Issue 1076

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Extension Agronomy

eUpdate

10/16/2025

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. Management adjustments when planting wheat late

Some producers have delayed planting due to ongoing summer crop harvest or wet conditions following recent fall rains. Planting in late October to early November remains acceptable in southeast and far south-central Kansas, but it is considered late for most other regions and beyond the cutoff for full crop insurance coverage. Although reasonable yields can still be achieved, late-planted wheat typically experiences cooler fall temperatures and has less time to tiller before winter dormancy (Figure 1). This limited fall growth reduces yield potential and increases the risk of winter injury.

Research conducted by Merle Witt with late-sown wheat in Garden City from 1985 through 1991 is summarized in Figure 2. Averaged across all these years, delaying wheat sowing from October 1 to November 1 delayed the heading date by 6 days and decreased wheat yields by 23%. The grain-filling period was progressively shortened by about 1.7 days and occurred under hotter temperatures (about 1.5°F) for every month of delay in sowing date.

Figure 1. Differences in fall growth and development of wheat crops planted in late September (left) versus late October (right) near Hutchinson, in south central Kansas. Photos taken mid-December of the planting year by Romulo Lollato, K-State Wheat and Forage Extension Specialist.

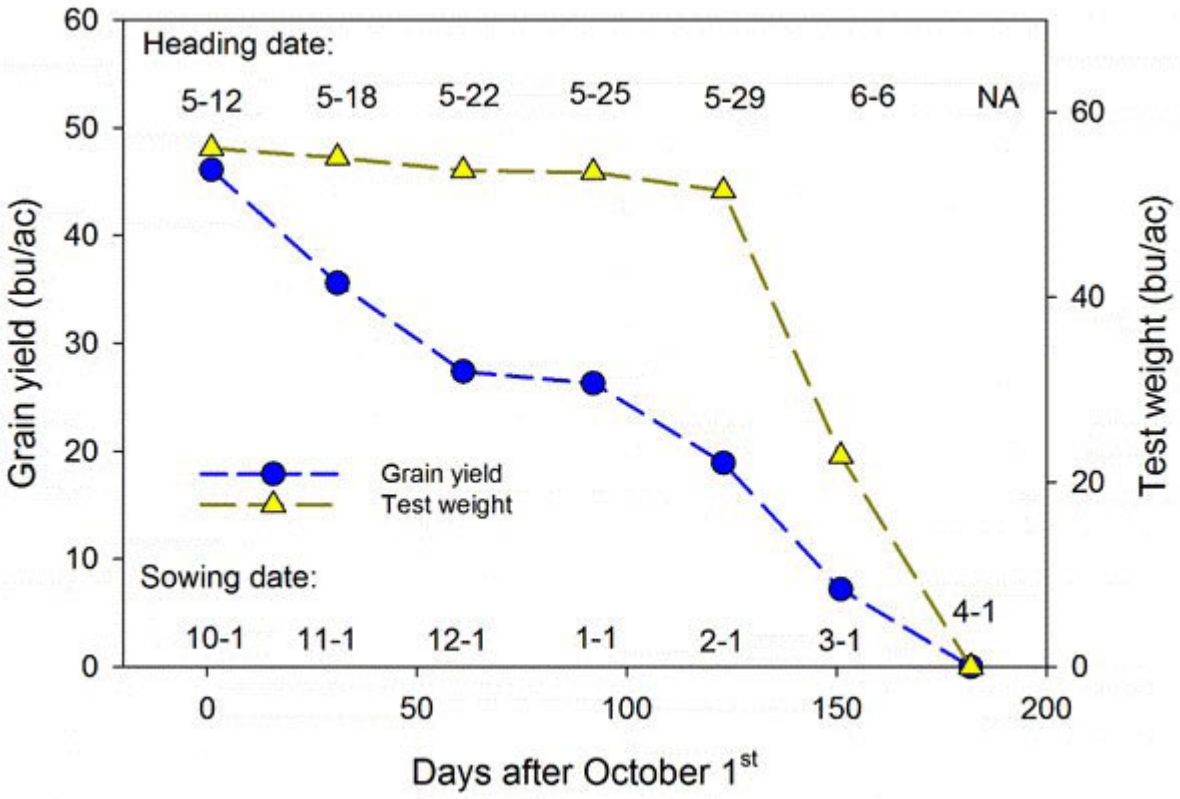

Figure 2. Wheat grain yield, test weight, and heading date responses to sowing date between 1985 to 1991. Data adapted from Kansas Agric. Exp. St. SRL 107.

Under these circumstances, some management adjustments can be made to compensate for the consequences of late planting. These adjustments include:

Increase seeding rate

Late-planted wheat usually produces fewer fall tillers than wheat sown at the optimal time. Because fall tillers contribute more to yield than spring tillers, increasing seeding rates can help produce the final head density needed to ensure good yields. Recommended seeding rates for Kansas vary by precipitation zone (Table 1) and should be increased for each week planting is delayed beyond the optimal window: about 150,000 – 225,000 seeds per acre (or 10 to 15 lb/acre) in western Kansas, or 225,000 – 300,000 seeds per acre (15 – 20 lb/acre) in eastern Kansas.

Avoid exceeding 90–100 lb/acre in western Kansas or 120–130 lb/acre in central and eastern Kansas for grain-only systems, as excessively high seeding rates can lead to lodging and greater early-season water use. This can increase the risk of "haying off," where high fall biomass and limited spring moisture reduce yield, as seen in the 2023–24 season.

Table 1. Seeding rates for grain-only wheat production in Kansas at optimum planting dates. Upward adjustments to these rates are needed when planting late.

Kansas Region	Seeds/acre*	Seeds/ft^2**

Western	750,000-900,00	17-21
Central	900,000-1,125,000	21-26
Eastern	1,125,000-1,350,000	26-31
Irrigated	1,200,000-1,500,000	28-34

*To convert seeds/acre to pounds/acre, divide by the number of seeds per pound (e.g., 900,000 seeds = 56 lb for 16,000 seeds/lb, or 82 lb for 11,000 seeds/lb).
**To determine the row length needed for one square foot based on row spacing, divide 12 by the row spacing (e.g., if row spacing is 7.5 inches, 12/7.5 = 1.6 feet, or 19.2 inches of row are needed to be equivalent to one square foot).

Maintain the optimal planting depth (1 to 1.5 inches)

Wheat requires at least 4 to 5 leaves and 1 to 2 tillers before winter dormancy to achieve maximum cold tolerance. Late-planted wheat will most likely have fewer tillers and leaves than wheat planted at the optimal timing and, therefore, will be more susceptible to winter kill. Proper depth ensures good root anchorage and crown insulation for winter survival. Shallow seeding increases the risk of winter injury, while planting too deep may reduce emergence in cool soils. Aim for a uniform 1–1.5 inches below the soil surface.

Apply starter phosphorus (P) fertilizer with the seed

Phosphate-based starter fertilizer promotes early-season wheat growth and tillering, which can help compensate for the delayed sowing date. Additionally, P is less available under colder soil temperatures, which can result in P deficiency under cold weather conditions. When planting late, producers should strongly consider using about 20-30 lbs/acre of actual P (applied as 11-52-0 or 18-46-0) directly with the seed, regardless of soil P levels. This placement ensures roots access the P quickly, supporting early development. In-furrow P is particularly valuable for:

- Late-planted wheat
- Wheat for grazing
- Wheat in acidic soils
- Fields with low soil phosphorus levels

Use a fungicide seed treatment or certified seed

Cold, wet soils delay emergence and increase the risk of seed and seedling diseases. Fungicide seed treatments protect against these conditions and improve stand establishment. Ensure thorough seed coverage for full protection. For fungicide seed treatment options, please refer to the K-State fungicide seed treatment chart available at: https://www.bookstore.ksre.ksu.edu/pubs/MF2955.pdf. Using certified seed may also be warranted to ensure good seed viability and quality, as well as variety purity. Growers can also use other seed that has passed a germination test at 85% or greater.

Variety selection

Although it may be too late to change varieties this season, keep in mind that varieties differ in tillering capacity and maturity. High-tillering and early-maturing varieties generally perform better when planted late than low-tillering, later-maturing varieties. Late-planted wheat can translate into delayed development in the spring, which can result in plants being exposed to heat stress during

grain filling, reducing the duration of the grain filling period and therefore grain yield (Figure 3). When planting late, avoid varieties that require strong fall growth for optimal yield. In central and eastern Kansas, K-State wheat variety trials often include fields planted late after soybean harvest; these results can help identify varieties suited for delayed planting in your region. For more information on selecting a wheat variety, please refer to the Kansas Wheat Variety Guide at https://bookstore.ksre.ksu.edu/item/kansas-wheat-variety-guide-2025_MF991.

