

W H I T E P A P E R

Southern Rust in Corn: 2025's Severe Outbreak and Emerging Solutions

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Understanding Southern Rust

Southern rust (*Puccinia polysora*) is one of the fastest-moving foliar diseases in corn. It appears as small, orange pustules on the upper leaf surface and spreads rapidly under warm, humid conditions. The fungus favors temperatures between 77 and 82°F with extended periods of leaf wetness.

Unlike common rust, southern rust cannot survive northern winters. Each year it rides northward on wind currents from tropical regions. When the disease arrives early and the weather remains favorable, infections can spread quickly across the canopy, stripping away photosynthetic area and reducing grain fill. In severe cases, yield losses can exceed 40 percent.

2025: One of the Toughest Seasons in a Decade

The 2025 growing season produced the ideal storm for southern rust. The first detections were confirmed in Texas and Louisiana in late May, followed by rapid northward spread through the Corn Belt. July brought persistent heat, high humidity, and frequent rainfall that allowed the disease to thrive through tasseling and grain fill.

Extension specialists in Iowa, Illinois, and Indiana reported severe infections even in hybrids with partial resistance. Growers faced early fungicide applications and multiple treatments in high-pressure regions. Fields infected prior to VT and R1 experienced measurable yield loss, particularly in irrigated and high-yield environments.

“We saw historic levels of southern rust in 2025. That were likely the result of susceptible hybrids, early arrival of the pathogen in Iowa, and very wet and warm conditions from July through mid-August.”

— Dr. Alison Robertson, professor and extension field crop pathologist, Iowa State University

This widespread outbreak provided a rare opportunity to test new modes of action and evaluate experimental products designed to protect leaves during critical reproductive stages.

Exciting Research from Ichor Agriculture

Ichor Agriculture’s research program focuses on developing novel fungicide formulations that provide broad-spectrum protection across major row crops. Over the past two years, the team has generated strong greenhouse and field data showing consistent activity against multiple diseases, including southern rust, tar spot, gray leaf spot, and southern corn leaf blight.

In 2025 field evaluations, Ichor’s experimental products ICH 700 F and ICH 500 F provided strong activity against southern rust. Internal results showed a significant reduction in pustule formation and an increased level of green leaf area through late grain fill (Figure 1).

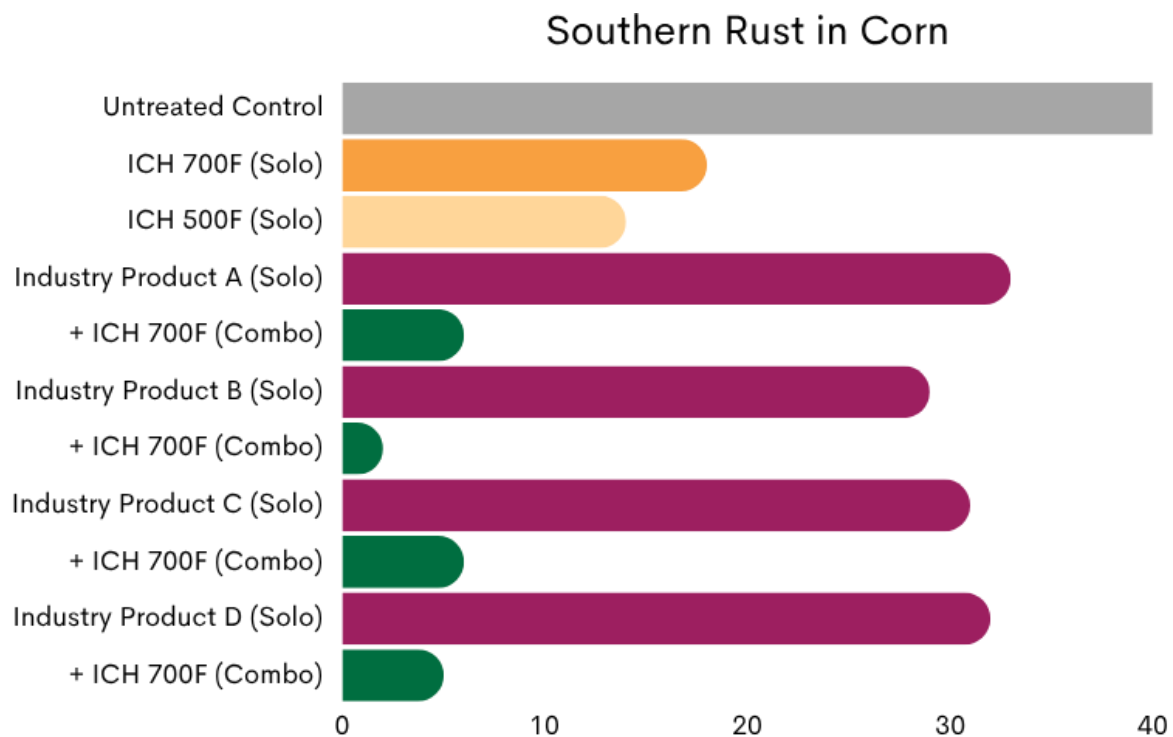


Figure 1. % disease severity 38 days after first application and 19 days after second application; LSD 3.9.

Even greater control was observed when Ichor materials were tank-mixed with industry standards. These combination programs delivered the lowest overall disease levels—below 6 percent disease severity in replicated plots. The results suggest Ichor’s technology can complement existing chemistries and enhance the durability of integrated disease-management programs (Figure 1). Beyond corn, the same formulations have shown broad efficacy in soybeans and cereals, reinforcing their multi-crop potential and plant safety profile.

“This season reaffirmed how aggressive southern rust can be when the weather turns favorable. The results we’ve generated across multiple crops and diseases demonstrate the promise of this platform and its ability to strengthen foliar-disease management strategies.”

— Chad Brommer, Chief Technology Officer, Ichor Agriculture

Looking Ahead

Southern rust will remain a persistent challenge for North American growers as shifting climate patterns extend the disease's range and timing. Scouting, early detection, and timely fungicide protection at VT-R1 continue to be the best defense for now.

For researchers, the 2025 outbreak underscored the need for new tools that combine efficacy, safety, and compatibility with existing programs. Ichor Agriculture's early results represent a meaningful step in that direction and highlight the potential for next-generation fungicide solutions that protect yield and sustainability across corn, soybean, and cereal systems.

About the Author: Jeff Barnes is Vice President of Research & Development at Ichor Agriculture. He brings over thirty years of experience in the global fungicide industry, including leadership of flagship brands at BASF such as Headline®, Priaxor®, and Revysol®.

About Ichor Agriculture: Ichor Agriculture is developing the first new class of fungicides in decades, built on photodynamically active xanthene chemistry. The platform delivers broad-spectrum, resistance-resilient disease control using FDA-regulated compounds with established safety profiles.

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