



**K-STATE**  
Research and Extension

## Extension Agronomy

# eUpdate

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*03/06/2025*

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. Topdressing wheat with nitrogen fertilizer

### **Current conditions of the wheat crop and N considerations**

The status of Kansas's 2024-25 winter wheat crop is variable. Some early September precipitation allowed growers in parts of the state to plant early, and this crop resulted in good stand establishment and large biomass production. Thereafter, a dry period from mid-September to late October allowed summer crops to be harvested early and wheat to be planted at a good time. However, the drought also precluded much of the crop from germinating immediately after planting. Late October through November received above-average rainfall, which led the crop planted on time to emerge. Thus, even though the planting date was mostly optimal this year, in many cases, the emergence did not happen until sometime in November. This created a smaller crop going into the winter.

Some extremely cold days during the winter were accompanied by large amounts of snow and/or good moisture conditions on the topsoil, which mostly protected the crop from winter injury since soil temperatures at the 2-inch depth never reached below 20°F. Still, on terrace tops where the snow may have blown away or in fields where the crop was too small and did not have the chance to properly winter harden in the fall, the crop may have sustained some level of winter injury. Despite the recent above-normal temperatures during the last week or two, the crop does not seem to have started greening up across much of the state, highlighted by our first hollow stem measurements in Hutchinson where all varieties still had zero development. While some fields may show partial winter injury due to the cold temperatures mentioned above, overall, the crop has a much better yield potential this year than it has had in the recent past, which should be considered when managing the nitrogen (N) fertilizer rate.

For the most part, and regardless of crop conditions, now is a good time to start planning for topdressing nitrogen – especially with the early green-up of the crop this season. Some key elements that must be considered when deciding on the program you plan to use include timing, N source, application method, and N rate. Ideally, the N in topdress applications will be moved into the root zone with precipitation well before jointing begins in order to be most efficiently utilized by wheat. With some small wheat with limited tillers, having adequate N available to support spring tillering when it breaks dormancy will be important. Also, the potential number of kernels per head is determined right after spring green-up and prior to jointing; thus, having available N in the root zone can help ensure a good yield potential. Some combination of fall pre-plant, at-seeding N, and/or early topdressed N is also normally needed to supply adequate N to support head differentiation. This article will discuss some issues to consider when making topdressing decisions.

### **Application Timing**

Timing is usually the most important factor in getting a good return on topdress N. Getting the N on early enough is critical to have the maximum potential impact on yield, especially in a year with limited fall tillering. While waiting until spring just prior to jointing can be done successfully, this can be too late in some years, especially when little or no N was applied in the fall. For the well-drained, medium- to fine-textured soils that dominate our wheat acres, the odds of losing much of the N that is topdress-applied in the winter is low. For these soils, topdressing can begin anytime now, and usually, the earlier, the better. For wheat grown on sandier soils, earlier is not necessarily better for N applications. On these soils, there is a greater chance that N applied in the fall or early winter could leach completely out of the root zone if precipitation is unusually heavy. Waiting until closer to

spring green-up to make topdress N applications on sandier soils will help manage this risk.

On poorly drained and/or shallow claypan soils, especially in south central or southeast Kansas, N applied in the fall or early winter would have a significant risk of denitrification N loss. Waiting until closer to spring green-up to make topdress N applications on these soils will help minimize the potential for this N loss.

Remember that N should not be applied to the soil surface when the ground is deeply frozen, especially snow-covered. This will help prevent runoff losses with snow melt or heavy precipitation. Additionally, once the soils start to melt, they will likely be too wet for any field work. Therefore, every field should be considered for characteristics such as slope, N source, tillage system, and the short-term forecast for temperature and precipitation.

Split applications may be a strategy to consider on sandy soils subject to leaching and poorly drained soils prone to denitrification. This would involve applying enough N in the fall at or before planting to support fall growth and tillering -- generally 20-30 pounds of N. Then, follow up with an additional application of about 20-30 pounds of N in late winter or early spring to support spring tillering, possibly applied with herbicides. This late-winter/early-spring application becomes especially important when stands are thin due to poor emergence, as many fields are this year. Finally, return around jointing or a few days later with a final application to support heading and grain fill. This strategy can also provide flexibility in a year like this with poor fall growth, allowing us to hold back part of the N for later in the spring as we have a better idea of soil moisture and weather conditions for the season.

### **Application Method**

Most topdressing is broadcast applied. In high-residue situations, this can result in some immobilization of N, especially where liquid UAN is used. If no herbicides are applied with the N, producers can benefit from applying the N in a dribble band on 15 to 18-inch centers. This can minimize immobilization and may provide for a more consistent crop response.

### **Nitrogen Source**

The typical sources of N used for topdressing wheat are UAN solution and dry urea. Numerous trials by K-State over the years have shown that both are equally effective. In no-till situations, there may be some slight advantage to applying dry urea since some of it will fall to the soil surface (Figure 1) and be less affected by immobilization than broadcast liquid UAN, which tends to get hung up on surface residues.



