



## Extension Agronomy

# eUpdate

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*06/12/2020*

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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<b>1. Registered dealers in Kansas can sell over-the-top dicamba product to end users.....</b>	<b>3</b>
<b>2. Green snap in corn.....</b>	<b>4</b>
<b>3. Corn leaf diseases in Kansas.....</b>	<b>7</b>
<b>4. Wheat harvest: Identifying disease problems and setting harvest priorities .....</b>	<b>15</b>
<b>5. Early summer control of sericea lespedeza using herbicides.....</b>	<b>18</b>
<b>6. World of Weeds: Yellow nutsedge.....</b>	<b>22</b>
<b>7. Kansas weed survey: Producers/ag professionals input requested.....</b>	<b>25</b>
<b>8. Western Kansas remains very dry with significant impacts on agriculture.....</b>	<b>26</b>
<b>9. Ag-Climate Update for May 2020.....</b>	<b>32</b>

## 1. Registered dealers in Kansas can sell over-the-top dicamba product to end users

On Wednesday, June 10, the Kansas Department of Agriculture provided clarification of the impact of the EPA cancellation order for Engenia, FeXapan, and XtendiMax product labels.

- Registered dealers **CAN** sell the affected products on-hand on June 8 to end users through July 31. An end user is a farmer or commercial applicator.
- Farmers and custom applicators **CAN** apply the affected products through July 31.
- Affected products received after June 8 that are not purchased from a registered Kansas dealer **CANNOT** be applied.
- All regulations for sale and application that were in place before the court order are still being enforced by KDA.

All dicamba-related information from KDA can be found at <https://www.agriculture.ks.gov/divisions-programs/pesticide-fertilizer/dicamba>.

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## 2. Green snap in corn

Some of the storms and extremely high winds this spring have caused significant stalk breakage in corn fields. In these kinds of storms, it is not unusual to have up to 40% of stalks in some fields broken off at ground level. We see this type of damage somewhere every year. It is usually referred to as “green snap,” “brittle corn,” or “brittle snap.”

Green snap occurs when rapidly elongating corn stalks are subjected to high winds. Corn stalks are elongating rapidly between about V8 to tassel. Typically, corn is most susceptible to green snap in the two- or three-week period from late vegetative until silking. The stalks are growing rapidly and have enough height to catch more wind. These high winds will cause stalks to break in the section close to the lower nodes.

A number of factors can affect the severity of green snap. Anything that contributes to rapid, vigorous growth may make corn more susceptible to this problem. Such contributing factors include high nitrogen fertilizer rates, rotation after soybeans, higher plant densities (promoting early competition and elongation, and thinner stalks) and early planting. Unfortunately, these are also recommended best management practices for corn production.

Timing has a huge impact on the severity of green snap, with much less damage usually evident in younger corn (Figure 1) or in fields that have tasseled and flowered. The factor that can be addressed most readily is hybrid selection. Although no hybrid is immune to the problem, some hybrids are more susceptible to green snap than others.



**Figure 1. Corn showing effects of wind damage, “green snap,” early during the vegetative period. Photo by Ignacio Ciampitti, K-State Research and Extension.**





**Figure 2. Leaning corn due to the high winds. if this was a later stage, the plant stalks might break in the section close to the lower nodes. Photo by Rachel Veenstra, K-State Research and Extension.**

What are the implications of all those broken plants for the current crop? Damaged plants are broken completely in two, so there is no hope for recovery. Even so, the yield loss in an affected field usually will be much less than the stand loss. Before tasseling, surviving corn plants can respond to the additional resources made available by the removal of damaged plants by maintaining larger ears or setting additional ears, or increasing final kernel weight. With 10% or fewer broken stalks, it may be

hard to detect a significant yield loss if stands were adequate before the storm.

Yield losses will increase with “patchy” stand losses because surviving plants are too far apart to compensate for lost plants. If large patches are damaged, or if stand losses are significant, there may still be an opportunity to cut the worst areas with a swather or crimper to salvage some forage if it can be utilized. It is not too late to plant sunflower, soybeans, or grain or forage sorghum if the stand is a total loss, depending upon the herbicide program used on the damaged corn crop.

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### 3. Corn leaf diseases in Kansas

There are several leaf diseases that can infect corn in Kansas in any given year. They can all be controlled with some combination of hybrid selection, tillage management, crop rotation, planting dates, or foliar fungicides.

