Issue 1097

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eUpdate

04/02/2026

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. Rising Nitrogen Fertilizer Prices: Management Options for Corn and Sorghum

Nitrogen (N) fertilizer has risen dramatically this spring. A majority of N fertilizers are made from natural gas, traded globally, and subject to disruptions in shipping routes. Thus, the situation in the Straight of Hormuz has tightened the global supply of both natural gas and ammonia. For farmers who are already dealing with tight margins, it's even more important to make the most of N fertilizer applications. Wheat has likely been topdressed, and cool-season forages have received their applications, leaving warm-season crops of corn and sorghum (grain and forage) feeling the brunt of the price rises.

Key Strategies to Reduce Costs

1. Credit All Nitrogen Sources

Be sure to account for:

- **Residual soil nitrate** through proper soil testing procedures (0 to 24-inch soil samples). This is especially important in areas where soil nitrate is not prone to leaching and in low-yielding or drought-stressed fields from the previous growing season. Grain sorghum is particularly efficient at using residual soil N in the profile. A profile soil nitrate test is a low-cost ($12-15) way to make the biggest impact on reducing N application.
- **Previous legume crops**
- **Soil organic matter content**
- **Manure applications**: on average across manure types, 50% of the N is available the first year, 30% the second, and the final 20% the third year after application.
- **Irrigation water**

Detailed information on how to adjust N rate recommendations is available in the K-State Extension publication "Soil Test Interpretations and Fertilizer Recommendations in Kansas": https://bookstore.ksre.ksu.edu/pubs/soil-test-interpretations-and-fertilizer-recommendations_MF2586.pdf

For more information about soil sampling guidelines and sample submission to K-State's Soil Testing Laboratory: https://www.agronomy.k-state.edu/outreach-and-services/soil-testing-lab/

2. Review and Refine Yield Goals

Nitrogen fertilizer recommendations should be based on realistic yield expectations, given the weather outlook, current soil water status, crop rotation, soil productivity, and management history. Nitrogen recommendations based on a "yield goal" that reflects the very upper end of probability will most likely result in overapplication of N and thus excess costs for the producer.

The K-State Fertilizer Recommendations Excel Workbook is a good resource that lets you enter your soil test information and different yield goals to better understand differences in fertilizer rates based on those goals. This Excel spreadsheet can be downloaded here: https://www.agronomy.k-state.edu/outreach-and-services/soil-testing-lab/recommendations.html

3. Fertilizer Application Practices

Split N applications. Using delayed or split nitrogen applications on irrigated fields, particularly on sandy soils, often improves nitrogen use efficiency by reducing the potential for loss. Use remote sensing to support in-season N decisions**,** particularly for corn. Applying closer to when the plant needs it helps with the use efficiency – i.e., corn in the V6 to R2 stages. Fertigation of nitrogen is a very efficient way to "spoon-feed" nitrogen requirements in season and also allows for adjustment if yield potential changes in either direction.

Fertilizer placement. In high-residue systems, such as no-till, placing fertilizer nitrogen below the residue or dribbling nitrogen solution in concentrated bands on the soil surface can improve nitrogen use efficiency by reducing N loss.

For grain sorghum, a recent K-State study in Hays found that subsurface application of 60 lb/acre urea produced yields comparable to broadcast applications of about 85 lb N/acre, resulting in a 25 lb N/acre savings when N loss was minimized with placement below the surface.

Nitrogen stabilizers. These products don't increase N supply, but they can reduce the amount of applied N that is lost before crop uptake. Think of these products as an N-loss insurance policy in situations where the risk of loss could be high.

- **Urease inhibitors** mitigate the conversion of urea to ammonia, leading to a loss of available N through ammonia volatilization. These are most effective when urea or UAN is surface-applied without incorporation, on fields with high residue levels (no-till or reduced-till), when temperatures are warm soon after application, and if there is no subsequent rainfall event to move the fertilizer into the soil following application.
- **Nitrification inhibitors** slow the conversion of ammonium to nitrate, helping reduce N loss through denitrification. These are most helpful in areas prone to denitrification, such as fine-textured soils and poorly drained areas. Eastern Kansas is typically at greater risk of denitrification than western Kansas.

