Extension Agronomy

eUpdate

12/21/2018

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. Calculating the value and proper storage of poultry litter

The use of poultry litter can contribute to reducing the cost of fertilizer inputs for many operations, depending on the price and transportation cost of the litter. For many farmers, the use of poultry litter may represent significant savings. However, for many producers there is a "hassle factor" with using poultry litter. Reliable delivery, storage site location, uniform application, access to application equipment, and odor can all be additional challenges to producers unfamiliar with its use and should be a consideration.

Calculating poultry litter value

How valuable is poultry manure? This may not be a straightforward answer and depends on several factors, including the nutrient(s) required for a specific field. Here is one example using the average nutrient analysis values from southeast Kansas of 56-53-46 (N-P_2O_5-K_2O lb per ton) :

Year 1

- 35% of N is inorganic (all available) = 19.6 lb N/ton litter
- 65% of N is organic (25% is available in year 1) = 9.1 lb N/ton litter
    - Total N available in year 1 = 28.7 lb N/ton litter
    - Total value of N available in year 1 (@ $0.33/lb N) = $9.47/ton litter
- P is 50% available in year 1 = 26.5 lb P2O5/ton litter
    - Total value of P in year 1 (@ $0.40/lb P2O5) = $10.60/ton litter
- K is 100% available in year 1 = 47.0 lb K2O/ton litter
    - Total value of K in year 1 (@ $0.22/lb K2O) = $10.34/ton litter

- **Total in year 1 = $30.41/ton litter**
- **Residual N and P = $19.61/ton litter**

More information on nutrient availability in poultry manure is available online in eUpdate Issue 724 at https://ksu.ag/2EnZbwZ. In addition to the N, P, and K, poultry litter also contains sulfur, micronutrients, and organic matter which adds additional value to the poultry litter.

Storage considerations

Proper storage of manure is important to prevent runoff contamination of water and odor problems. The following practices should be utilized:

- Avoid stockpiling litter near homes, public roadways, and drainage ditches.
- Stockpile litter at least 200 feet away from "Waters of the State."
- Use tarps on litter piles to keep litter dry, reduce odor, and reduce N losses from volatilization.
- Create an earthen berm around piles to allow time for water and nutrients running off the pile to infiltrate.

Additional considerations when selecting a suitable storage site

- Locate stockpiles in areas with minimal slope.
- Avoid sites that slope toward waterways and receive extraneous drainage.
- Locate sites in areas surrounded by grass that can serve as a buffer.
- Avoid sensitive groundwater areas and sites in close proximity to wells.

Figure 1. Stockpiling poultry litter. Photo by Doug Shoup, K-State Research and Extension.

If poultry litter is a regular part of your operation's fertility program, consider constructing improved poultry litter storage sites that include a storage pad built out of lime screenings, all-weather truck access, and a grass or cropland buffer to trap nutrients leaving the storage site. K-State Research and Extension Watershed Specialists may be able to provide assistance in identifying suitable storage locations and/or designing improved temporary storage sites that poses the least possible environmental risk from runoff for the area.

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2. Wind chill analysis…at your fingertips!