Recently there have been reports in eastern Kansas and Nebraska of **Anthracnose leaf blight**. This disease has been favored by rainfall and warm temperatures over the past few weeks. It is most likely to be a problem in fields where corn is planted into corn residue, as the fungus that causes this disease survives on residue and can be rain-splashed onto lower leaves.

Symptoms of Anthracnose leaf blight are tan, irregular-shaped lesions on the lower leaves as early as V3 to V4 (Figure 1). Lesions may reach a half-inch in length, with a red, reddish-brown, or yellow-orange border. A fungicide spray at this time would not be profitable as the lower leaves have a low contribution to yield. There is no strong connection between early-season Anthracnose leaf blight and late-season Anthracnose stalk rot. Additionally, hybrids that are susceptible to one may not be susceptible to the other. Other than the selection of hybrids with resistance, producers can also help reduce this disease by using rotation or tillage to eliminate crop debris.





**Figure 1. Anthracnose leaf blight.** Photo courtesy of Allison Robertson, Iowa State University, <https://cropprotectionnetwork.org/resources/articles/diseases/anthracnose-leaf-blight-of-corn>.

## **Other corn foliar diseases**

### **Common rust**

We have received some reports of common rust this season. This disease is typically less serious in Kansas than the other leaf diseases. Symptoms are small, round to elongated pustules that start out golden brown then turn darker later in the season (Figure 2). Common rust pustules commonly form on both sides of the leaf and are sparser than those of southern rust.

This disease can occur wherever corn is grown. Infection is favored by moderate temperatures (60 to 77 degrees) and high relative humidity (greater than 95 percent for at least six hours).

Common rust is easily controlled by using resistant hybrids. Fungicides are not recommended for this disease alone since common rust causes only minimal yield loss.



**Figure 2. Common rust on corn.** Photo courtesy of Iowa State



### **Southern rust**

Southern rust has been reported in south eastern United States in 2020, but not yet in Kansas. Stormy weather may move southern rust into Kansas within the next few weeks. Make sure to be out scouting for southern rust and if suspected, please send images to K-State extension professionals.

Southern rust pustules look similar to common rust, but there are usually a lot more of them and they occur only on the upper leaf surfaces (Figure 3). This often gives the upper leaves a dusty appearance.

Southern rust does not overwinter in Kansas. Spores blow up from southern production areas in mid- to late-July. Warm, humid weather favors infection.

Resistant hybrids are the best choice for management. If susceptible hybrids are planted late, and disease conditions are favorable, applications of a systemic foliar fungicide may be warranted.



**Figure 3. Southern rust on corn. Photo courtesy of University of Nebraska,** <https://cropwatch.unl.edu/plantdisease/corn/southern-rust>

## **Goss's bacterial wilt**

This disease is caused by a bacterial, not a fungal, infection. Symptoms are gray to light yellow stripes with wavy margins that follow the leaf veins (Figure 4). Within these lesions, dark green to black, water-soaked spots that take on the appearance of freckles usually appear and are an excellent diagnostic symptom.

This disease occurs primarily in northwest Kansas, northeast Colorado, and southwest Nebraska. It can be controlled with resistant hybrids and crop rotation.



**Figure 4. Goss's wilt. Photo courtesy of University of Nebraska.**

### **Gray leaf spot**

Symptoms develop on the lowest leaves first and progress upward. The first symptoms are tiny lesions surrounded by a yellow halo. These eventually elongate into pale brown or gray rectangular lesions ranging from less than an inch to two inches in size (Figure 5). The entire leaves may become

blighted.

Gray leaf spot survives in infested plant debris on the soil surface. In Kansas, initial infections occur in late June and early July. Cloudy weather accompanied by prolonged periods of leaf wetness and high humidity favor disease development. Severe damage often occurs in low spots or in fields bordered by trees or streams where air circulation is poor.

To control gray leaf spot, producers can use a crop rotation that is long enough to eliminate corn debris. Producers can also till under the old corn debris. There are many hybrids available with at least partial resistance. Producers can also use foliar fungicides when the economic threshold is exceeded.

Application of a fungicide prior to full tasseling is not recommended as crop damage can occur prior to this stage of development.



**Figure 5. Gray leaf spot on corn. Photo by Doug Jardine, K-State Research and Extension**

### **Northern corn leaf blight**

Symptoms are gray, elongated lesions 1 to 6 inches long (Figure 6). The lesions appear on the oldest leaves first, and progress upward. Lesions may become tan as they mature.