Variable rate nitrogen. Fields with significant variability in soil texture, organic matter, or yield history are often good candidates for variable rate N applications.

Fertilizer Price Outlook for 2026

A recent article by K-State Agricultural Economist Gregg Ibendahl provides more information on the fertilizer price outlook as spring planting has begun in Kansas: https://agmanager.info/production-economics/prices-and-price-forecasts/fertilizer-price-outlook-2026. Visit the AgManager.info website for related articles as well.

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2. Starter Fertilizer for Corn – Nitrogen Placement and Rate

Starter fertilizer is typically applied at a low rate of nitrogen (N) and phosphorus (P) near the seed at planting time. This fertilizer is intended to "jump start" growth in the spring, and it is not unusual for a producer to see an early-season growth response to starter fertilizer application. However, some producers might also consider using this opportunity to apply higher fertilizer rates to meet most of the corn crop's N and P needs.

Producers should be very cautious about applying starter fertilizer that includes high rates of N (and/or K). It is best to have some soil separation between the starter fertilizer and the seed. The safest placement methods for starter fertilizer are either as a deep-band application 2 to 3 inches to the side and 2 to 3 inches below the soil surface (2x2) or as a surface-band application to the side of the seed row at planting time (2x0), especially in conventional tillage or where farmers are using row cleaners or trash movers in no-till (Figure 1).

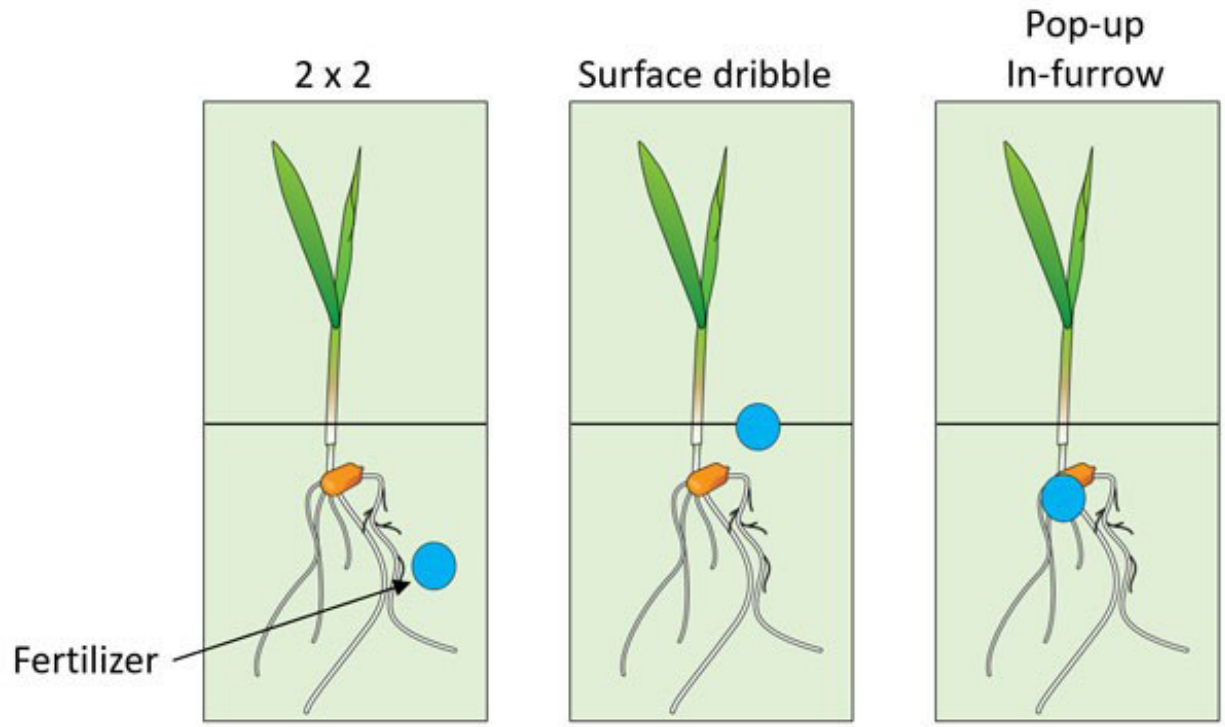

Figure 1. Example illustrations of starter fertilizer placement with respect to the corn plant. Graphic by Dorivar Ruiz Diaz, K-State Extension.

