



K-STATE
Research and Extension

Extension Agronomy

eUpdate

12/20/2019

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. Review of herbicide label requirements: Dicamba

This article is the first in a series reviewing unique or updated label requirements for key herbicides.

Certain dicamba products (Engenia, Fexapan, and Xtendimax) were approved for post-emergence control of weeds in Xtend Soybean in 2017. The labels for these products include some additional requirements intended to reduce the potential for non-target injury caused by herbicide drift.



Figure 1. Soybean plots at the Ashland Bottoms Research site in Manhattan, KS. Photo was taken moments before sunset in July 2019, outside the application window for dicamba treatments. Temperature inversions commonly occur near dawn and dusk. Photo taken by Tyler Meyers, agronomy graduate student, K-State Research and Extension.

Key requirements for dicamba application on current labels include:

- Annual training for all applicators (online modules available on websites listed below)
- Only approved nozzles and tank mix partners (lists can be found on websites listed below)
- Keep spray solution pH greater than 5 – no AMS
- Ground speed less than 15 mph
- Boom less than 24 inches above target weeds
- Wind speed 3 to 10 mph
- Soybean growth stage of emergence through first bloom (R1) or 45 days after planting, whichever comes first. In cotton, the application window is emergence through mid-bloom or 60 days after planting.
- Make applications between 1 hour after sunrise and 2 hours before sunset (see Figure 1)

- No temperature inversion (current inversion conditions in Kansas can be found at <https://mesonet.k-state.edu/agriculture/inversion/>)
- Application buffers of 110 feet downwind between the field and sensitive areas. An additional 57-foot buffer is required on all other sides in counties where 'endangered terrestrial dicot plant species' may be found. Affected areas are identified at <https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins>. Based on information available at this site, Anderson County is the only Kansas county affected by this requirement. Applicators can also call 1-844-447-3813 to verify this requirement.
- Sprayer cleanout **before and after** application
- Creating records within 72 hours of application and maintaining records for two years (information required for records can be found on the websites listed below).

These requirements apply to Engenia, FeXapan, and Xtendimax, as well as to Tavium, which is a combination of dicamba and S-metolachlor (Dual). All of these labels expire on December 20, 2020.

Annual training modules and other resources can be found at:

<http://www.engeniastewardship.com>

www.corteva.us/products-and-solutions/crop-protection/fexapan.html

www.xtendimaxapplicationrequirements.com

www.syngenta-us.com/herbicides/tavium-application-stewardship

Stay tuned for the next installment in this series...Paraquat.

Sarah Lancaster, Weed Science Specialist
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2. Kansas crop disease summary for 2019 - Corn, soybeans, and sorghum

What were the most prevalent diseases affecting corn, soybeans, and grain sorghum in Kansas during the 2019 growing season? This article recaps the most active diseases affecting summer row crops and discusses the growing conditions that played the biggest role in their development.

Corn Diseases

Total yield loss from corn diseases was below the long-term average. Gray leaf spot got off to a slow start but was near normal levels by seasons end. Southern rust had its earliest arrival ever being first reported on July 13. Hot, dry weather stalled its initial development, but August rains contributed to late-season increases. Many growers had decisions to make regarding late-season fungicide applications.

An unusually high amount of *Physoderma* brown spot was present in eastern Kansas in 2019 (Figure 1). High incidences of the disease were also reported in Nebraska and Iowa. Research is underway evaluating the effectiveness of fungicides as a management tool. Early results suggest an application at the V8 stage of development can reduce foliar symptoms but increases in yield are inconsistent.



Figure 1. *Physoderma* brown spot on corn. Photo by Doug Jardine, K-State Research and Extension.

Ear rots were present at a lower incidence than in recent seasons with very little *Aspergillus* ear rot (aflatoxin) being reported. *Fusarium* ear rot was the most common, however, there have been a few

reports of high fumonisin levels in the grain. Diplodia ear rot was present, but at lower levels than the past three years. Due to optimal conditions favorable for development, Fusarium stalk rot was prevalent in many fields. In a few fields that experienced mid-season drought, charcoal rot was present. Diplodia stalk rot was observed in some southwest Kansas fields that received unusually high amounts of rainfall.

Bacterial leaf streak was identified in several new counties in 2019. Its effect on yield is still being researched. Other diseases observed in 2019 included crazy top downy mildew, common smut, common rust, and northern corn leaf blight.

Soybean Diseases

While soybeans got off to a late start, there were only a few significant disease issues. Phytophthora root rot continues to be a growing concern. Rather than early season infections that lead to the common basal stem rot and plant death, recent Kansas problems have resulted from mid- to late-season rains that lead to a generalized root rot where the only symptom is a somewhat earlier maturation of the plant resulting in reduced yields due to the shorter grain filling period.

