



## Extension Agronomy

# eUpdate

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*01/17/2020*

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](mailto:kgehl@ksu.edu), or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 [dpeterso@ksu.edu](mailto:dpeterso@ksu.edu).

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## 1. World of Weeds: Kochia

This is the second article in the “World of Weeds” series. The first article was all about mistletoe and appeared in Issue 778 on December 20, 2019.

### Ecology of kochia

Kochia, also known as tumbleweed, is native to Europe and Asia and was introduced from Europe as an ornamental in the mid- to late- 1800s. It is well adapted to the Great Plains. Kochia is related to common lambsquarters and Russian thistle and is similar to them in some ways.

Kochia has alternate, lance-shaped leaves with 3-5 prominent veins and hairs on the margins and lower surface (Figure 1). Small green flowers are formed at the base of leaves in late summer and early fall. Kochia is a round or pyramid-shaped plant with many branches that can grow up to 6 feet tall (Figure 2).



**Figure 1. Example of a kochia seedling. Photo by Dallas Peterson, K-State Research and Extension.**



**Figure 2. Kochia plant that is approximately 6 feet tall. Photo by Dallas Peterson, K-State Research and Extension.**

In Kansas, kochia generally emerges in March, but can emerge as early as late January. Kochia can produce more than 50,000 seeds per plant, which are spread when the matured plant breaks off at the soil surface and tumbles in the wind (Figure 3). Kochia seeds are viable in the soil seedbank for only 1 to 2 years.

Kochia can be grazed when it is young and is credited with helping ranchers survive droughts of the early 20<sup>th</sup> century. However, it can accumulate harmful levels of nitrates and has been linked to photosensitivity in livestock.



**Figure 3. Pattern of seed dispersal by wind-blown kochia. Photo by Dallas Peterson, K-State Research and Extension.**

### Management

If uncontrolled, kochia can reduce soybean yield by 30%, corn and sorghum yield by about 40%, and wheat yield by 58%. Kochia populations in Kansas have confirmed resistance to: chlorsulfuron (Group 2), dicamba and fluroxypyr (Group 4), atrazine (Group 5), and glyphosate (Group 9).

Resistance to key post-emergence herbicides coupled with early emergence makes herbicide timing critical for kochia management. Pre-emergence herbicides should be applied in fall or very early spring. Products below are listed as examples. Always read and follow label directions.

| <b>Herbicide</b> | <b>Rate/acre</b> | <b>Group (s)</b> | <b>Crop</b>             | <b>Timing</b> |
|------------------|------------------|------------------|-------------------------|---------------|
| Fierce EZ        | 6 fl oz          | 14, 15           | C, SB, F                | PRE           |
| Lumax EZ         | 2.7 qt           | 5, 15, 27        | C, GS                   | PRE           |
| Sencor           | 0.5 lbs          | 5                | SB, W <sup>1</sup> , F, | BD, PRE       |
| Spartan          | 6 oz             | 14               | SB                      | BD, PRE       |
| StaraneNXT       | 27.4 fl oz       | 4, 6             | C, GS, W                | POST          |

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[www.agronomy.ksu.edu](http://www.agronomy.ksu.edu) | [www.facebook.com/KState.Agron](https://www.facebook.com/KState.Agron) | [www.twitter.com/KStateAgron](https://www.twitter.com/KStateAgron)

|                      |         |    |                                  |      |
|----------------------|---------|----|----------------------------------|------|
| Glyphosate (Several) | 2 pts   | 9  | C <sup>2</sup> , SB <sup>2</sup> | POST |
| Gramoxone SL         | 3 pts   | 22 | F                                | BD   |
| Laudis               | 3 fl oz | 27 | C                                | POST |

C=corn, GS = grain sorghum, SB=soybean, W = wheat, F = fallow, BD = burndown

<sup>1</sup>Tolerant varieties only; <sup>2</sup>Resistant varieties only

## References:

*Weeds of the Great Plains* by Stubbendieck et al., *Weeds of the Midwestern United States and Central Canada* edited by C.T. Bryson and M.S. DeFelice, *Weeds of the West* edited by T.D. Whitson, Dille et al. 2017, Kumar and Jha 2015.

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## 2. Dicamba application training opportunities in 2020

A previous eUpdate article on December 20, 2019 (<http://bit.ly/2twuoKL>) discussed the need for applicators to have annual dicamba application training and included website links for on-line training opportunities. Face-to-face trainings sponsored by agrichemical companies are also available at various locations throughout Kansas in the coming months. Dates and locations are listed in the table below.

| Date                     | Location    | Venue                               | Time                 |
|--------------------------|-------------|-------------------------------------|----------------------|
| January 22 <sup>M</sup>  | Dodge City  | Boot Hill Convention Center         | 9:00 – 11:00 am      |
| January 27 <sup>M</sup>  | Seneca      | Knights of Columbus                 | 9:00 – 11:00 am      |
| January 28 <sup>B</sup>  | Beloit      | First Christian Church              | 1:00 – 3:00 pm       |
| January 28 <sup>M</sup>  | Mayetta     | Prairie Band Casino                 | 9:00 – 11:00 am      |
| February 5 <sup>M</sup>  | Hays        | Holiday Inn Express                 | 10:00 am – 12:00 pm  |
| February 10 <sup>B</sup> | Abilene     | Sterl Hall                          | 9:30 am – 12:00 pm   |
| February 11 <sup>B</sup> | Manhattan   | K-State Alumni Association          | 2:00 – 4:00 pm       |
| February 17 <sup>B</sup> | Assaria     | Lutheran Church Family Life Center  | 10:00 am – 12:00 pm* |
| February 27 <sup>M</sup> | Chanute     | Mid-West Fertilizer Agronomy Center | 9:00 – 11:00 am      |
| February 27 <sup>B</sup> | Clay Center | First United Methodist Church       | 1:00 – 4:00 pm       |
| March 3 <sup>M</sup>     | Newton      | Meridian Center                     | 9:00 – 11:00 am      |
| March 10 <sup>M</sup>    | Clay Center | PrairieLand Partners                | 9:00 – 11:00 am      |

