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Extension Agronomy

eUpdate

11/07/2024

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. Winter annual grass control in winter wheat

Recent rains have brought much needed moisture to the Kansas wheat crop. However, the moisture can also bring on winter annual weeds, especially in fields where poor wheat stands exist, or where continuous wheat or wheat-fallow rotations are used. This article will focus on the grass weeds common in wheat.

Like wheat, winter annual grasses typically emerge in the fall (although early spring emergence is possible), go dormant during the coldest months, and resume growth and produce seeds in the spring. The most common winter annual grasses infesting Kansas wheat are weedy bromes (downy brome, Japanese brome and cheat), jointed goatgrass, and feral rye. Generally, cheat and feral rye are typically found in the eastern parts of the state, whereas downy brome and jointed goatgrass are more often found in the west. Table 1 provides a list of postemergence herbicides labelled for these species and their efficacy on each species.

Table 1. Postemergence herbicides for winter annual grass control in Kansas¹.

Herbicide	Cheat	Downy brome	Japanese brome	Jointed goatgrass	Feral rye
Aggressor (CoAXium wheat only) ²	G-E	G-E	G-E	G-E	G-E
Batalium Amped	F-G	F-G	F-G	P-F	-
Beyond Xtra (Clearfield wheat only) ²	E	G-E	E	E	G
Everest 3.0	G-E	P-F	G-E	-	-
Metribuzin	F-G	F	G	-	-
Olympus	E	F-G	E	P	-
Osprey	F	F	F	-	-
Outrider	G-E	F-G	G-E	-	-
Powerflex HL, GR1	E	F-G	E	-	-

¹ Ratings: E = excellent, G = Good, F = fair, P = poor, - = weed not listed on herbicide label. Products with residual activity are in **bold**.

² Application of Aggressor to non-CoAXium wheat or Beyond Xtra to non-Clearfield wheat will result in severe crop injury.

As a general rule, fall applications will provide better control of these weeds than spring applications. But, it is important to remember that weeds must be actively growing for herbicides to be effective. Be aware of temperatures in your area to make sure weeds are not dormant. Delaying applications until spring when the herbicide can be mixed with top-dress fertilizer is an option, although this can lead to greater yield loss due to competition and reduced herbicide efficacy. Furthermore, spring applications may not meet crop rotation intervals. Always read the herbicide label to determine recropping intervals and adjuvant requirements.

Crop rotation is an effective method of preventing winter annual weeds in wheat. One or more summer annual crops between wheat crops disrupts the life cycle of winter annual weeds and allows

for use of other cultural and chemical methods for their control. Narrower row spacings or increased wheat seeding rates can make wheat more competitive with weeds. In dry environments, seeding wheat deeper into moist soil may allow wheat to emerge before weedy brome seeds that must germinate from nearer the soil surface. Alternatively, delaying planting until after the first flush of weedy grasses has emerged may also be an effective cultural management practice when moisture is abundant. Seed destruction of some winter annual grasses (downy brome, feral rye, and jointed goatgrass) at wheat harvest can be a viable option for reducing the number of weed seeds that return to the soil seedbank, therefore reducing the pressure of winter annual grasses in the following seasons. More information on seed harvest seed destruction can be found at:

<https://eupdate.agronomy.ksu.edu/article/harvest-weed-seed-destruction-a-tool-for-managing-herbicide-resistant-weeds-601-1>

Summary

Several effective options exist to control the weedy bromes. Jointed goatgrass and feral rye options are more limited, and will likely require that either a Clearfield or CoAXium wheat variety was seeded. In fields where winter annual grasses are known to be a problem, cultural practices can be implemented to reduce their impact, such as considering using a preemergence herbicide prior to wheat emergence or planning to use an herbicide-resistant wheat variety.

For additional information about these herbicides, see [2024 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland](#), K-State publication SRP-1183.

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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2. Checklist for irrigation system winterization

The above-average temperatures might have made it where this time of the year was in the back of our minds. However, colder temperatures have arrived in some parts of Kansas. Commonly, next year's irrigation startup problems are due to winter damage that could have been prevented. Time spent now will prevent damage and lead to a better start for next year's irrigation season. Inspecting the system now allows you to make improvements and repairs in the less costly off-season and get irrigation problems out of the way for spring planting season when everyone is busy.

Park pivots and linear moves in a safe location

- Wire theft is less likely when the machine is in a visible but inaccessible area of the field.
- Wind damage is less likely when the pivot points into or away from the prevailing wind compared to perpendicular to the wind direction.
- Rodent damage is lessened when machines are at least 100 feet away from tree lines.
- Protect or surround the entire machine with electric fence if grazing will occur in the field.