Soybean cyst nematode (SCN) continues to expand with at least one new county (Marion) being identified as positive for SCN in 2019. Eighty-three soil samples were received in the diagnostic laboratory this season. Of those, 48% were positive for SCN with an average egg + juvenile count of 300 per 100 cc of soil. The resistance source in current varieties is gradually being overcome by Kansas populations of SCN. Growers are encouraged to extend rotations and rotate varieties in known infested fields and to re-sample fields at the end of each season that soybeans are grown.

Sudden Death Syndrome continues to be a problem in river bottom areas especially along the Kansas and Missouri Rivers. Growers are encouraged to plant the most resistant varieties available and use ILeVO or Saltro seed treatments (Figure 2).



Figure 2. The soybean variety on the right in a recent K-State performance test was susceptible to SDS. The foliage was completely dead by early pod fill. Photo by Bill Schapaugh, K-State Research and Extension.

Ending on a positive note, unlike 2018 when it was problematic in some fields, frogeye leaf spot was difficult to find in 2019.

Grain Sorghum Diseases

Due to an extended dry period in late June and July, disease pressure in grain sorghum was well below average. Sooty stripe was present as usual, but it came on later in the season and had minimal effects on yield in most fields. Sorghum rust could be found near the end of the season, but it rarely impacts yield due to its late arrival. The most significant disease, as in most years, was Fusarium stalk rot. While there is always some lodging associated with stalk rot in grain sorghum, reports of significant amounts of lodged sorghum were not received. Sorghum harvest was ahead of the five-year average. Less time standing in the field reduced problems with head molds. Other diseases observed include rough spot, target spot, and northern corn leaf blight.

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3. New article series on the "World of Weeds"

This is the first in a series of articles discussing the ecology and management of select weed species. Most will be of agronomic importance, but our first species is one of popular interest for the Christmas season.

World of Weeds: Mistletoe

Ecology

There are several species of mistletoe around the world, all of which are parasitic plants that attach to the stem of another plant. Mistletoes typically grow on trees and shrubs, but some species can grow on other types of plants, including grasses or even cacti. Mistletoes in the U.S. are typically found on fir, oak, pecan, and walnut trees. The mistletoe most likely to be found in Kansas is oak mistletoe.

Mistletoes have many branches with swollen nodes and opposite leaves (Figure 1). Flowers are not very obvious, but the berries are usually white, yellow, red, blue, or purple. Berries have a sticky pulp that sticks to the beaks of birds that eat them and helps them spread to new areas. Berries are toxic to humans, but there has been some interest in using berries of some mistletoe species for cancer treatments. Mistletoes are also grown commercially for Christmas decorations.



Figure 1. Mistletoe with berries. Photo by Joe Decruyenaere via Wikimedia Commons.

Management

Mistletoes can reduce yield in systems such as tree nuts, pulpwood, and Christmas trees. They can be managed by removing infected branches or trees. Garlon (triclopyr), glyphosate, and 2,4-D may provide short-term suppression of mistletoe, but they do not provide long-term control.

Stay tuned for upcoming articles in this new series, "A World of Weeds". The next installment will be coming in January 2020. Do you have a particular weed species you'd like to know more about? Drop Dr. Lancaster a note at the email below or eUpdate Editor, Kathy Gehl, at kgehl@ksu.edu.

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References:

Mathiasen et al., 2008; Wood and Reilly, 2004; Watson and Martinez-Trinidad, 2006; Minko and Fagg, 2013.

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

The snow that fell over much of Kansas on December 28-29 evoked thoughts of a white Christmas. Unfortunately, the warm weather expected over this coming weekend makes this scenario highly unlikely. Manhattan recorded five inches of snow (with heavier amounts in surrounding areas) from the storm, but as of Thursday afternoon, most of the snow had melted (Figure 1).

Snow Melt in Manhattan

December 16



December 19



Figure 1. Change in snow cover between Monday and Thursday in Manhattan (Kansas Mesonet)

Weather Outlook

The Climate Prediction Center's 6 to 10-day outlook favors wetter-than-normal conditions for the period, but also warmer than normal. Average high temperatures are near 40 °F with low temperatures in the upper teens into late December. Average rainfall is minimal with a few thousandths of an inch each day. Therefore, above normal moisture doesn't have to amount to much (less than 0.25" on any given day is above normal). Temperatures warmer than normal also favor temperatures well above freezing during the afternoons. While some snow could still occur at night, it would be unlikely to achieve significant accumulation during a period of above normal temperatures.

Is this unusual? It depends on how 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? For most of us, it is a white Christmas 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 2).