Very 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 degrees 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 degrees 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 degrees 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 degrees F and 55mph winds is less than 10 minutes of exposure. Wind chills can be determine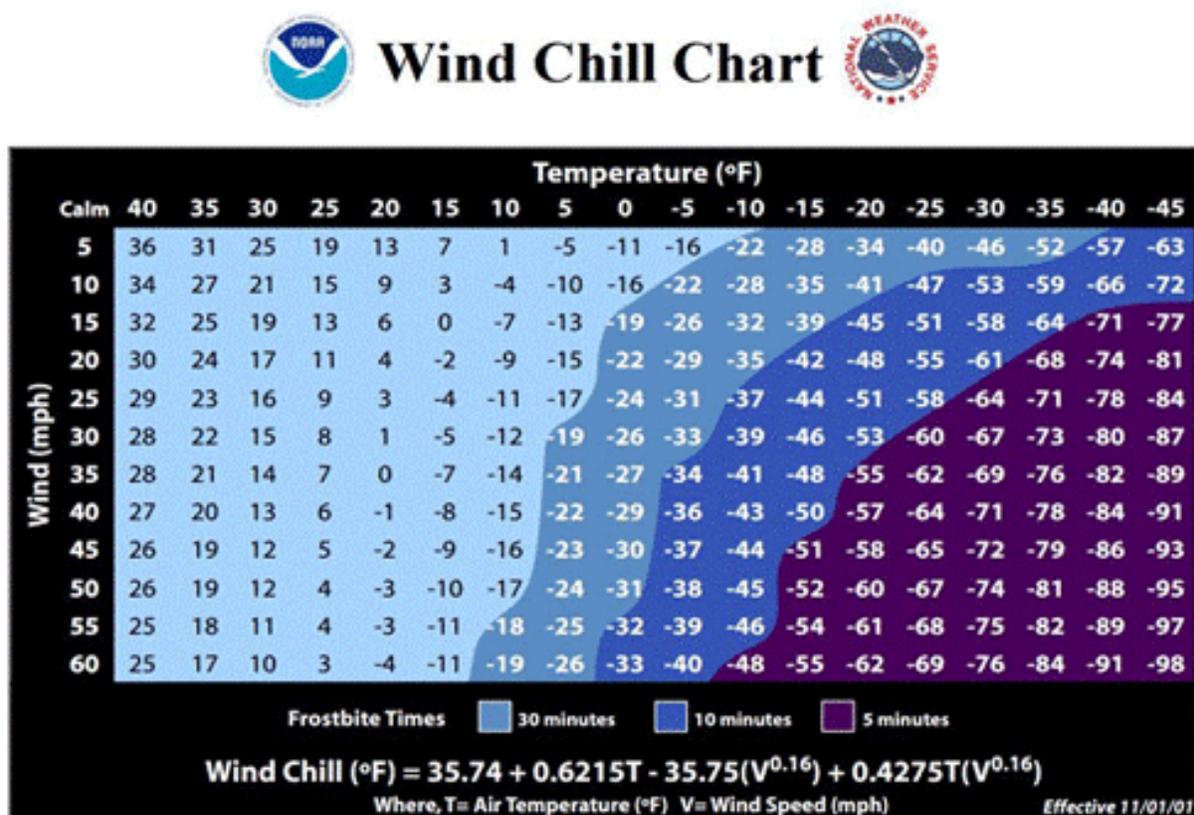d by the following chart from the National Weather Service (http://www.nws.noaa.gov/om/winter/windchill-images/windchillchart3.pdf):

Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F) V = Wind Speed (mph) Effective 11/01/01

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 that displays a gradient map that depicts the current wind chill at: 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. 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.
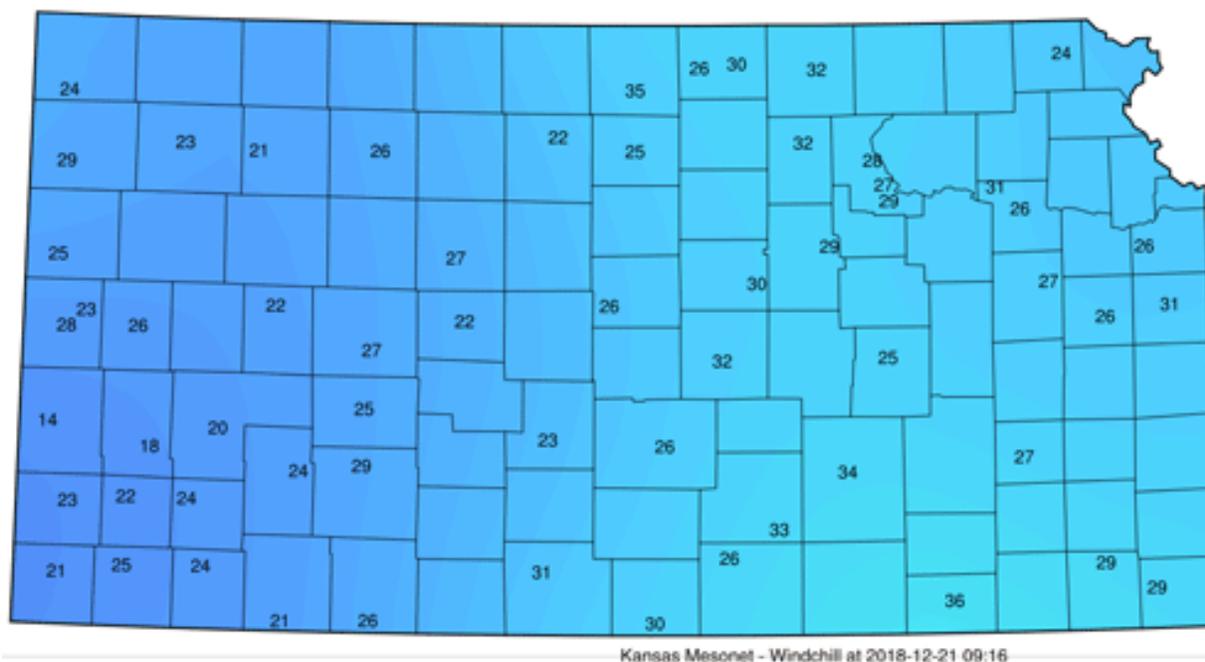