Drain pivots and linear moves

- Check for plugged automatic freeze drains. This can lead to major repairs if not caught in a fall inspection.
 - Most currently designed pivots have automatic freeze drains that drain the main overhead pipe.
- Clean and drain rock traps.
- Ensure all Pivot supply lines, end gun supply and hydro control hoses are drained even if they are installed to allow drainage. Sagging hoses can hold water and lead to damage.
- Remember to cap all large openings into the system to prevent bird nesting.
 - If the linear move has a large hose, placing buckets on the ends to ensure animals don't nest in the pipe during the off season is key.

Pump down or drain underground pipelines

- Most underground pipelines are buried deep enough to prevent freeze damage but often require pumping or draining enough water from them to empty the upper portion of Z-pipe risers and pump manifolds. This is typically done by purging the system with air or modifying a fertilizer transfer pump to pump system at its lowest outlet or inlet points.
- Remember to cap all pipe inlets and outlets to prevent rodents from entering.

Drain the pumping station

- Drain pumps and manifold to the lowest point.
- Replace brass drain plugs if damaged.
 - Well-designed pump installations will be easy to drain without stripping drain plug threads or the need for air purging.
- Inspect gauges, supply and control wire for need of repair.
- Service engine with attention to engine oil, bearing and seal lubrication.
- Check cooling system for adequate anti-freeze level and concentration.

- Drain fuel tank to reduce water accumulation in fuel tank and potential theft.

Inspect and lock down electrical power supplies

- Locking down electrical power supplies helps prevent vandals from turning wells and pivots on midwinter and minimize potential electrical system damage.
- Inspect each electrical box in the system from the power supply to the last pivot or disconnect on the system line for damage and holes that may be accessed by rodents.
- Inspect the grounding connection and grounding rod and test resistance.

Create a winter work list for each system

- List the improvements and repairs needed for each system while its fresh in your memory.
 - As you are inspecting and winterizing your system, add any other areas needing attention to the list of repairs needed such as the U-joint between the gearbox and gear motor, tires, sprinkler packages (nozzles, pads, regulator), etc.
- Assign the repair to someone, whether it is your people or the local irrigation dealer repair crew.

Inspect tires and wheel track

- Check for correct air pressure in each pivot tire.
- Consider filling or tilling any rutted pivot wheel tracks, which will allow your center pivot irrigation system to run properly and reduce stress on tillage and harvest.
 - If your wheel tracks are too deep, consider the variety of options available for this problem.

Explore options for reducing monthly energy bills

- Consider contacting your power supply company to investigate turning off the power system to save energy costs.

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3. Field equipment maintenance: Winterizing sprayers

Temperatures in some regions of Kansas fell below freezing recently. Before a bigger cold snap hits, don't forget to get your field sprayers winterized. As you put the sprayer in storage for the winter, this is also a good time to clean and inspect the exterior, tanks, hoses, and other components – including your tendering equipment. This article summarizes some of the key steps to winterizing sprayers. Be sure to check your owner's manual for detailed instructions for your particular sprayer so you don't void any manufacturer's warranty.

1. Clean the sprayer to remove herbicide residues if not already done.
2. Check and service the pump.
3. Remove filters, nozzles, check valves, and screens from your sprayer and wash them by hand. You can store metal filters and screens in vegetable oil to prevent rusting.
4. Remove pressure gauges and store them at room temperature.
5. Remove as much water as possible. Consider using an air hose to blow out moisture.
6. Add RV antifreeze with a corrosion preventer. Solutions designed to winterize sprayers are also available. Liquid fertilizer is another option, but can cause corrosion.
7. Circulate the antifreeze through the entire system, including the boom (if applicable). For boom sprayers, turn on one section at a time until you see the antifreeze come out the nozzle openings, then cap the opening.
8. Refer to your owner's manual for other components, such as flow meters, rate controllers, and electronics.



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4. Kansas Drought Update and Climate Report for the week ending Nov. 5, 2024

Temperature summary

Temperatures averaged above normal for the period, thanks in large part to persistent cloudiness associated with multiple precipitation events that impacted the state, which kept nighttime lows above seasonal values. High temperatures across the Kansas Mesonet averaged around 2 degrees above normal for the period, while lows were around 7 degrees above normal. There was a brief cooldown on the 31st and 1st, with average lows in the mid-30s, and a number of locations fell into the 20s. The Kansas Mesonet sites at Sherman (22°), Hamilton (23°), and Wallace (24°) measured their coldest readings of the fall on the morning of the 1st. Daily minimums on the 3rd averaged 53°, nearly 18 degrees above normal for the date. A few locations failed to fall below 60 degrees that morning, including Chanute (63°), Coffeyville (62°) and Topeka (61°), where 61° is the normal high for November 3rd. The statewide 7-day average temperature was 53.7°, or 4.9° above normal. All nine divisions were above normal; divisional departures ranged from +1.3° in southwest to +8.4° in east central Kansas (Figure 1).