\*Grain Market Strategies and Outlook meeting begins at 1:00 pm

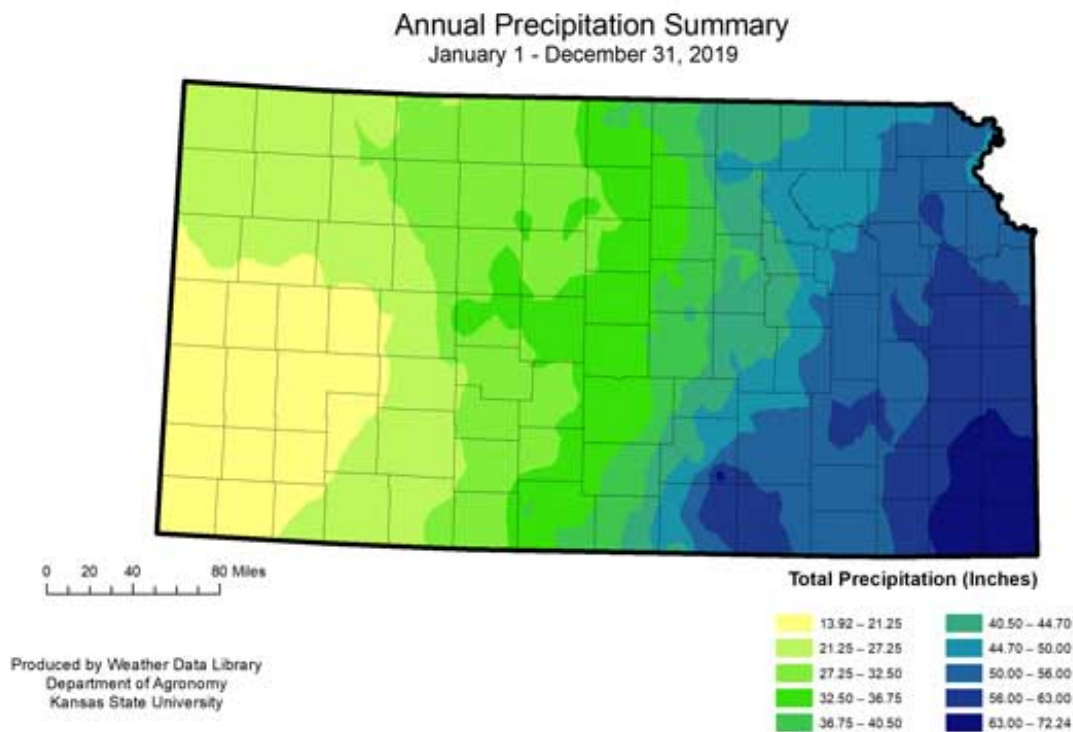
For more information and to register for one of these trainings, go to <https://www.cvent.com/c/calendar/7829eb5d-ddef-4c2f-ac2c-a67626018ece> (trainings marked with an “M”) or <https://engenia.corsizio.com/> (trainings marked with a “B”).

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### 3. Kansas Climate Summary for 2019 - A wet year

#### Rainfall summary

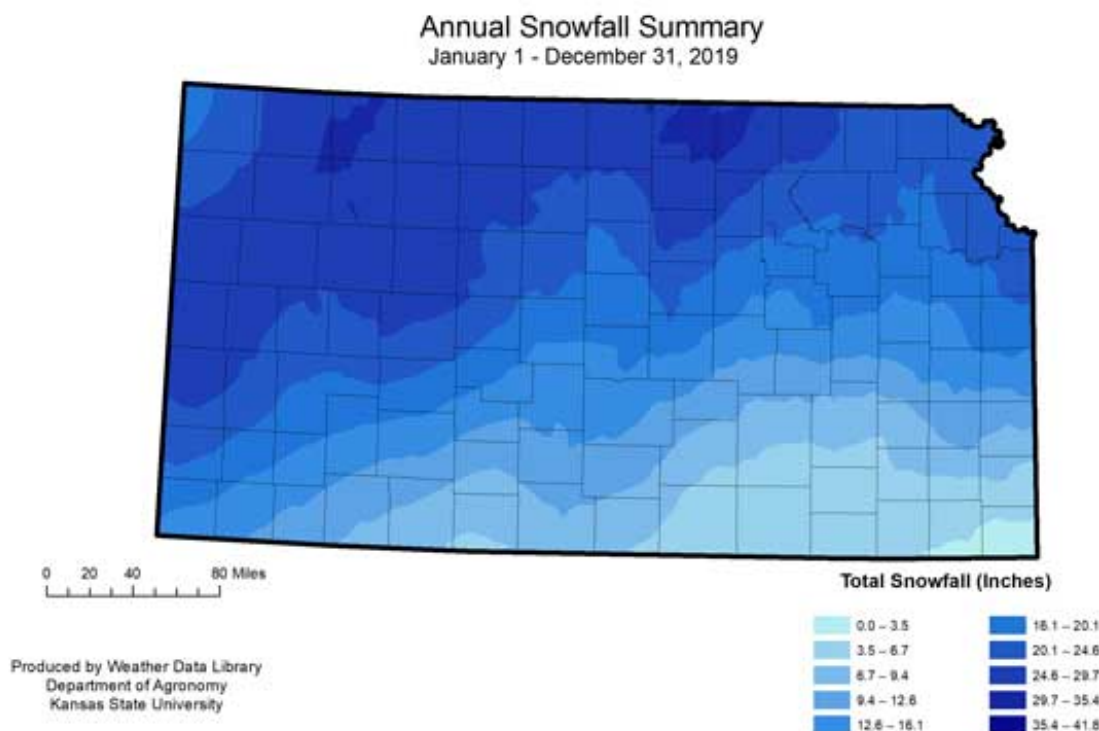
The wet pattern that dominated the fall of 2018 continued through much of 2019. The state was entirely drought free at the start of the year, and did not see even abnormally dry conditions before the end of July. Many lakes and rivers were near to above flood level into October. May 2019 ranked as the wettest month of record for statewide average since 1895. August ranked as the wettest August and tied July of 1993 for second wettest month of record. Statewide average precipitation for the growing season (Apr-Oct) was 29.83 inches, 129% of normal. The fall (Sep-Dec) pattern was drier, with an average of 5.89 inches, 80% of normal. The Southwest was especially dry, and saw expansion in drought conditions before the very wet end to December allowed for some improvement. The greatest annual total for 2019 at a National Weather Service (NWS) Cooperative station was 72.24 inches at Girard, Crawford County. The greatest annual total for a CoCoRaHS station 75.26 inches at Farlington 0.8 NNE, Crawford County. The driest reporting station was Johnson, in Stanton County, with 13.92 inches. The greatest 24-hour precipitation total reported at a CoCoRaHS station was 11.00 inches at Baldwin City 7.5 WSW, Douglas County, on August 1. The greatest 24-hour precipitation total reported at a NWS station was 9.42 inches at Horton, Brown County, on May 25.



