulting in numerous new rust lesions and extensive leaf blighting.

Two types of rust occur on corn. Common rust is widespread each year in Iowa. Southern rust occurs less frequently. Southern rust can be distinguished from common rust in two ways:

- Color: Common rust spore pustules are brick red; southern rust spore pustules are bright orange (Photos 1 and 2).
- Development of lesions/pustules: Common rust pustules develop on both upper and lower leaf surfaces; southern rust pustules develop predominantly on the upper leaf surfaces (Photo 3).

Photo 1. Brick red pustules of common rust. (Alison Robertson)

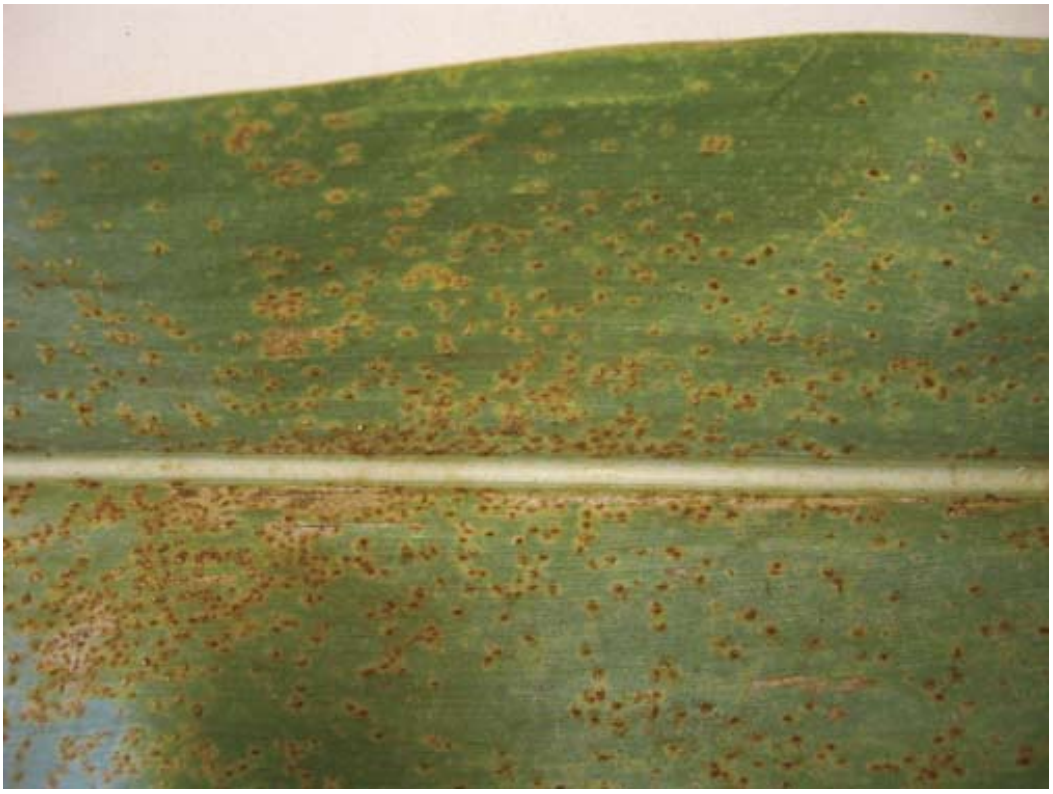

Photo 2. Bright orange pustules of southern rust. (Alison Robertson)

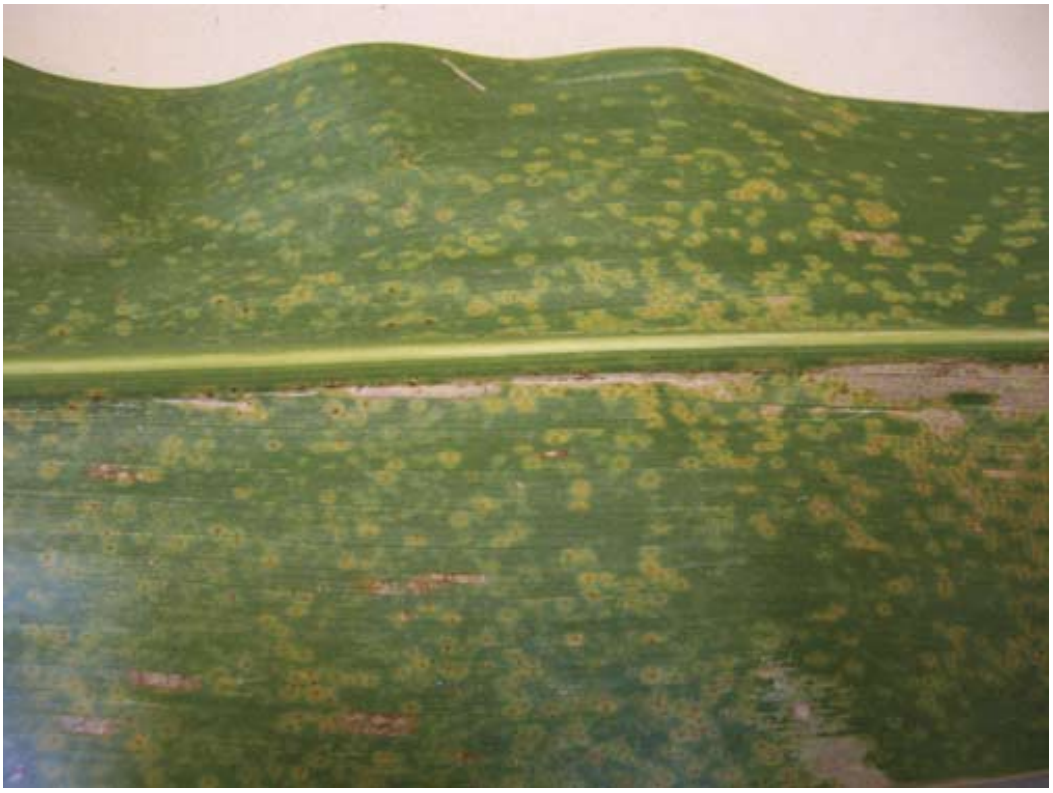

Photo 3. Southern rust pustules rarely occur on the lower leaf surface. (Alison Robertson)

Southern rust can develop rapidly, resulting in severe and early senescence and considerable yield loss. In Iowa this year, we "dodged the bullet." It is unlikely that this southern rust epidemic will affect yield noticeably since disease development started late in the grain-fill period. Registered fungicides are effective against southern rust, but with disease occurring so late in the season, an application was unnecessary. Fields in which a fungicide application was made earlier in the growing season are still at risk for southern rust since fungicides are only effective against foliar pathogens for 14 to 21 days after application.

Alison Robertson is an assistant professor in plant pathology with research and extension responsibilities in crop diseases.

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