**Figure 1. Urea broadcast to tillering wheat in a topdress application. Photo by Romulo Lollato, K-State Research and Extension.**

Dribble (surface band) UAN applications would also avoid some of this tie-up on surface crop residues. However, if producers plan to tank-mix with an herbicide, they must use liquid UAN and broadcast it.

Controlled-release products such as polyurethane-coated urea (ESN) might be considered on sandy soils prone to leaching or poorly drained soils prone to denitrification. Generally, a 50:50 blend of standard urea and coated urea will immediately provide some N to support tillering and head development and continue to release some N in later stages of development. This would work best in settings with high loss potential.

### **Nitrogen Rate**

Producers should have started the season with a certain N recommendation, ideally based on a profile N soil test done before the crop is planted and before any N has been applied. If a soil sample was taken at sowing, profile nitrate-N can help determine the rate to be applied based on the yield goal. However, it is not too late to use the profile N soil test if taken in late winter/very early spring before green-up. While it will not be as accurate as when sampled in the fall, it can still identify fields or areas in fields with high levels of available nitrate N. Unfortunately, it is not reliable in measuring recently applied N. So, if a high rate of N has already been applied, a late winter profile sample probably shouldn't be taken. Remember that topdressing should complement or supplement the N

applied in the fall and the residual soil N present in the soil. The total N application, planting and topdressing, should equal the target recommended rate.

If the wheat was grazed this fall and winter, producers should add an additional 30-40 lbs N/acre for every 100 lbs of beef weight gain removed from the field. If conditions are favorable for heavy fall and/or spring grazing, additional N may be necessary, especially for a grain crop.

Some fields may also benefit from the application of sulfur and chloride. Like N, these nutrients are mobile in the soil, and a topdress application before jointing is considered an effective application time. Sulfur and chloride topdress applications should be made based on soil tests and history of response.

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## 2. Spring herbicide decisions on wheat - Pay attention to the growth stage

Producers should pay close attention to the growth stage of their wheat before making spring herbicide applications. Some herbicides must be applied after tillering, several must be applied before jointing, and others can be applied through boot stage. Remember that weeds are most susceptible at early growth stages. Coverage becomes difficult as the wheat canopy develops, so the earliest practical and labeled applications generally result in the best weed control.

### **Applications permitted prior to jointing**

Dicamba can be applied to wheat between the 2-leaf and jointing stages. The application of dicamba after wheat reaches the jointing stage of growth causes severe prostrate wheat growth and a significant risk of yield loss. Dicamba is effective for controlling Russian thistle, wild buckwheat, and susceptible populations of kochia; but is not good for controlling mustard species. Kochia, Russian thistle, and wild buckwheat are summer annual weeds that may emerge before or after wheat starts to joint, so timing dicamba applications for control of these weeds can sometimes be difficult. Fortunately, dicamba provides some residual control of these weeds following application.

Products labeled only for use on herbicide-resistant wheat must also be applied prior to jointing. Beyond should be applied to 1 gene ClearField wheat after tiller initiation and prior to jointing, but can be applied to 2-gene ClearField wheat until the second node is detected at the soil surface. Aggressor should be applied to CoAXium wheat varieties after the 4-leaf growth stage but before jointing. Beyond should only be applied to ClearField wheat varieties, and Aggressor should only be applied to CoAXium wheat varieties.

Other herbicides that must be applied prior to jointing include Agility SG, Everest, Olympus, Outrider, Pulsar, Rave, PowerFlex HL, or GR1. Two relatively new products that can be applied after three-leaf are Tarzec, is a combination of PowerFlex and Elevore (described below) and Irongate, a combination of PowerFlex and Everest.

### **Applications permitted through boot**

Herbicides that can be applied later in the spring – prior to boot stage – include Ally + 2,4-D, Amber, Finesse, Glean, Starane Flex, and Starane NXT. Starane is a better choice than dicamba products for control of kochia after wheat begins jointing.

2,4-D is labeled for application to wheat from the full-tiller stage until prior to the boot stage of growth. Application of 2,4-D prior to full-tiller hinders the tillering process and can result in significant yield loss. Wheat will sometimes exhibit prostrate growth when 2,4-D is applied in the jointing stage of growth, but yields generally are not significantly reduced if applied before the boot stage.

In general, MCPA is safer on wheat than 2,4-D, especially when applied prior to tillering. MCPA can be applied after the wheat is in the three-leaf stage (may vary by product label) until it reaches the boot stage of growth. Neither herbicide should be applied once the wheat is near or reaches the boot stage of growth, as an application at that time can result in malformed heads, sterility, and significant yield loss (Figure 2).

Both 2,4-D and MCPA are available in ester or amine formulations. Ester formulations generally provide slightly better weed control than amine formulations at the same application rates but are also more susceptible to vapor drift. However, the potential for vapor drift damage in early spring is minimal. Ester formulations are generally compatible for use with fertilizer carriers, while amine formulations often have physical compatibility problems when mixed with liquid fertilizer. To minimize crop injury, it is recommended that nitrogen make up no more than 50% of the carrier solution when spraying an herbicide, especially if a surfactant or crop oil is included in the mixture.