Kansas Mesonet - Windchill at 2018-12-21 09:16

Figure 2. Map of wind chills as of 12/21/2018 at 9:16 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. It allows you to track the hours below 32 degrees F or those below 24 degrees F. You can access it through the menu in the top left (Weather àFreeze Monitor) or at: mesonet.ksu.edu/weather/freeze
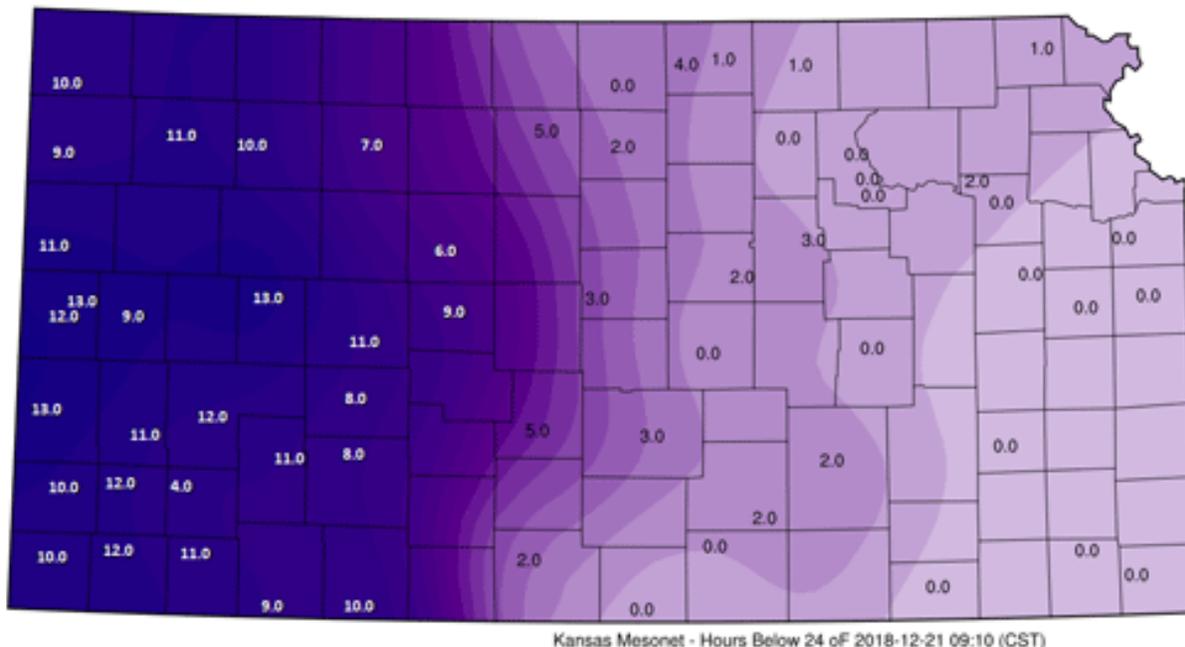
Kansas Mesonet - Hours Below 24 oF 2018-12-21 09:10 (CST)

Figure 3. Hours below 24 degrees F as of 9:10 am on 12/21/2018.

Stay warm and safe on these cold days! Winter is just beginning…

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3. Will it be a white Christmas or white New Year for Kansas?