What are the risks with "pop-up" placement?

If producers apply starter fertilizer with the corn seed ("pop-up" in-furrow), they run an increased risk of seed injury when applying more than 6 to 8 pounds per acre of N and K_2O combined in direct seed contact on a 30-inch row spacing (Table 1). Nitrogen fertilizer can result in salt injury. Urea-containing fertilizers can also result in ammonia toxicity. Urea converts to ammonia, which is very toxic to seedlings and can significantly reduce final stands (Figure 2).

What is a "salt"?

"Salts" are ionic compounds that result from the neutralization reaction of an acid and base. Most fertilizers are soluble salts (e.g., KCl from K+ and Cl- ions). Salt injury can occur when fertilizer addition increases the osmotic pressure in the soil solution (due to an increase in salt concentration) around the germinating seed and roots. This can cause *plasmolysis*, which is when water moves out of the plant cell, shrinking cell membranes and collapsing the cell. Symptoms of salt damage are short, discolored roots and a reduced corn population.

Figure 2. Symptoms of ammonia toxicity from urea-containing fertilizers placed too close to the seed. Photos by Dorivar Ruiz Diaz, K-State Extension.

Table 1. Suggested maximum rates of fertilizer to be applied directly with corn seed for "pop-up" fertilizer.

	Pounds N + K_2O (No urea or UAN)	
Row Spacing (inches)	**Medium-to-fine textured soil**	**Sandy soil**
40	6	4
30	8	6
20	12	8

N rates with 2x2 placement or "surface dribble"

Starter fertilizer placements, such as 2x2 or surface dribble (2x0), provide enough soil between the

fertilizer and the seed and are considered safe alternatives for higher rates of N application. Recent studies in Kansas suggest that the full rate of N can be applied safely using these placement options. One concern from some producers is related to the additional time demands for the application of high rates of fertilizer during planting. However, from an agronomic perspective, this can be an excellent time for N application, minimizing potential N "tie-up" and providing available N to the corn, particularly under no-till systems with heavy residue.

Take-home message

Producers can apply most of the corn needs at planting as long as the fertilizer placement provides enough soil separation between the fertilizer and the seed. The best options are the 2x2 placement or surface-dribble, with similar results in terms of crop response. Nitrogen applications with these starter fertilizer options can provide an excellent alternative for producers who might not have the opportunity for anhydrous ammonia applications this spring or are planning to apply additional N as a side-dress application.

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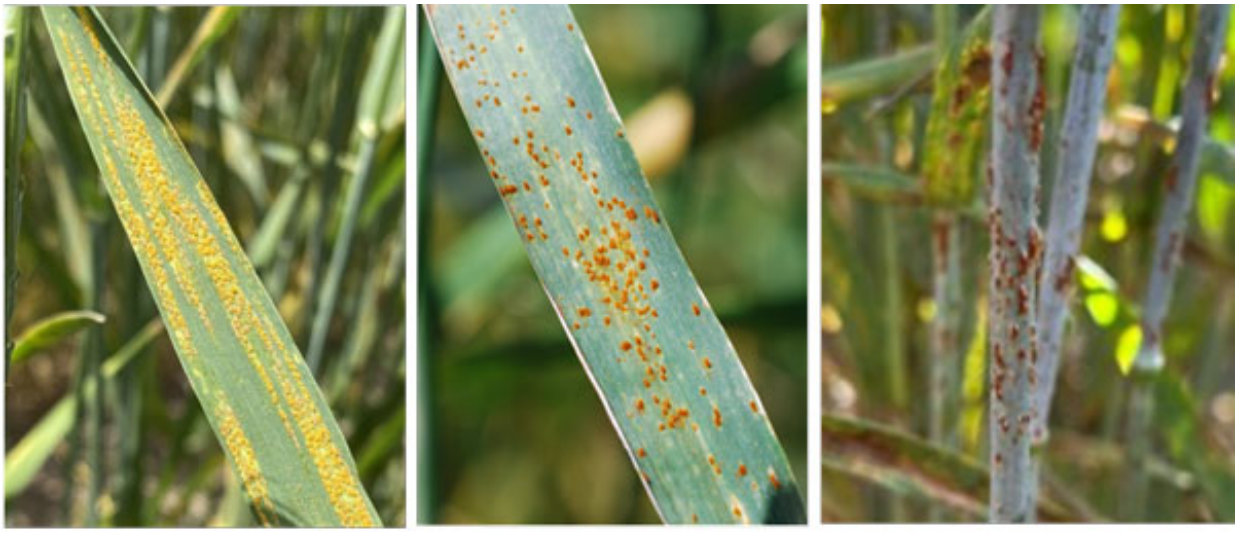
3. Wheat Rust Outlook and Reminders for the 2026 Season