Precipitation summary

After an extended period of dry conditions, precipitation returned in abundance to the state during the past week. The first of multiple rainfall events occurred on the 30th when the eastern half of Kansas received heavy rain along and ahead of a cold front that was advancing across the state. Warm air ahead of the front, along with gusty southerly winds, created an environment favorable for severe weather, and multiple tornado watches were issued to cover much of eastern Kansas during the afternoon and evening hours. While no tornadoes were reported, there were multiple reports of severe weather, including 13 reports of severe wind gusts 58 mph or higher. The highest observed wind gust was 77 mph in Nemaha County south-southeast of Seneca. In addition to the winds, there were three reports of severe hail at least 1" in diameter. The largest hail report was 1.25" in Cowley County, east of Cambridge. Many locations that were on the verge of recording one of the driest Octobers on record were denied the opportunity as 15 counties had at least one CoCoRaHS report of 2" or more rainfall, led by a 2.85" report from west of Minneapolis in Ottawa County. Co-operative observers that measured more than 2" of rain include those from Altamont (Labette County, 2.84"), Blue Rapids (Marshall County, 2.61"), and Pittsburg (Crawford County, 2.40").

The second round of rain was a prolonged period of precipitation from the 2nd through the 4th. Three-day totals were extreme, with more than 5 inches of rain reported by CoCoRaHS observers in 11 counties across south central and southeast Kansas, with the highest total of 7.50" north-northwest of El Dorado in Butler County. When combined with the first event, 7-day totals of over 6 inches of rain were observed in more than a dozen counties. The highest amount was 8.35", measured by the co-operative observer in Chautauqua. Other extreme totals include 8.13" at the Kansas Mesonet tower west of Columbus in Cherokee County, 7.78" at Pittsburg, 6.12" at Girard, and 5.29" at Cottonwood Falls. Totals for the first five days in November are high enough to ensure a top 10 wettest November at month's end at a number of locations, including Fredonia (6.71", currently at 3rd wettest), Sedan (6.05", 7th), Kingman (5.03", 3rd) and Wichita (3.81", 9th). By contrast, parts of far western Kansas picked up some precipitation, but totals were as low as a few hundredths of an inch in a few areas. Locations picking up one-quarter inch or less during the period include Atwood (0.05"), Oakley (0.09"), Russell Springs (0.11") and Wallace (0.15").

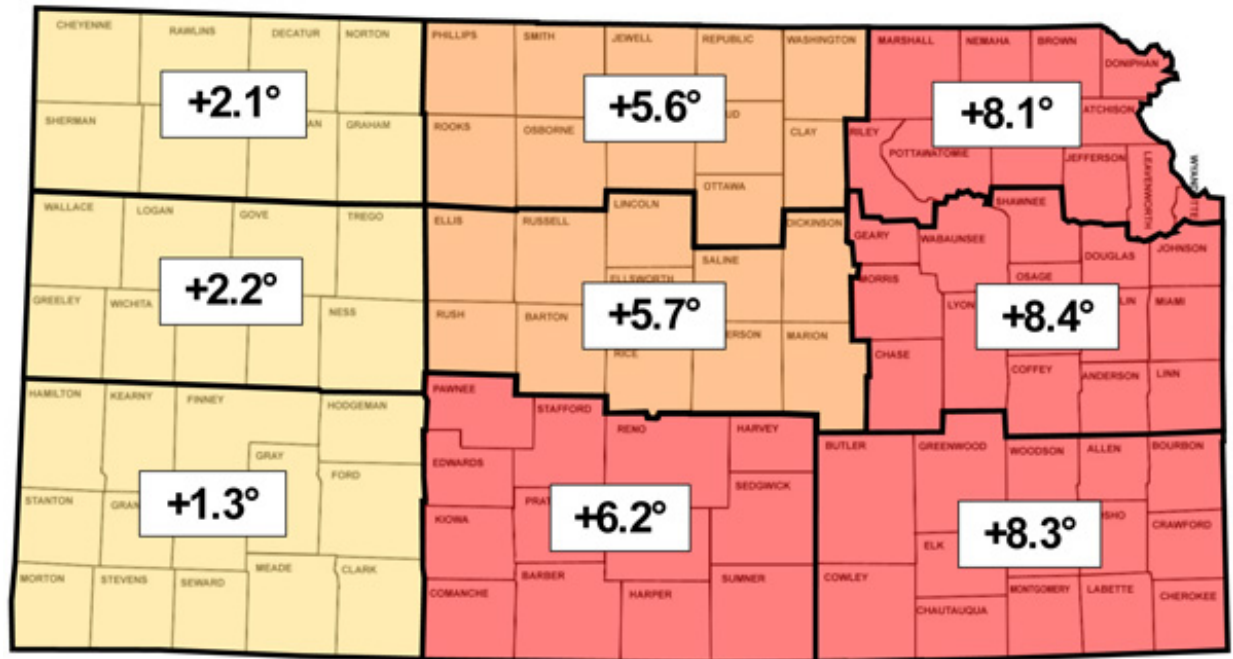
The statewide average precipitation for the 7-day period was an impressive 2.39", nearly six times the

