Issue 1083

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eUpdate

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, Agronomy eUpdate Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 dpeterso@ksu.edu.

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1. Fall Infections of Rusts in Kansas Wheat

Wheat rusts (leaf, stripe, and stem) remain among the most significant diseases to watch for in Kansas and surrounding states. In most years, there are low-level fall infections in the region, and they are typically of little concern. In 2025, we have noted unusually high levels of leaf rust in our fall-established crop. In most years, fall infections are limited by cool, dry weather in the fall. Fall infections will usually die off over the winter, and these rusts will work their way up from the South again in the spring. This fall, weather patterns in Kansas have encouraged higher levels of leaf rust infections than we typically observe (Figure 1). Earlier-planted wheat is more severely affected because it has been exposed to rust infections for a longer period. Fields that received a fungicide seed treatment should have had around 30-45 days of rust suppression after planting and may be experiencing less severe infections.

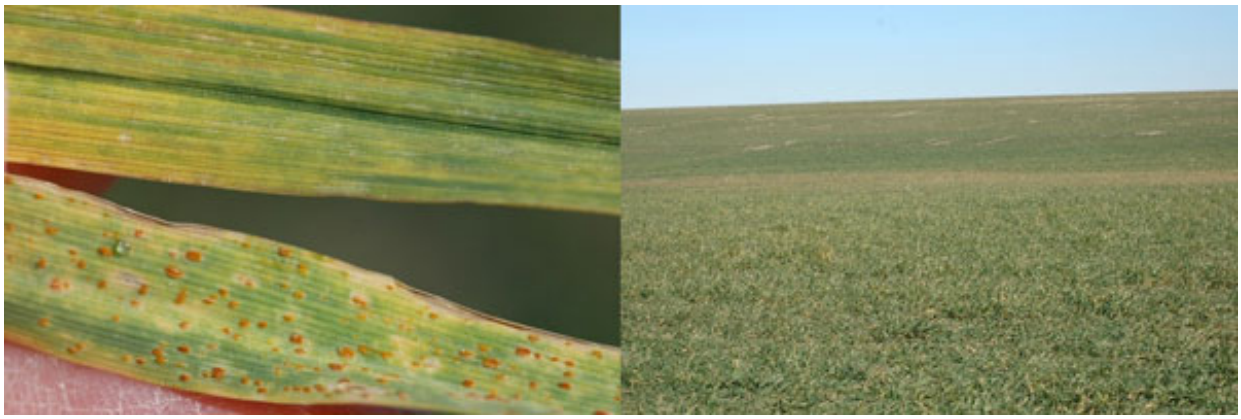

Figure 1. Fall infestation of leaf rust in wheat (left) in Prowers County, southeast Colorado, in 2025 resulted in a brown or orange cast across the field (right). Photos submitted by a farmer and used with permission.

Leaf rust can appear on fall-planted wheat well before dormancy when conditions are favorable. This year's early infections were linked to extended mild temperatures in late fall (Figure 2), higher-than-normal precipitation (Figure 3), and the presence of volunteer wheat or grassy weeds that allowed rust to survive locally over the summer months. Spores carried from southern states, where rust survives year-round, can also contribute to the early development of disease. However, the current dry and much colder temperatures will help to reduce the rate of development and spread.