Our Kansas wheat crop is threatened each year by three wheat rusts: **stripe rust, leaf rust, and stem rust**. These rusts can usually be distinguished based on their color and the pattern of infection on wheat leaves and stems (Figure 1). Over the last several years, stripe rust has been the biggest concern for the state. This year, it appears we should pay closer attention to leaf rust, which has built to high levels in Texas and may have overwintered (survived the winter) in parts of Kansas. So far, dry weather across Kansas is likely slowing down our risk. If conditions turn warm and wet, the risk may increase.

Now is a good time to remind ourselves how our varieties respond to leaf rust (https://bookstore.ksre.ksu.edu/pubs/kansas-wheat-variety-guide-2025_MF991.pdf). Varieties rated 5 or higher should be scouted more closely as they enter the later stages of development. Fungicides are generally not recommended until rusts have been reported in the state or are active in or near a field. It will be critical to continue scouting for these rusts in Kansas over the next several weeks to fully understand the risk. In this article, we will walk through some of the factors to consider for this season.



A. Stripe rust *Puccinia striiformis f. sp. tritici*

B. Leaf rust *Puccinia triticina*

C. Stem rust *P. graminis f. sp. tritici*

Figure 1. Classic symptoms of stripe (A), leaf (B), and stem (C) rust. If you run your finger over these rusts, the spores will "wipe off" turning your hands (or boots) orange. Photos courtesy of Kesley Andersen Onofre and Erick DeWolf, Kansas State University.

Leaf Rust Risk

Leaf rust (Figure 1b) is a regular threat to the wheat crop in Kansas, though it has arrived late in the season over the last several years, limiting its impact. As a reminder, leaf rust thrives under warm, wet conditions (while stripe rust does better in cooler temps).

This past fall, we observed higher-than-normal levels of leaf rust active in the Kansas wheat crop (https://eupdate.agronomy.ksu.edu/article/fall-infections-of-rusts-in-kansas-wheat-675-1). Luckily, most of that leaf rust was killed off over the winter by cold conditions. There is, however, a small chance that leaf rust survived the winter in some of those locations. Fields that had high levels of leaf rust in the fall of 2025 should be carefully scouted in the spring of 2026.

As a reminder, it's more common for our wheat rusts to "migrate" to Kansas from southern each spring. As of this week, Brandon Gerrish, Wheat Extension Specialist with Texas A&M, reported that high levels of leaf rust have been reported in irrigated nurseries in Castroville and Uvalde, TX. Producers have reported significant leaf rust in fields near Brady, TX, in the southern Rolling Plains, and small pockets of leaf rust at the trial site near Greenville, TX. Meriem Aoun, Wheat Pathologist and Extension Specialist at Oklahoma State University, reported that low levels of leaf rust were observed in one Oklahoma county in early January, but there have been no reports since (Read the Oklahoma disease update here: https://extension.okstate.edu/e-pest-alerts/2026/wheat-disease-update-march-2026).

Stripe Rust Risk

Currently, the stripe rust risk for the 2026 season in Kansas appears to be low. We have received reports that stripe rust levels have been low overall in Texas this year. As of today's publication, we have not received any reports of stripe rust in Oklahoma or Kansas. Historically, stripe rust detections in Kansas prior to April 15 have been associated with bad stripe rust years. Scouting efforts over the next few weeks will remain very important for determining the full extent of the risk.

Research from K-State has found that weather conditions in Texas during key periods over the winter are good predictors of how likely it is that stripe rust will be a risk in Kansas in the spring.