### **Applications permitted through flag leaf**

Many herbicides used in the spring on wheat can be applied up to the time the flag leaf is visible, or later. Some newer premix products based on the herbicide halauxifen methyl (Elevore) that can be applied through flag leaf are Pixxaro (with Starane), Quelex (with florasulam), Rezuvant (with Starane and Axial XL), WideARMatch (with Starane and Stinger). Halauxifen methyl is a Group 4 herbicide that controls emerged broadleaf weeds, including marestail, flixweed, and henbit. Elevore is not labeled for application to wheat.

Other herbicides that can be applied through flag leaf include Affinity BroadSpec, Affinity TankMix, Ally Extra SG, Express, Harmony, Harmony Extra, Huskie, Sentrallas, Supremacy, Talinor, Weld, and WideMatch.



**Figure 1. Stunting from an application of 2,4-D to wheat prior to tillering. Photo by Dallas Peterson, K-State Research and Extension.**





**Figure 2. Malformed heads from an application of 2,4-D at boot stage. Photo by Dallas Peterson, K-State Research and Extension.**

For more detailed information, see the “2025 Chemical Weed Control for Field Crops, Pastures, and Noncropland” guide available online at <https://bookstore.ksre.ksu.edu/pubs/SRP1190.pdf> or check with your local K-State Research and Extension office for a paper copy.

*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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### 3. First hollow stem update - March 6, 2025

Cattle should be removed from wheat pastures when the crop reaches first hollow stem (FHS). Grazing past this stage can severely affect wheat yields. For a full explanation, please refer to the recent eUpdate, "[Optimal time to remove cattle from wheat pastures: First hollow stem.](#)"

#### **First hollow stem update**

To screen for FHS during this important time in the growing season, the K-State Extension Wheat and Forage's crew measure FHS on a weekly basis in 16 different commonly grown wheat varieties in Kansas. The varieties are in a September-sown replicated trial at the South Central Experiment Field near Hutchinson.

Ten stems are split open per variety per replication (Figure 1), for a total of 40 stems monitored per variety. The average length of the hollow stem is reported for each variety in Table 1. As of March 3, no variety had started to elongate their hollow stem.



**Figure 1. Ten main wheat stems were split open per replication per variety to estimate first hollow stem for this report, for a total of 40 stems split per variety. Photo by Romulo Lollato, K-State Research and Extension.**

**Table 1. Length of hollow stem measured on February 17 and 24, and March 3, 2025 of 16**

wheat varieties sown mid-September 2024 at the South Central Experiment Field near Hutchinson. The critical FHS length is 1.5 cm (about a half-inch or the diameter of a dime). Value(s) in bold indicate the highest FHS group.

Variety	First Hollow Stem (cm)		
	2/17/2025	2/24/2025	3/6/2025
AP Sunbird	0	0	0
AP24 AX	0	0	0
AR Iron Eagle AX	0	0	0
AR Turret 25	0	0	0
CLH10-153.022	0	0	0
CLH10-1853.014	0	0	0
CP7017AX	0	0	0
CP7869	0	0	0
Kivari AX	0	0	0
KS Ahearn	0	0	0
KS Bill Snyder	0	0	0
KS Mako	0	0	0
KS Providence	0	0	0
KS Territory	0	0	0
KS21H36	0	0	0
Sheridan	0	0	0

We will report the progress of first hollow stem during the next few weeks until all varieties are past this stage. Additionally, first hollow stem is generally achieved within a few days from when the stem starts to elongate – depending on temperature and moisture conditions. Therefore, we advise producers to monitor their wheat pastures closely.

The intention of this report is to provide producers with an update on the progress of first hollow stem development in different wheat varieties. Producers should use this information as a guide, but it is extremely important to monitor FHS from an ungrazed portion of each individual wheat pasture to make the decision to remove cattle from wheat pastures.

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Luiz Otavio Pradella, PhD Student