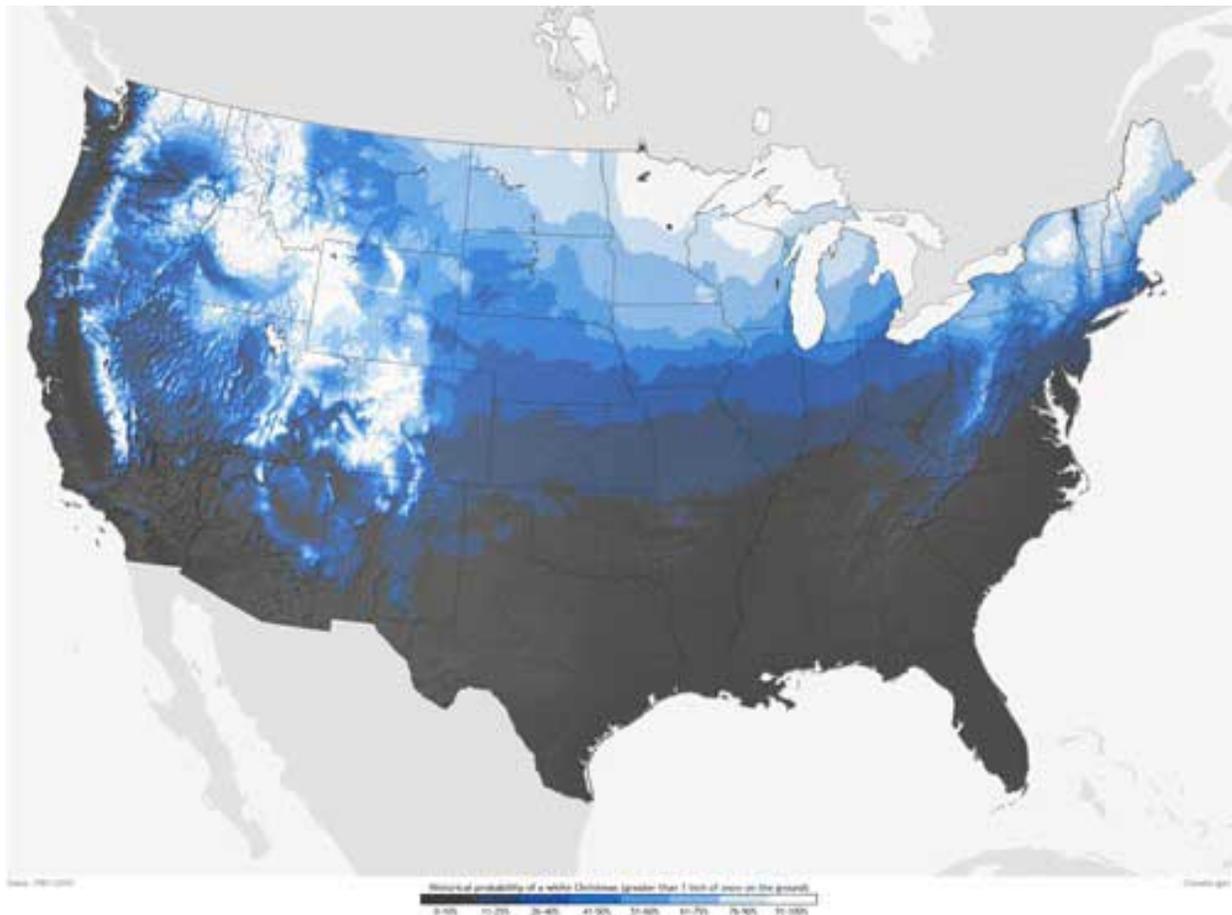
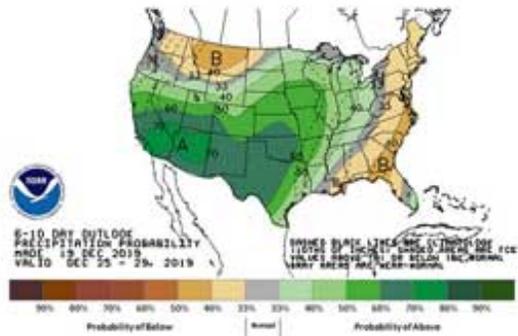


Figure 2. Historical probability of a white Christmas (Climate Prediction Center).

The 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 Christmas Day was in 2009, when 6.1 inches was recorded.

However, a snowy start to the new year is more likely than a white Christmas. 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 3).

6-10 Day Precipitation Outlook



6-10 Day Temperature Outlook

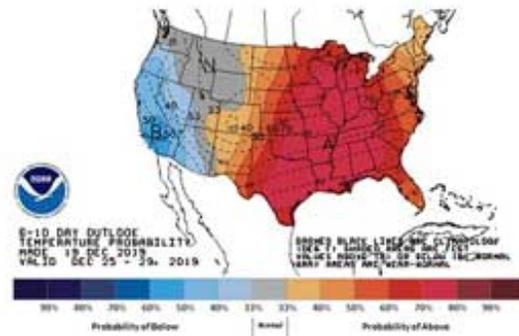


Figure 3. 6 to 10-Day Precipitation and Temperature Outlooks (NOAA).

The major question is what track the frontal systems will take, and how that track 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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5. 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.

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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
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Department of Agronomy



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6. 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.

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