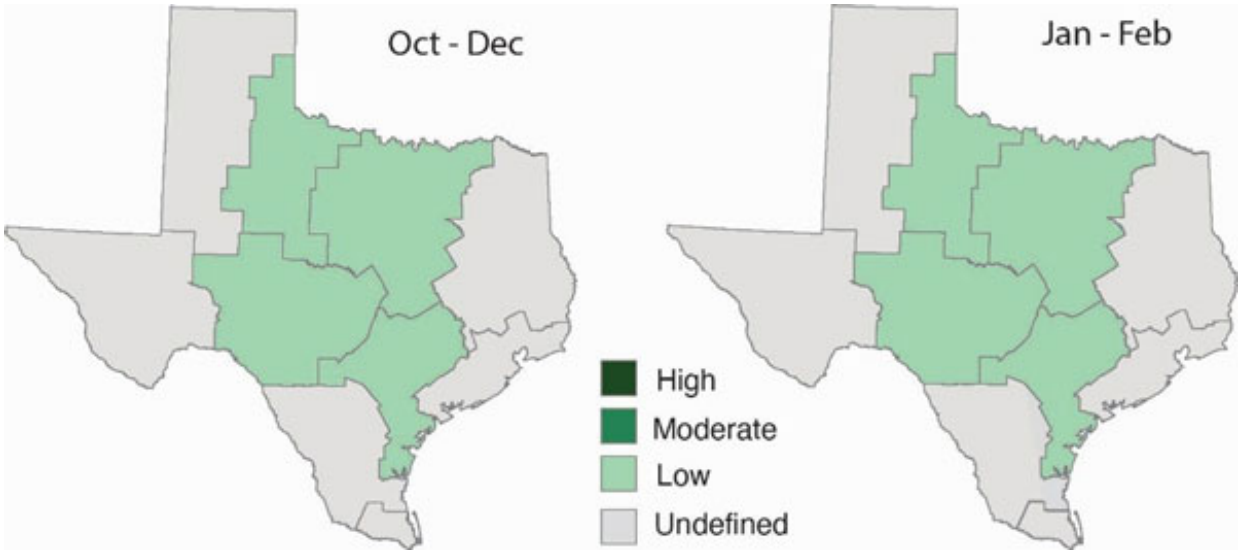


Figure 2. K-State research has shown that the annual severity of stripe rust outbreaks in Kansas can be predicted by soil moisture in key regions of Texas in both the fall and the early spring. In 2025, soil moisture in Texas was low (indicated by light green colors on the map). In the spring of 2026, moisture in key regions of Texas was also low. These maps show soil

moisture levels based on the "Palmer Z-Index" provided by NOAA-National Centers for Environmental Information. Maps courtesy Erick DeWolf, Kansas State University.

The maps above indicate that conditions this fall/winter were dry in parts of Texas that are important for stripe rust overwintering. **Right now, all models indicate that the stripe rust risk is generally low this year.** Historically, years that begin like this have ended with lower-than-average yield losses from this disease in Kansas.

Of course, stripe rust severity in Kansas is still driven by weather conditions in late spring. Once stripe rust is detected in Kansas, cool evenings and extended periods of canopy moisture will be necessary for disease establishment at levels that would result in yield losses.

Stem Rust Risk

Thanks to long-term breeding efforts, stem rust risk has remained low in Kansas over the past decade. It is still important to remember that it can be a problem for susceptible varieties, particularly late in the season, if the weather is conducive. Stem rust can be distinguished from leaf rust based on its ability to fully colonize the stems along with the leaves (Figure 1c). This rust is favored by hot conditions and wet weather. There are a few popular varieties in Kansas that are susceptible to stem rust. As always, scouting should be prioritized in fields with susceptible varieties.

Final Reminders

The disease situation can change rapidly, and it is important to continue to scout for signs of disease development as the season progresses. We will continue to provide updates on rust occurrence and weather outlook as we move toward critical growth stages for fungicide applications in Kansas over the next several weeks.

Again, now is a good time to double-check the resistance of our varieties to wheat rusts at https://bookstore.ksre.ksu.edu/pubs/kansas-wheat-variety-guide-2025_MF991.pdf.

Please contact me (andersenk@ksu.edu, m: 785-410-2426) if you detect stripe rust in Kansas so we can update regional maps.