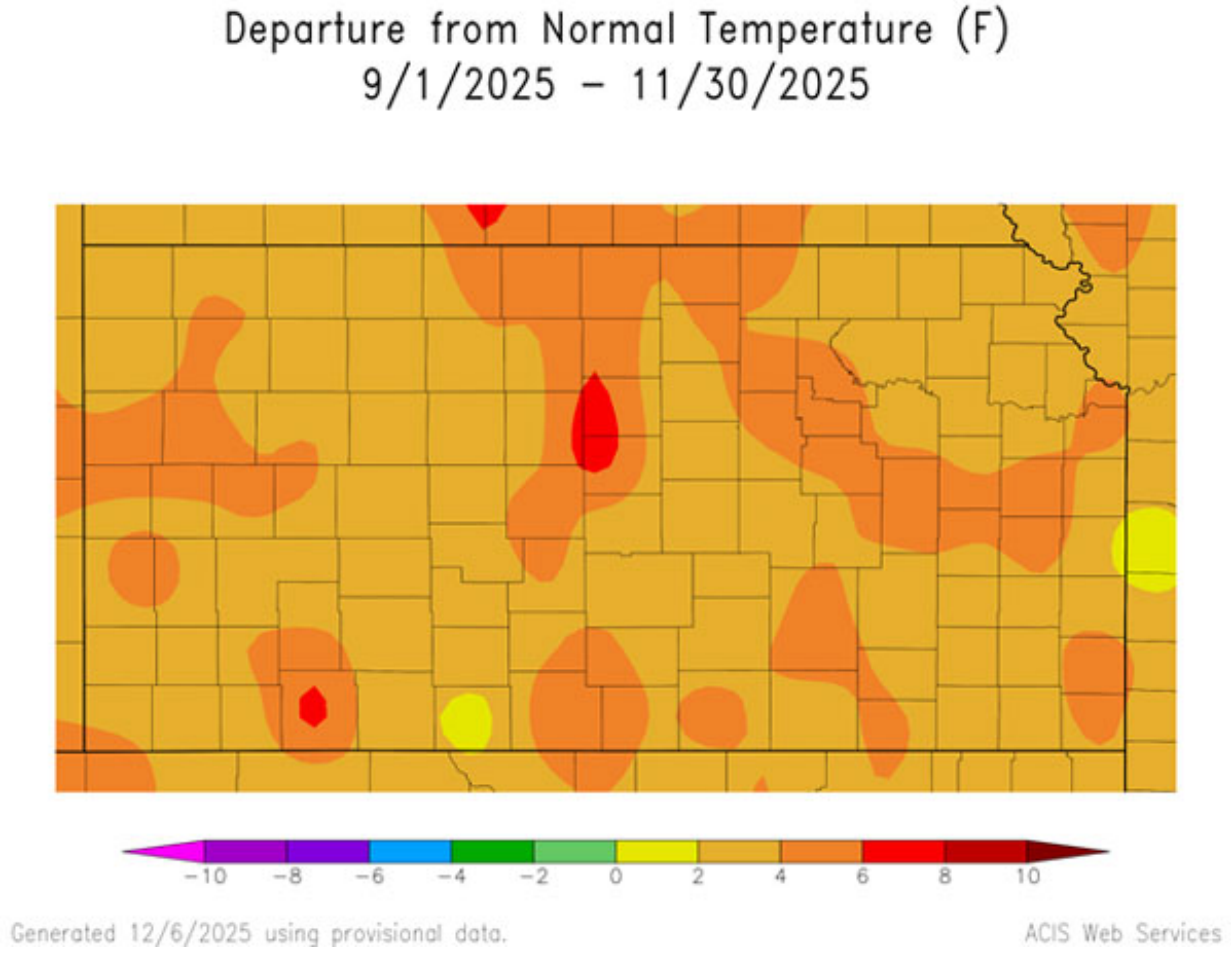

Figure 2. Temperature deviation from normal for the period from September 1 – November 30, 2025. Data and map produced by the NOAA High Plains Regional Climate Center.