Figure 3. Winter wheat variety by management by planting date study near Hutchinson, KS, demonstrating how different planting dates result in different spring development. Photo taken on June 4, 2025, by Jazmin Gastaldi, MS student in the Wheat and Forage Extension program at K-State.

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2. Protect your soybeans next year: Test for Soybean Cyst Nematode after harvest

Soybean cyst nematode (SCN) is the number one yield-limiting pathogen of soybean and is distributed in fields throughout eastern and central Kansas. This pest has been identified in 64 counties that account for more than 85% of the state's soybean production (Figure 1). A recent 2-year survey of soybean growers in Kansas found that fewer than 10% of growers test for SCN.

Visible symptoms of SCN can easily be confused with other issues in soybean production. SCN also weakens plants, making them more susceptible to other diseases such as Sudden Death Syndrome (SDS). Because SCN populations can increase rapidly and persist in the soil for years, regular monitoring is essential. Sampling helps determine whether current management strategies, such as crop rotation and use of resistant soybean varieties, are effectively reducing nematode numbers. Without testing, populations can build silently, resulting in significant long-term yield losses.

The best time to test for SCN is immediately after harvest, when soil conditions are favorable for sampling and before making seed and rotation decisions for next season. Confirming SCN presence, estimating population levels, and monitoring the effectiveness of resistant varieties form the foundation of a successful integrated management plan.

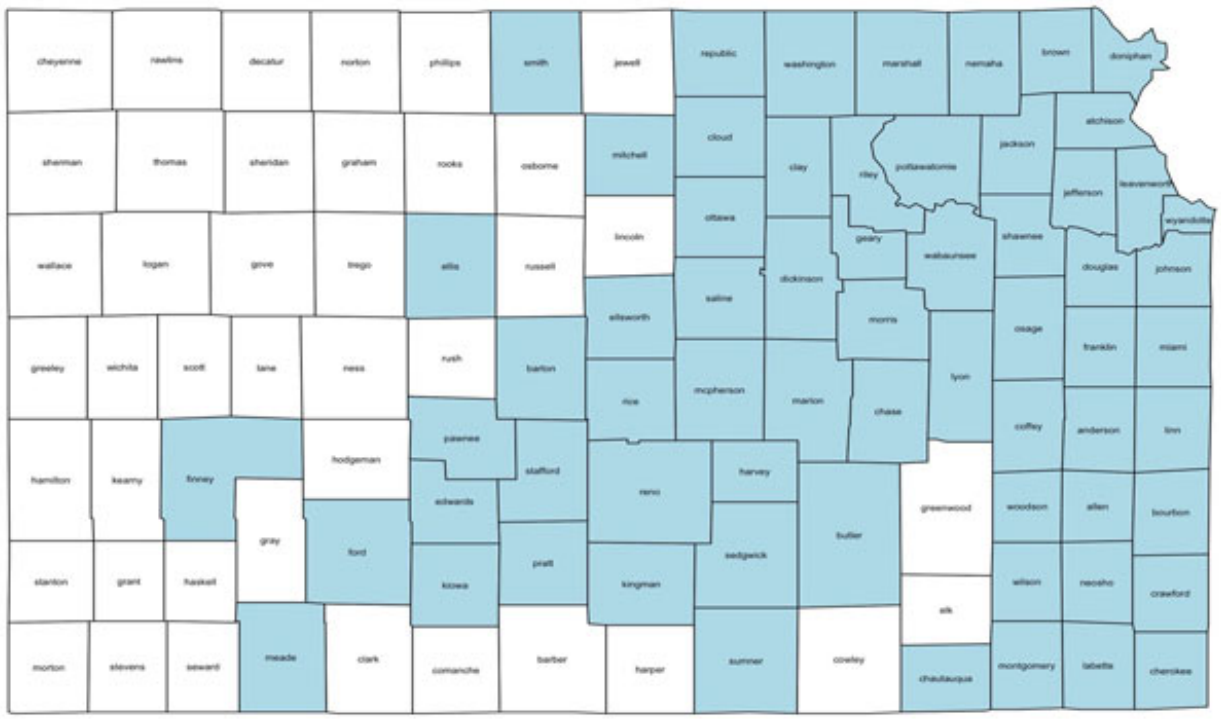

Figure 1. As of October 1, 2025, SCN was identified in 62 Kansas counties that produce >85% of Kansas soybeans. Map by William Rutter and Chandler Day, K-State Research and Extension.

To collect a SCN sample, you will need:

1. A soil probe (or sharpshooter spade)
2. A bucket

3. A labeled bag. The label should include the following information:
    a. Field identification (*i.e.,* Field ID: North Farm, near Doe Creek)
    b. Size of the area being sampled (*i.e.,* 20 acres)
    c. Crop rotation history (*i.e.,* soybean, corn, and soybean)

Recommended field pattern for sample collection:

If your field is fairly uniform, divide it into quadrants or sections for your SCN sample collection. Fields with different cropping histories or soil types should be sampled separately. **For each quadrant, collect 10 to 20 cores to a depth of 6 to 8 inches.**

Walk the area in a systematic pattern, such as a "Z" pattern (Figure 2). Collect a total of 10 to 20 soil cores, emptying each into the bucket after collection. All core samples should be mixed well to account for variation between cores. After mixing, collect 1 pint of soil (~2 cups) in a labeled plastic bag and seal.

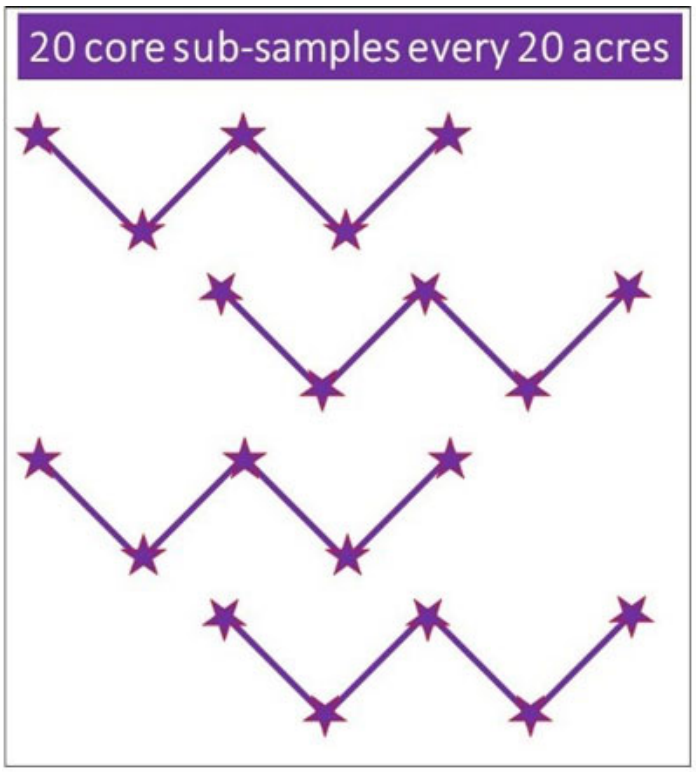

Figure 2. Example of a good sampling pattern for collecting soil to test for SCN.

Preparing and sending samples

When sending your samples to the diagnostic lab, make sure to:

1. Ship overnight or as fast as possible
2. Avoid leaving bags in the sun
3. Send the samples to the Plant Disease Diagnostic Lab in the K-State Plant Pathology Department.
4. Fill out the **Plant Disease Diagnostic Check**

sheet at https://www.plantpath.k-state.edu/extension/diagnostic-lab/documents/2021_PP_DiseaseLabChecksheet.pdf.pdf

Shipping address:

K-State Plant Disease Diagnostic Lab
4032 Throckmorton PSC
1712 Claflin Road
Manhattan, KS 66506
clinic@ksu.edu
785-532-1383

For a step-by-step demonstration, watch this short video: https://youtu.be/b6Eo0isI1I0

Remember, your results will only be as good as the sample you send to the lab!

