



K-STATE
Research and Extension

Extension Agronomy

eUpdate

01/03/2020

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.

Subscribe to the eUpdate mailing list: <https://listserv.ksu.edu/cgi-bin?SUBED1=EUPDATE&A=1>

1. Review of herbicide label requirements: Paraquat.....	3
2. Wind chill analysis tool from Kansas Mesonet.....	5
3. Midwest Cover Crops Council Annual Conference: Feb. 11-12 in Kansas City.....	8
4. Still time to register for the 2020 K-State Corn Schools.....	10
5. Don't miss the K-State Soybean Schools - January 2020.....	12
6. K-State Sorghum Schools scheduled for late January.....	16
7. Cover Your Acres Winter Conference, January 14-15 in Oberlin.....	19

1. Review of herbicide label requirements: Paraquat

This article is the second in a series reviewing unique or updated label requirements for key herbicides. Instructions printed on your herbicide label supersede this information.

Paraquat is the active ingredient in the herbicide Gramaxone SL 2.0 and others. It kills plants by destroying the membranes around the cells. The same processes occur in human cells. The lungs are especially sensitive, but the chemical characteristics of paraquat make inhalation unlikely. The greatest risk is accidental swallowing. The oral LD50 (lethal dose for 50% of the population) for humans is 3-5 mg/kg, which is roughly equal to 0.4 fluid ounces (1/200th cup) of paraquat for a 200-pound person.

Because of the acute oral toxicity, herbicides that contain paraquat are labeled with the 'Danger' signal word, which indicates that this herbicide should be handled with great care. Manufacturers of paraquat-containing herbicides add odorants to the formulated product to alert handlers of its presence. For 2020, paraquat packaging has been updated so that it reduces handler exposure and only allows transfer to application equipment. As with all herbicides, personal protective equipment should be worn when using paraquat-containing herbicides. Unlike other products, the required PPEs (personal protective equipment) are different for applicators and mixers/loaders and are summarized in Table 1.

Table 1. Summary of required PPEs for paraquat applicators and mixers/loaders.

Handler/Applicator

Long sleeved shirt and long pants
Shoes plus socks
Protective eyewear
Nitrile, rubber, neoprene, PVC, or other Class A chemical resistant gloves
Respirator with N, R, P, or HE filter

Mixer/Loader

Long sleeved shirt and long pants
Shoes plus socks
Protective eyewear
Nitrile, rubber, neoprene, PVC, or other Class A chemical resistant gloves
Respirator with N, R, P, or HE filter
Chemical resistant apron
Face shield

The label has also been updated as of fall 2019 to increase the safety for using the product. First, only certified applicators may handle paraquat. Second, all handlers are required to take paraquat safety training. The certificate of training will not be required for purchase, but should be carried by the handler/applicator.

The recent changes are part of a 2016 EPA decision in response to deaths caused by accidentally swallowing paraquat that was transferred to a drink bottle. The required training emphasizes the importance of storing paraquat in the original, labeled container. Training is available at <https://www.epa.gov/pesticide-worker-safety/paraquat-dichloride-training-certified-applicators>.

There is the potential for some confusion because there are both old and new containers of Gramaxone available. According to Syngenta officials, handlers will be bound by the requirements of the label on the container they are using.

It may be tempting to think that it would be better not to use paraquat; but it is an important tool for managing weeds, especially those that are resistant to glyphosate and other herbicides. When handled carefully, paraquat is an effective weed management tool that would be difficult to replace in terms of effectiveness on hard-to-control species like pigweeds (Figure 1).

Additional information about the new paraquat regulations can be found at <https://www.epa.gov/pesticide-worker-safety/paraquat-dichloride-training-certified-applicators>.



Figure 1. Paraquat provides excellent control of large pigweeds in noncropland. Photo by Sarah Lancaster, K-State Research and Extension.

Sarah Lancaster, Extension Weed Science Specialist
slancaster@ksu.edu

2. Wind chill analysis tool from Kansas Mesonet

Cold winter days are returning! However, it is not always the temperature that gives the air that nip. The “feels like” temperature is usually influenced by the wind as well. We call this the wind chill.

What is the wind chill?

When temperatures drop below 50 °F and wind speeds are greater than 5 mph, the “Feels Like” temperature is lower than the actual temperature. Wind chill can be calculated two ways: 1) using the chart below, or 2) mathematically. As the wind increases and/or the temperature decreases, wind chill values decrease. This means that despite it being 0 °F on a very cold morning, when factoring in the wind (for example 20 mph), it can feel like a much colder temperature (in this example, -22 °F).