Northern corn leaf blight is most common in continuous corn where crop debris remains on the surface. Conditions that favor infection are temperatures of 65 to 80 degrees with extended periods of dew.



There are several hybrids with resistance to northern corn leaf blight. Producers can also help reduce this disease by using rotation or tillage to eliminate crop debris.



**Figure 6. Northern corn leaf blight. Photo courtesy of Iowa State University,**

[www.ent.iastate.edu/imagegal/plantpath/corn/northleafblight/ncorn\\_leaf\\_blight\\_0796\\_02.html](http://www.ent.iastate.edu/imagegal/plantpath/corn/northleafblight/ncorn_leaf_blight_0796_02.html)

### Summary

The following are leaf diseases that can occur in certain situations:

- **Continuous corn, with residue on the surface:** All
- **Continuous corn, no residue on the surface:** Common rust, southern rust
- **Rotated corn:** Common rust, southern rust

The following is a list of leaf diseases according to the time of year they typically occur in Kansas (from earliest to latest):

1. Anthracnose leaf blight (earliest in the season)
2. Gray leaf spot
3. Common rust
4. Northern corn leaf blight
5. Goss's wilt
6. Southern rust (latest in the season)

Next is a list of leaf diseases according to how commonly they occur in Kansas (from most common to least common):

1. Common rust (most common)
2. Gray leaf spot
3. Southern rust

4. Anthracnose leaf blight
5. Goss's wilt
6. Northern corn leaf blight (least common)

Last is a list of corn leaf diseases in order of the potential yield loss they typically cause under moderate to severe infections (in order of most severe to least severe):

1. Gray leaf spot (most severe yield loss)
2. Southern rust
3. Goss's wilt
4. Anthracnose leaf blight
5. Northern corn leaf blight
6. Common rust (least severe yield loss)

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#### 4. Wheat harvest: Identifying disease problems and setting harvest priorities

As we begin harvest across the state, we wanted to provide some reminders about diseases that may affect either grain quality or the viability of grain that is destined to be saved for seed. At this point in the season most disease management decisions have been made, but there are some strategies for mitigating losses on heavily infected fields. Additionally, decisions can be made about variety selection and seed preparation for next season.

##### **Harvest considerations for Fusarium head blight:**

We covered scouting for Fusarium head blight (head scab) in last week's eUpdate. This disease can lead to lightweight, damaged kernels which may contain the mycotoxin deoxynivalanol (DON) (Figure 1). DON is sometimes referred to as "vomitoxin" because it can lead to vomiting and feed refusal in animals. Fields known to have high levels of Fusarium head blight should be harvested separately from fields that are unaffected. Producers should carefully consider if they want to blend seed from infected and uninfected fields, as this may result in reduced quality of uninfected grain. Research has indicated that adjusting combine fan speeds may help blow out lightweight Fusarium damaged kernels. Fan speeds that are too high, however, may remove too much healthy grain as well. If you are considering saving back seed from affected fields, seed should be professionally cleaned. If seed from fields with Fusarium head blight is saved, a seed treatment may help improve emergence. Fusarium head blight is not seed transmitted, however, so infected seeds will not result in head blight problems in the subsequent season.



**Figure 1. Chalky wheat kernels resulting from severe infection of Fusarium head blight. Photo by Erick DeWolf, K-State Research and Extension.**

### **Loose smut**

We have scouted many fields with loose smut this year across Kansas. Loose smut can be easily identified by masses of black spores that appear on heads in place of spikelets (Figure 2). At this point in the growing season, most of the black, powdery spores are gone, leaving only the central stem of the head (rachis). Individual heads with loose smut will not produce any grain. Earlier in the growing season, spores from infected heads may spread to neighboring plants and infect developing seed. Cool, wet weather during the flowering period this season was favorable for spread of this disease. Although this disease will not affect grain quality in the current season, the disease can persist within the infected kernels if the grain is saved for seed. The best option for control of grain being saved for seed is the use of a fungicide seed treatment. Coverage is key to ensure success of the treatment. More information about wheat seed treatment options can be found in this K-State wheat seed treatment publication: <https://bookstore.ksre.ksu.edu/pubs/MF2955.pdf>.



