



**K-STATE**  
Research and Extension

## Extension Agronomy

# eUpdate

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*12/14/2023*

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. After a better start in 2023, what factors influence the survival of winter canola?

Winter canola planting conditions were much improved in the fall of 2023. While much of central Kansas remains at some level of drought intensity, the majority of the canola crop was seeded following timely rains, leading to optimum growth. It will be interesting to see how continued drought will impact overwintering canola. Fortunately, the start of the cold period has been relatively mild. Still, one of the main questions for growers is, how could dry soils and cold temperatures affect the winter survival of canola?

### **Effect of canola plant size on winter survival**

Rapid and timely emergence is critical for attaining the right amount of growth before winter, which we've seen this growing season. Canola overwinters -- and is the most tolerant to cold temperatures -- in the rosette growth stage. At this stage, the crown (rosette) develops at the soil surface with larger older leaves at the base and smaller newer leaves at the center. The stem thickens, but its length remains unchanged. To have the best chance at survival, a winter canola plant needs 5 to 8 true leaves, 6 to 18 inches of fall growth, a root collar diameter of  $\frac{1}{4}$  to  $\frac{1}{2}$  inch, and an extensive root system.

On the other hand, canola that has too much top growth (typically 24 inches or more) in the fall can succumb to winterkill for a few reasons, including overuse of available soil water and nutrients, stem elongation well above the soil surface, and physical damage to the unprotected crown as winter temperatures arrive.

### **Crop establishment in 2023**

As mentioned, soil moisture conditions made canola establishment much easier in 2023. Most producers were able to plant during the optimum window for their area, while some had to wait as rains were delayed. Canola trials near Manhattan were seeded about two weeks later than optimum, which resulted in less than normal plant development and growth before winter.

An abrupt cold snap around November 1 tested the crop early for cold tolerance. Most canola in central Kansas possessed adequate top growth and were able to handle the cold temperatures with ease. Figure 1 shows winter canola trials planted near Hutchinson with optimum growth in late October. As a result, only minor leaf bleaching and leaf area loss were observed. This is a positive sign because the crop had little time to acclimate to temperatures in the teens before the cold snap.



**Figure 1. Winter canola plots near Hutchinson on October 26, 2023. The plots were seeded into good soil moisture on September 14, 2023. Photo by Mike Stamm, K-State Research and Extension.**

Stand loss from early cold temperatures was a greater risk near Manhattan because the canola plants were not as far along in development as a result of late planting. Figure 2 shows how plants looked shortly after the hard freeze and two weeks later. Fortunately, the crowns remained firm and turgid after the hard freeze. This is a good indication that plants were not lost. After a couple of weeks of above-normal temperatures, canola plants added new leaves at the center of the rosette, and the frozen leaves withered away. If temperatures had remained below normal for an extended period, we would have expected significant stand loss; however, the warm temperatures helped the plants rapidly recover. Plants that were delayed in development caused by uneven emergence were lost due to the cold temperatures; some minor stand thinning was observed.



**Figure 2. Winter canola plants near Manhattan, KS. The picture on the left was taken November 3, 2023, and the picture on the right was taken November 17, 2023. Notice how the bleached and wilted leaves on the left eventually turned brown and were lost. New leaf growth is evident at the center of the rosette on the right. The plots were seeded on September 25, 2023. Photos by Mike Stamm, K-State Research and Extension.**

It will be interesting to see how well these plants handle future cold temperatures, especially near Manhattan. The good news is that plants are in a great period for cold temperature acclimation. Ideally, days with highs in the 40s and nighttime lows in the 20s will prepare canola for harsher winter temperatures. Also, a warmer than normal winter will benefit crops with less aboveground biomass that are at greater risk for winterkill. Areas that are still facing drought conditions are more prone to winterkill due to both cold and dry conditions, which are typically more precarious than cold and wet conditions.