This colder “feels like” temperature can not only make you feel chilled quicker; it can also lead to other problems such as frostbite much quicker. Exposure time estimations of frostbite issues at 0 degrees F with no wind is 30 minutes, while 0 °F and 55 mph winds is less than 10 minutes of exposure. Wind chills can be determined by the following chart from the National Weather Service (<https://www.weather.gov/safety/cold-wind-chill-chart>):

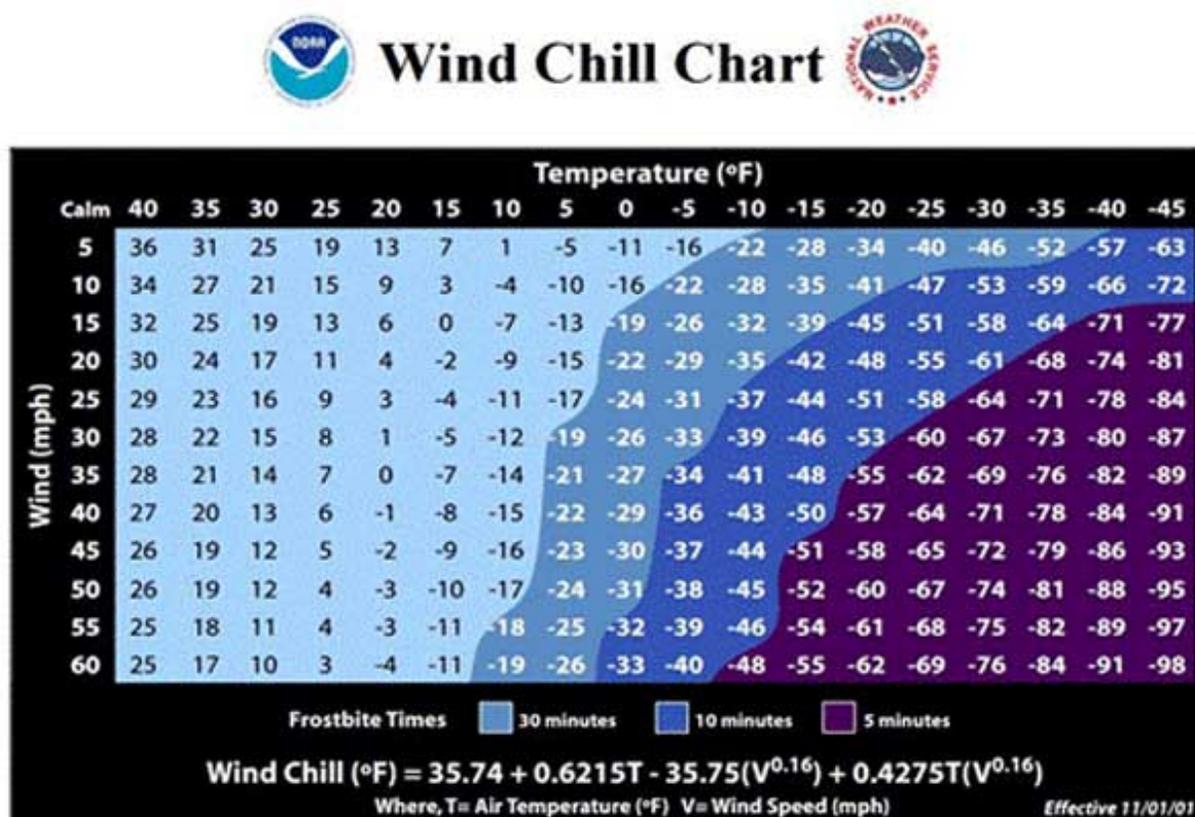


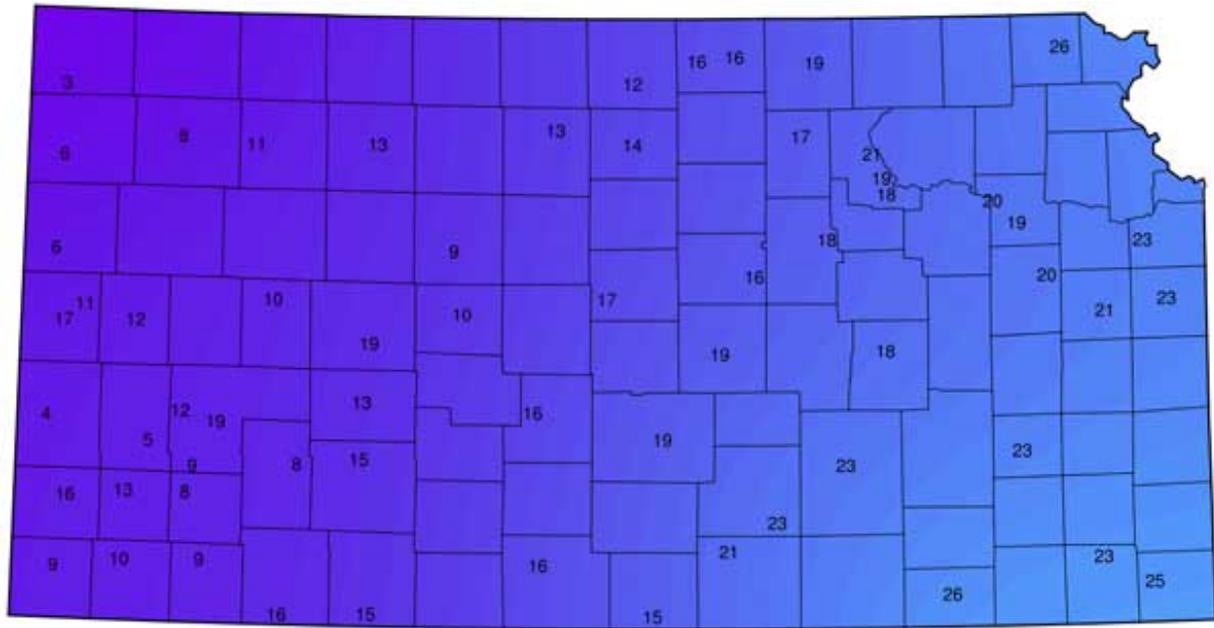
Figure 1. Wind chill chart from the National Weather Service.

Where can you access wind chill data?

The Kansas Mesonet makes viewing the wind chill very easy! We have put together a webpage

depicting current wind chill via a gradient map here: mesonet.ksu.edu/weather/wind_chill

It is also accessible by clicking the banner on the Kansas Mesonet homepage, mesonet.ksu.edu. The map defaults to the current wind chill, but also has a selection at the top where you can change the map to view temperature and wind speed/direction. Since these are the two ingredients for the wind chill, it tells the complete story. The table below the map also displays the wind chill, temperature, and wind data for each station in sortable columns. By clicking the column headings, that particular column will sort from lowest to highest values. Click it again and it will reverse the order. You can also select a specific station either on the map or in the data table and it will display the specific information for that location.



Kansas Mesonet - Windchill at 2019-12-31 08:07

Figure 2. Map of wind chills as of 12/31/2019 at 8:07 am.

How many hours has the temperature been below freezing?

Winter wheat and cover crop producers still have an interest in the cold temperatures. The freeze monitor data is available on our webpage as well. It allows you to track the hours below 32 or 24 °F thresholds useful for permafrost development or winter wheat/cover crop damages. You can access this information via the menu in the top left (Weather à Freeze Monitor) or at: mesonet.ksu.edu/weather/freeze