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4. Considerations to Improve Hay Quality

A new growing season means another opportunity to do a better job in making hay, even when springs tend to be busy. The busy springtime often lowers the priority of hay fields due to the long list of tasks in row cropping and livestock operations. When everything else takes priority, the hay becomes moderate to lower quality with lower palatability and more waste, and potentially sets our forage stands back. Here are some practical considerations to improve hay quality that could reduce supplemental feed needs, maintain animal condition, and increase stand longevity.

Correct Maturity

The single most important factor affecting forage quality is maturity at cutting time. Springtime means rapid growth, especially in cool-season grasses when moisture and fertility are adequate. Harvesting high-quality hay starts with cutting at an earlier growth stage compared to letting it grow out for more biomass. Grass forages decrease in palatability and nutritional value as they mature, meaning more forage is not always better for the overall animal feeding program. The cutting stage goal for grasses would be boot stage (seeds apparent in the upper more leaf sheath) and late bud to early bloom in legumes (i.e., alfalfa, clovers, lespedeza). For mixed stands, cutting should be based on grass maturity, as grasses mature earlier than legumes.

Timing Cuts Appropriately

Appropriate harvest timing includes ideal forage maturity and optimal growth based on weather conditions.

First cutting (spring). Completing the first cutting in a timely manner allows adequate regrowth and a good second cutting before the onset of the hot summer months. A nitrogen application following the first harvest can help with this by stimulating forage regrowth. More on overall soil fertility management will be discussed in the next section.

Summer management. Be sure to allow cool-season hayfields to go into the summer with at least 5 to 6 inches of regrowth. This will shade the plant's crown, moderating its temperature and reducing soil moisture loss.

Fall cuttings. Fall hay cuttings should be timed to allow stands enough time to regrow and replenish their carbohydrate reserves prior to winter dormancy.

After a killing frost and late-season considerations. Cutting forages after a killing frost has different results depending on the forage type. Alfalfa should be cut, if there is too much forage to go into the winter, as quickly as possible to mitigate leaf losses that drive nutritive value. Other legumes, such as clover, can cause bloat after a freeze. On the other hand, tall fescue can keep higher nutritive values due to the waxy layer on the leaves. Because of this, tall fescue is often stockpiled for winter grazing.

Soil Fertility

A sound fertility program provides adequate nutrients for the growing plant. In a forage system, this

involves more than simply adding nitrogen, phosphorus, and potassium; it should also include monitoring soil pH, soil compaction, nutrient removal rates, and overall nutrient status. High-yielding hay cuttings remove substantial amounts of nutrients from fields, making a balanced fertility program essential for optimizing hay production. Take the time to soil test and apply nutrients and lime, if needed, based on the soil test results. Avoid using "complete" fertilizers like 19-19-19, as this may not be the best mixture for the field or economically, given rising fertilizer prices. Adequate soil fertility is critical to achieving optimum forage production and quality.

Table 1: The amount of phosphorus (P) and potassium (K) that is removed per ton of forage by type. These values are corrected for yields in the 12% range.

Species	P as P_2O_5	K as K_2O
Alfalfa & Clover	12	60
Bermudagrass	12	40
Bromegrass	12	40
Tall Fescue	12	40
Native Grass	5.4	30

How to Cut

Cut Early: The nonstructural carbohydrate (NSC, or sugar and starch) content of a plant is lowest in the early morning hours prior to sunrise due to plants using carbohydrates throughout the night for respiration in the absence of sugar fixation from photosynthesis. Plants resume photosynthetic processes at sunrise and increase NSC concentrations throughout the day, peaking in the late afternoon. Cutting hay late in the day limits dry down before nightfall and allows NSC concentrations to be the highest. In high precipitation environments (i.e., high humidity), maximizing cutting time should be the highest priority. This hay should be cut in mid-to-late morning, after the dew has dried. This timing allows for drying all day, maximizing sunlight and wind exposure to drop moisture.

Cut Wide: Setting the mower to as wide a swath as possible (i.e., 70% of the cutting area) shortens wilting time by exposing more forage to direct sunlight. This hastens drying time and preserves more digestible dry matter.