Is this the year for a White Christmas? It might depend on how do you define a White Christmas. Does it count if there is snow on the ground, even if it fell before Christmas Day? Does it count when snow fell on December 25th, even if it is not recorded until the 26th? It is a White Christmas, for most of us, if there is snow on the ground or if snow falls on the 25th. In northeast Kansas, this occurs only one in every five years (Figure 1).
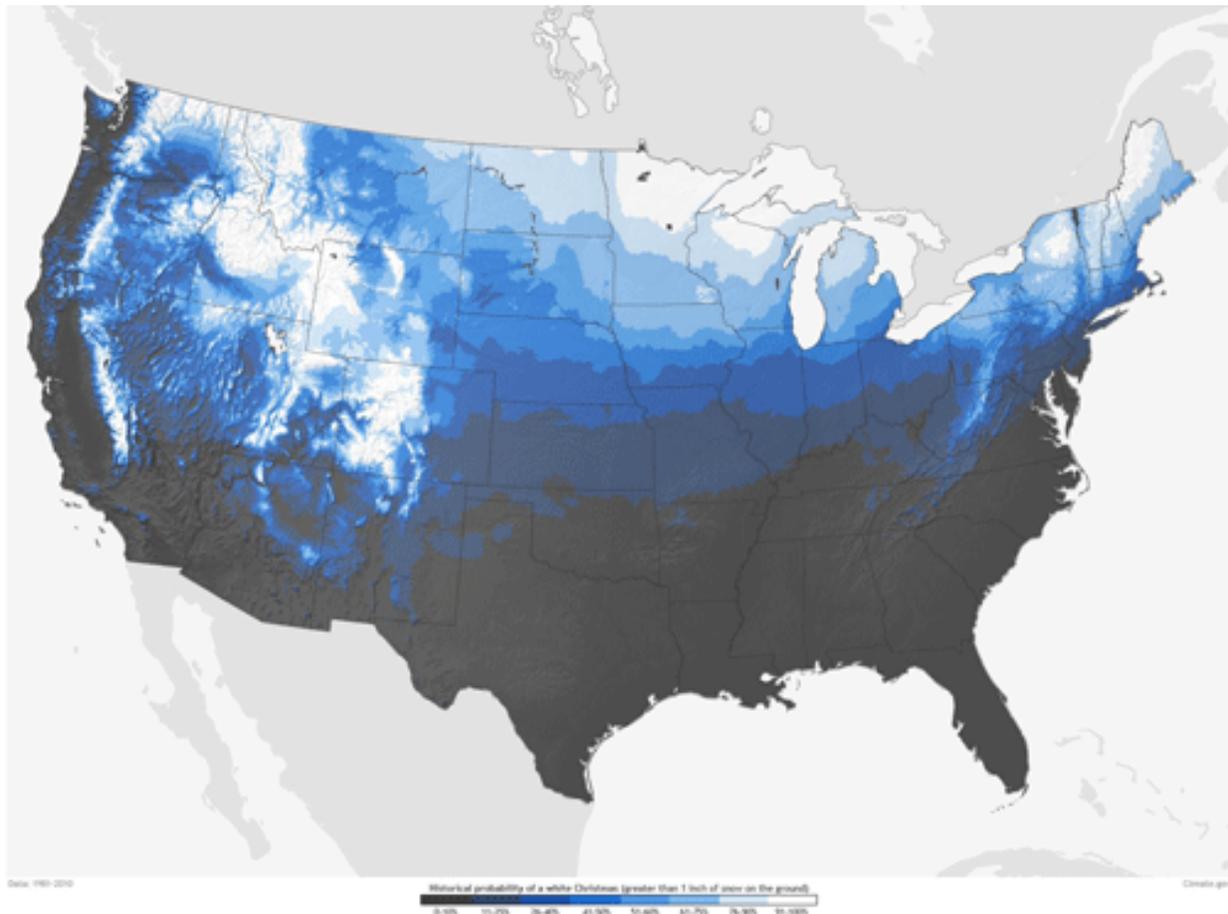

Figure 1. Historical probability of a white Christmas (Climate Prediction Center)

Our last White Christmas in Manhattan was in 2017, when an inch remained on the ground from an earlier storm. The last time snowfall was reported on the 25th was in 2009, when 6.1 inches was reported.