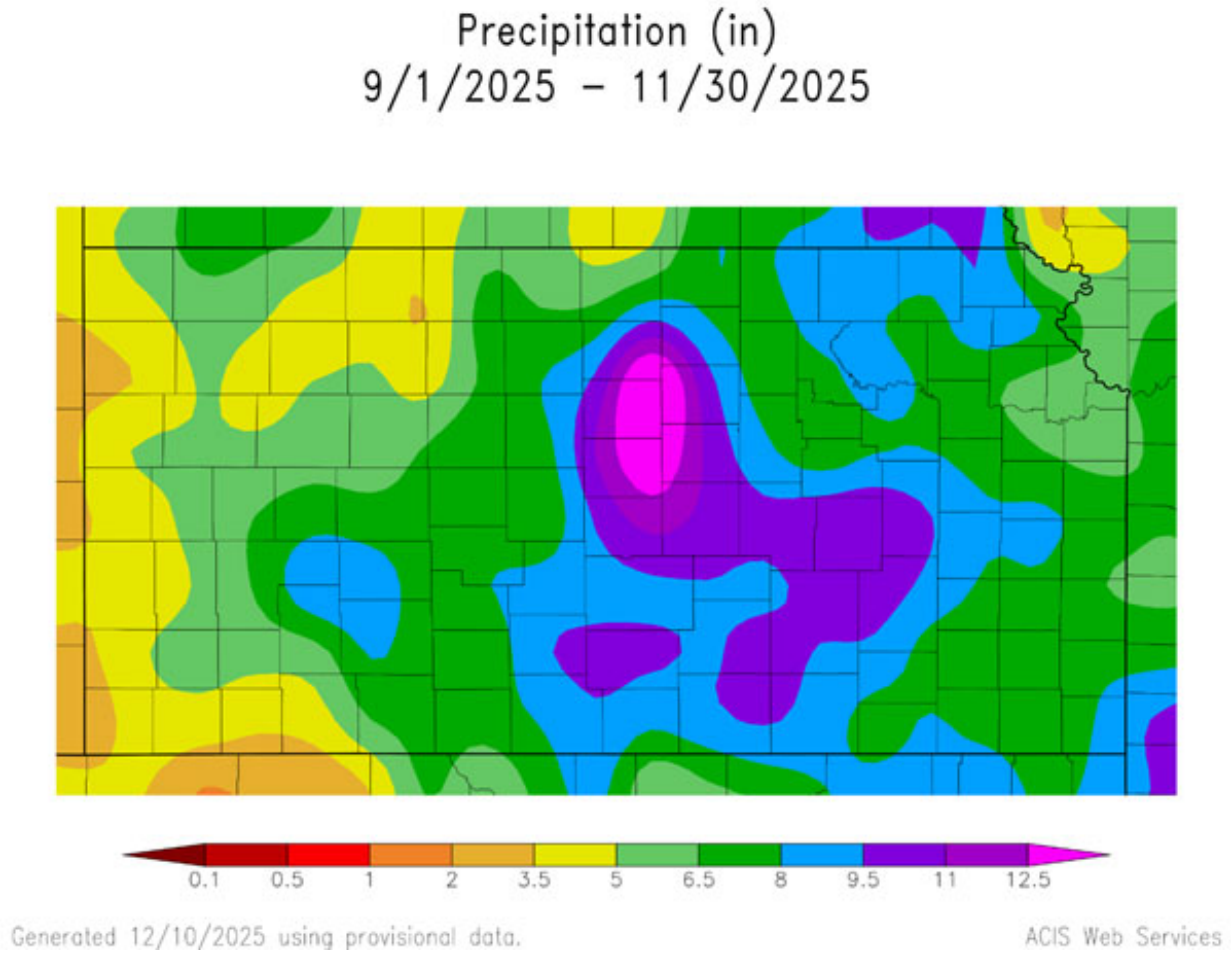

Figure 3. Total precipitation in Kansas during the period from September 1 through November 30, 2025. Data and map produced by the NOAA High Plains Regional Climate Center.

When leaf rust is highly active in the fall, the potential for overwintering increases. If winter is mild or persistent snow cover protects the foliage, there is a small chance that leaf rust can survive the winter and resume activity early in the spring. This may create a scenario in which the disease may progress rapidly in the spring if the weather is warm and wet early. Producers should be mindful of this possibility and resume scouting after the spring green-up.

If rust is active early in the spring, producers may consider two fungicide applications—an early-season spray followed by a flag-leaf spray—to maintain yield potential. However, this level of treatment may not be economically feasible when wheat prices are low. Scouting and understanding variety resistance will be very important in this case.

Fall fungicide applications are generally not recommended. Even so, growers should plan ahead for spring 2026 by remaining flexible in their fungicide strategy.

Useful resources:

- Kansas Wheat Variety Guide 2025: https://bookstore.ksre.ksu.edu/pubs/MF991.pdf
- Foliar Fungicide Efficacy Ratings for Wheat Disease Management 2025: https://bookstore.ksre.ksu.edu/pubs/EP130.pdf

- Wheat Disease Identification: https://bookstore.ksre.ksu.edu/pubs/wheat-disease-identification_MF2994.pdf

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2. Kansas Cool-Season Forage Quality Results for 2025

The forage quality results of the 2025 Kansas Performance Tests for cool-season annual forage varieties are available online at https://www.agronomy.k-state.edu/outreach-and-services/crop-performance-tests/forages/hay-and-silage/. The results are summarized by location (Garden City, Hays, and Belleville). Several forage quality metrics were measured across a range of forage varieties of rye, triticale, and wheat. Forage yield results were made available earlier this year and can be found at the same link.