#### Snowfall summary

Snow was a prominent feature in 2019, with several significant events. There were two major snow events in January and February saw weekly snowstorms. Light snowfall in northwest KS in April ended the spring snow season for 2019. Snowfall returned to the state in October. During the month, 269 stations reported snowfall with totals ranging from trace amounts in eastern Kansas to 8 inches

at Tribune 13NNE in Greeley County. November was highlighted with winter storm conditions across most of the central and northern areas of the state at the end of the month, creating difficulty for holiday travelers. December's largest snow event occurred during the middle of the month, with the end-of-the-year precipitation largely in the form of rain. The greatest snowfall total for the year at a CoCoRaHS station was 50.2 inches at Hunter 2.1 NNW, Mitchell County. The greatest snowfall total at a NWS COOP station was 41.1 inches at Tribune 13NNE, Greeley County. The state average annual snowfall for 2019 was 17.6 inches, well above the last three years' averages: 11.5 inches in 2018; 4.2 inches in 2017; 6.6 inches in 2016.



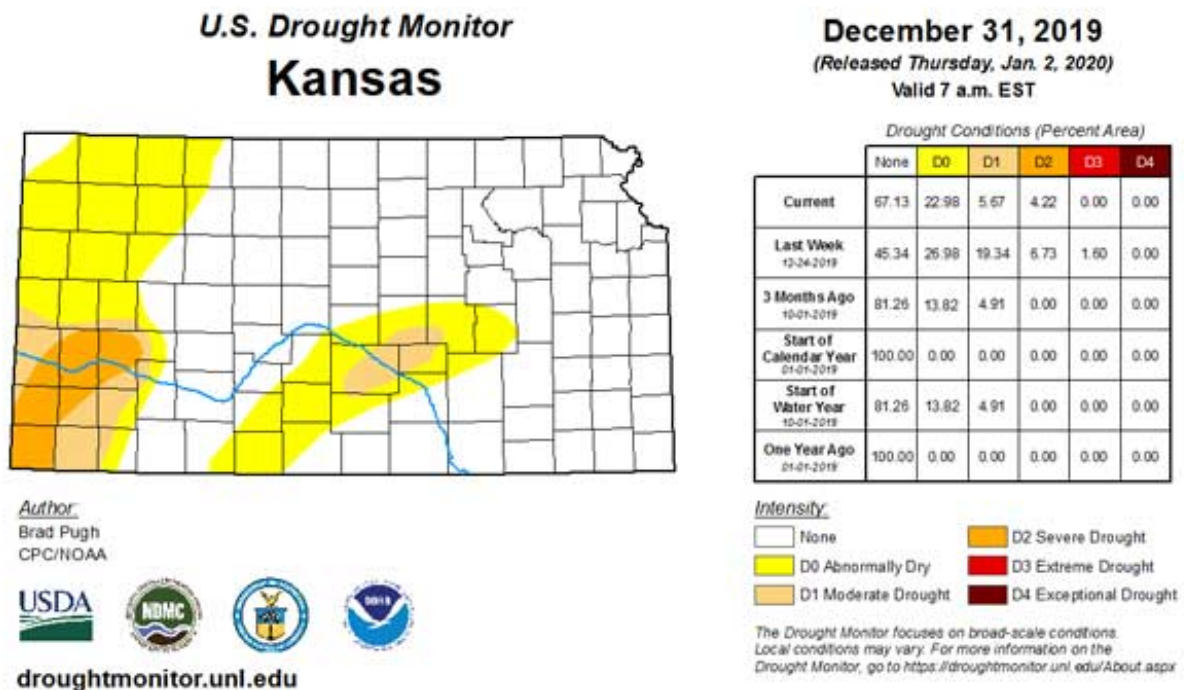
### Temperature summary

Temperatures averaged almost exactly normal, although there were wide swings between above-average and below-average temperatures. Statewide average temperature in 2019 was 53.7 °F, -0.8 degrees cooler than normal. This ranks as the 75<sup>th</sup> warmest, slightly on the cool side of the middle third of the 125-year distribution. Unlike last year, no individual month set a record for either warmest or coldest. Extremes ranged from the coldest reading of -15 °F at Oakley 4W, Logan County, on March 4 to the highest temperature of 108 °F at Hill City Airport, Graham County, July 17. The earliest start to the growing season was a last freeze on April 1 at various locations in the Southeast Division. The latest freezing temperature was reported at Syracuse, Hamilton County, on May 23. The first fall freeze was mostly seasonal state-wide. The average date was October 12. The earliest first frost was reported on October 6 at Wallace, Wallace County. The latest first frost was reported at multiple locations in the Southeast Division on October 31.

The average length of the growing season was 177 days. The shortest growing season was at Tribune, Greeley County, with 140 days. The station with the longest growing season was the Coffeyville Municipal Airport, Montgomery County, with a growing season of 211 days.

## Drought summary

Drought conditions have shifted over the year. The year started with drought-free conditions statewide. Southwest Kansas saw the emergence of abnormally dry conditions by the end of July. The wetter-than-normal pattern of August largely missed that region where they saw just 81% of normal. The October-November period was drier than normal across the state, but was particularly severe in the Southwest and South Central Divisions. By the end of November, abnormally dry conditions had progressed to the Northwest Division, while moderate to severe drought covered parts of the West Central, Central, South Central and Southwest Divisions. Extreme drought was confined to the southwest. Ample moisture in December removed the extreme drought and allowed for improvement in other areas. The cool temperatures and lingering wet conditions in the fall created problems with harvest, while dry conditions in the west created problems with planting and establishment of fall seed crops, such as winter wheat and canola. Despite the dry fall, many streams and reservoirs are high, increasing the possibility of flooding in the spring.