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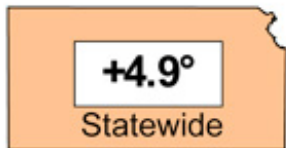
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normal weekly amount of 0.41" (585%). All nine divisions in the state were above normal (Figure 1). The three western divisions were the driest, with amounts ranging from 0.34" (northwest) to 0.60" (southwest). Further east, there were much higher totals, and the six divisions in eastern and central Kansas exceeded their average precipitation for November. Leading the way was southeast Kansas (5.72"), followed by east central (3.96") and northeast (3.45") Kansas. The heavy rain boosted the new water year totals, which began on October 1st. Five of Kansas' nine climate divisions are running above normal for the water year to date, with southeast Kansas being the wettest (5.95") and southwest Kansas being the driest (0.78"). Approximately 53% of the state is above normal for the current water year. For the entirety of 2024, all divisions are still below normal, with about 73% of the state running below normal, but this is a 14% decrease in area since last week. Since January 1st, the average statewide precipitation is 24.41". This amount is 85% of normal or a departure of -4.17". Departures from normal range from -5.47" in north central to -0.71" in east central Kansas.



-9.0° or less	-8.9° to -6.0°	-5.9° to -3.0°	-2.9° to -0.1°	0.0°	+0.1° to +2.9°	+3.0° to +5.9°	+6.0° to +8.9°	+9.0° or more
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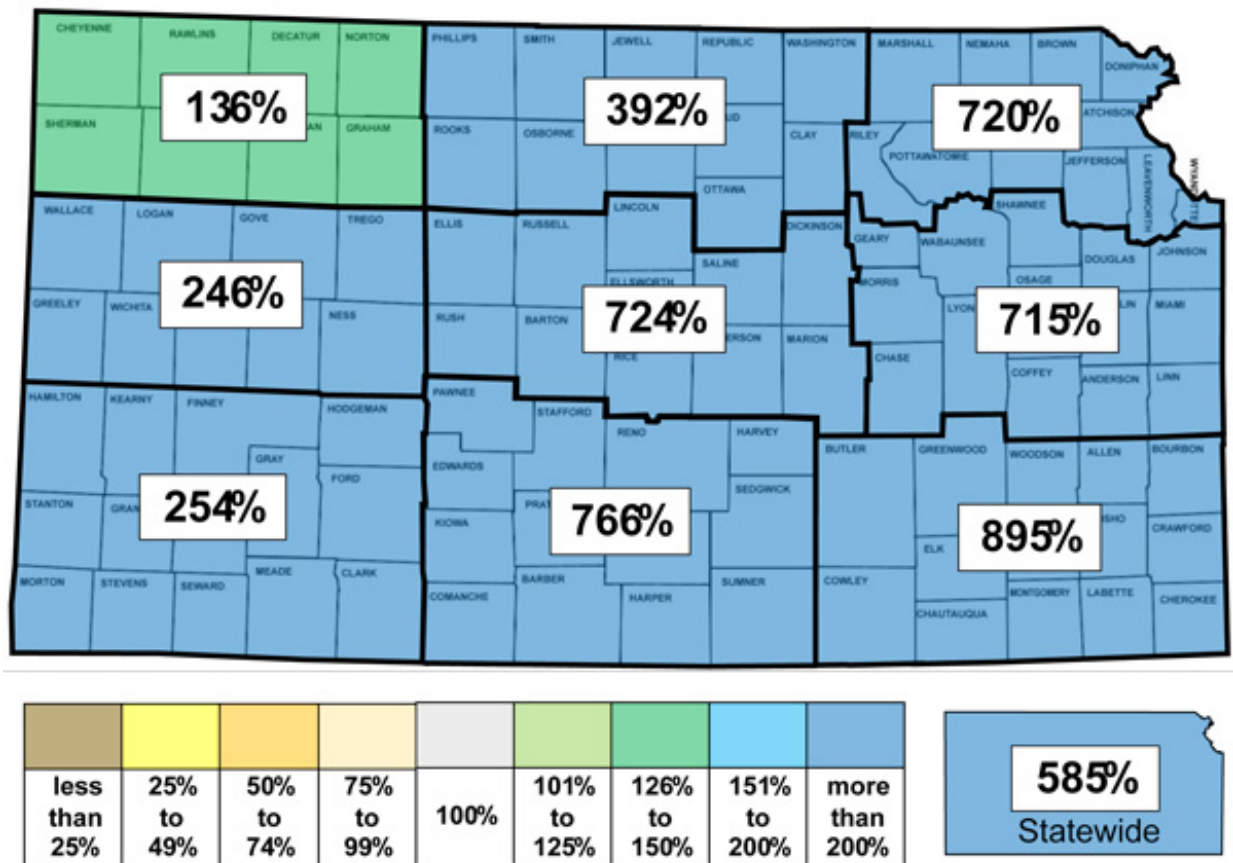