Cut High: Avoid cutting hayfields too low. If not properly adjusted, disc mowers can cut very close to the soil surface, causing significant damage to cool-season grass stands. This may be hard in fields that have a rolling topography, but it should not be ignored. Cutting too close to the ground can also introduce soil into the windrows, degrading the hay quality. In legumes, leaving 2 – 3 inches of stubble allows for a better bounce back, while grasses need more growth left due to crown sensitivity. Grasses should have 4 – 6 inches of growth remaining. Not only will this result in improved stand persistence and earlier regrowth, but the stubble will also help to elevate the swath and promote airflow and rapid drying.

Rake, Ted, and Bale at the Correct Moisture

Forage should be tedded or raked above 40% moisture due to pliability and limiting leaf losses that degrade forage quality. This is important to remember in legume and legume-mixed stands where

moisture is below 40%, and tedding leads to rapid leaf losses. Adjust the rake to keep the tines from touching the ground and avoid soil contamination. Using rakes that handle the hay gently or slowing the speed of the rake are also ways to further minimize leaf loss and maintain forage quality.

Aim to bale the forage around 15 to 18% moisture as it inhibits mold growth and heating concerns. While hay that is excessively dry will have greater leaf loss due to leaf shatter, hay that is too wet (above 20% moisture) is prone to excessive heating. The worst-case scenario for high moisture hay is spontaneous combustion. Heated hay has higher concentrations of heat-damaged indigestible protein.

Store Hay Properly

Baled hay requires weather protection to limit losses in quality and quantity. To limit loss, store hay off the ground and undercover when possible. Round bales can shed precipitation, unless heavy rain occurs. However, damage can still occur when hay bales wick moisture up from the ground. Losses during hay storage can accumulate quickly. Hay covers can be in the form of pole barns, tarping, and bale wrap. Each comes at a different cost, experience level, and equipment requirements, but many may see the investment as worth it to minimize hay quality and quantity loss while maintaining palatability for livestock health.

Table 2. A summary of research into forage losses is shown. The data was collected by Iowa State University across 14 different trials.

Storage Type	Cover Status	Dry Matter Lost after 6 months
On bare ground	No cover	27%
On gravel or pallets	No cover	22%
On gravel or pallets	Covered	8%
On bare ground	Covered (tarp)	13%
On bare ground	Covered (wrapped)	13%
On bare ground	Covered (roofed)	5%
Inside a building	Covered (inside)	5%

Key Take□Home Points

- **Harvest timing matters most.** Forage quality declines rapidly as plants mature; cutting at the boot stage for grasses and early bloom for legumes optimizes nutritive value and palatability.
- **Early, well-timed first cuttings set the season.** Timely spring harvest promotes regrowth and improves the potential for additional cuttings before summer stress.
- **Protect regrowth and stand persistence.** Leaving adequate stubble height and allowing sufficient regrowth before summer heat and fall dormancy helps protect plant crowns and carbohydrate reserves.
- **Balanced soil fertility is essential.** High-yielding hay removes substantial nutrients; regular soil testing and targeted fertilizer applications are critical to maintaining productivity and

quality.

- **Harvest practices influence quality.** Cutting wide, avoiding overly short stubble, handling forage at proper moisture levels, and minimizing leaf loss all help preserve digestible nutrients.
- **Proper storage reduces losses.** Storing hay off the ground and under cover dramatically reduces dry matter and quality losses compared to uncovered storage.

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5. Early-Season Alfalfa Insect Update Following Recent Cold Snap

Several alfalfa fields in north central Kansas were sampled over the past few days to assess early-season alfalfa pests, primarily alfalfa weevil and pea aphids, and to evaluate the effects of the cold weather that occurred approximately 10 days ago. All fields were located within 4–5 miles on either side of the I70 corridor.

Field Observations

All sampled fields showed noticeable freeze damage to alfalfa foliage, with an estimated 50–70% of foliage affected (Figure 1). There were lady beetle larvae in all fields, but no pea aphids or any other aphid species were detected (Figure 2). Hopefully, these predaceous larvae will find a few small alfalfa weevil larvae or some other small insects to feed on before they starve. But, as of this week, there were no aphids and very few alfalfa weevil larvae to sustain any beneficials.

Figure 1. Alfalfa freeze damage. Photo by Cody Wyckoff, K-State Extension.

Figure 2. Lady beetle larva. Photo by Cody Wyckoff, K-State Extension.