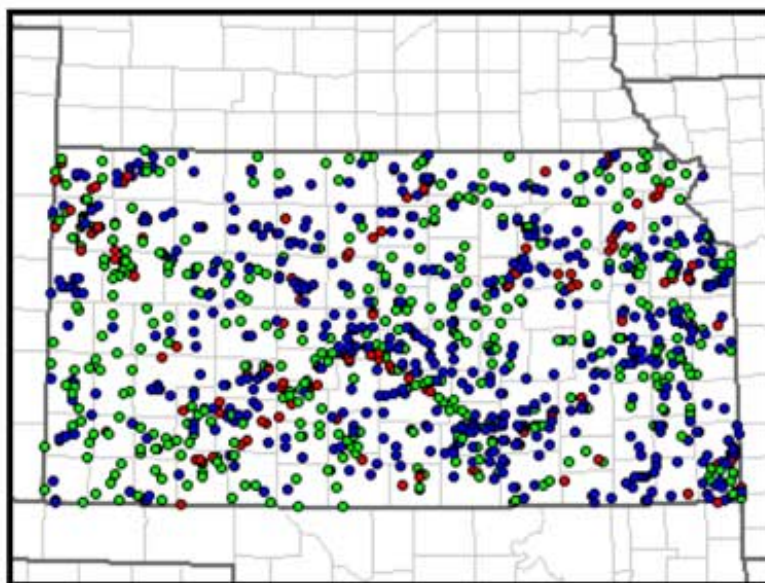
## Severe weather summary

The severe weather season in 2019 was more active than in 2018, and more active than the 5-year average. Preliminary numbers from the Storm Prediction Center (SPC) show a total of 127 tornadoes in 2019, compared to 45 in 2018; 74 in 2017; 99 tornadoes in 2016, and the five-year average (2008-2012) of 116 tornadoes. Hail reports were also higher in 2019 with 538 reports compared to 493 in 2018; 590 in 2017 and 569 hail reports in 2016. Damaging wind reports were also higher with 740 events compared to 639 in 2018, 580 in 2017 and 539 damaging wind reports in 2016. Data on other severe weather events are available from the National Climatic Data Center (NCDC) storm database through the end of September.

There were 187 winter weather events ranging from extreme cold to heavy snow and blizzards. Heavy rain, floods and flash flood events numbered 488 resulting in \$5.5 million in reported property damage and \$450K in crop damage.

## Annual Severe Weather Report Summary - 2019

**KS**  
Total Reports = 1405  
Tornadoes = 127  
Hail Reports = 538  
Wind Reports = 740



from Storm Prediction Center  
<https://www.spc.noaa.gov>

| Kansas Climate Annual Summary<br>2019                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |                        |             |                  |                        |                    |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------|-------------|------------------|------------------------|--------------------|------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Precipitation (inches)        |                        |             | Temperature (°F) |                        |                    |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | January through December 2019 |                        |             |                  |                        | Annual<br>Extremes |            |
| Division                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total                         | Departure <sup>1</sup> | %<br>Normal | Ave              | Departure <sup>1</sup> | Max                | Min        |
| Northwest                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 24.08                         | 2.72                   | 113         | 51.1             | -1.0                   | 107                | -13        |
| West Central                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 22.23                         | 1.46                   | 107         | 52.3             | -1.1                   | 107                | -15        |
| Southwest                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 19.89                         | -0.01                  | 100         | 54.4             | -0.7                   | 108                | -3         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                        |             |                  |                        |                    |            |
| North Central                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 34.28                         | 6.24                   | 122         | 52.3             | -1.1                   | 108                | -10        |
| Central                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 34.54                         | 5.25                   | 118         | 53.8             | -1.1                   | 107                | -8         |
| South Central                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40.04                         | 8.72                   | 128         | 55.4             | -1.0                   | 106                | -3         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                        |             |                  |                        |                    |            |
| Northeast                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 44.36                         | 9.36                   | 127         | 52.9             | -0.5                   | 102                | -12        |
| East Central                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 46.08                         | 8.16                   | 122         | 54.4             | -0.5                   | 102                | -13        |
| Southeast                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 57.40                         | 15.91                  | 138         | 56.2             | -0.5                   | 100                | -1         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                        |             |                  |                        |                    |            |
| <b>STATE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>35.81</b>                  | <b>6.42</b>            | <b>122</b>  | <b>53.8</b>      | <b>-0.8</b>            | <b>108</b>         | <b>-15</b> |
| <p>1. Departure from 1981-2010 normal value</p> <p>2. State Highest temperature: 108 °F at Hill City Airport, Graham County, July 17<sup>th</sup>.</p> <p>3. State Lowest temperature: -15 oF at Oakley 4W, Logan County, on March 4<sup>th</sup>.</p> <p>4. Greatest Annual Precipitation: 72.24 inches at Girard, Crawford County (NWS); 75.26 inches at Farlington 0.8 NNE, Crawford County (CoCoRaHS).</p> <p><b>Source: KSU Weather Data Library</b></p> |                               |                        |             |                  |                        |                    |            |

A companion article in this eUpdate issue from the Kansas Weather and Climate team summarizes the key weather impacts for each month of 2019.

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#### 4. Kansas weather highlights for each month of 2019

How well do you remember the weather events in Kansas last year? Let's take a quick look back with this month-by-month highlight reel of the significant weather events affecting Kansas in 2019.