**Figure 2. Loose smut symptoms caused by the fungus *Ustilago tritici*. Photo by Kelsey Andersen Onofre, K-State Research and Extension.**



### **Common bunt (stinking smut)**

This year we have received just a couple of calls about common bunt in Kansas. This is a disease that is sometimes difficult to detect within the field when levels of the disease are low. This disease can be from infected seed or from the soil surface. Infection occurs in the fall when wheat germinates but does not present symptoms until grain fill. Kernels infected by common bunt are dark and discolored and are filled with black spores called teliospores (Figure 3). Teliospores can be released when wheat is harvested and can release a foul odor. Heavily infected fields can have reduced grain quality and yield. The best way to manage common bunt is to purchase certified, fungicide treated seed or to have saved seed commercially cleaned and treated.



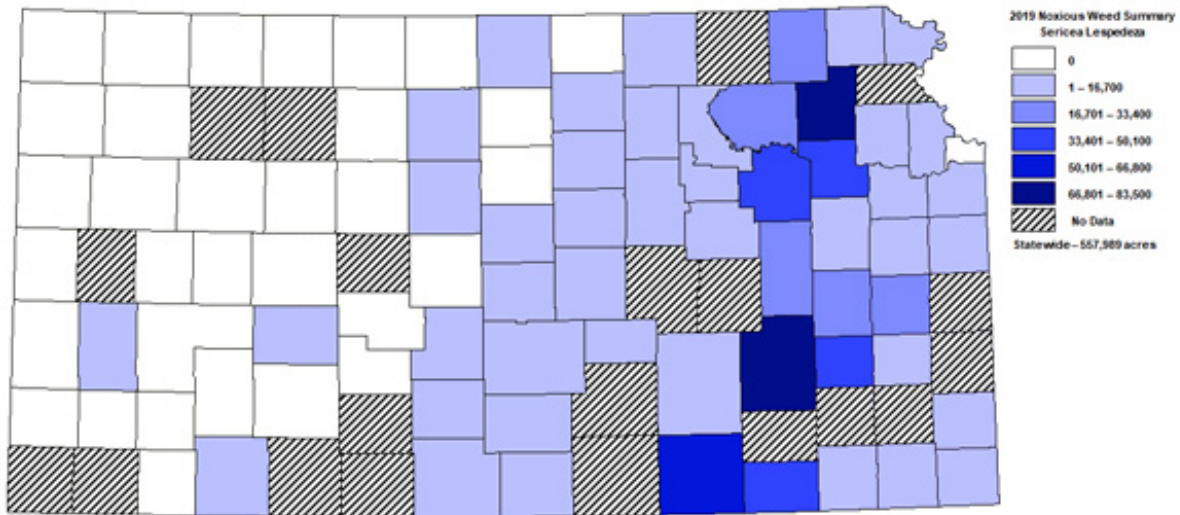
**Figure 3. Normal wheat on left; wheat infected with common bunt on right. Photo by Bill Bockus, K-State Research and Extension.**

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## 5. Early summer control of sericea lespedeza using herbicides

*Sericea lespedeza* is a major invasive species of concern on rangeland, pasture, and some CRP acres in Kansas. This state-wide noxious weed infests over 600,000 acres in Kansas (Figure 1).



**Figure 1. Distribution of sericea lespedeza in Kansas.**

*Sericea lespedeza* is a perennial legume with trifoliate leaves. The leaves are club or wedged shaped (Figure 2). Plants are usually about 3 feet tall, but can grow to several feet in height under ideal conditions. Plants will start to bloom in August with white to cream-colored flowers with a purple throat. Most seed production occurs in September.



**Figure 2. Trifoliate, wedge-shaped leaflets of sericea lespedeza. Photo by Walt Fick, K-State Research and Extension.**

June is a good time for control of sericea lespedeza using herbicides. At this time, sericea lespedeza is in a vegetative growth stage (Figure 3) and is rapidly growing. By the end of June plants will begin to branch and become woodier.





**Figure 3. Vegetative growth stage of sericea lespedeza. Photo by Walt Fick, K-State Research and Extension**



## Chemical control options

The most effective herbicides to treat sericea lespedeza during the vegetative growth stage are Remedy Ultra (triclopyr) and PastureGard HL (triclopyr + fluroxypyr). Broadcast applications of Remedy Ultra at 1 to 2 pints/acre and PastureGard HL at 0.75 to 1.5 pints/acre should be applied in spray volumes of 10 to 20 gallons/acre. Another herbicide option would be Surmount (picloram + fluroxypyr) at 2 pint/acre. Surmount is a restricted-use pesticide and would be a good choice if you are wanting to treat roughleaf dogwood at the same time.