For producers concerned about the effects of cold temperatures this time of year, visit canola fields about five days after the hardest freeze event. Look for bleached (whitened) leaves, wilted plants, and dead plants (dry and brown). Pull up plants to squeeze and inspect the root and crown for firmness and turgidity.

In next week's e-Update, we will explore other factors affecting winter survival and discuss current research.

For additional information on canola production, please refer to the recently revised "Great Plain Canola Production Handbook," available through K-State Research and Extension.

<https://www.bookstore.ksre.ksu.edu/pubs/MF2734.pdf>

For more information about canola growth and development stages, please consult the K-State Canola Growth and Development poster: <https://www.bookstore.ksre.ksu.edu/pubs/MF3236.pdf>

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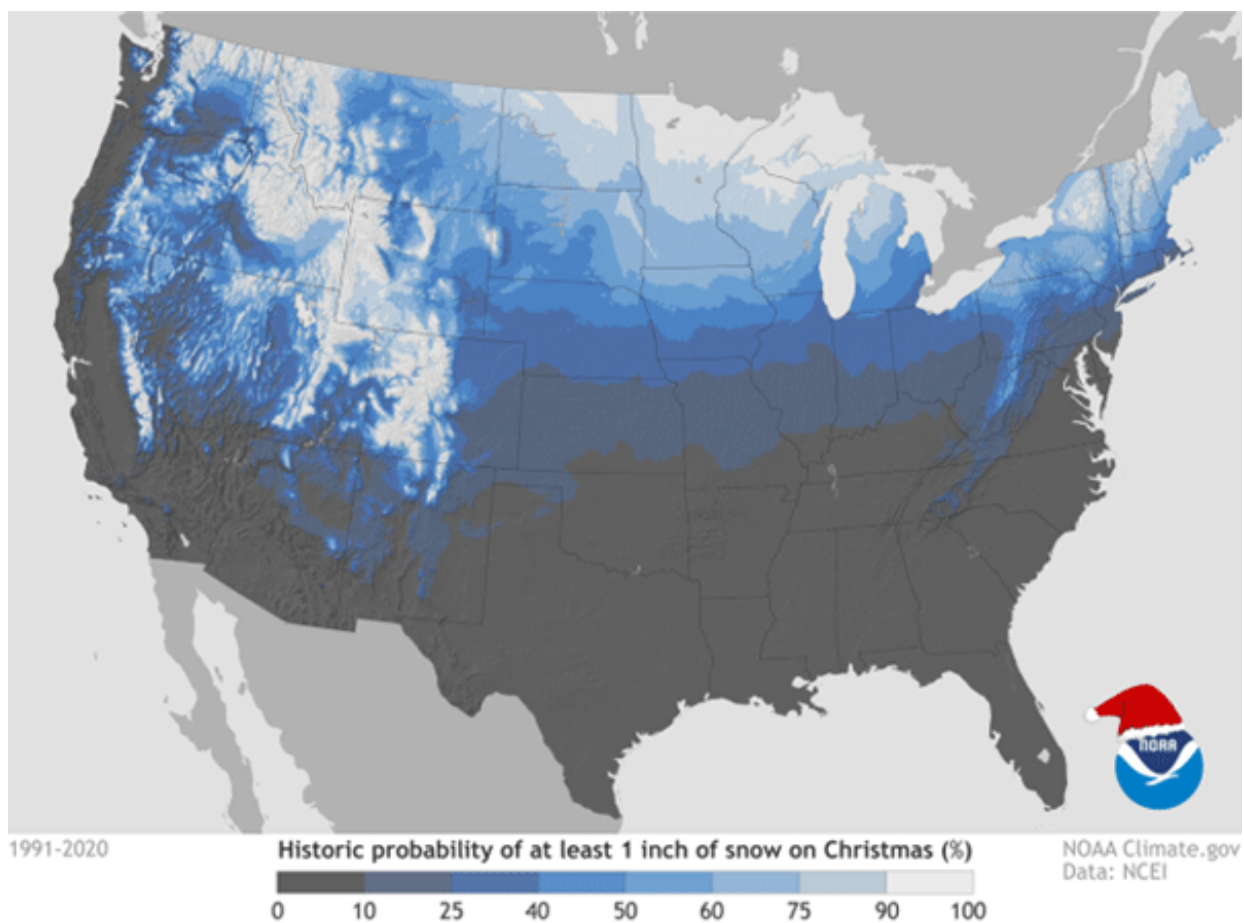
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## 2. Will Kansas see another white Christmas in 2023?