Figure 1. This week's departure from normal temperature (°F, top) and percent of normal precipitation (bottom) by Kansas climate division. Source: MRCC.

Evapotranspiration and soil temperatures

The average evapotranspiration for grass across the state for the week was 0.41". This is below the normal of 0.55" for the 7-day period. Divisional averages ranged from 0.33" in north central to 0.51" in southwest Kansas. The statewide average 2" soil temperature across the Kansas Mesonet fell 2.4° this week to 58.0°. This average is 6.4° above the normal of 51.6° for the 7-day period.

Drought update

In this week's US Drought Monitor update, the past week's heavy rains led to a large area of 1-category improvements across the eastern half of the state (Figure 2). In all, 47% of the state was improved by one category, resulting in the complete removal of the D3 area as well as a reduction by more than half of the D2 areas in the state. Only 11% of the state is in D2 status. The statewide Drought Severity and Coverage Index (DSCI) fell 47 points and now stands at 164.

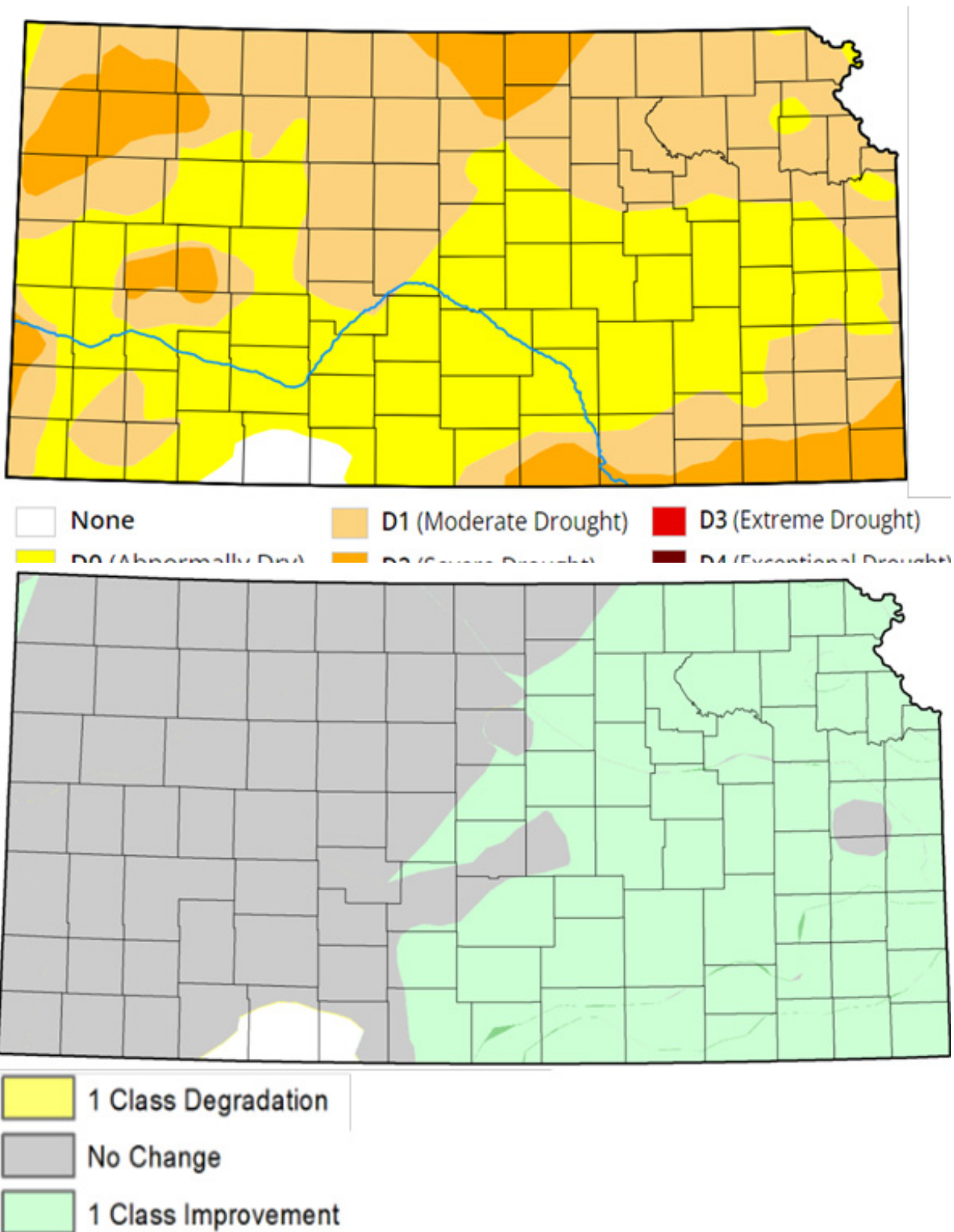


Figure 2. Current weekly drought status (top) and change in drought category over the past week (bottom). Source: UNL Drought Monitor.

Weather outlooks

The Weather Prediction Center's 7-day precipitation forecast, valid for November 6-12, calls for another week with above-normal precipitation statewide (Figure 3). Unlike the past week, the highest amounts are expected in south central and southwest Kansas, where 2.5 to 4 inches of precipitation is possible. In the far northwest, temperatures could be cold enough for the precipitation to fall as snow. In eastern Kansas, lower amounts from 0.75 to 1.5 inches are expected. The bulk of the precipitation during the period is expected to fall from Friday into Saturday. These totals will add to the precipitation surplus for this month. The Midwest Regional Climate Center estimates an average of 1.83" of precipitation has fallen in Kansas so far in November. This amount currently ranks November 2024 as the 31st wettest November out of the last 130 years. Another inch of precipitation in the coming week would move this month up to the 11th wettest, with plenty of time later in November to potentially increase that total further. Average 7-day precipitation amounts across Kansas continue to decrease each week, and are down to 0.19" in western Kansas, 0.32" in central Kansas and 0.54" in eastern Kansas. Mild temperatures are expected to continue, with weekly temperatures expected to average from 3 to 7 degrees above normal, with eastern Kansas more above normal than in the west. The average daily high and low across Kansas for this period are 59° and 33°.