For spot application, mix 0.5 fl oz PastureGard HL per gallon of water or use a 1% solution of Remedy Ultra in water. Aerial applications of these products should be done with a minimum spray volume of 3 gallons per acre. Higher volumes, e.g. 5 gallons per acre, will generally be more effective.

**Sericea lespedeza is a state-wide noxious weed in Kansas and therefore needs to be controlled. Sericea lespedeza has a tremendous seed bank that helps reestablish stands.**

Herbicide treatments will need to be repeated every 2 to 4 years to keep this invasive species in check. Initial treatments should reduce dense stands to the point where spot treatment can be used in future years. Left untreated, sericea lespedeza will dominate a site, greatly reducing forage production and species diversity.

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## 6. World of Weeds: Yellow nutsedge

Yellow nutsedge (*Cyperus esculentus*) is the feature of this month's World of Weeds article. Several questions have come in recently regarding identification and control of yellow nutsedge (also called chufa, field nutsedge, ground almond, or yellow nutgrass, among others), as well as other sedge species. This article will focus on the ecology and management of yellow nutsedge, but will also mention some of the other sedges found in Kansas.

### Ecology of yellow nutsedge

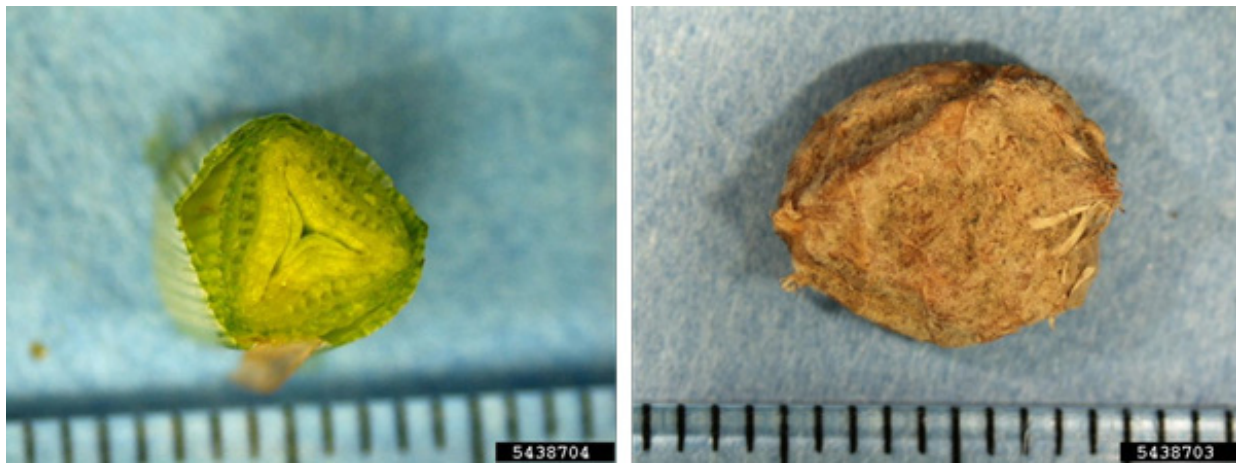
Numerous sedge species are found throughout Kansas. Most are categorized in the genus *Cyperus* or *Carex*. Yellow nutsedge is among the more troublesome species and was introduced from Eurasia. Sedges are typically found in moist soils, and in some cases may be an indicator of poor soil drainage. Sedges are either annual or perennial plants. Yellow nutsedge is a perennial that reproduces primarily by tubers. Yellow nutsedge tubers are a food source for wildlife (notably ducks and turkey) and, in some places, humans. The name *chufa* is generally used for the plant when it is cultivated.

### Identification

The key feature for sedges is a triangular stem. Most of the leaves come from the base of the plant and reach about the same height. Yellow nutsedge grows about 1 to 2½ feet tall (Figure 1). One of the features that distinguishes yellow nutsedge from others is that the leaves taper to a point (purple nutsedge leaves have relatively blunt tips). The yellowish-colored inflorescence (seed head) is a more distinguishing feature; many other sedges have darker inflorescences in shades of reddish-brown to reddish-purple. A yellow nutsedge inflorescence contains many spikelets that are around ½ to 1-inch long. Each spikelet contains many seeds contained in three-sided achenes (similar to a sunflower seed). There are a few leaf-like bracts immediately below the inflorescence. Yellow nutsedge tubers are brown and pea-shaped, about ½ to ¾ inch long (Figure 2). Individual tubers grow at the end of the rhizomes (purple nutsedge tubers grow in chains).