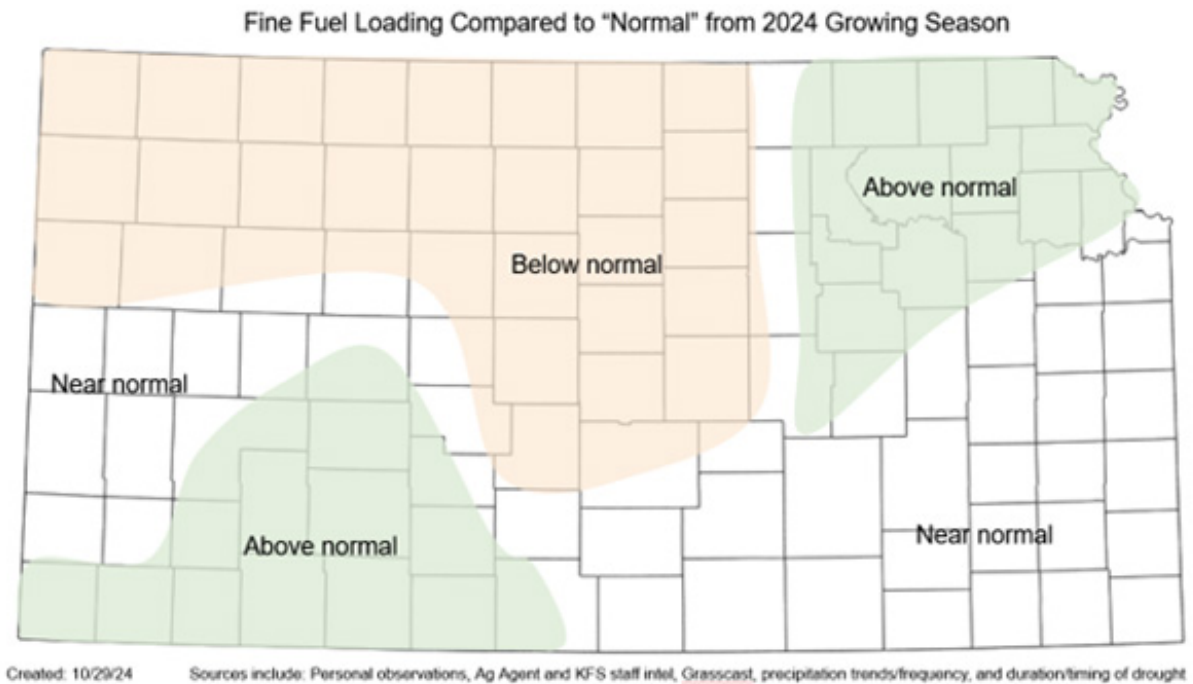
Jazmin Gastaldi, Master Student

#### 4. The 2025 Kansas fire season has arrived

As we approach spring, this means the return of Kansas wildfire season, which usually peaks before vegetation initiates greenup. Recent cold/snow has provided another slow start to the fire season across the state. This is an ideal time to increase awareness, check equipment, and consider environmental conditions and how they may impede fire suppression or prescribed fire.

##### **2024 drought and precipitation impacts to vegetation**

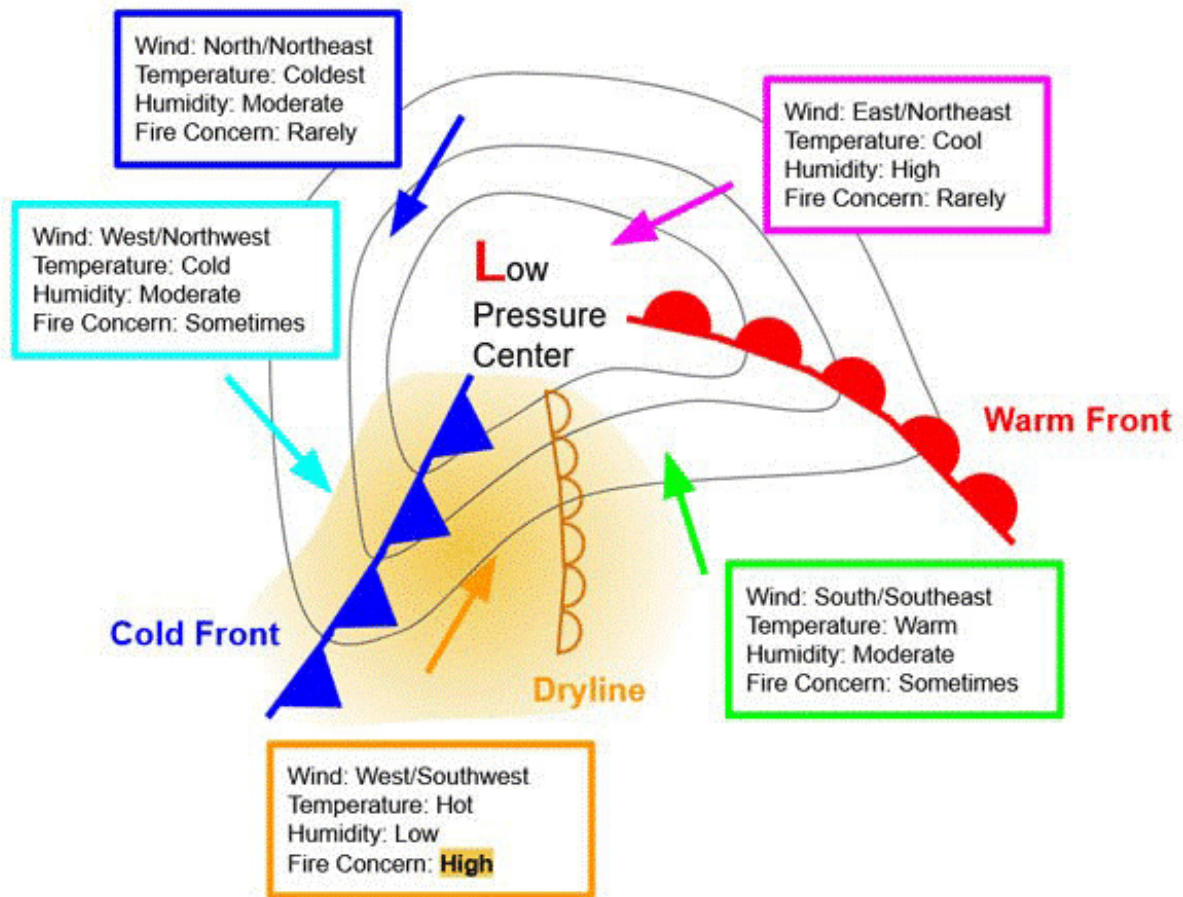
Drought persisted through the state in 2024. However, it underwent several shifts and remains in focus for northern and eastern areas of Kansas. Surprisingly, the driest part of the state, the southwest, was the region that observed the most rainfall compared to normal. This region had significant cool/warm season grass. These considerations are then justified by on-the-ground observations to create a statewide map of grass growth in the state (Figure 1). This grass is considered a “fuel” for wildfires and is the primary fire carrier in the state. Above-normal grass/fuel results in increased/erratic fire behavior on the landscape, even in benign weather conditions. Additionally, despite drought in the northeast portion of the state, timely precipitation helped drive above-normal grass growth in the northeast. Outside of these regions, persistent drought with less timely rainfall provided an area of below-normal grass growth in northwest and much of central Kansas.