Diagnostic testing fees:

- Internal clients (KSRE agents): $25
- External clients (crop consultants, farmers, and others): $35

More details about fees are available at: https://www.plantpath.k-state.edu/extension/plant-disease-diagnostic-lab/services-and-fees.html

What to do if you find SCN in your fields

There are management options that can help reduce SCN populations and reduce the yield losses in your fields. You can enter the SCN counts provided by the K-State Disease Diagnostic Lab, along with your soil parameters, into the online SCN Coalition Profit Checker tool: https://www.thescncoalition.com/profitchecker/calculator/. The output will help you decide what the most economical SCN management strategy is for your fields next season.

Soil sampling for fertility, too?

If you plan to sample for soil fertility, you can save time by collecting both sets of samples during the same field visit. The sampling procedure is nearly identical, simply **split the soil into two portions**:

- One for the **Soil Testing Laboratory**
- One for the **Plant Disease Diagnostic Laboratory**

Keep the soil for SCN testing **field-moist**, and follow the handling and shipping instructions above. More information on soil fertility testing is available at: https://www.agronomy.k-state.edu/outreach-and-services/soil-testing-lab/

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3. Corn grain quality: Moldy ears, low test weight, and pre-harvest sprouting

As the growing season for corn is wrapping up in Kansas and many are in the midst of harvest, some are finding issues with impacted ear and grain quality. Late-season precipitation, as seen in many areas in 2025, can increase the risk of fungal growth on corn ears, promote pre-harvest sprouting, and decrease test weight. It is critical to properly identify ear rots in the field because many of the fungi responsible for ear rots produce toxic chemicals (known as mycotoxins), which can harm livestock and humans. Grain contaminated with mycotoxins can be difficult to market and may be docked in price. The most common ear rot diseases are Diplodia ear rot (Figure 1), Gibberella ear rot (Figure 2), and Aspergillus ear rot (Figure 3).

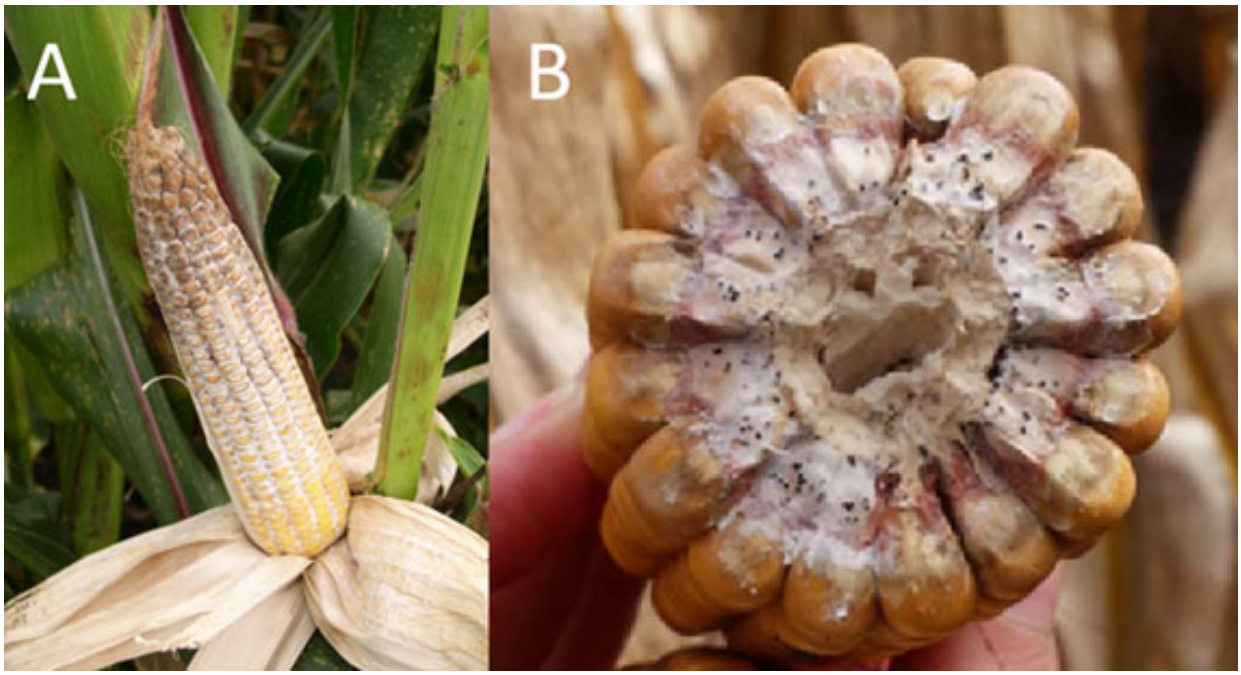

Figure 1. White mold on corn ear, indicative of Diplodia ear rot (Figure 1A, Courtesy of G. Munkvold**), and black pycnidia produced by the fungus that causes Diplodia ear rot (Figure 1B, Courtesy of M. Romero).**

Diplodia ear rot infection commonly occurs in the two weeks prior to and after silking (Figure 1A). The ear rot phase first becomes visible from a distance when husks turn tan prematurely. Black specks (fungal fruiting bodies known as pycnidia) appear on the husk, shank, and kernels (Figure 1B). When pulling the husks back, the ear will have a whitish mold forming in the grooves between kernel rows, usually starting at the base of the ear and progressing toward the tip. Over time, the white moldy appearance may turn brown. The ear rot phase results in moldy, low-test-weight kernels that frequently result in dockages at grain elevators. Unlike other ear rots, including Gibberella, Aspergillus, and Fusarium ear rots, Diplodia ear rot **does not** produce mycotoxins.

Figure 2. White/pinkish mold at ear tips is characteristic of Gibberella ear rot. Photo by Rodrigo Onofre, K-State Research and Extension.

Gibberella ear rot is caused by the fungus *Gibberella zeae*. It is a consistently important mycotoxigenic fungus in the northern Corn Belt, producing vomitoxin, zearalenone, and other toxins. Gibberella ear rot can be identified most readily by the distinctive red or pink color of the mold. It almost always begins at the tip of the ear. The prevalence of Gibberella ear rot tends to increase when cool, wet weather occurs during early silking. Extended periods of rain in the fall that delay harvest increase disease severity. Gibberella ear rot will be most severe in continuous corn fields or in areas where there is wheat affected by Fusarium head blight (scab), which is caused by the same pathogen.

Aspergillus ear mold is favored by hot and dry conditions. Aspergillus can produce aflatoxin, a well-known carcinogen that is highly regulated by the Food and Drug Administration (FDA). On the ear, colonies of Aspergillus flavus are a greenish-yellow, dime- to quarter-sized mold that grows between

the kernels. In severe cases, the mold may cover a significantly larger portion of the ear (Figure 3). Often, there is little correlation between the percentage of moldy ears in a field and the actual level of aflatoxin. Corn that dries down rapidly may accumulate less toxin, and some field strains are poor producers of aflatoxin. On the other hand, strains that produce copious amounts of aflatoxin may need to be present on a relatively low percentage of ears to cause problems at the elevator. For more information on aflatoxin in corn, please read the accompanying eUpdate article in this issue.

Figure 3: Greenish mold is characteristic of Aspergillus ear mold. Photo by Doug Jardine, K-State Research and Extension.

Low test weight

The occurrence of moldy ears can affect test weight in corn, resulting in light-weight and chaffy grain. Other causes of low test weight are: 1) higher grain moisture, 2) abiotic stress conditions (e.g., drought and heat), 3) late-season leaf diseases, and 4) below-normal temperatures during the end of

grain fill.

Moldy ears can also impact final grain quality through the production of mycotoxins [aflatoxins, deoxynivalenol (DON), fumonisins, and ochratoxin], potentially affecting the quality of the grain as an animal feeding source. It can also cause issues for storage and end-use processing (e.g., starch quality and ethanol).

Sprouting

Pre-harvest sprouting is likely to occur when dry grain (less than 20% moisture) is re-wetted. This situation is particularly associated with late-season rains, warm temperatures, and upright ears. The main result is a sprouted kernel in the lower section of the corn ear (Figure 4). If this is a widespread issue throughout the field, grain quality can be compromised, leading to problems in storage.

Figure 4. Premature corn kernel sprouting in the lower section of the ear. Photo by Eric Adee, K-State Research and Extension.

Time home points

These production issues are occurring now in some fields in Kansas. One of the most effective management practices is to scout fields for these issues and estimate the portion of your field affected by moldy ears or pre-harvest sprouting problems. Timely harvest and pre-screening of corn ears can help mitigate these issues and diminish the economic impact.