##### **January**

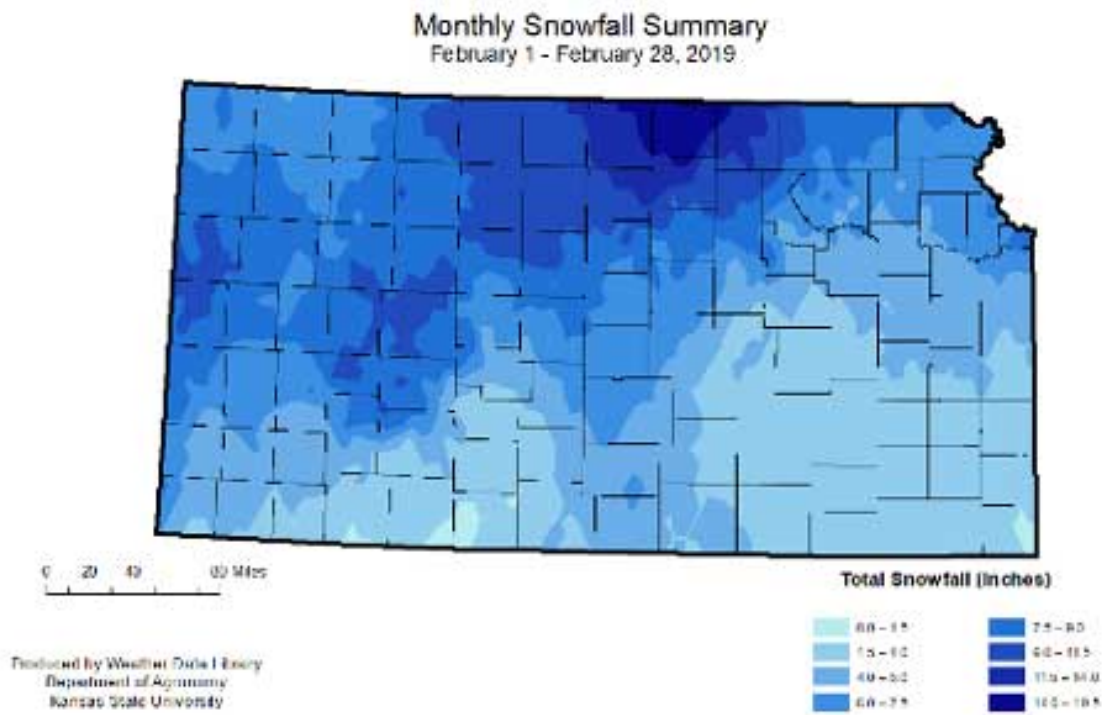
The highlight of January weather was the fluctuating temperatures. This pattern resulted in several freeze/thaw cycles in soil temperatures. While the wheat crop can typically withstand negative air temperatures well during the winter, this pattern can result in frost heaving of plants, with increased risk of damage to the roots and crown from the cold, particularly in poorly-established fields.



**Figure 1. Poor wheat stand. Photo by Gretchen Sassenrath, K-State Research and Extension**

##### **February**

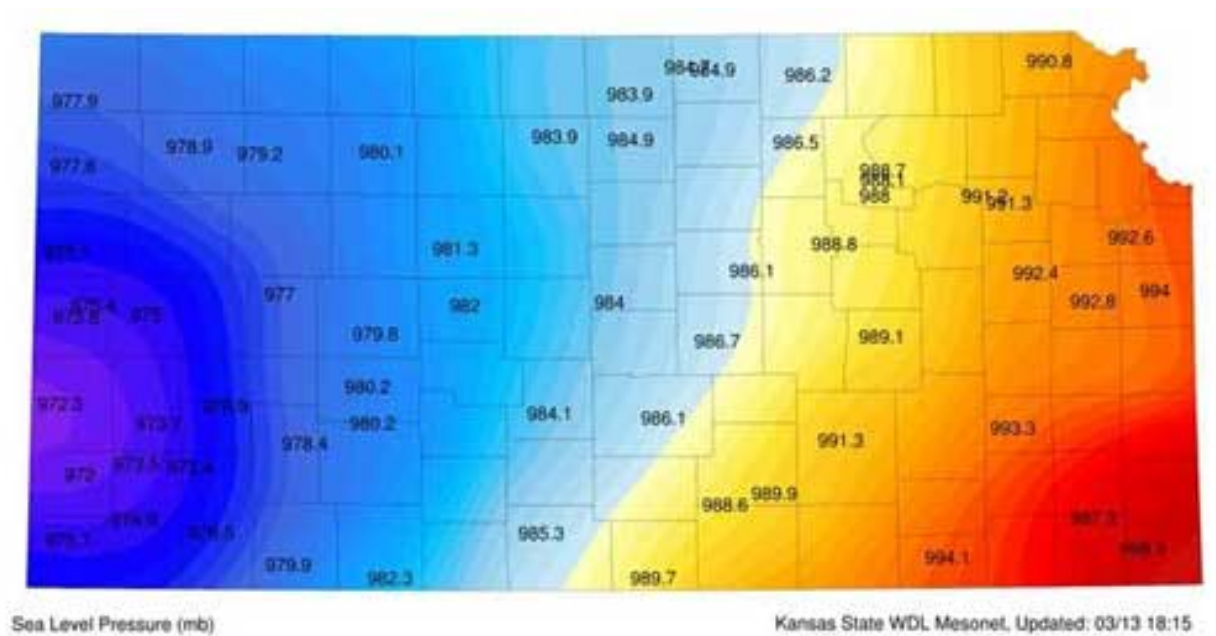
Severe winter weather was the main feature for the month, with winter storm conditions across most of the state every weekend. Sadly, there were several fatal traffic accidents due to the snowy road conditions.