**Figure 1. Areas of estimated above/below/at normal grass (or fuel) loading. Above-normal areas observed increased moisture during the growing season and have potentially more potential for increased fire behavior and large fire potential. The opposite is expected in the below-normal area. Estimates from numerous sources were also considered. Source: Kansas Forest Service and Kansas Mesonet.**

## Weather patterns play an important role

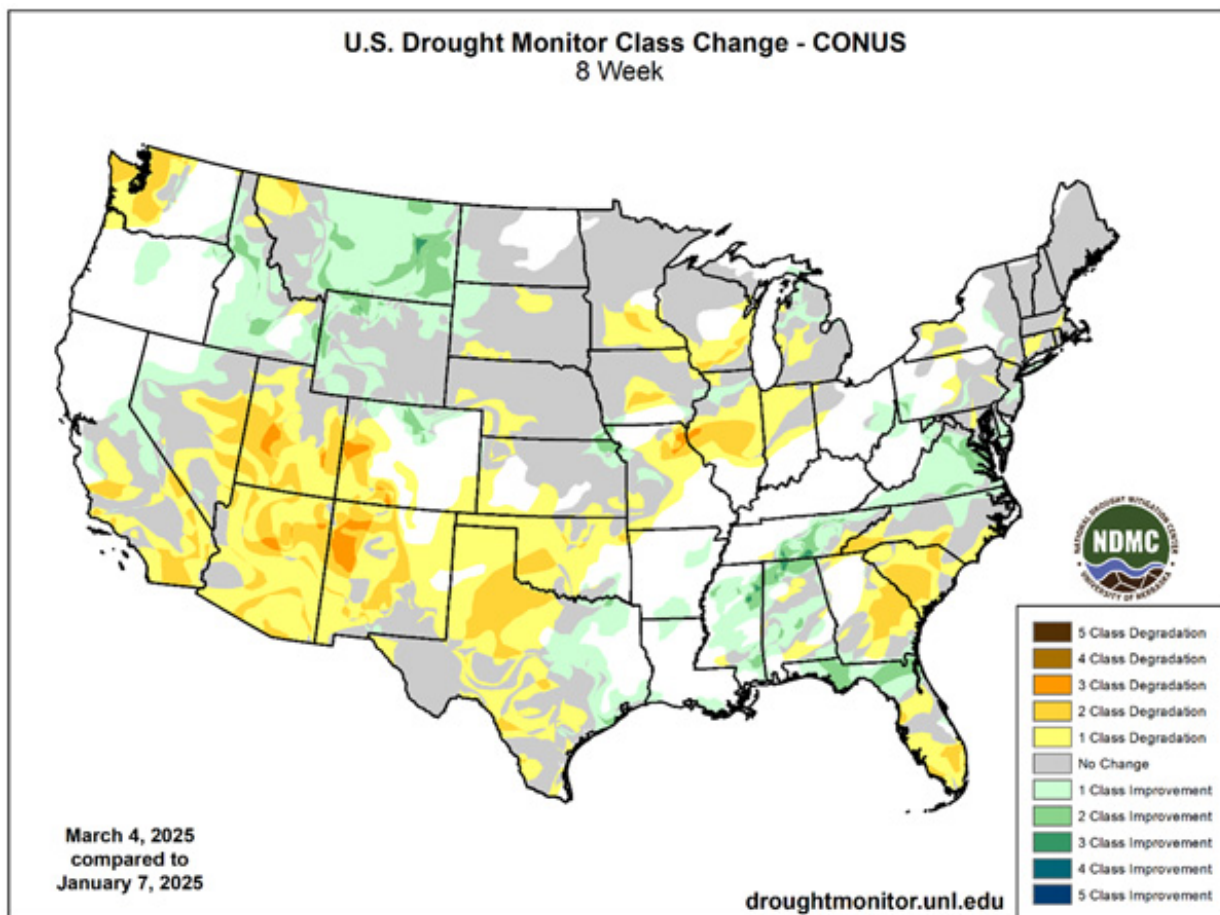
As we enter spring 2025, the overall weather setup is much different than that of 2024 when we had El Niño in the east Pacific. This year, we have a weak La Niña, which means the tracks of low-pressure systems (Figure 2) tend to track across the US differently. La Niña favors a track that typically places Kansas in the southwest quadrant of these storms. The southwest is characterized by much warmer/drier conditions from the desert southwest transported northeast into the region. This provides a pattern much more favorable for large fires in the state. In fact, Kansas sees almost a triple of acres burned in La Niña springs compared to El Niño.