**Figure 1. Clumps of yellow nutsedge infesting a soybean field (left) and a flowering plant (right). Photos by Dallas Peterson, K-State Research and Extension.**



**Figure 2. All sedges have triangular stems (left). Tubers are the primary way yellow nutsedge spreads (right). Photos by Bruce Ackely.**

### Management

Yellow nutsedge is a difficult to control weed in agronomic crops, as well as in homeowner gardens, lawns, and flower beds. Research suggests corn yield can be reduced up to 50% and cotton yield by nearly 30% by yellow nutsedge. Tillage alone is not an effective control measure, nor is hand removal because the tubers are often not removed. Herbicides containing the active ingredient halosulfuron are among the best choices for nutsedge control. These products can be found under a variety of tradenames for various application sites. Dual, Outlook, and Harness/Warrant or similar products will suppress nutsedge when applied pre-emergence. Glyphosate also provides some control.

### **References:**

Stoller et al., 1979; Patterson et al., 1980.

### **Check out these other World of Weeds articles!**

Palmer amaranth - <https://bit.ly/2Wzl8BA>

Kochia – <http://bit.ly/2udtOK1>

Common sunflower – <http://bit.ly/2wSy8be>

Stinging nettle – <http://bit.ly/37nOqFC>

Mistletoe - <http://bit.ly/2QbmXQO>

Stay tuned for the next World of Weeds article coming out soon! Feel free to send Dr. Lancaster or Kathy Gehl ([kgehl@ksu.edu](mailto:kgehl@ksu.edu)) an email if you have a special request for a future article.

Sarah Lancaster, Extension Weed Science Specialist  
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## 7. Kansas weed survey: Producers/ag professionals input requested

Herbicide-resistant weeds are threatening the profitability and long-term sustainability of Kansas cropping systems. To help develop innovative, cost-effective, and integrated weed management practices for controlling herbicide-resistant weeds and to further improve the outreach programs for various regions of the state, the Weed Science group at the K-State Ag Research Center in Hays seeks input from Kansas producers and ag professionals (crop consultants, county agents, certified crop advisors). We invite you to please complete a brief survey related to weed management practices and herbicide-resistant weed problems. The survey will take 5-8 minutes and can be completed using the given link or by scanning the QR code on your smart phone.

If you have further questions on the survey, please contact Dr. Vipin Kumar, Weed Management Specialist at [vkumar@ksu.edu](mailto:vkumar@ksu.edu).

Survey Link: [Kansas Weeds Survey](#)

QR Code:



## 8. Western Kansas remains very dry with significant impacts on agriculture

Heavy rains, as mentioned in an earlier eUpdate about “toad stranglers”, had been prevalent in eastern Kansas up until June. Drought, on the other hand, has many definitions and tends to creep into the weather discussions. This has been occurring in western Kansas this year and is rapidly becoming more widespread this month. The Glossary of Meteorology defines drought as “A period of abnormally dry weather sufficiently prolonged for the lack of water to cause serious hydrologic imbalance.” In everyday terms, it is generally defined as a period when water is insufficient for existing demands. In Kansas, drought declarations, which trigger specific actions, are issued by the Governor’s office.

### U.S. Drought Monitor

The U.S. Drought Monitor has been active since 2000. This resource is produced jointly by the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture (USDA), and the National Drought Mitigation Center at the University of Nebraska-Lincoln. The U.S. Drought Monitor website is hosted and maintained by the National Drought Mitigation Center. The weekly monitor integrates hundreds of monitoring measures, including the Palmer drought severity index (PDSI), the standardized precipitation index (SPI), stream flow, evaporative demand, soil moisture and vegetative health (Figures 1 and 2). Despite all these parameters, a major input to the Drought Monitor is observed impacts on the ground. These include photos, reports of conditions from the public, and water supply levels. Inputs are a collaboration between local, state, and federal agencies. The Monitor is updated each week on Thursday with data cutoff on Tuesday morning.