On the other hand, a snowy start to the new year is more likely. Historical records indicate the odds are one in four years to have snow at the new year. The most recent Climate Prediction Center's 6-10 Day Outlook indicates a strong probability of wetter-than-normal conditions to end the year (Figure
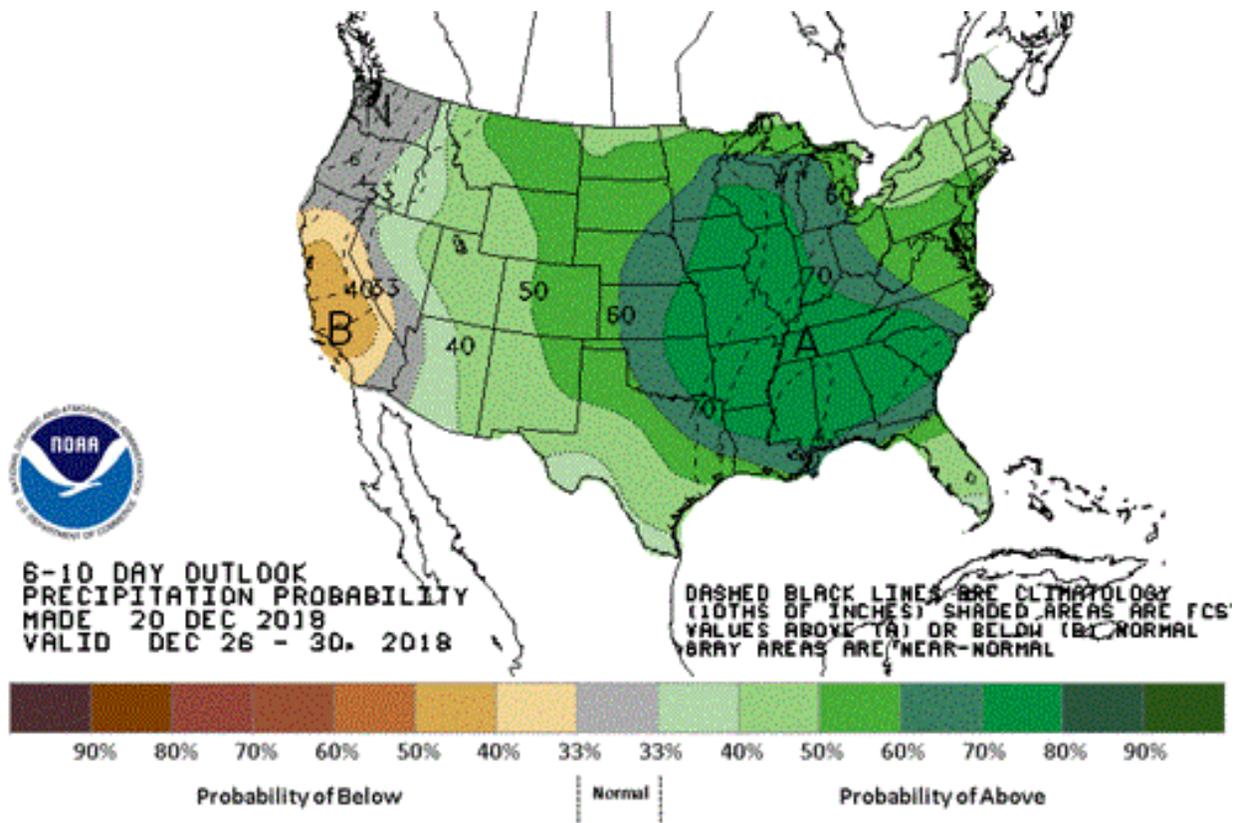
2).

Figure 2. 6-10 Day Precipitation Outlook (NOAA)

The major question is what track the frontal systems will take, and how that influences the form of precipitation. A more southerly track will bring colder air into play, reducing the amount of moisture and increasing the chances that it will be in the form of snow. A more northerly track will increase the amount of moisture available, but also make it more likely that the precipitation will fall as rain.

Check the National Weather Service for updated forecasts at www.weather.gov and to track current conditions, check the Kansas Mesonet at mesonet.ksu.edu.

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4. 2019 K-State Corn Schools - Get registered now

The Department of Agronomy and K-State Research and Extension, in partnership with Kansas Corn, are planning to host three Corn Production Management Schools and three Corn Pre-Plant Schools in 2019. These schools are designed to provide in-depth training for corn producers across Kansas with targeted information for each location.

Each school is free to attend and will have lunch provided thanks to support provided by Pioneer. A range of topics will be covered and vary by location including: corn management, high-yielding corn factors, weed control, soil fertility and nutrient management, soil health considerations, insect management, corn market and policy perspectives, and grower panel discussion.