**Figure 2. Diagram depicting a surface low-pressure system responsible for the most active weather on the Plains. Significant wildfires may develop south of the low-pressure center between the dryline and the cold front.**

Looking at the southwestern US, drought has continued to expand and slowly move northeast over the last few months. Therefore, when the air is pushed into the region with these storm systems, they will be characterized by even warmer/drier conditions than normal. This can aid in more potent fire weather conditions, especially for Kansas's west and central portions. When we combine these atmospheric conditions with the increased fuel loading, we have a recipe for large to significant

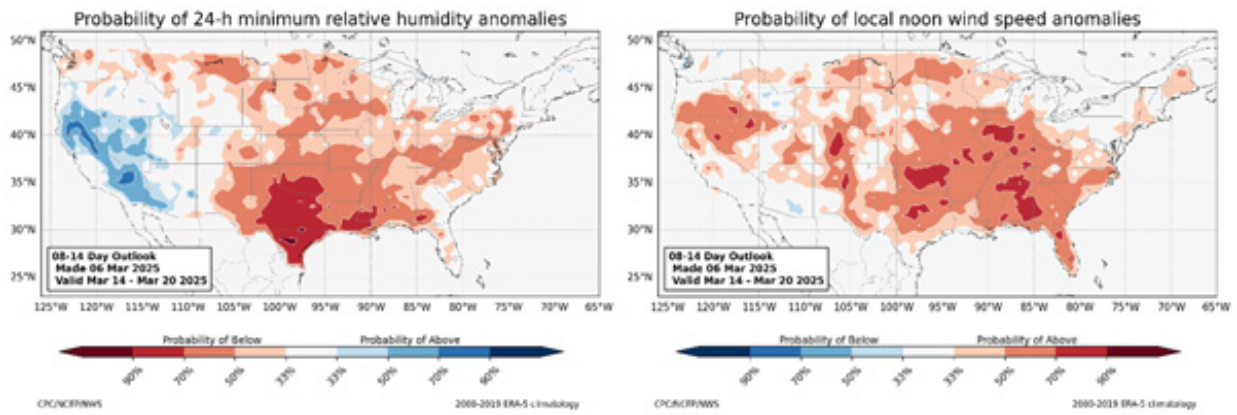
wildland fires this spring.