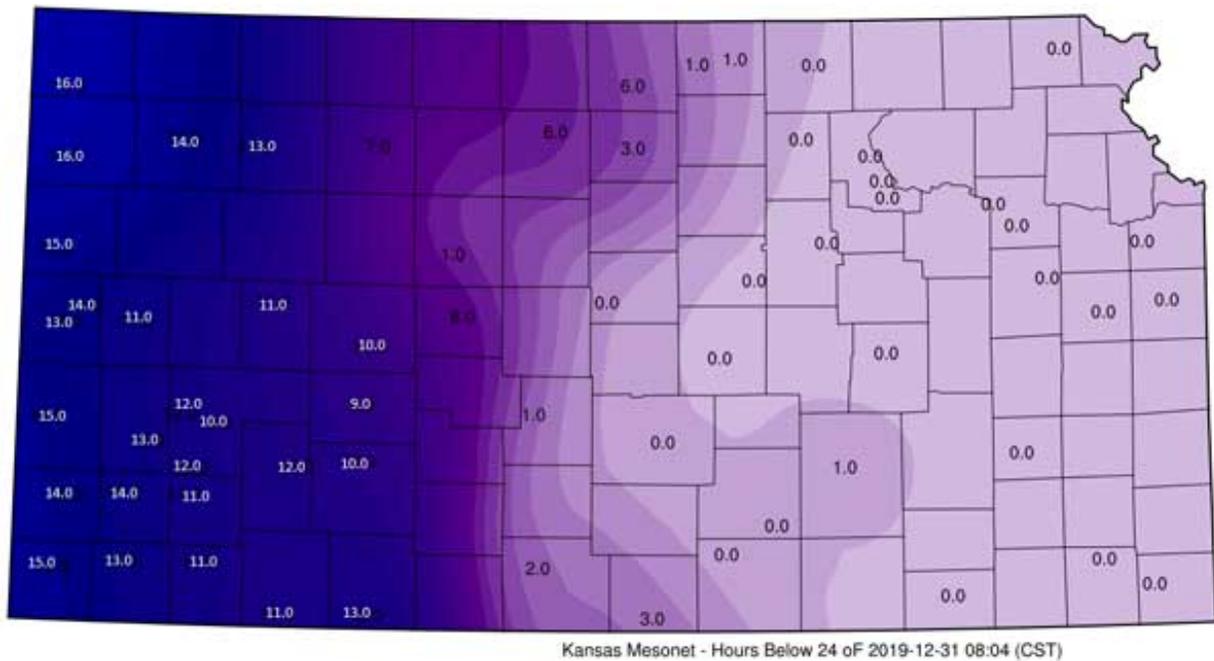


Figure 3. Hours below 24 °F as of 8:04 am on 12/31/2019.

Stay warm and safe on these chilly days! Winter has only just begun.

Christopher “Chip” Redmond, Kansas Mesonet Manager
christopherredmond@ksu.edu

Mary Knapp, Assistant Climatologist
mknapp@ksu.edu

3. Midwest Cover Crops Council Annual Conference: Feb. 11-12 in Kansas City

Registration is open for the Midwest Cover Crops Council Annual Conference, Feb. 11-12, 2020, in Kansas City, Mo.

The event will be at the KCI Expo Center. Twelve states and one Canadian province belong to the council.

The conference will have sessions on both row crop and cattle operations due to the large number of producers in the Kansas City area producing both grain and livestock.

Event sponsors include MU Extension, K-State Research and Extension, University of Nebraska Extension, and USDA Natural Resources Conservation Service. Speakers include faculty from MU, University of Nebraska, and Kansas State University, as well as cattle producers and representatives from NRCS and cattle companies. Sessions include:

- Selecting and Managing Cover Crops
- Weed and Herbicide Interactions Using Cover Crops
- Incorporating Cover Crops in Cattle Operations
- Cover Crop Environmental and Economic Benefits
- Cash Crop Interactions with Cover Crops
- Farmer Panel Discussion

Sessions will look at using cover crops in row crop production, livestock and grazing, as well as environmental and economic issues. Details are available at mccc.msu.edu/about/meetings. The meeting is open to the public.

Register online at event.me/E5WdBD or mccc.msu.edu/about/meetings.

Learn more about MCCC and cover crops at mccc.msu.edu.



DeAnn Presley, Soil Management Specialist
deann@ksu.edu

Peter Tomlinson, Environmental Quality Specialist
ptomlin@ksu.edu

4. Still time to register for the 2020 K-State Corn Schools

The Department of Agronomy and K-State Research and Extension, in partnership with Kansas Corn, are planning to host six Corn Management Schools in 2020. These schools are designed to provide in-depth training for corn producers across Kansas. While each school's agenda is tailored for the location, the corn schools will connect with an overall theme of "maximizing advancements in your operation". Participants will have the opportunity to hear the latest research and production information, get updates on corn issues and network over lunch. The corn schools are free for farmers to attend.

The schools will cover a number of issues facing corn producers in each region including Farm Bill options, weed control, insect resistance, fertility management, disease management, and late-planting seasons.