Corn Production Management Schools

- **January 7 – Salina, KS**
  Registration begins at 7:45 am, program from 8:30 am – 2:00 pm
  Hilton Garden Inn, 3320 S 9th Street, Salina

- **January 9 – Oakley, KS**
  Registration begins at 7:45 am, program from 8:30 am – 2:30 pm
  Buffalo Bill Cultural Center, 3083 US-83, Oakley

- **January 11 – Lawrence, KS**
  Registration begins at 7:45 am, program from 8:30 am – 2:00 pm
  Douglas County Fairgrounds, Flory Meeting Hall, 2120 Harper Street, Lawrence

Pre-Plant Corn Schools

- **February 11 – Parsons**
  Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
  Southeast Research and Extension Center, 25092 Ness Road, Parsons

- **February 13 – Hesston**
  Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
  Dyck Arboretum of the Plains, 177 W Hickory Street, Hesston

- **February 15 – Garden City**
  Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
  Pioneer Garden City Research Station, 1455 East Parallel Road, Garden City

To register for any of the schools, please go online at https://kscorn.com/CornSchool/. Registration is requested one week prior to the event you wish to attend.

CCA and CEU credits have been applied for. Additional local sponsors include Ag Risk Solutions and the Andersons.

2019 WINTER WORKSHOPS

KANSAS CORN

K·STATE Research and Extension

CORN SCHOOLS
- JANUARY 7 | SALINA
- JANUARY 9 | OAKLEY
- JANUARY 11 | LAWRENCE

PRE-PLANT SCHOOLS
- FEBRUARY 11 | PARSONS
- FEBRUARY 13 | HESSTON
- FEBRUARY 15 | GARDEN CITY

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5. Registration open for the K-State Soybean Schools scheduled for January 2019

A series of nine K-State Soybean Production Schools will be offered in late January to provide in-depth training targeted for soybean producers and key-stakeholders. The schools will be 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, irrigation, and market outlook. More information on specific speakers and topics will be provided in future eUpdate issues as agendas are finalized.

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

January 15 – Tuesday

- **Wichita, KS -** 8:30 am to 1:00 pm

Sedgewick County Extension Education Center, 7001 W. 21st Street North
Contact: Jackie Fees, jfees@ksu.edu

- **Parsons, KS -** 3:00 to 7:00 pm

K-State Southeast Research and Extension Center
25092 Ness Road
Contact: James Coover, jcoover@ksu.edu

January 16 – Wednesday

- **Paola, KS -** 8:30 am to 1:00 pm

Miami County Fairgrounds, Building 2

401 Wallace Park Drive
Contact: Katelyn Barthol, kbarth25@ksu.edu)

- **Holton, KS -** 3:00 to 7:00 pm

Northeast Kansas Heritage Complex, 12200 214th Road
Contact: David Hallauer, dhallaue@ksu.edu

January 24 - Thursday

- **Hugoton, KS -** 8:30 am to 12:30 pm

4-H Building, 1130 S. Trindle (Fairgrounds)
Contact: Ronald Honig, rhonig@ksu.edu

- **Scott City, KS -** 3:00 to 7:00 pm

Wm. Carpenter 4-H Building, 608 N. Fairground Rd
Contact: John Beckman, jbeckman@ksu.edu

January 25 – Friday

- **Hoxie, KS -** 8:30 am to 12:30 pm

Sheridan County 4-H Building, 940 Oak Ave.
Contact: Keith VanSkike, kvan@ksu.edu

- **Great Bend, KS -** 3:00 to 7:00 pm

American Ag Credit, 5634 10th Street
Contact: Stacy Campbell, scampbel@ksu.edu

January 28 – Monday

- **Beloit, KS -** 9:00 am to 1:00 pm

NC Kansas Technical College Conference Room, 3033 U.S. Hwy 24
Contact: Sandra Wick, swick@ksu.edu

Lunch will be provided courtesy of the Kansas Soybean Commission. There is no cost to attend, but participants are asked **to pre-register one week prior to 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.

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6. K-State Sorghum Schools scheduled for early February

A series of three K-State Sorghum Production Schools will be offered in early February 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.

The final dates and locations have been set focusing with Schools across the state. More details on speakers, topics, and specific locations will be in an upcoming eUpdate. Stay tuned!

Garden City, KS

February 5, Tuesday, 8:30 am to 1:00 pm
Jennifer Stoss - jstoss@ksu.edu

Hays, KS

February 6, Wednesday, 8:30 am to 1:30 pm
Stacy Campbell - scampbel@ksu.edu

Salina, KS

February 7, Thursday, 8:30 am to 1:00 pm
Carl Garten - cgarten@ksu.edu

Lunch will be provided, courtesy of the Kansas Grain Sorghum Commission. There is no cost to attend, but participants are asked to pre-register by **January 29**. 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 nearest the location participants plan to attend.

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