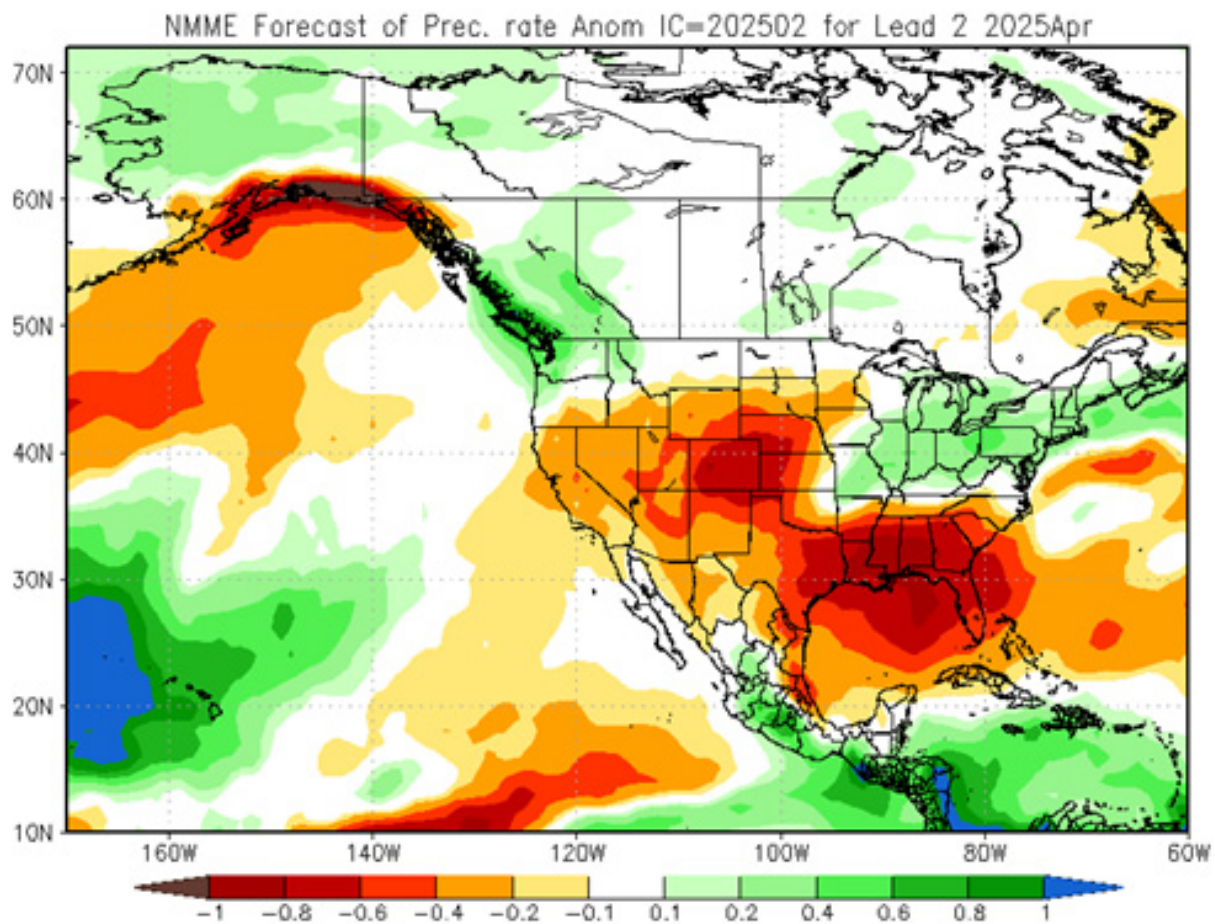
**Figure 3. Drought changes over the last two months (eight weeks). Note the expansion of several drought categories in the southwest as conditions continue to degrade under typical La Niña conditions. Source: United States Drought Monitor.**

### The forecast for the 2025 wildfire season

With climatology and the fuel landscape, the conditions exist for large fire potential this spring, especially considering last year's quieter-than-normal fire season. However, a few elements still need to align to bring this forecast to fruition. Thus far in 2025, the weather pattern has favored the storm systems to track just slightly further south. This has allowed for cold air and snowfall for January and February - keeping fire danger in check. However, as noted with this week's potent windstorm, they are beginning their seasonal transition northward. With an active storm pattern expected, Kansas will gradually start observing more fire weather with each. This is apparent considering the forecasts of lower humidity and higher windier-than-normal conditions favored for the next week of March (Figure 4). This is potentially more amplified by widespread drier-than-normal conditions favored with models for April (Figure 5).



**Figure 4. Favored humidity (left) and wind (right) compared to normal for March 14-20, 2025 from the Climate Prediction Center using beta NOAA/Earth System Research Laboratory modeling.**



**Figure 5. Modelled precipitation anomalies for the month of April from the NMME (average of all models weighted accordingly). Source: Climate Prediction Center.**





fires. Be especially cautious on any dry, breezy day – which is pretty common during spring in Kansas before green up.

Take steps to prepare your property to survive a fire - Clear brush from the house, keep gutters cleaned out, have non-combustible siding and roofing material, and more. In a major wildfire, the fire department will not have enough resources to protect every home or property, so those who can survive independently have the best chance. For more information, please refer to KSRE publication MF2241 *Protecting your home from wildfire* at <https://bookstore.ksre.ksu.edu/pubs/MF2241.pdf>.

More information on how to have a successful and safe prescribed burn will be available in an upcoming eUpdate.

### **The bottom line**

After a below-average fire season in 2024 and a slow start to 2025, we anticipate conditions to align for a rapid increase in late March and April wildfires. With current climatic and fuel conditions, we are currently forecasting an average to above-average spring 2025 fire season. You can look at the fire danger forecast for the next five days on the Mesonet at: <https://mesonet.k-state.edu/fire/danger/>. Wildfires are a real risk for Kansans, even with recent moisture. People should have a plan and take proper precautions to avoid fire starts and limit fire spread.

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## 5. K-State Crop Talk webinar series wraps up on March 11

The popular K-State Crop Talk online webinar series wraps up on March 11! The Crop Talk series highlights several topics important to crop producers in north central and northwest Kansas. Topics include weed management, maximizing irrigation applications, leveraging precision ag tools, dryland tillage and rotations, and corn stunt. Continuing education credits will be offered, with one credit for each session.