All alfalfa weevil larvae collected were very small (1st instars) and had not been around long enough to do much damage (Figure 3). Last week's cold weather obviously played havoc with the weevil larvae and the alfalfa foliage. Without precipitation, surviving weevil larvae may concentrate feeding on the limited regrowth that occurs. However, alfalfa weevils are cool-weather insects and do not do well at temperatures over 80°F, so if these high temperatures also return, weevil feeding may not be as active.

Figure 3. Alfalfa weevil larva. Photo by Cody Wyckoff, K-State Extension.

For additional information on scouting thresholds and management options, please refer to the *2026 K-State Alfalfa Pest Management Guide* at https://bookstore.ksre.ksu.edu/pubs/MF809.pdf.

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6. Pre-Season Irrigation Checklist: Maximize Efficiency and Minimize Issues

Giving your irrigation system a thorough check-up and tune-up this spring can lead to more effective water application and potentially to fewer breakdowns or problems during the heart of the irrigation season. Even if irrigation has started in places like southwestern Kansas, it's important to go through this checklist to potentially save energy and costs while irrigating to the best of the system's abilities. The above-average seasonal temperatures might have led some to jump into irrigation already, though the nights are still cold.

Here are some areas to check before irrigation starts or when the first irrigation occurs. These areas include the pump and pivot itself, but there may be additional areas to consider, as this is not an exhaustive list. Some of this checklist might have been done in the fall.

- Clean pipes and the structure of animal nests, and check for any damage on the wires.
- Check all panel or pump wires for rodent damage.
- Change all lubricants, associated filters, and fluids if not done in the fall: engine, fuel, and cooling system.
    - Refill the drip oil reservoir and allow oil to drain into the drip line based on the pump column length.
- Grease drive shafts on the pump and motor.
- Check gearboxes for each pivot tower.
- Check spark plugs on gas, propane, or natural gas motors.
- Ensure that the right-angle gear head is free-moving and clean, and lubricate non-reverse pins.
- Blow out any in-line filters of debris and check for damage
- Flush system thoroughly with drains removed/open to prevent plugging nozzles and pressure regulators.
- Close any drains/ valves that were opened.
    - Most newer pivots have automatic frost drains that do not need maintenance, but it's a water loss orifice that shouldn't be overlooked.
    - Tighten all pressure valves back into operation if loosened or removed for the winter months
- Run the motor at the normal operating speed for 45 minutes and walk along the system looking for faulty sprinklers. Look for plugging, broken sprinklers, partially opened valves (if present), unusual distribution/movement, and leaks. If no faulty sprinklers, then any hoses and sprinklers that might have fallen off in the winter.
    - Check the pressure at the pivot point and at the end of the system, particularly at the highest point of the field. Compare this to the design pressure indicated in the pivot chart and adjust accordingly.
    - Nozzle wear depends on the quality of the water and the system operating pressure. As a rule of thumb, sprinkler replacement should be considered after approximately 10,000-12,000 hours of operation.
    - Be sure to replace malfunctioning nozzles with ones listed on the computer printout you received from the manufacturer (i.e., pivot chart).
    - Visually inspecting the sprinkler in operation before the irrigation season starts can help identify whether water application is uniform and adequate and whether repairs are needed.

    - If in an area with water quality concerns, grab some water sample for water quality testing to anticipate necessary mitigation.
- Check the chemigation pump and safety equipment operation.
    - Check hoses and replace them if cracking is noticeable.
- Check for correct air pressure and extreme wear and tear in each pivot tire

Performing a preseason checkup of your irrigation equipment this spring should be part of your regular maintenance schedule. Component wear happens, resulting in less uniform water application, increased energy use, and untimely breakdowns during your irrigation season. Identify and replace worn components now to have your system ready when you need it.

Figure 1. Picture of a pivot running at the SW research center in Garden City. Photo by Logan Simon, K-State Extension.

Helpful Resources for Irrigation Season Preparation

The Importance of Pivot Charts:
https://eupdate.agronomy.ksu.edu/article/irrigation-season-preparation-the-importance-of-pivot-charts-685-2

Wheel Track Maintenance: https://eupdate.agronomy.ksu.edu/article/irrigation-season-preparation-wheel-track-maintenance-683-3

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