A white Christmas, by meteorological definition, occurs if there is at least 1 inch of snow on the ground on Christmas morning, December 25, at 7 AM local time. The [National Centers for Environmental Information](#) (NCEI) has produced an official map with the probabilities of a white Christmas across the lower 48 states. The map is based on 30-year climatological normals updated by NCEI every 10 years. The most recent edition is based on data for the latest set of normals, spanning 1991-2020 (Figure 1).

There are only a few areas of the country where a white Christmas is a near certainty: northern Minnesota, northern New England, and the highest terrain of the western United States, such as the Rockies, the Sierra Nevadas, and the Cascades. There is a very low chance of a white Christmas for the southeastern states, including Florida and along the Gulf Coast. Probabilities are also very low for Texas, the desert southwest, and the west coast. For all other locations, the chances fall between impossible and certain, such as in the central states.



**Figure 1. The probability of a white Christmas across the lower 48 states. Source: noaclimate.gov**

In Kansas, the probabilities are highest in the north along the Nebraska border and lowest in the

southeast. The highest probability in the state is in Mankato, in Jewell County, with a 33% chance of a white Christmas. Table 1 lists the probabilities of a white Christmas at selected locations around Kansas. The table also includes information such as the most recent white Christmas, average December snowfall, and average and recorded temperatures for Christmas Day.

**Table 1. White Christmas probabilities, most recent white Christmas, average snowfall, and record temperatures for selected Kansas locations.**