For more information on corn ear abnormalities, please refer to K-State Research and Extension publication **EP169 "Abnormal Corn Ears"** at https://bookstore.ksre.ksu.edu/item/abnormal-corn-ears_EP169.

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4. World of Weeds: Sericea lespedeza

Sericea lespedeza, or Chinese bush clover (*Lespedeza cuneata*), is the focus of this month's World of Weeds article. A statewide noxious weed, sericea is established across the eastern third of the state and many central Kansas counties and contributes to forage loss in otherwise productive pastures and rangelands.

History

Native to eastern Asia, sericea was originally introduced to the United States in the late 1800s through the North Carolina Agricultural Experiment Station. Due to its tolerance of shallow and acidic soils, sericea was planted to stabilize strip mines, highway right-of-ways, and other highly erodible areas beginning in the 1920s. Sericea was progressively introduced into rangeland plantings in the following decades, with the expectation that it would provide forage for livestock and serve as a wildlife habitat. Sericea was increasingly recognized as a problematic species that has outcompeted native plants without providing the intended benefits of its introduction and has since been considered a noxious or invasive weed in several states.

Ecology

Sericea is a perennial, warm-season legume with woody stems and a deep taproot. Once established, mature plants are estimated to produce 1,000 seeds per individual per year, which contributes to a substantial seedbank for seedling recruitment in following years. Prescribed fire, a common management tool in grasslands, has been shown to scarify sericea seeds and promote their germination. Sericea also produces a high concentration of condensed tannins in its foliage that increases with maturity. Although also high in crude protein, these tannins make sericea undigestible for cattle except at the earliest stages of growth. The combination of low palatability and high seed production is often cited as a key factor supporting sericea's success in outcompeting other grassland plant species.

Identification

Plants frequently branch at the base and appear bushy as they mature, growing up to five feet tall in ideal conditions and generally standing out when surrounded by grasses (Figure 1). Sericea has trifoliate leaves (3 leaflets = 1 leaf), which closely resemble other desirable native lespedeza species, especially in the early stages of growth (Figure 2). Sericea plants typically bloom beginning in June with small, cream-colored flowers dotted with a single purple patch (Figure 3).

Figure 1. Typical growth habit of established sericea in a tallgrass prairie. Photo credit: Greg Houseman.

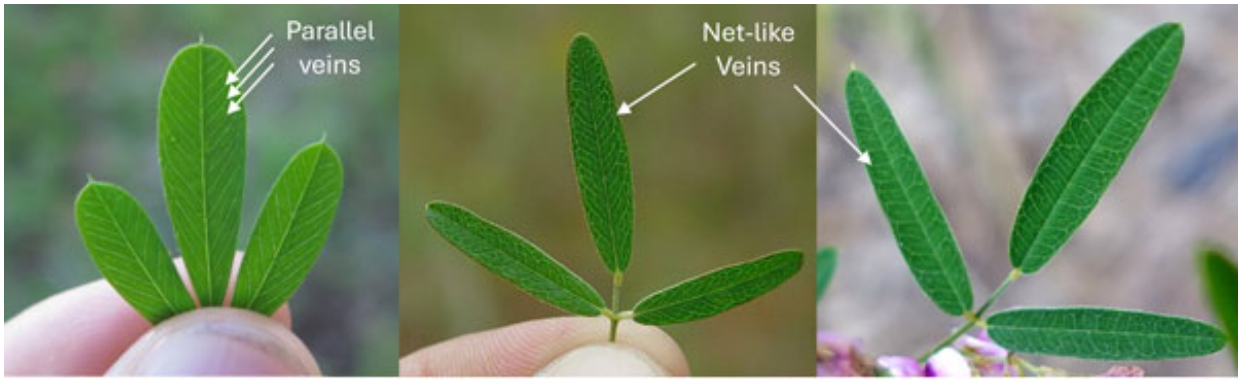

Figure 2. Trifoliate leaves of sericea (left) and two native lespedezas commonly confused with this species, round-head bush clover (Lespedeza capitata, center) and slender leaf bush clover (Lespedeza virginica, right). Note that sericea has parallel veins while native lespedeza species have "net-like" or looping leaf venation, which can help distinguish between these species, especially in the early stages of growth. Photo credits: Hamilton Native Outpost (left), D.E. Tenaglia/Missouri Plants (center), and Peter Friedman/Wildflowers of the National Capital Region (right).

Figure 3. Sericea leaves, stems, and flowers. Photo credit: Mike Haddock/Kansas Wildflowers & Grasses.

Management

Different combinations of **prescribed burning, grazing, mowing, and herbicide application** can be used in conjunction to defoliate mature plants, reduce the seed set of established plants, and deplete the existing bank of sericea seeds. Although cattle are not effective grazers of sericea, goats are able to digest sericea and have been shown to readily consume its foliage. If hay is cut before sericea buds, cattle have been reported to readily consume sericea as hay.

Prescribed fire followed by herbicide application to target new seedlings can help deplete the existing seed bank rather than support sericea recruitment from fire alone. Defoliation treatments, such as mowing, burning, or grazing, can also be used in late summer to prevent seed set in existing plants, which typically occurs in late September or October. If an early intensive stocking method is used with cattle, consider following up with herbicide application approximately 6 weeks following destocking to treat sericea if it is still actively growing.

Most management strategies for controlling sericea usually include some use of herbicides. The two

herbicides most commonly recommended for sericea lespedeza control are triclopyr (Remedy, PastureGard, and others) and metsulfuron (Escort and others). Herbicides containing triclopyr generally provide greater control when applied in early summer, before bloom. Remedy Ultra can be applied at 1 to 2 pints per acre, and PastureGard can be applied at 0.75 to 1.5 pt/acre. In late summer, Escort can be applied at 0.5 to 1 oz/acre prior to seed set.

Consider taking an integrated approach by combining herbicide application with other management methods at least every two to four years to increase the likelihood of successful sericea control.

The use of trade names is for clarity to readers and does not imply endorsement of a particular product, nor does exclusion imply non-approval. Always consult the herbicide label for the most current use requirements.

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5. Late-season Tar Spot update: Why scouting still matters

Tar spot of corn, a disease caused by the fungus *Phyllachora maydis*, has now been confirmed in Doniphan (6/11), Brown (6/17), Jefferson (6/25), Atchison (7/2), Jackson (7/15), Republic (7/7), Marshall (7/9), Washington (7/25), Lincoln (10/10), and Smith (10/16) counties (Figure 1). Tar spot was first detected in Kansas in 2022, late in the season (9/15/2022).

Prior to harvest, it is crucial to identify fields with tar spot, as these locations may be at a higher risk for the disease next year. Producers should consider selecting hybrids tolerant to tar spot disease for the 2026 corn season.

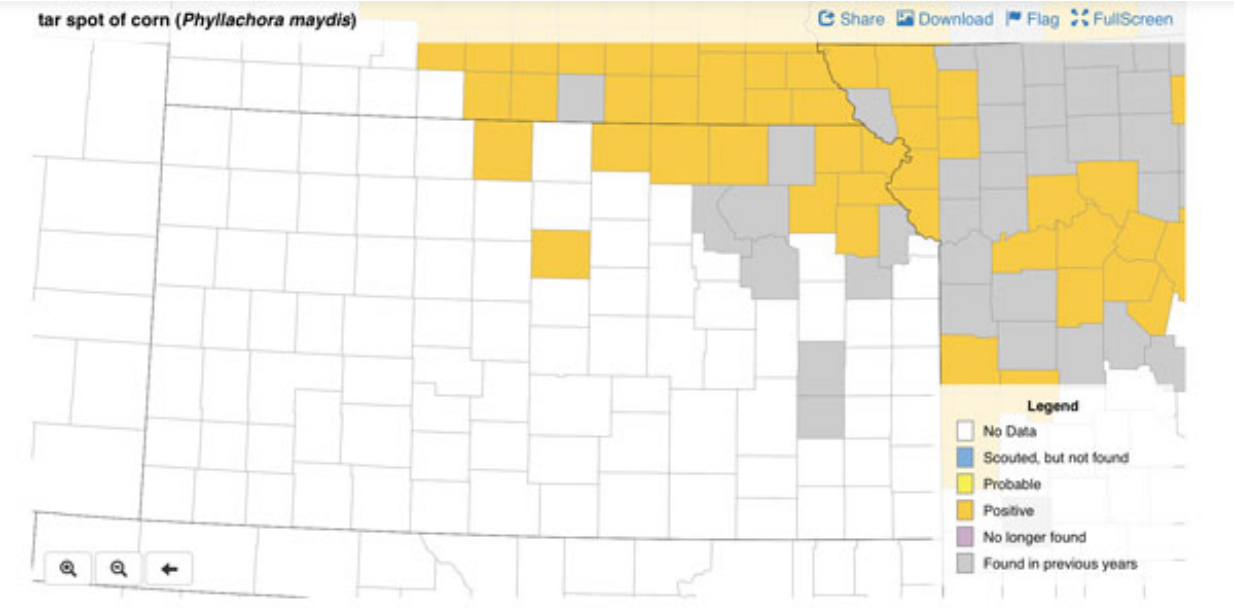

Figure 1. Tar Spot of Corn (Phyllachora maydis**) in Kansas and border counties as of October 16, 2025. Source:** https://kscorn.com/corndisease/#TarSpotMap

What am I scouting for?