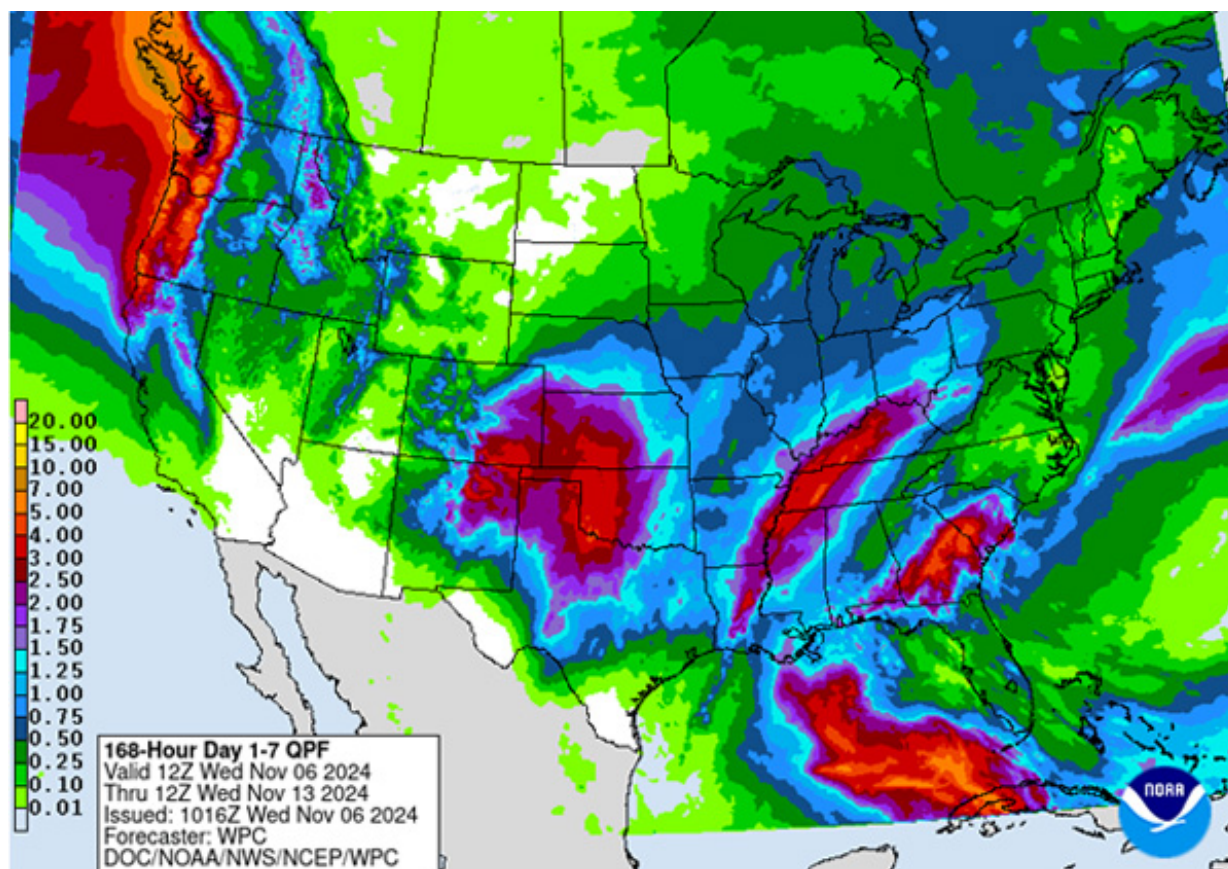


Figure 3. The National Weather Service Weather Prediction Center's (NWS-WPC) 7-day precipitation forecast (Nov. 6 – 13, 2024).

The 8 to 14-day outlook (Figure 4), valid for the period November 13-19, has increasing probabilities of above-normal temperatures from west to east, with far western Kansas expected to have near-