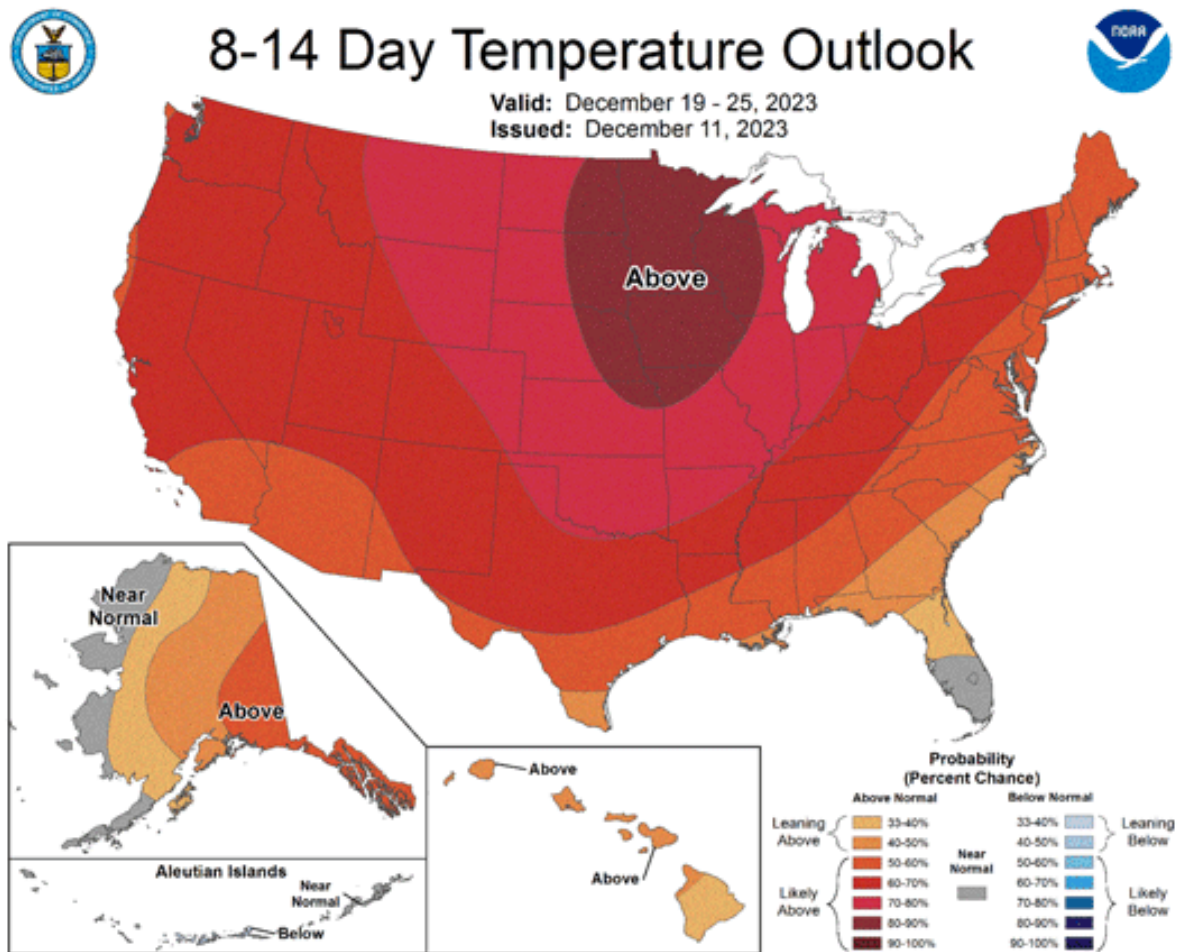
City	White Christmas Probability (1991-2020)	Most recent (inches)	Deepest Dec. 25 snow (year)	Avg. Dec. snow (inches)	Average High/Low Dec. 25	Record High/Low Dec. 25 (year)
Manhattan	22%	2022 (1")	7" (2013)	4.8	41° / 20°	70° (1889) -13° (1983)
Topeka	18%	2022 (1")	6" (1983)	4.1	41° / 22°	68° (1922,2016) -11° (1983)
Wichita	12%	2022 (2")	4" (1962, 2007)	3.1	44° / 24°	68° (2019) -6° (1983)
Dodge City	17%	2013 (3")	12" (1997)	4.0	44° / 21°	74° (1950) -13° (1879)
Goodland	22%	2022 (3")	13" (1941)	5.2	43° / 17°	74° (1950) -9° (2012)
Hays	21%	2011 (7")	11" (1945)	3.3	42° / 17°	73° (1955) -11° (1983)
Concordia	23%	2017 (1")	10" (1983)	4.5	39° / 20°	64° (2016) -8° (1983)

The most recent white Christmas in parts of Kansas was last year. A bitterly cold air mass arrived in Kansas on the 21<sup>st</sup>, sweeping the entire state. By the morning of the 22<sup>nd</sup>, temperatures were as cold as -19°F in Cheyenne County. Some snow accompanied the Arctic air, and for areas where measurable snow was received, it stayed put for a few days as temperatures were slow to moderate. Places like Goodland, Manhattan, and Topeka all had a white Christmas, with 1 to 2 inches of snow on the ground on Christmas morning. Bitter cold temperatures were also the rule that morning, with lows as cold as -7°F at Baldwin City in Douglas County.

Could we have an encore performance this year? Unfortunately, it doesn't look as promising as last year at this time. The current outlook for the week leading up to Christmas morning has high



probabilities of above-normal temperatures statewide (Figure 2). There are slightly elevated chances of above-normal precipitation for the entire state (Figure 3), but with above-normal temperatures expected, it's more likely that if we get precipitation during this time frame, it will fall as rain rather than snow.