Tar spot develops as small, black, raised spots (circular or oval) on infected plants, which may appear on one or both sides of the leaves, leaf sheaths, and husks. Spots may be found on healthy (green) and dying (brown) tissue. Tar spot can be easily confused with insect poop, which can appear as black spots on the leaf's surface **(**Figure 2**)**. For assistance in confirming tar spot, please contact your local county extension office or the K-State Plant Disease Diagnostic Lab at https://www.plantpath.k-state.edu/extension/plant-disease-diagnostic-lab/.

Figure 2. Tar Spot of Corn. Purple arrows are indicating a few of the tar spot lesions. Photos courtesy of Rodrigo Onofre, Department of Plant Pathology, K-State Research and Extension.

Is there a history of disease in this field or neighboring fields?

Tar spot overwinters on infested corn residue on the soil surface, which serves as a source of inoculum for the subsequent growing season. Spores can be dispersed by wind and rain splash and can move to nearby fields if conditions are favorable.

Help track tar spot in Kansas

Please help us track tar spot. You can contact me (785-477-0171) directly if you suspect a field has tar spot and/or submit a sample to the K-State Plant Disease Diagnostic Lab at https://www.plantpath.k-state.edu/extension/diagnostic-lab/documents/2021_PP_DiseaseLabChecksheet.pdf.pdf. This will help us monitor the situation in the state.

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6. Aspergillus ear mold in corn: Identification and testing

Aspergillus ear mold is favored by hot and dry conditions. While many areas of Kansas received above-average rainfall this growing season, select regions missed much of that precipitation. These localized drought-stressed fields are at greater risk for Aspergillus ear mold development. Aspergillus can produce aflatoxin, a known carcinogen that is highly regulated by the Food and Drug Administration (FDA).

Identifying Aspergillus ear mold

On the ear, colonies of *Aspergillus flavus* are a greenish-yellow, dime- to quarter-sized mold that grows between the kernels. In severe cases, the mold may cover much larger portions of the ear (Figure 1). Often, there is little correlation between the percentage of moldy ears in a field and the actual level of aflatoxin. Corn that dries down rapidly may accumulate less toxin, and some field strains are poor producers of aflatoxin. On the other hand, strains that produce copious amounts of aflatoxin may need to be present on a relatively low percentage of ears to cause problems at the elevator.

Figure 1. Aspergillus ear rot colony. Photo by Doug Jardine, K-State Research and Extension.

Figure 2. Severe case of Aspergillus ear rot. Photo by Doug Jardine, K-State Research and Extension.

Testing and grain acceptance

Most elevators now use one of several commercial quantitative tests that can be performed in a very short time period right at the point of delivery, rather than using the outdated black light method. Samples testing at less than 100 parts per billion (ppb) are usually accepted without penalty. Levels exceeding 100 ppb may be docked a percentage or not accepted at all.

The FDA has established 20 ppb or higher as the level deemed unsafe for human consumption. However, buyers of corn for human or pet consumption typically have much more stringent standards and may require levels to be 10 ppb or lower. Ethanol plants may also refuse aflatoxin-contaminated grain since the toxin is heat-stable and can concentrate as much as three- to four-fold in the distiller's grains. Aflatoxin-contaminated corn at any level should not be fed to lactating dairy cows because it can be passed through to the milk.

Feeding guidelines by aflatoxin level

- **20-100 ppb**: suitable for breeding cattle, swine, and mature poultry
- **100-200 ppb**: limited to finishing swine over 100 lbs and beef cattle
- **200-300 ppb**: finished beef cattle only
- **>300 ppb**: Cannot be used as feed unless cleaned or blended to safe levels

Blended corn can only be used for direct feeding on the farm where it is blended. It cannot be sold

unless a specific blending exemption from the FDA is granted, such as occurred during the 2012 outbreak.

Silage concerns and testing information

Drought-stressed corn harvested for silage may also contain aflatoxin. Producers wishing to have silage tested for aflatoxin can do so through the Kansas State Veterinary Diagnostic Laboratory.

The Toxicology submission form is available at: https://www.ksvdl.org/docs/submission-forms/Toxicology-Submission-Form.pdf . Information on sample submission and pricing is available at https://vetview2.vet.k-state.edu/LabPortal/catalog/show/4231490 for information on pricing and sample submission.

Post-harvest management and storage

Once the fungus is detected in grain, the affected corn should be separated from "sound" corn, and extra care should be used in cleaning bins that held contaminated corn.

Producers can reduce the incidence of aflatoxin and other mycotoxins after harvest by taking the following precautions:

- Harvest when moisture content allows minimum kernel damage (24 to 26 percent).
- Adjust equipment for minimum kernel damage and maximum cleaning.
- Dry shelled grain to at least 15 percent moisture, 24 to 48 hours after harvest.
- Dry grain to below 13 percent moisture for long-term storage.
- Cool the grain as quickly as possible after drying to 35 to 40 degrees F, realizing that with current weather conditions, this is not feasible.
- Aerate and test for "hot spots" at one- to four-week intervals during the storage period.

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7. Still waiting: Kansas remains freeze-free in mid-October

Shorter days, longer nights, and cooler weather: these are all inevitable events that occur every fall. Another fall event is the first frost that marks the end of the growing season. Northwest Kansas typically observes the state's first freeze in early October, but it has happened earlier during September. However, the first freeze is running behind schedule this year; it has yet to occur anywhere in the state as of October 15. The coldest temperature recorded by the Kansas Mesonet this fall is 39.8°F, recorded at the Sheridan County site near Seguin on October 8 (Figure 1). Most locations have dipped into the 40s at least once, but there are a few spots in southern Kansas that have yet to reach a temperature below 50. How unusual is this fall's lack of chilly air?