normal temperatures. The highest probability of above-normal temperatures is in far southeastern Kansas at 48%. There are slightly elevated chances of above-normal precipitation statewide, with probabilities ranging from 39% in extreme southwestern Kansas to 46% in the far northeast.

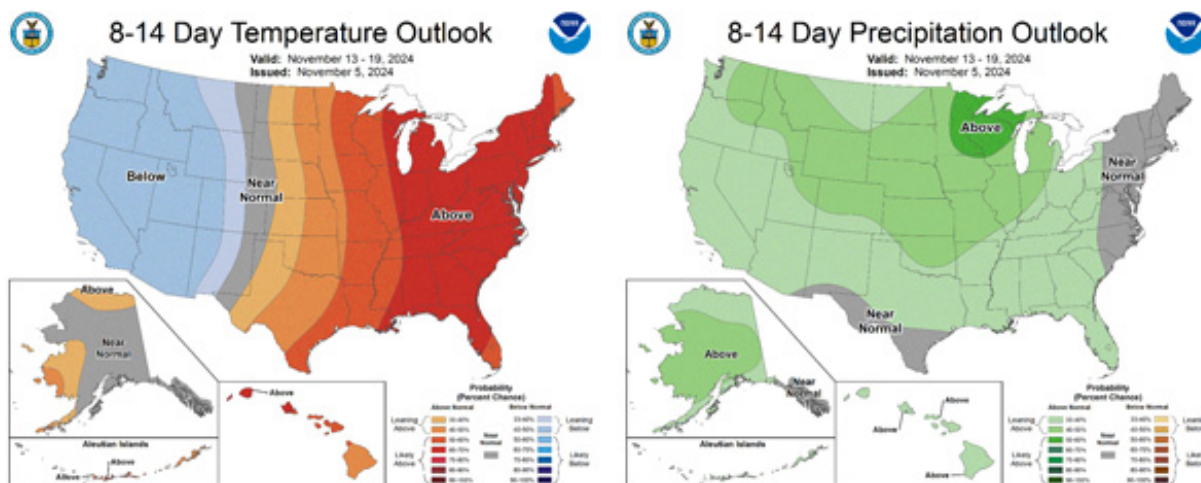


Figure 4. The National Weather Service Climate Prediction Center’s (NWS-CPC) 8 to 14-day temperature (left) and precipitation (right) outlooks.