Annual forage performance tests are conducted each year by the Kansas Agricultural Experiment Station (Figure 1). The objectives of these variety trials are to evaluate the performance of released and experimental varieties, determine where these varieties are best adapted, and increase the visibility of cool-season forages in Kansas. Breeders, marketers, and producers use data collected from the trials to make informed variety selections.

This work was funded in part by the Kansas Agricultural Experiment Station and seed suppliers. Sincere appreciation is expressed to all participating researchers and seed suppliers who have a vested interest in expanding and promoting annual forage production in the U.S.

Figure 1. Harvesting a cool-season forage variety trial at the Southwest Research and Extension Center in Garden City, KS. Photo from John Holman, K-State Research and

Extension.

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3. Soil Health Practices and Farm Profitability: Insights from Kansas Farms

As part of the K-State Regenerative Agriculture Initiative, a paper authored by K-State Department of Agricultural Economics PhD student Delide Joseph, Dr. Jennifer Ifft, Department of Agronomy PhD candidate Cesar Guareschi, and Dr. Charles Rice has been accepted for publication in the journal *Agricultural Systems*. Titled *"Soil Health Investment and Financial Performance of Crop Farms,"* the study analyzes financial and agronomic practice data from 438 Kansas crop farms and finds that producers who more fully adopted soil health–based practices achieved stronger financial performance than those with lower adoption levels. Additional details from the study are summarized below.

Why this matters: Farmers are under policy, market, and consumer-driven pressure to adopt soil health practices such as no-till, cover crops, and crop rotation, for environmental reasons, but the big question remains: *Do these practices pay?*

What this study did: Our study combined soil health practice data with financial records from *438 commercial crop farms based in Kansas* to understand how adoption relates to farm profitability.

Key Findings

Adoption of soil health practices linked to higher profits. Farms classified as "high adopters" based on agronomic principles earned, on average, a *5.6 percentage point higher net farm income ratio* than low adopters. This difference is equivalent to about $56,000 more net income per $1 million in sales.

Lower costs help explain the difference. High-adoption farms had a *4.7 percentage point lower operating expense ratio*. The difference is about $47,000 less in operating costs per $1 million in gross revenue, suggesting that cost savings may drive the financial benefit. Expense reductions appear to be the main driver of financial benefits.

Yield relationships were mixed. Small yield advantages were observed for soybeans and corn, but results varied by crop and were not always statistically different from zero. This finding may be due to data limitations.

Operator age is related to adoption, farm size is not. Younger farmers in the sample tended to be more open to adopting soil health practices, highlighting the role of generational shifts in shaping future adoption. Farm size didn't have a consistent relationship with adoption of soil health practices.

Not all measurement methods agree. When we tested three different ways of defining "soil health practice adoption," only the scoring system designed by K-State agronomy researchers and accounting for regional variation, such as water shortages in western Kansas, showed a consistent relationship with positive financial outcomes. This is likely due to classification of farms as high, medium, or low adopters differing substantially across measurement methods.

It's best to look at one study as part of the bigger picture, not on its own. The main advantage of this research relative to other studies is that it combines farm-level financial data with detailed information on current soil health practices. While this research expands the existing knowledge base, much is still unknown.

What we know about the measurement and profitability of soil health practices

Our findings are consistent with established agronomic findings that soil health outcomes and indicators of financial performance (yields and input use) have the strongest relationship when multiple practices are implemented as an integrated system rather than in isolation. The finding that different measurement methods led to different classifications of high, medium, and low adopters is consistent with the lack of standardized methodologies to classify conservation agriculture or soil health practices.