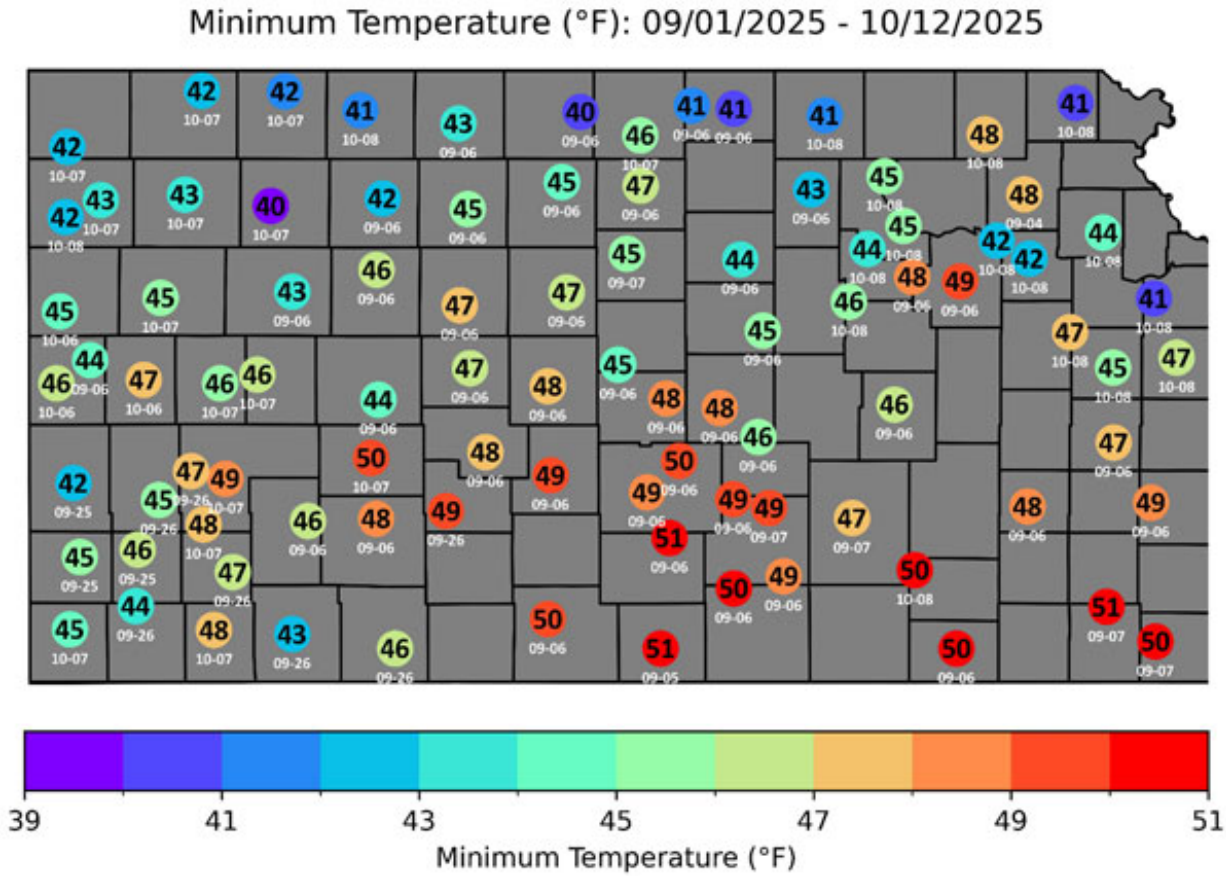

Figure 1. Coolest temperature recorded across the Kansas Mesonet this fall, through October 12th. Plotted dates indicate the date (in MM-YY format) that the coolest readings were observed.

Warm start to October

Figure 2 shows the average date of the first low in the 30s across Kansas. Most of the state should already have fallen into the 30s at least once by now. Instead, we have had an extended period of unseasonably warm weather. In the past five weeks, the average daily temperature across the Kansas Mesonet has been below normal just three times: September 18, and October 6 and 7.

The average temperature in Kansas for the first 15 days of October is 68.4°F, or 8.9° above normal. A few individual locations are more than 10° above normal (Figure 3). If we finish October at the current +8.9° departure, October 2025 will rank as the second warmest on record, behind only 1963. That year, the average monthly temperature was 65.5°, 9.3° above normal. In terms of departures, we are slightly behind 1963's mark, but with respect to average temperature, we are nearly 3 degrees ahead of the current record.

It's unlikely that October will finish at or above the current average temperature of 68.4°F, as we are in a period during which average temperatures are steadily decreasing, and highs in the 80s will become less likely with each passing day. The significance of an average temperature this warm is that the month of October has averaged at or above 60 degrees only ten times in 131 years, dating back to 1895 (Source: National Centers for Environmental Information). We are well above that mark now, so much so that the second half of October could cool down to near normal, and the month would still finish above the 60-degree mark. The question is how far above 60 we end up, and how high October 2025 will ultimately rank. It's worth noting that October 2024 was also very warm. Last October was the fourth warmest on record, with an average temperature of 62.5°, a departure from normal of +6.3 degrees.

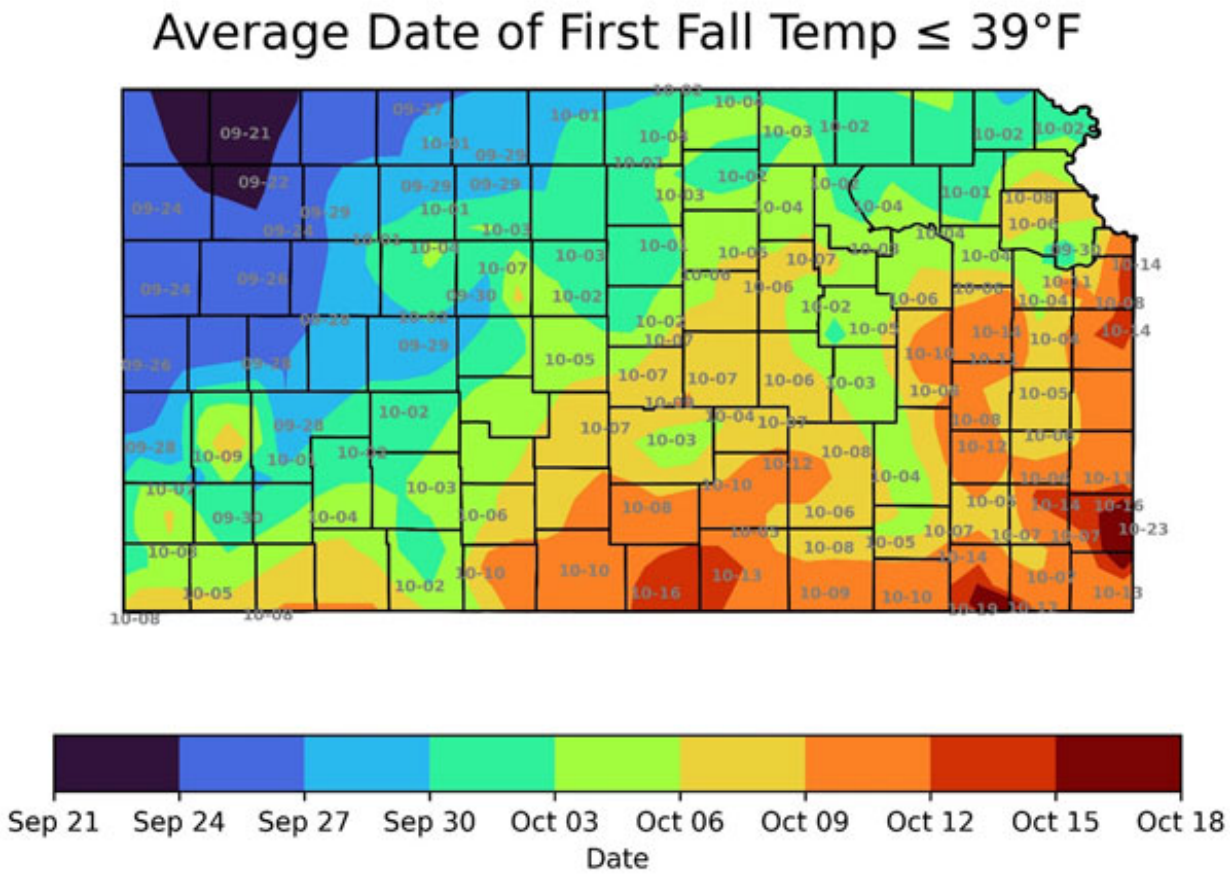

Figure 2. Average date of the first low temperature of 39 degrees or colder, based on data from 1991-2020. Plotted dates indicate the average date (in MM-YY format) at various locations around Kansas. (Data source: SC-ACIS)