**Figure 2. Monthly snowfall totals for February 2019. Source: Kansas Weather Data Library**

### **March**

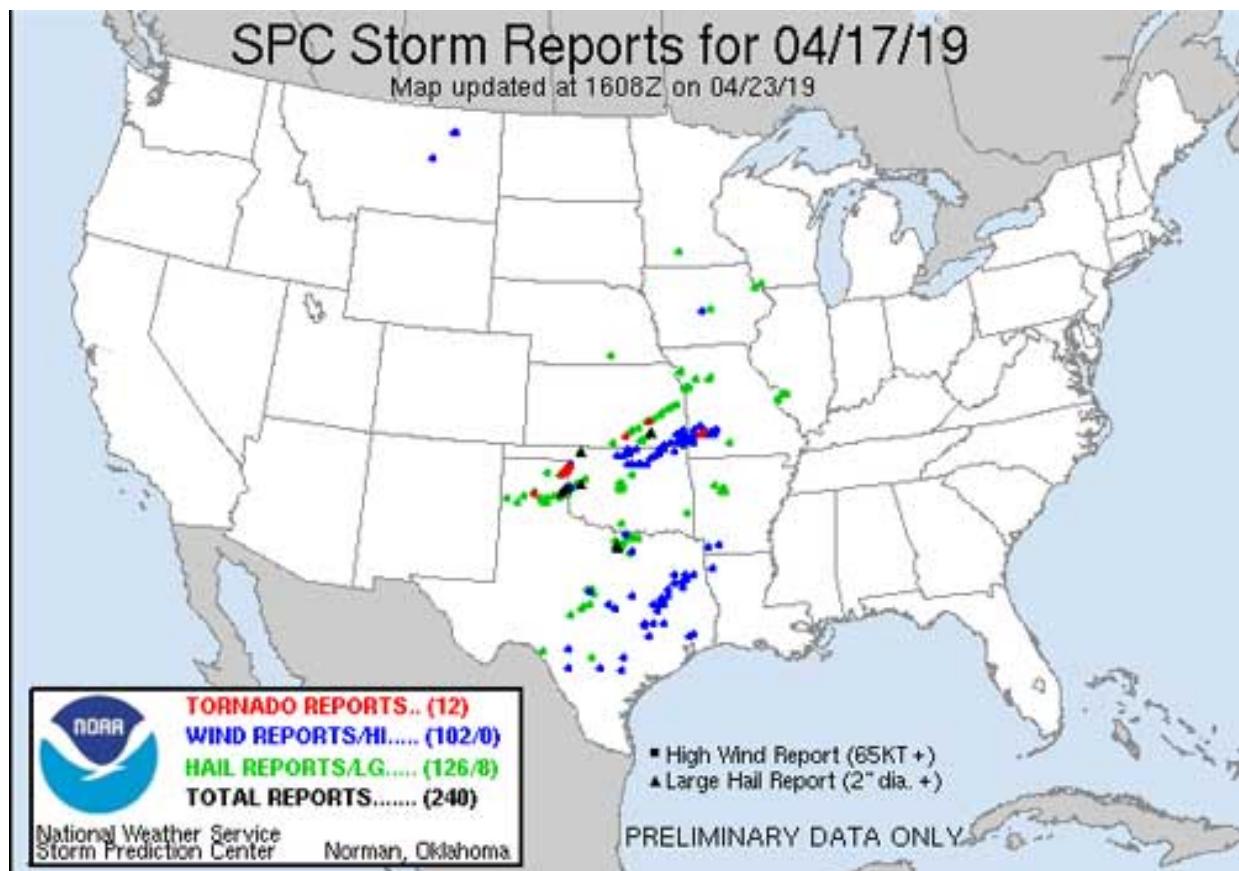
The big severe weather event for March was the "bomb cyclone" on March 13. Winds increased dramatically late morning across western Kansas as the storm system strengthened in eastern Colorado. As the low shifted eastward into Kansas, the wind field expanded across the state. Strong winds continued through the duration of Wednesday and even strengthened into Thursday morning. Damage was reported to buildings, trees down across the state, and trucks were flipped as a result. More details can be found at: [https://webapp.agron.ksu.edu/agr\\_social/article/kansas-weather-a-storm-for-the-record-books-324-6](https://webapp.agron.ksu.edu/agr_social/article/kansas-weather-a-storm-for-the-record-books-324-6).



**Figure 3. Map of low pressure measurements. Source: Kansas Mesonet**

### **April**

The 2019 tornado season began on April 17, when two of the six tornadoes for the month were reported in east central Kansas. The most destructive of these tornadoes occurred in Miami County on the 28<sup>th</sup>, when a church lost part of its roof. There were no reports of deaths or injuries with any of the tornadoes. Hail and damaging winds made up the bulk of the severe weather this month.



**Figure 4. Storm reports for April 17, 2019. Source: Storm Prediction Center.**

## **May**

Spring rains came in earnest this month. May precipitation for the state averaged 10.26 inches, the wettest month since records began in 1895. The National Weather Service at Wichita at one time had river flood warnings for 43 river points! Some rivers reached levels not seen in over a decade or even longer. Major flood category was reached along the Neosho, Arkansas, Verdigris and Walnut rivers with numerous other rivers reaching moderate flood stage. Flooding was also reported on the Smokey Hill, Republican, Kansas, and Blue Rivers. Multiple Corps of Engineer flood control reservoirs reached over 90 percent of flood pool capacity. In addition to flooding, tornadoes were a problem. One of the most destructive tore through Linwood, KS on the 28<sup>th</sup>.



**Figure 5. Tornado on the ground near Linwood, KS, on May 28, 2019. Photo from the National Weather Service.**

### **June**

While not as impressive as May, continued cool, wet weather was the major feature for June. The cooler and wetter conditions left wheat about 1 to 3 weeks behind normal depending on sowing date. Many wheat fields in the central and south-central regions drowned out due to excessive moisture. This caused extremely variable yields and test weight. Corn, soybeans, and sorghum continued to lag behind normal progress.



**Figure 6. Flooded corn field. Photo by Doug Jardine, K-State Research and Extension.**

## **July**

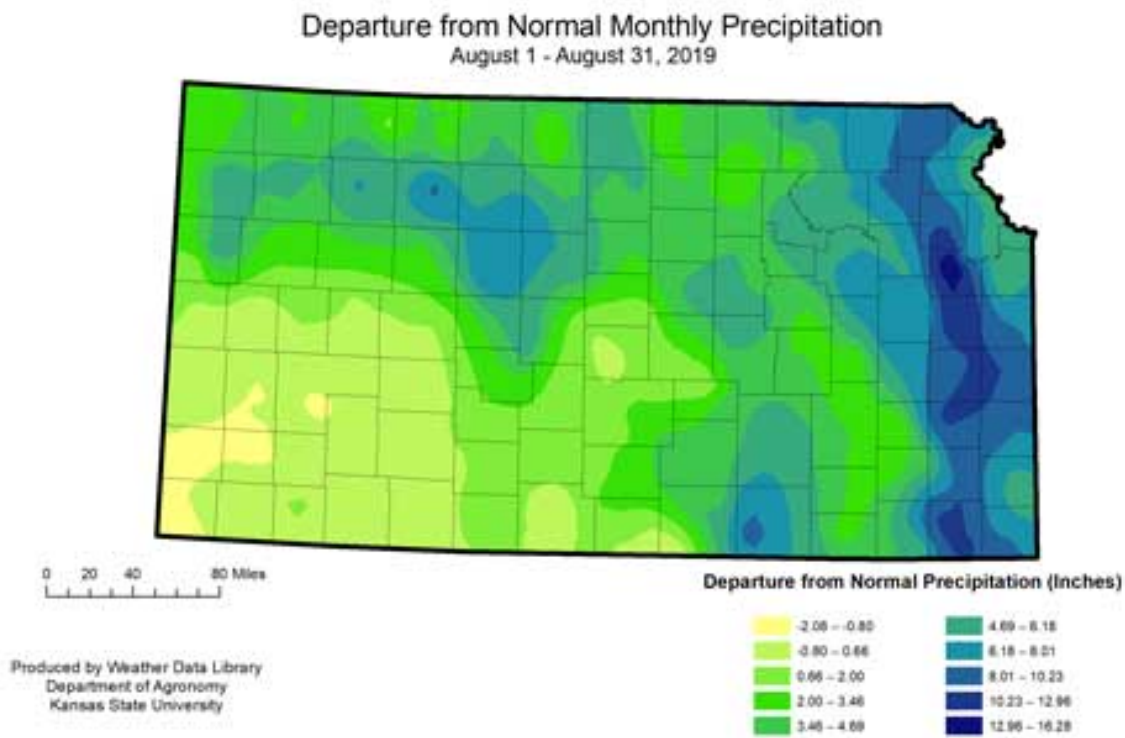
The most dramatic feature was the switch in western Kansas to hot, dry conditions. Temperatures in western Kansas topped off at 107 °F and 108 °F during the week of July 21<sup>st</sup>. The rapid switch to drier conditions, coupled with warmer temperatures, resulted in stress to spring-planted crops.