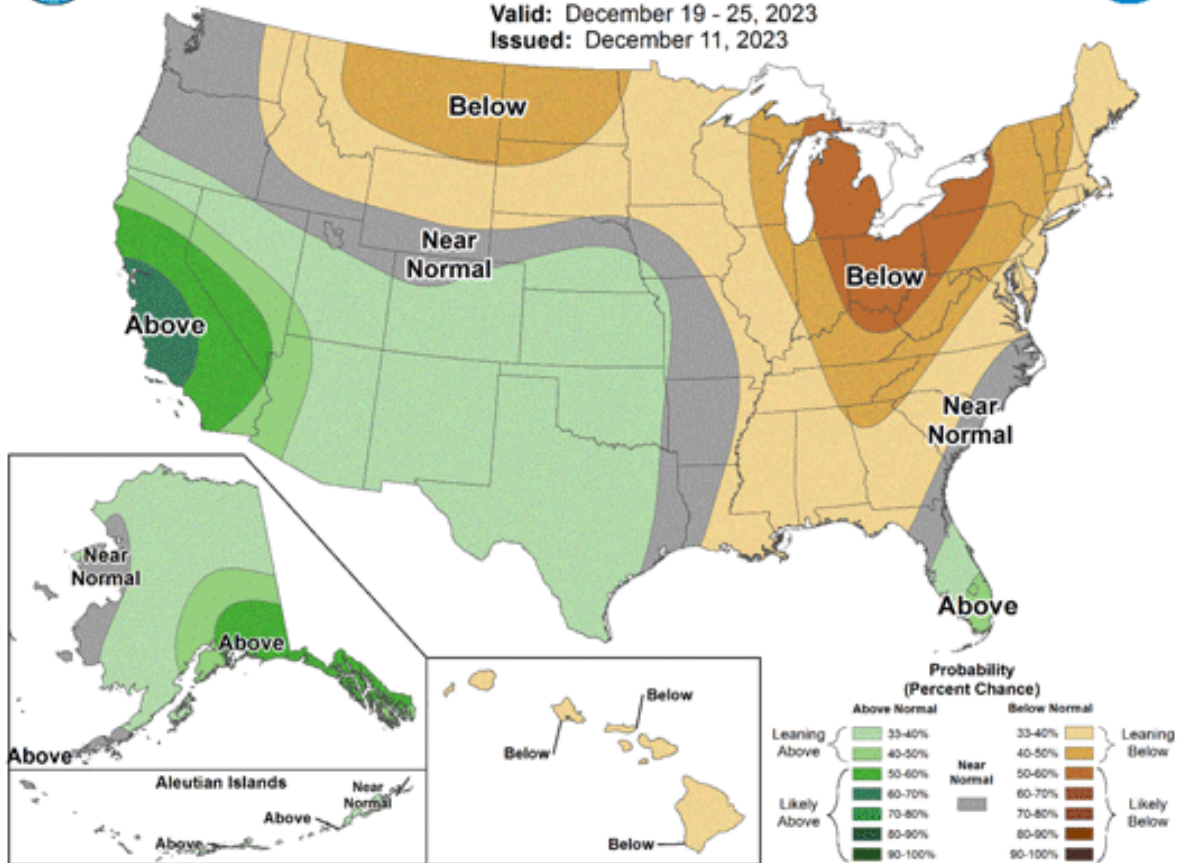
**Figure 2. The Climate Prediction Center's 8 to 14-day temperature outlook for December 19-25, 2023.**



# 8-14 Day Precipitation Outlook



Valid: December 19 - 25, 2023  
Issued: December 11, 2023



**Figure 3. The Climate Prediction Center’s 8 to 14-day precipitation outlook for December 19-25, 2023.**

The forecast could change between now and Christmas Day, but a white Christmas looks unlikely for now. While a disappointment for some, above-normal temperatures and no snow would be welcome for those with travel plans before Christmas. Have a happy and safe holiday season!

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### 3. K-State 2024 Chemical Weed Control Guide is now available online

One of the most popular K-State Research and Extension publications is here! This publication provides suggestions for chemical weed control in several major crops. For crops not listed, consult your local K-State Research and Extension agricultural agent.