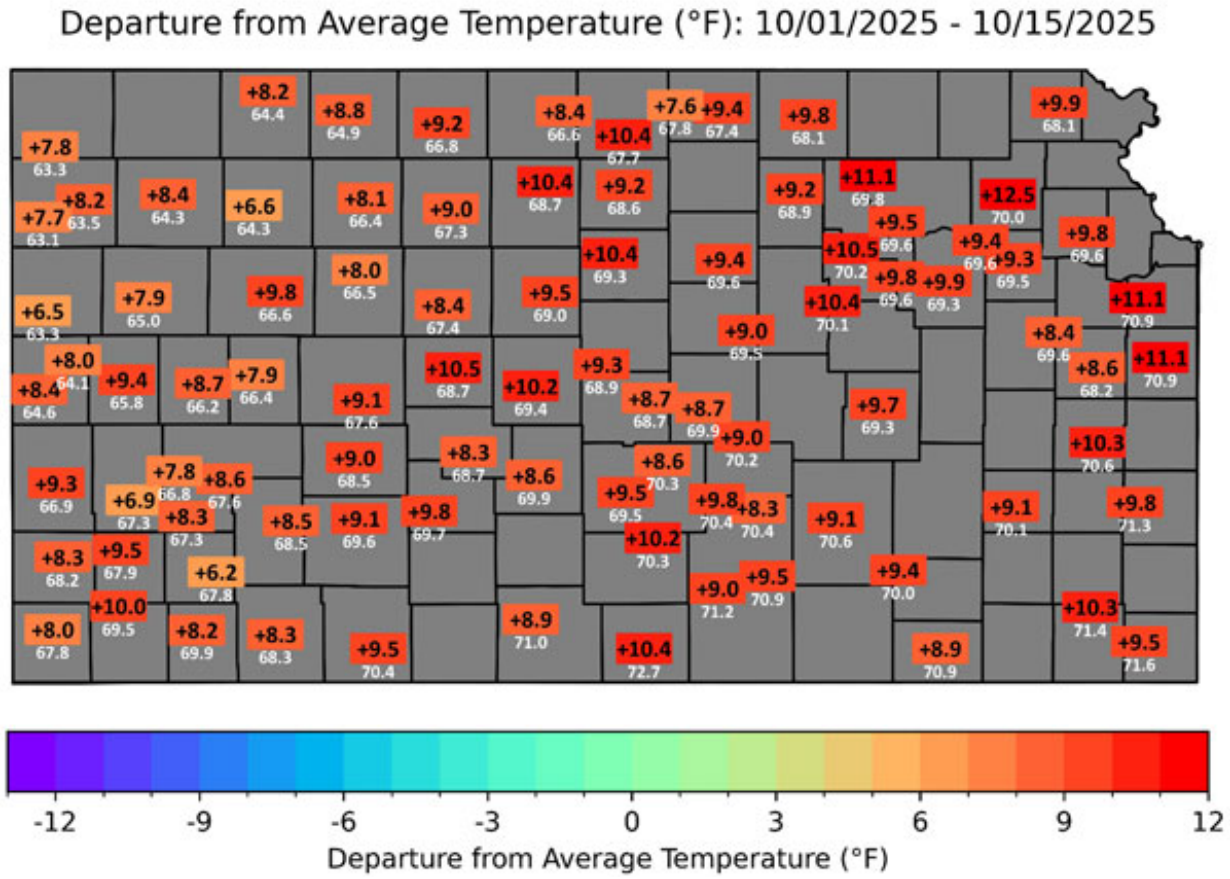

Figure 3. Departures from normal of average temperatures across the Kansas Mesonet for the period October 1-15, 2025. The white numbers below the rectangles are the average temperature for the same period.

How late is this year's freeze?

A low in the upper 30s is not something to be concerned about, as frost is unlikely until temperatures fall into the mid-30s. A first freeze, on the other hand, is of greater concern as it typically signals the end of the growing season. Figure 4 shows the average date of the first freeze across Kansas. In far northwestern Kansas, the average date has already passed, and the region remains free of a freeze, along with the rest of the state. We are approaching the current record for the latest first freeze in Kansas.

In the Mesonet era, the latest first freeze was on October 22, 2008, when Colby (31.8°), Garden City (31.3°), and Tribune (29.7°) all fell below freezing for the first time that fall. We still have a few days to go to set a new record, but we're already in 2nd place for the latest first freeze in the 40-year history of the Kansas Mesonet by virtue of having made it to October 15 without one. If you're wondering when the earliest freeze was in Mesonet history, it happened five years ago. It was on September 8, 2020, and was by the narrowest of margins, when Wallace dipped to 31.9°. The next earliest freeze

record is September 13, 2014.

At this point, it's impossible to determine whether a few intrusions of colder air will be necessary to achieve a freeze at all locations or if one significant push of cold air will be sufficient. Some years, that first push of cold air is sufficiently chilly to plunge the entire state to below freezing, but it's more common to see a freeze in the northwest first and in the southeast later in the fall.

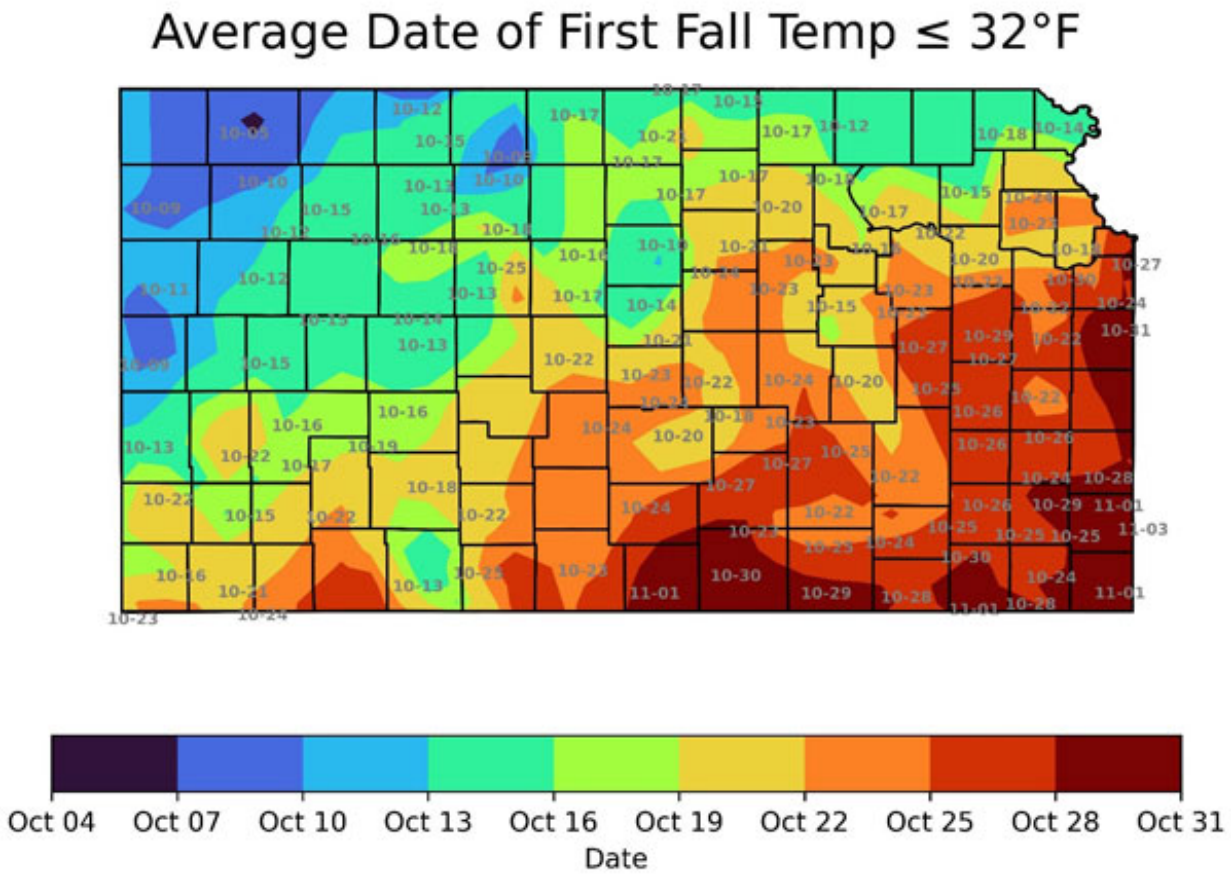

Figure 4. Average date of the first freeze, based on data from 1991-2020. Plotted dates indicate the average date (in MM-YY format) at various locations around Kansas. (Data source: SC-ACIS)

Comparing to previous years

In 2024, the first fall freeze was on October 4 at the Cheyenne County site southwest of St. Francis. Most locations recorded a freeze by mid-month, with temperatures as low as 18° at the Phillipsburg Mesonet site on the morning of October 16. The average low that morning across the state was 27°. It warmed up after that, and it was another four weeks before the second sub-freezing average low occurred (30° on November 14). Even then, it took until November 21 for every site to record its first freeze (Corning and Konza Prairie were the last holdouts). The takeaway is that an above-normal month doesn't always mean a late freeze.

Looking ahead

There is no way to know at this point exactly how this fall will play out in terms of first and last freezes, but in the short term, the 8- to 14-day outlook favors above-normal temperatures statewide (Figure 5). It appears that we will approach that record late date and possibly set a new record, but there will be a cooldown this coming weekend, and parts of northwest Kansas have a chance of falling close to freezing. A first frost is a possibility in these areas. Even if this happens, it may not be until November before everyone sees a freeze, similar to what happened last year.