**Figure 7. Heat-stressed corn. Photo by Chip Redmond, K-State Research and Extension.**

## **August**

The most notable weather feature for August was the rainfall dichotomy. Statewide average precipitation ranked as the wettest August since 1895. However, much of the moisture was concentrated in the eastern third of the state. The East Central Division averaged 10.37 inches, over two and a half times normal. In contrast, the Southwest Division averaged 2.20 inches, just 80 percent of normal. Abnormally dry conditions began to develop in the Southwest, while saturated fields continued to cause problems in the east. These include sprouting, dropped ears, and mold in corn. Weed control was also a problem, as was putting up hay.



**Figure 8. Departure from normal precipitation for August 2019. Source: Kansas Weather Data Library.**

### **September**

Hot, dry weather held sway across most of Kansas in September. Statewide temperatures averaged roughly 78 °F, 6.8 degrees warmer than normal, ranking as the 7<sup>th</sup> warmest of record. While that combination intensified drought conditions in the west, it facilitated harvest in other areas of the state.



**Figure 9. Corn harvest. Photo by Sandra Wick, K-State Research and Extension.**

### **October**

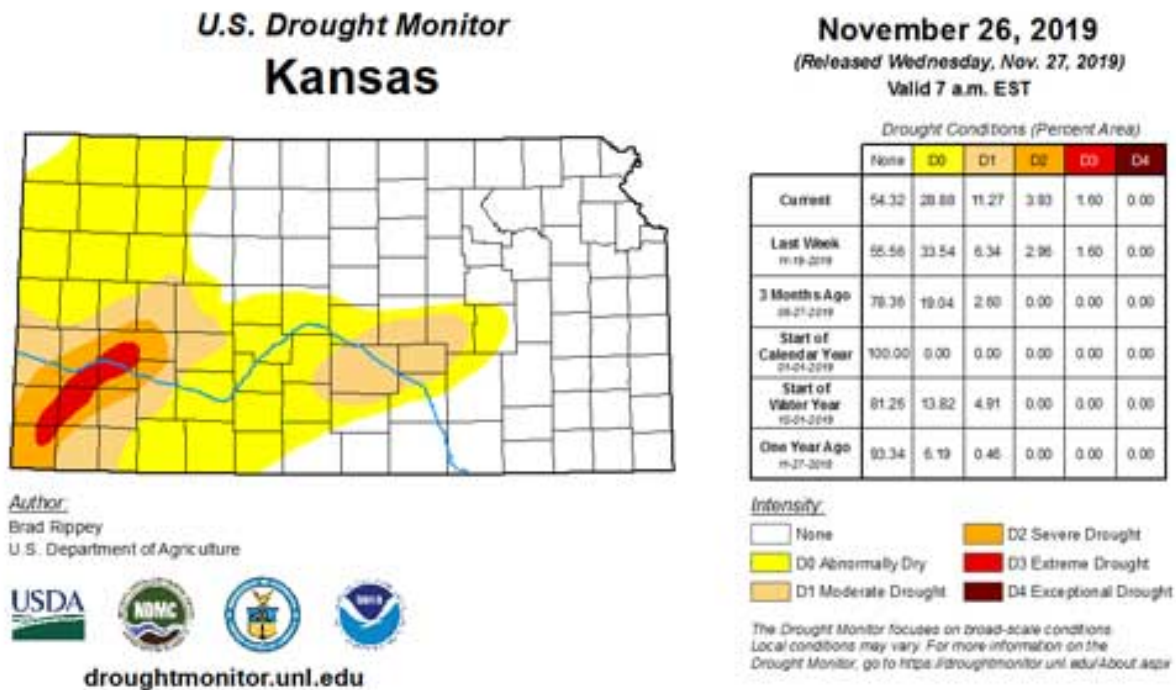
Temperatures were the big story. Statewide average temperature for the month was roughly 51 °F, 4.8 °F cooler than normal. This ranks as the 6th coolest October on record. Temperature swings were great, ranging from 2 °F at Tribune 1W on the 31st to 98 °F at Atwood, Decatur County, on the 1<sup>st</sup>. All locations saw their first freeze in October, with the average date on October 12<sup>th</sup>. The earliest freeze occurred on October 6<sup>th</sup> in Wallace, while the latest freeze occurred at multiple locations in southeast KS. The extreme cold that ended the month also brought the first snow, with 150 locations reporting snow.