Corn Management Schools

The dates and locations are:

- **January 6** - Montezuma (optional Corn-Fed Beef Seminar to follow)
Hy-Plains Feedyard
7505 U.S. Hwy 56
Montezuma, KS 67867
- **January 8** – Parsons
Southeast Area Extension Office
25092 Ness Rd.
Parsons, KS 67357
- **January 10** – Wichita
Sedgwick Co. Extension Office
7001 W 21st St.
Wichita, KS 67205
- **February 3** – Oakley
Buffalo Bill Cultural Center
3053 US-83
Oakley, KS 67748
- **February 5** – Salina
Hilton Garden Inn
3320 S 9th St,
Salina, KS 67401
- **February 7** – Olathe
John Deere Ag Marketing Center
10789 S Ridgeview Rd

Olathe, KS 66061

Each school will run from 9:00 am to 2:00 pm with lunch provided. On-site registration for each school will begin at 8:30 a.m.

The school and lunch are offered at no cost, but participants are asked to pre-register before Jan. 3 for the January schools and before Feb. 4 for the February schools. Farmers can register online at kscorn.com/cornschoo, by phone by calling Kansas Corn at 785-410-5009, or at their local extension office.

CCA and CEU credits have been applied for. Additional sponsors include Pioneer and John Deere.

Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
ciampitti@ksu.edu

Stacy Mayo-Martinez, Kansas Corn
smartinez@ksgrains.com

5. Don't miss the K-State Soybean Schools - January 2020



A series of six K-State Soybean Production Schools will be offered in January to provide in-depth training targeted for soybean producers and key-stakeholders. The schools are sponsored by the Kansas Soybean Commission.

The schools will cover a number of issues facing soybean growers including: weed control, crop production practices, nutrient management and soil fertility, insects, disease management, and market outlook.

The dates are set and specific locations have been chosen with Schools located across the state.

January 13 – Monday

- **Smith Center, KS** - 9:30 am to 1:30 pm

St. Mary's Catholic Church Parish Hall
403 W. Highway 36
Contact: Sandra Wick, swick@ksu.edu
RSVP by January 8

- **Salina, KS** - 3:30 to 7:30 pm

Webster Conference Center
2601 North Ohio Street
Contact: Jay Wisbey, jwisbey@ksu.edu
RSVP by January 8

January 14 – Tuesday

- **Mulvane, KS** - 9:30 am to 1:30 pm

Pix Community Center
101 E Main St
Contact: Randy Hein, rvhein@ksu.edu; Jeff Seiler, jseiler4@ksu.edu
RSVP by January 8

January 21 - Tuesday

- **Emporia, KS** - 3:30 pm to 7:30 pm

Anderson Building
Lyon County Fairgrounds
2650 W US Hwy 50
Contact: Brian Rees, brees@ksu.edu
RSVP by January 16

January 22 – Wednesday

- **Atchison, KS** - 9:30 am to 1:30 pm

Cedar Ridge Restaurant (4 miles NW of Atchison)
17028 318th Rd.
Contact: Ray Ladd, cladd@ksu.edu
RSVP by January 17

- **Marysville, KS** - 3:30 to 7:30 pm

Marysville Helvering/Senior Center
111 S 8th St (Please use the west door)
Contact: Anastasia Johnson, anastasia@ksu.edu
RSVP by January 17

On-site registration will begin 30 minutes prior to the program start time. A meal will be provided courtesy of our sponsors. There is no cost to attend, but participants are asked **to pre-register, if possible, for the school they plan to attend**. Online registration is available at K-State Soybean Schools (<http://bit.ly/KSUSoybean>) or by emailing/calling the nearest local K-State Research and Extension office for the location participants plan to attend.



K-STATE DEPARTMENT OF AGRONOMY
KANSAS SOYBEAN COMMISSION

2020 SOYBEAN SCHOOL

K-STATE RESEARCH AND EXTENSION

DATES & LOCATIONS

MONDAY, JANUARY 13

Smith Center | 9:30 a.m. — 1:30 p.m.

Salina | 3:30 — 7:30 p.m

TUESDAY, JANUARY 14

Mulvane | 9:30 a.m. — 1:30 p.m.

TUESDAY, JANUARY 21

Emporia | 3:30 — 7:30 p.m

WEDNESDAY, JANUARY 22

Atchison | 9:30 a.m. — 1:30 p.m.

Marysville | 3:30 — 7:30 p.m

REGISTRATION

ONLINE | <http://bit.ly/KSUSoybean>

Registration will begin 30 minutes before the scheduled start time for each of the free schools. A meal will be provided.