What we still don't know

While this study provides evidence that soil health practice adoption is *associated* with improved financial performance, important questions remain. Although high-adoption farms tend to be more profitable, it is unclear whether soil health practices cause higher profitability or whether more profitable farms simply have greater capacity to adopt these practices. Because our analysis is based on one production year, it does not capture transitional effects or the evolution of profitability over time, when short-term costs may precede long-term gains. Also, the lack of longitudinal, multi-year financial and biophysical data constrains our ability to evaluate cumulative, dynamic, or risk-related outcomes.

Next steps

Building on the current findings, future work should further examine the mechanisms linking soil health practice adoption to financial outcomes and clarify when financial benefits are most likely. Progress will depend on access to multi-year, farm-level datasets that integrate management practices, input use, soil and weather conditions, and detailed financial records. Such data is rarely available in a consistent, longitudinal format. Another barrier is the lack of standardized measures of soil health-related practice adoption, which limits comparability across operations and regions. Studies comparing practices to soil health outcomes may aid in the development of improved measures. Further, moving beyond case studies toward broader evidence will be essential for identifying whether the relationships observed in this study are generalizable.

Acknowledgements

The authors extend gratitude to the Kansas producers who generously shared their time, knowledge, and management information through the soil health survey. Their participation made this analysis possible. We appreciate the Kansas State University Regenerative Agriculture team for their expertise and collaboration in developing the agronomic scorecard, and the Kansas Farm Management Association (KFMA) leadership and economists for their support in coordinating data access, clarifying farm-level variables, and facilitating connections with producers. Finally, we are grateful to the producers and professionals who contributed to the development of the supplemental KFMA survey. This research was partially supported by a seed grant from the Kansas State University Game-Changing Research Initiative Program.

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4. Save the Date: K-State Agronomy Science and Solutions Virtual Conference

Make plans to join us online for the 2026 **K-State Agronomy Science and Solutions Conference: Research to Results**, a two-day virtual program designed to connect the latest K-State agronomy research with on-farm decisions.

Date and time

- **February 3–4**
- **11:00 a.m. – 1:00 p.m. (CST) each day**
- **Online via Zoom** (link and registration details coming soon)

Each day will feature **four 30-minute presentations** from K-State specialists and collaborators, focused on practical strategies for crop production in Kansas. This conference is designed to address the full spectrum of Kansas crop production, with content relevant across all major crops. Planned topics include:

- Perennial weed management
- Strategic tillage
- Turning farm data into decisions
- Irrigation timing and system maintenance
- Fertility management when crop prices are low
- Soil pH and soil health
- Spray water quality
- Using residual herbicides effectively

Participants can register for **one or both days**:

- **$20 per day**, or
- **$30 for both days**

Certified Crop Advisers (CCAs) can earn 0.5 CEUs per presentation, totaling 4 CEUs if attending all sessions over both days.

More information, including the full program schedule, speaker list, and registration link, will be shared in upcoming issues of the Agronomy eUpdate and on K-State Agronomy communication channels.

Mark your calendar now and plan to join us for this focused look at "research to results" in Kansas crop production.

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5. K-State Ag Profitability Conferences: Making "Cents" of a Shifting Ag Economy

Farmers and ranchers are no strangers to adversity, but today's challenges are testing the resilience of Kansas agriculture. Ongoing trade disputes and tariffs have disrupted markets and reduced export opportunities, driving crop prices lower while input costs for seed, fertilizer, and equipment remain high. The result is tighter margins and tougher decisions for many Kansas producers.

The Kansas State University **Ag Profitability Conferences** are a series of regional, producer-focused events designed to help farmers and ranchers make informed financial decisions amid today's challenging agricultural economy. This program will provide an overview of the current farm financial situation and explore strategies to manage expenses, monitor markets for pricing opportunities, and make the most of safety net programs like crop insurance and government commodity programs. Specialists will also discuss trends in Kansas land values, tools for managing farm stress, and considerations for retirement or transitioning the farm to the next generation.

The conferences rotate through multiple communities across Kansas. Upcoming conferences are scheduled for Hiawatha, Mankato, Colby, Hays, Garden City, Kingman, and Erie, with dates spanning from December 2025 to February 2026.

The conferences are either free or low-cost and open to producers from across the region. For specific dates, venue location, agenda, and registration information, please visit https://agmanager.info/profitability