Each webinar will begin at 12:00 pm (CST) and last until 1:00 pm. The first webinar occurred on February 11 and will continue every Tuesday until March 11.

Upon registration, participants will receive an email with instructions on how to attend via Zoom or YouTube. These virtual webinars are open to all, and there is no cost. Register online at <https://www.northwest.k-state.edu/events> or call your local extension office.

The last webinar is detailed below.

### **March 11 – A New Corn Disease: Corn Stunt**

Anthony Zukoff, K-State Entomologist and Rodrigo Onofre, K-State Plant Pathologist

**Broadcast Live**  
**12:00pm - 1:00pm CST via ZOOM and YouTube**



**CROPtalk**  
**Webinar Series**



Focused on crop production in Northwest and North Central Kansas

February

**11 Weed Management in the Age of New Technology**

Sarah Lancaster,  
*K-State Extension Weed Scientist*

**18 Getting the Most Out of Your Irrigation Water**

Jonathan Aguilar,  
*K-State Irrigation Engineer*

**25 Leveraging Precision Ag Tools**

Deepak Joshi,  
*K-State Extension Precision Ag Specialist*

**Dryland Tillage and Rotations**

Lucas Haag,  
*K-State NW Area Agronomist*

**A New Corn Disease: Corn Stunt**

Anthony Zukoff,  
*K-State Entomologist*  
Rodrigo Onofre,  
*K-State Plant Pathologist*

Certified Crop Advisor (CCA)  
Credits will be offered

March

For more information, contact Sandra L. Wick  
*Post Rock Extension District Crop Production Agent*

register to attend at  
[www.northwest.ksu.edu/events](http://www.northwest.ksu.edu/events)

Links for joining will be sent after registration



[swick@ksu.edu](mailto:swick@ksu.edu) 785-282-6823 [postrock.ksu.edu](http://postrock.ksu.edu)

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**SCAN TO REGISTER**

## 6. Wheat Rx seminars in Salina and Colby - March 11 & 12

Mark your calendars for two upcoming Wheat Rx seminars! [Kansas Wheat Rx](#) combines suggested management practices for the economical and sustainable production of high-quality winter wheat in Kansas. Speakers will discuss variety selection, weed control, disease management, soil fertility, and more.

**The first seminar will take place in Salina on March 11.** This seminar was originally scheduled for Feb. 11 and was postponed due to inclement weather. If you registered for the original date, your registration was rolled over to the new date of March 11.

The Salina event will take place at the Great Plains Corporate office and will start at 8:30 with registration. Attendees will also learn more about Great Plains Ag, tour its Salina facility, and about a new project between K-State and the Kansas Wheat Commission to help growers benefit from ongoing government and private conservation programs.

### **Salina Program Agenda:**

8:30 AM – Coffee and registration  
8:50 – Welcome by Aaron Harries, Kansas Wheat Commission  
9:00 – Wheat Variety Selection in Kansas - Dr. Allan Fritz  
9:45 – Problematic Weeds and their Control in Winter Wheat - Dr. Sarah Lancaster  
10:30 – Break  
10:45 – Management of Major Wheat Diseases in Kansas - Dr. Kelsey Andersen Onofre  
11:30 – Wheat Fertility Management for High Yield and Quality - Dr. Dorivar Ruiz Diaz  
12:15 – Lunch  
1:00 – Variety Specific Management for Yield and Quality - Dr. Romulo Lollato  
1:45 – Great Plains facility tour

### **The second seminar will be held in Colby on March 12.**

The Colby event will be held at Frahm Farmland, 1453 Co. Road O and will begin at 8:30 with registration and conclude around 2:00 pm.

### **Colby Program Agenda:**

8:30 AM – Coffee and registration  
8:50 – Welcome by Aaron Harries, Kansas Wheat Commission  
9:00 – Variety Specific Management for Yield and Quality - Dr. Romulo Lollato  
9:45 – Management of Major Wheat Diseases in Kansas - Dr. Kelsey Andersen Onofre  
10:30 – Break  
10:45 – Wheat Fertility Management for High Yield and Quality - Dr. Dorivar Ruiz Diaz  
11:30 – The Role of Wheat in Semi-Arid Cropping Systems - Dr. Lucas Haag  
12:15 – Lunch  
1:00 – Weed Control in Winter Wheat - Dr. Jeremie Kouame

These events are free for members of the Kansas Association of Wheat Growers (KAWG). It costs \$110 for non-members; however, the event fee includes KAWG membership.

Online registration is open for both seminars at [kswheat.com/wheatrx](http://kswheat.com/wheatrx).

FREE FOR KAWG MEMBERS  
\$110 FOR NON KAWG MEMBERS  
(PRICE INCLUDES KAWG MEMBERSHIP AND FREE EVENT ATTENDANCE)

# KANSAS WHEAT Rx

A combination of suggested management practices  
for economical and sustainable production  
of high-quality winter wheat in Kansas



KANSAS  
WHEAT<sup>®</sup> Rx

Romulo Lollato, Wheat and Forages Specialist  
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