Looking even further ahead, the Climate Prediction Center’s weeks 3 and 4 outlook (Figure 5), valid for the 14-day period from November 16th through the 29th, favors above-normal temperatures (55-60% probability) statewide. There are equal chances of above-normal and below-normal precipitation across most of the state, with slightly elevated chances of above-normal precipitation (50-60%) in the southeast.

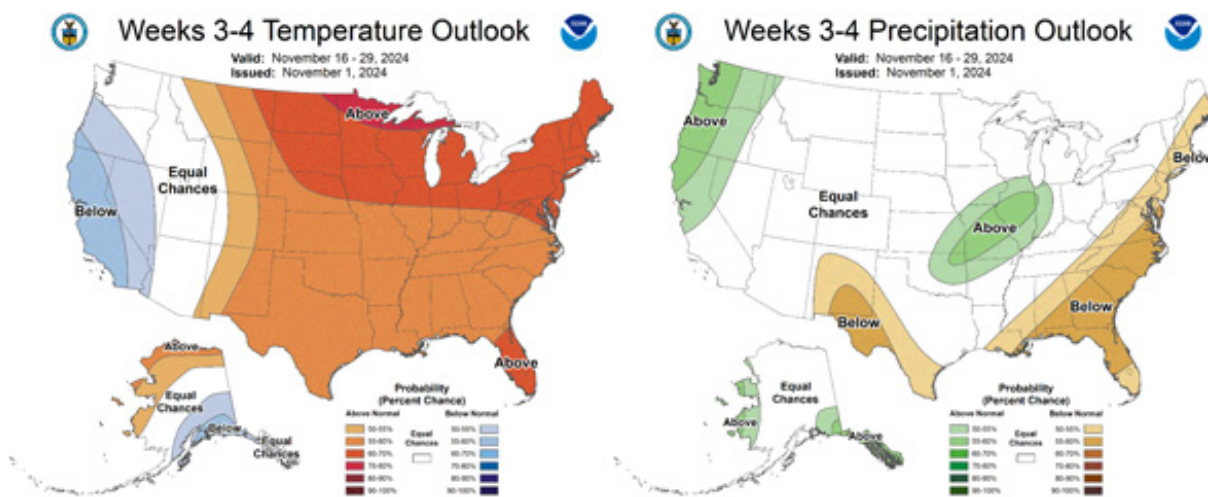


Figure 5. The Climate Prediction Center’s weeks 3 and 4 outlooks for temperature (left) and precipitation (right).

This article is a shortened version of the weekly Kansas Drought Update and Climate Report. If you

would like to receive the full report delivered to your email each week, please send a request to Matt at msittel@ksu.edu. He will add you to his distribution list.

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5. Sorghum Connection Series extends support to Kansas growers with winter series

The Sorghum Connection Series, launched in September by the Kansas Grain Sorghum Commission (KGSC) in collaboration with K-State Research and Extension and the Department of Plant Pathology, announces a comprehensive winter educational program.

Building on the success of its inaugural field day series focused on stalk rot prevention and producer profitability, the Sorghum Connection team is offering an additional series of one-day events across central and western Kansas. The events will be held in Salina on Dec. 4, Hays on Dec. 5, and Garden City on Dec. 6.

Attendees will gain valuable insights from leaders at K-State on critical topics such as:

- Managing chinch bug populations - Anthony Zukoff
- Effective weed management strategies - Sarah Lancaster
- Unleashing the potential of sorghum in the pet food industry - Julia Pezzali
- Navigating the sorghum market outlook - Dan O'Brien

Each event will begin with registration at 8:00 AM and will conclude at approximately 3:00 PM. To register or learn more about these events, please visit www.ksgrainsorghum.org.

The Sorghum Connection Series offers a unique opportunity for Kansas sorghum growers to connect, learn, and stay ahead of the curve. Don't miss this chance to cultivate success in the years ahead.



SORGHUM CONNECTION **WINTER SERIES**

Mark your calendars for local winter summits aimed to bring multi-disciplinary, data-driven information to Kansas grain sorghum producers to help improve on-farm productivity and profitability.

DECEMBER 4, 2024 | SALINA

DECEMBER 5, 2024 | HAYS

DECEMBER 6, 2024 | GARDEN CITY