#### **How can I access the online version?**

The online version of the 2024 K-State Chemical Weed Control Guide is available at:

<https://bookstore.ksre.ksu.edu/pubs/SRP1183.pdf>

You can also use the camera app on a mobile device and scan the QR code below to be directed to the Weed Control Guide.

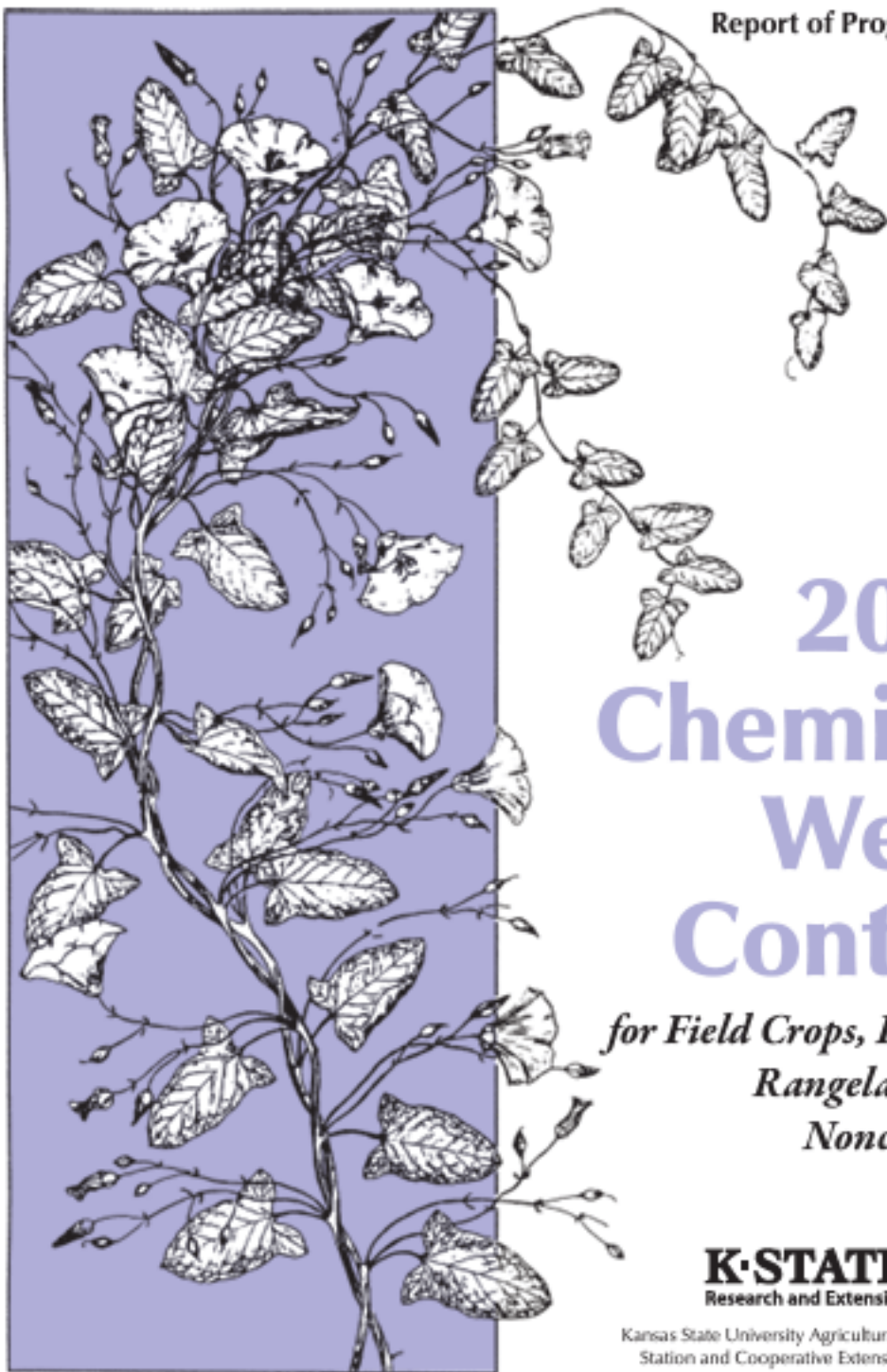
When viewing the file in a web browser or in Adobe, bookmarks can be accessed to guide you to the first page of every section (options vary per program settings and device type).