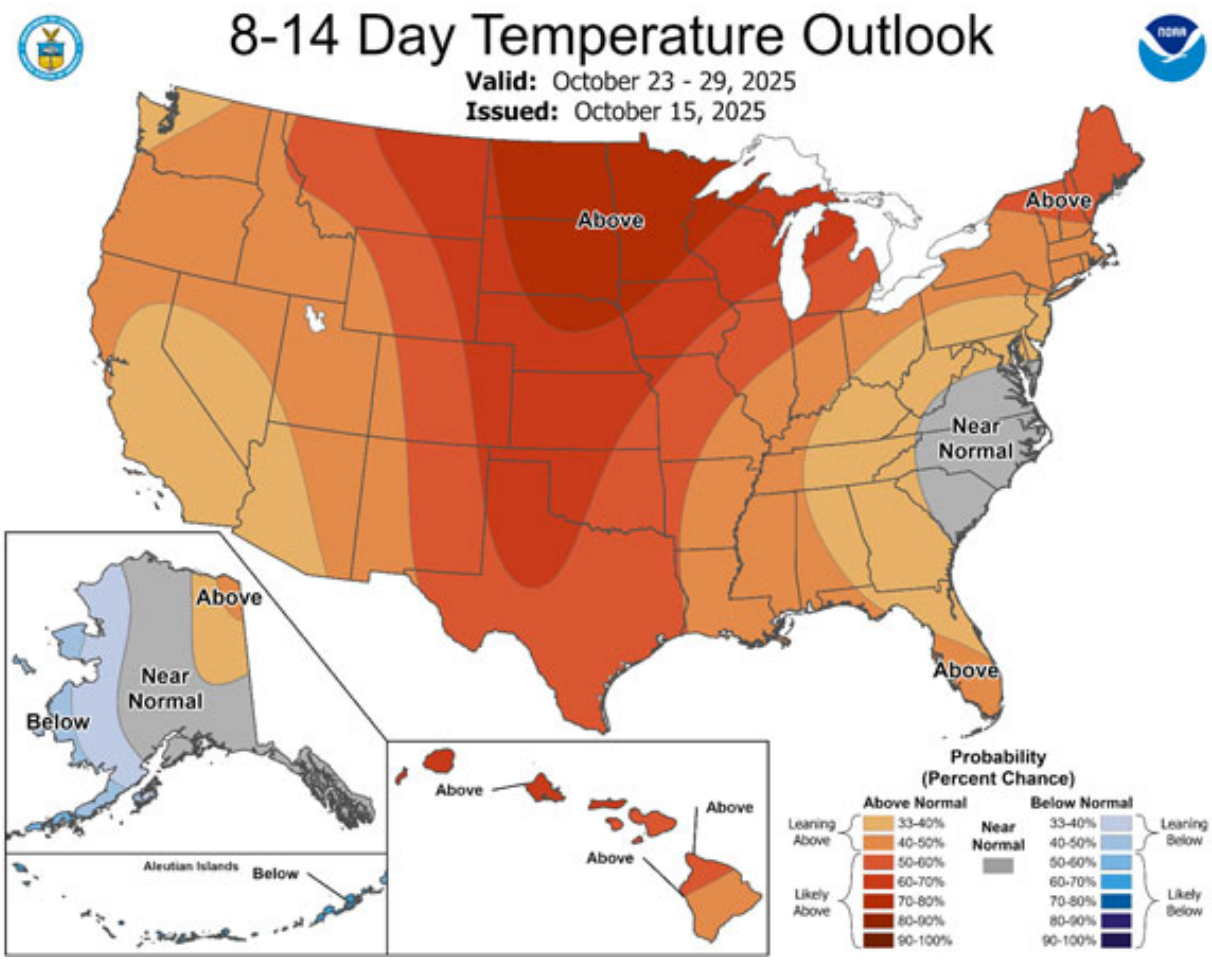

Figure 5. The Climate Prediction Center's 8 to 14-day temperature outlook, valid for the period October 21-25.

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8. Kansas Forage Conference set for Nov. 5 in Garden City

Kansas State University will host the Kansas Forage Conference on Wednesday, Nov. 5, at the K-State Southwest Research-Extension Center in Garden City. This one-day event brings together researchers, producers, and industry experts to share the latest insights on managing forage in limited-water environments.

The conference runs from 8:30 a.m. to 4 p.m. and is free to attend. Sessions will feature fast-paced, practical updates on forage management, soil health, fertility, risk protection, and marketing, along with time for Q&A and peer discussion. Lunch is provided, courtesy of sponsors High Plains Farm Credit, American AgCredit, and the Kansas Forage and Grassland Council.

Forage is a vital part of Kansas agriculture. In 2022, Kansas produced more than 5 million tons of hay, ranking third among all states. Forage contributes over $536 million annually to the state's economy. According to the Kansas Department of Agriculture, forage production supports nearly 6,700 jobs and generates $546.9 million in economic output across the state.

Summer annual forages, such as forage sorghum, sudangrass, triticale, and wheat, are particularly valuable in the High Plains due to their drought tolerance and flexibility for grazing, hay, or silage production. Some hybrids can be ready to graze within four to six weeks of planting, providing a timely feed source during hot, dry summers.

Conference sessions include:

- Annual forage economics — John Holman, K-State cropping systems agronomist
- Soil impacts of haying, grazing, and cover crops — Augustine Obour, K-State soil scientist
- Managing prussic acid in forages — Scott Staggenborg, seed and product development consultant
- Alfalfa profitability update — Romulo Lollato, K-State extension wheat and forages specialist
- Forage fertility management — Logan Simon, K-State southwest area agronomist
- Insurance and price protection tools — Jenny Ifft, Flinchbaugh Agricultural Policy chair
- Invasive grass management — Keith Harmoney, K-State range scientist
- Plus, additional sessions on summer legumes, silage quality, and a Kansas Livestock Association industry update.

Event details

Date: Nov. 5, 2025
Time: 8:30 a.m.–4 p.m. (Registration 8:30–8:55 a.m.; program starts 8:55 a.m.)
Location: K-State Southwest Research-Extension Center, 4500 E. Mary St., Garden City, KS 67846
Cost: Free; lunch provided

Registration: Online form - https://kstate.qualtrics.com/jfe/form/SV_82McOxQB89lxRFs
Registration is not required, but is requested for an accurate meal count.

For more information, please visit the event link at:
https://www.wkrec.org/events/forage_conference/western_kansas_forage_conference.html

John Holman, Cropping Systems Agronomist
jholman@ksu.edu

PRACTICAL, RESEARCH-BACKED INFORMATION FOR PRODUCERS

Join us for a one-day, producer-focused workshop covering annual forage systems, alfalfa profitability, prussic acid management, fertility, insurance, marketing, and more. Sessions are fast-paced with time for Q&A and peer discussion. Ground your decisions in high-quality, unbiased research you can trust for the seasons ahead.

RSVP REQUESTED BUT NOT REQUIRED
SCAN HERE

AGENDA

- **8:30 am** – Registration
- **8:50 am** – Welcome and Introductions
- **9:00 am** – Haying and Grazing Annual Forages and Associated Economics—John Holman
- **9:30 am** – Impact of Haying and Grazing Forage Cover Crops on Soils— Augustine Obour
- **10:00 am** – Managing Prussic Acid in Forages — Scott Staggenborg
- **10:30 am** – Break & Discussion
- **10:45 am** – Management Practices for High-Yielding and Profitable Alfalfa— Romulo Lollato
- **11:15 am** – Summer Legume Forage Alternatives — Nick Detter
- **11:45 am** – Forage Fertility Management —Logan Simon
- **12:15 pm** – Lunch, Discussion & Sponsor Highlights
- **1:00 pm** – KLA Livestock Industry Update— Clayton Huseman
- **1:30 pm** – Seeding Rate Recommendations for Summer Annual Forage Hay— Nick Detter
- **2:00 pm** – Managing Pesky Native Plants: Silver Bluestem and Western Ragweed— Keith Harmoney
- **2:30 pm** – Forage Insurance Options— Jenny Ifft
- **3:00 pm** – Livestock Price Protection Options (LRP and More)— Jenny Ifft
- **3:30 pm** – Wrap-Up & Discussion

FOR MORE INFORMATION
awood22@ksu.edu
www.wkrec.org/events

Kansas State University is committed to making its services, activities and programs accessible to all participants. If you have special requirements due to a physical, vision, or hearing disability, contact Kelsey Stremel, WKREC. Kansas State University Agricultural Experiment Station and Cooperative Extension Service K-State Research and Extension is an equal opportunity provider and employer

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