TOPICS

The one-day schools will cover issues facing soybean producers.
Weed Control | Crop Production | Soil Fertility | Pest Management



Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
ciampitti@ksu.edu

Kansas State University Department of Agronomy
2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506
www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron

Stu Duncan, Northeast Area Crops and Soils Specialist
sduncan@ksu.edu

Kathy Gehl, eUpdate Editor and Extension Program Coordinator
kgehl@ksu.edu

6. K-State Sorghum Schools scheduled for late January

Three K-State Sorghum Production Schools will be offered in late January to provide in-depth training targeted for sorghum producers and key-stakeholders. The schools are sponsored by Kansas Grain Sorghum Commission.



The schools will cover a number of issues facing sorghum growers: risk management, marketing opportunities, weed control, crop production practices, nutrient and soil fertility, and insect management.

- **January 29, Wednesday – Scott City**

2:30 p.m. to 7:00 p.m.
William Carpenter 4 H Building
608 North Fairground Road

Contact: John Beckman - jbeckman@ksu.edu

- **January 30, Thursday – Great Bend**

8:30 a.m. to 1:00 p.m.
Great Bend Recreation Commission
Burnside Room, 1214 Stone Street

Contact: Stacy Campbell - scampbel@ksu.edu

- **January 30, Thursday – Hutchinson**

2:30 p.m. to 7:00 p.m.
South Hutchinson Community Building

101 W Ave C
South Hutchinson KS 67505

Contact: Darren Busick - darrenbusick@ksu.edu

The schools are free to attend and a meal will be provided courtesy of the Kansas Grain Sorghum Commission. Participants are asked to pre-register by **January 27**. Online registration is available at K-State Sorghum Schools (<http://bit.ly/KSUSorghum>) or by emailing/calling the nearest local K-State Research and Extension office for the location participants plan to attend.

Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
ciampitti@ksu.edu

Kathy Gehl, eUpdate Editor and Extension Program Coordinator
kgehl@ksu.edu

K-STATE DEPARTMENT OF AGRONOMY

2020 SORGHUM SCHOOL

K-STATE RESEARCH AND EXTENSION

DATES & LOCATIONS

WEDNESDAY, JANUARY 29

Scott City, KS

2:30 — 7:00 p.m

THURSDAY, JANUARY 30

Great Bend, KS

8:30 a.m. — 1:00 p.m

Hutchinson, KS

2:30 — 7:00 p.m

REGISTRATION

ONLINE | <http://bit.ly/KSUSorghum>

A meal will be provided at each of the free schools.

RSVP requested by Monday, January 27.

TOPICS

The one-day school will cover issues facing sorghum producers.

Weed Control | Crop Production | Pest Management | Soil Fertility

KANSAS STATE
UNIVERSITY

Department of Agronomy



Kansas State University Department of Agronomy

2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506

www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron

7. Cover Your Acres Winter Conference, January 14-15 in Oberlin

K-State Research and Extension will host the 17th annual Cover Your Acres Winter Conference for crop producers and consultants on January 14-15 at the Gateway Center in Oberlin, Kansas.

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 it will feature university specialists and industry representatives discussing the following topics:

- Alternative crops – What we know, don't know, and should be thinking about
- Beyond grain: The value of wheat in the production chain
- Cover crops as a weed management tool
- Current financial status of Northwest Kansas farms
- Insect management in dryland corn
- Planter technology advancements
- Soil testing – Interpretations matter
- The war on weeds
- What drives efficiency and profitability in irrigated corn?
- What does a food company care about soil? An intro to General Mills' Ag Commitment
- Producer panel discussion

The same programs will be offered both days of the conference. Registration will begin at 7:45 a.m. with educational sessions ending at 5:00 p.m. The sessions are followed by a social on Tuesday evening where attendees can visit with industry and university specialists while enjoying heavy hors d'oeuvres.

Early registration is due by January 8. The fee is \$50 for Tuesday, January 14th, \$45 for Wednesday, January 15th, or \$65 for both days. After January 8, the cost is \$65 per day. The conference fee includes lunch, morning and afternoon refreshments, and educational materials. The program offers a total of 10 continuing education unit (CEU) credits for Certified Crop Advisors and 2 CEUs for Commercial Applicators.

To view the conference details and for online registration, visit www.northwest.ksu.edu/coveryouracres. For questions, call 785-462-6281.

Major sponsors of the conference include: Pioneer, Hoxie Implement Co., Nutrien Ag Solutions, Lang Diesel, Bayer, National Sunflower Association, Plains Equipment Group, Sims Fertilizer & Chemical, and SureFire Ag Systems.

Lucas Haag, Northwest Area Crops and Soils Specialist
lhaag@ksu.edu