

## Southern vs. Common Rust in Corn - FACT SHEET #2019002

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### Introduction

It is important for producers to distinguish between common rust (*Puccinia sorghi*) and southern rust (*Puccinia polysora*) in corn in order to make timely and effective management decisions. Southern rust is a more aggressive pathogen and its presence in a corn field may warrant a fungicide application. Common rust, on the other hand, is less aggressive and its presence in the field does not necessarily warrant a treatment. Symptom expression for these two fungal diseases are very similar and they are often confused for one another.

### Disease Symptoms

#### *Common Rust*

Early infections of common rust result in circular to elongate lesions that often occur in clusters. The fungus will produce brownish-red spores that erupt through both the top and bottom leaf surface (Figure 1). Common rust lesions are typically spread sparsely across the leaf surface.

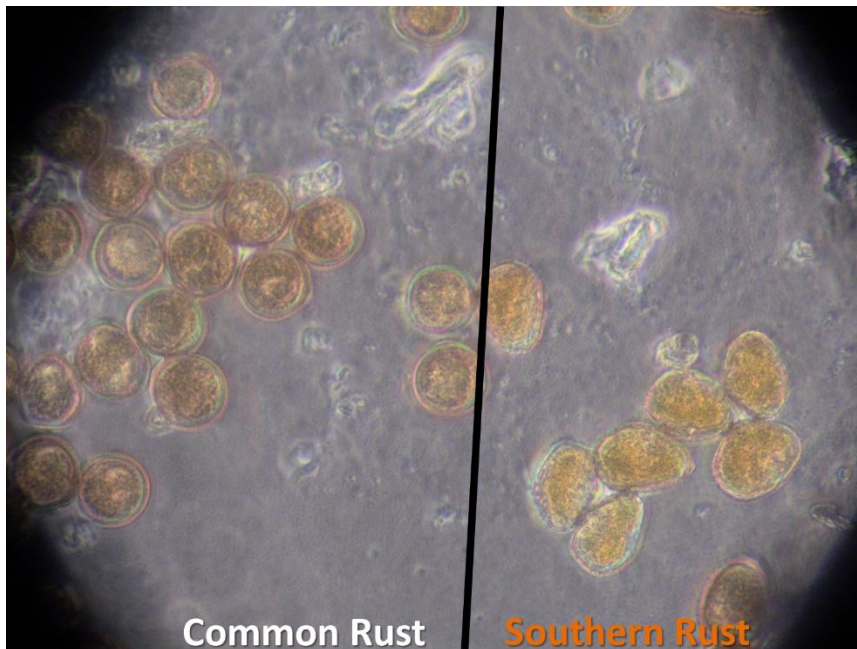
#### *Southern Rust*

Early infection of Southern rust results in circular lesions surrounded by a yellow halo. As the disease progresses and the lesions mature, light-orange to cinnamon-red spores erupt through the top leaf surface only (eruption through the bottom leaf surface is possible but rare). These lesions can appear on the leaves, husk and leaf sheaths. Unlike the sparse collection of lesions produced by common rust, Southern rust lesions often occur in large groups (Figure 1). If environmental conditions are conducive to pathogen growth, lesions can coalesce and create a leaf blight. As the season progresses, the reddish-orange pustules turn black.



**Figure 1. Common vs. Southern rust lesions on a corn leaf (Photo: Tamara Jackson-Zeims)**  
**Confirmation of Diagnosis**

It is often not possible to accurately distinguish between common and Southern rust of corn by symptom expression alone. A simple microscopic analysis can be conducted to distinguish the spores produced by these two fungi (Figure 2). If you are not certain which disease you have present in your field, consider submitting a sample to the UF Plant Diagnostic Center. 2570 Hull Rd. Gainesville, FL 32603.



**Figure 2. Common vs. Southern rust spores under 400x magnification.**

## **Pathogen Biology**

### *Common rust*

Common rust prefers cooler temperatures (60 - 80° F) and is able to survive North Florida winters in infected plant residue. Spores are both rain-splashed and wind-blown and can cause new infections every 7 to 14 days.

### *Southern rust*

Southern rust prefers warmer temperatures (80 - 90° F) and does not survive North Florida winters. It is blown in from South America and South Florida each year. It is also spread by rain-splash and wind and can create new infections every 7 days.

## **Management**

### *Common rust*

The selection of resistant hybrids is the best defense against common rust. Cultural practices like tillage may help reduce the amount of infections spores that survive the winter. Fungicide applications are typically not warranted.

### *Southern rust*

Resistant hybrid selection is key to reducing the damage caused by Southern rust. Cultural practices like tillage and crop rotation are ineffective against this pathogen as it blows in from tropical regions each year. Fungicide applications may be warranted but depend on many factors like:

- Yield potential of the crop
- Susceptibility of hybrid to Southern rust
- Growth stage of the crop
- Disease incidence & severity
- Aggressiveness of the pathogen
- Weather conditions
- Price of corn or silage
- Field history (rotation or corn on corn) and
- The price of the fungicide application.