#### **How can I order copies?**

If you would like to purchase hard copies of the 2024 Weed Control Guide, orders will be accepted and processed in January after the books are printed. Orders can be placed using this link:

Report of Progress 1183



# 2024 Chemical Weed Control

*for Field Crops, Pastures,  
Rangeland, and  
Noncropland*

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#### 4. Cover Your Acres Winter Conference, January 16-17 in Oberlin

K-State Research and Extension will host the 21st annual [Cover Your Acres Winter Conference](#) for crop producers and consultants on January 16 and 17. The conference will take place in the traditional in-person format at the Gateway Civic Center in Oberlin, KS.

Cover Your Acres is a producer-driven meeting focused on new ideas and research-based updates in crop production in northwest Kansas and the Central High Plains region.

The conference, which typically draws more than 400 attendees from Kansas and other states, highlights the latest technology, methods, and conservation practices to improve crop production in the region. This year's conference will feature university specialists and industry representatives discussing what's driving profitability in northwest Kansas farms. **Confirmed session topics** will include economic drivers on northwest Kansas farms, weed resistance management, cropping systems, and soil fertility management. Additional session topics and speakers are still being finalized and will be announced in an upcoming eUpdate article and on the conference website (link included below).

The same programs will be offered on both days of the conference. Participants attending both days will find it easier to catch most or all of the programs. The sessions are followed by a social on Tuesday evening where attendees can visit with industry representatives and conference speakers while enjoying hor d'oeuvres.

**Online registration is open.** The fee is \$55 for Tuesday, January 16, \$60 for Wednesday, January 17, or \$80 for both days. After January 10<sup>th</sup>, and for walk-ins, the cost is \$80 per day. The conference fee includes lunch, morning and afternoon refreshments, and educational materials. The program will offer continuing education unit (CEU) credits for Certified Crop Advisors and 1A for Commercial Applicators credit.

To view the preliminary conference details, lodging accommodations, and online registration, visit [www.northwest.ksu.edu/coveryouracres](http://www.northwest.ksu.edu/coveryouracres). For questions, call 785-462-6281.

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## 5. K-State Corn and Soybean Schools to be held Jan. 16-19, 2024

In January 2024, look for a new format for the traditional K-State Corn and Soybean Winter Crop Schools. K-State Research and Extension, in collaboration with Kansas Corn and Kansas Soybean, has combined the schools for a whole-day program covering both crops.

Online registration is open! Please visit <https://kscom.com/schools/> and get signed up today!

### 2024 K-State Corn and Soybean Crop Schools

- **January 16 (Tuesday) – Parsons**  
K-State Southeast Research and Extension Center
- **January 17 (Wednesday) – Hesston**  
Agco Corporation
- **January 18 (Thursday) – Garden City**  
Corteva Agriscience Research Center
- **January 19 (Friday) – Olathe**  
John Deere Ag Marketing Center

Participant check-in will begin at 8:30 a.m. at each location with the program starting at 9:00 a.m. The school will wrap up around 3:00 p.m. Morning refreshments and a hot lunch will be provided. CCA and Commercial Pesticide Applicator credits have been applied for. Save the date for one of the locations near you!

Each school will feature a range of region-specific topics covering corn and soybean production. The final agendas for each location will be shared in an upcoming eUpdate. Some of the topics include:

- Agronomics for corn and soybean production
- Corn and soybean disease update
- Carbon credits
- Updates from the Kansas Mesonet
- Market update
- Insect pressure update
- Planter technology
- Weed control
- Soil fertility
- Irrigation for corn and soybean crops



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