**Figure 10. Snow in Scott City, KS. Photo by Mary Knapp, K-State Research and Extension.**

### **November**

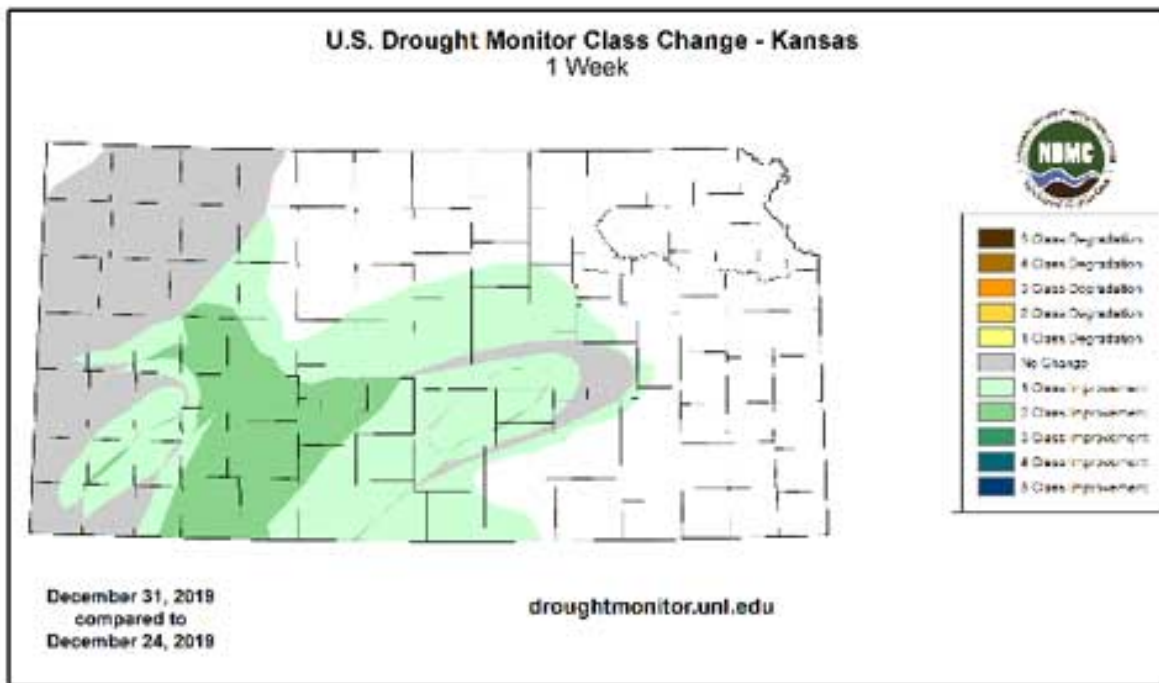
The major climate feature for November was the dryness. Statewide average precipitation was 0.57 inches, which ranks as the 33<sup>rd</sup> driest of record. The driest November on record was in 1989 when the statewide average precipitation was zero, and the greatest amount reported was just 0.01 inches. Not surprisingly, drought conditions expanded.



**Figure 11. U.S. Drought Monitor for Kansas, November 26, 2019. Source:**  
<http://droughtmonitor.unl.edu>

## **December**

December will be remembered for the very wet end to the month and the year. Three stations set records for the greatest December daily amounts: Hays, 1.64 on the 28<sup>th</sup>; Lebanon, 1.69 on the 28<sup>th</sup>, and Emporia 3NW, 1.90 on the 29<sup>th</sup>. Statewide precipitation averaged 1.27 inches, 123 percent of normal. Even more important was the fact that the moisture did not miss the western areas of the state. Extreme drought was erased, with some areas seeing two categories of improvement in the drought conditions.



**Figure 12. Change in drought conditions for Kansas during December 2019. Source: U.S. Drought Monitor**

What will 2020 bring to Kansas? Keep up-to-date on the latest weather impacts and developments with the Extension Agronomy eUpdate, the [Kansas Climate Page](#), and the [Kansas Mesonet](#).

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## 5. K-State Industrial Hemp scheduled for February 4 in Wichita

The John C. Pair Horticultural Center, in collaboration with K-State Research and Extension of Sedgewick County, is hosting a one-day conference on industrial hemp. The conference will be held at the Sedgewick County Extension Office, 4-H Hall, 7001 W. 21<sup>st</sup> Street North in Wichita.

Registration will begin at 8:30 a.m. with the program to start at 9:00 a.m. and conclude at 4:00 p.m. A lunch will be provided, but seating for the event is limited. Interested individuals must pre-register. The cost is \$50 per person if registered by January 28. After January 28, the cost is \$75 per person. You can register online at [www.bit.ly/kshempconf](http://www.bit.ly/kshempconf) or by phone at 316-788-0492.

The speakers and agenda are:

- Insect and mite pest management – Dr. Raymond Cloyd
- Disease prevention - Dr. Megan Kennelly and Judy O'Mara
- Hemp high tunnels at Olathe – Dr. Cary Rivard
- K-State Olathe hemp testing service - Dr. Eleni Pliakoni
- KDA: Looking at 2019 and ahead to 2020 – Braden Hoch
- Industrial hemp research at the John C. Pair Horticultural Center – Dr. Jason Griffin



# K-State Industrial Hemp Conference

February 4, 2020  
8:30am – 4:00pm

Sedgwick County Extension Office  
4-H Hall, 7001 W. 21<sup>st</sup> Street North  
Wichita, KS

**Register TODAY (seating is limited)**

By January 28: \$50/person  
After January 28: \$75/person

- 8:30 Registration
- 9:00am Insect & Mite Pest Management in Hemp – Dr. Raymond Cloyd
- 9:50am Break
- 10:10am Disease Prevention – Dr. Megan Kennelly & Judy O'Mara
- 11:00am Hemp & High Tunnels at Olathe – Dr. Cary Rivard
- 12:00pm Lunch (provided)
- 1:00pm K-State Olathe Hemp Testing Service – Dr. Eleni Pliakoni
- 1:50pm KDA: Looking at 2019 & Ahead to 2020 – Mr. Braden Hoch
- 2:40pm Break
- 3:00pm Industrial Hemp Research at the John C. Pair Horticultural Center – Dr. Jason Griffin

**K-STATE**  
Research and Extension  
John C. Pair Horticultural Center

Register Here

Online at: [www.bit.ly/kshempconf](http://www.bit.ly/kshempconf)

By phone at 316-788-0492

## 6. 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](https://mccc.msu.edu/about/meetings). The meeting is open to the public.

Register online at [event.me/E5WdBD](https://event.me/E5WdBD) or [mccc.msu.edu/about/meetings](https://mccc.msu.edu/about/meetings).

Learn more about MCCC and cover crops at [mccc.msu.edu](https://mccc.msu.edu).



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## 7. 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, Agwest Commodities, Advanta Seeds, and ShieldAg Equipment.



The schools will cover a number of issues facing sorghum growers: weed and insect control strategies, crop production practices, nutrient management and soil fertility, risk management, farm bill programs, marketing, and seed technology development.

- **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](mailto: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](mailto:scampbel@ksu.edu)

- **January 30, Thursday – Hutchinson**

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

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](mailto: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  
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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](http://www.agronomy.ksu.edu) | [www.facebook.com/KStateAgron](https://www.facebook.com/KStateAgron) | [www.twitter.com/KStateAgron](https://www.twitter.com/KStateAgron)