### Drought Classification

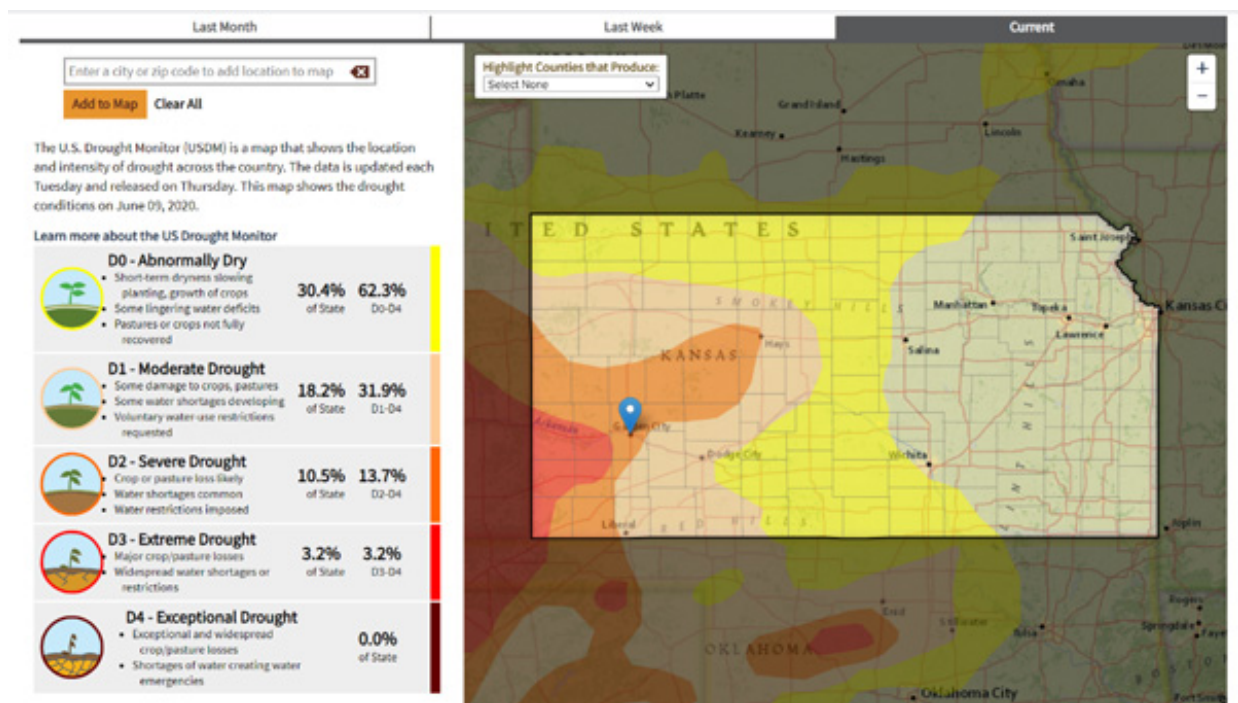
About > About The Data > Drought Classification

Category	Description	Possible Impacts	Ranges				
			Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator (Percentiles)
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"><li>• short-term dryness slowing planting, growth of crops or pastures</li></ul> Coming out of drought: <ul style="list-style-type: none"><li>• some lingering water deficits</li><li>• pastures or crops not fully recovered</li></ul>	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	<ul style="list-style-type: none"><li>• Some damage to crops, pastures</li><li>• Streams, reservoirs, or wells low, some water shortages developing or imminent</li><li>• Voluntary water-use restrictions requested</li></ul>	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	<ul style="list-style-type: none"><li>• Crop or pasture losses likely</li><li>• Water shortages common</li><li>• Water restrictions imposed</li></ul>	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	<ul style="list-style-type: none"><li>• Major crop/pasture losses</li><li>• Widespread water shortages or restrictions</li></ul>	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	<ul style="list-style-type: none"><li>• Exceptional and widespread crop/pasture losses</li><li>• Shortages of water in reservoirs, streams, and wells creating water emergencies</li></ul>	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

**Figure 1. Drought classification (Source: US Drought Monitor).**

The U.S. Drought Monitor is used by policymakers and media in discussions of drought and in allocations of drought relief. As part of its response to the drought of 2012, the USDA streamlined the

process for secretarial disaster declarations, making declarations nearly automatic for a county shown in severe drought on the U.S. Drought Monitor for eight consecutive weeks.



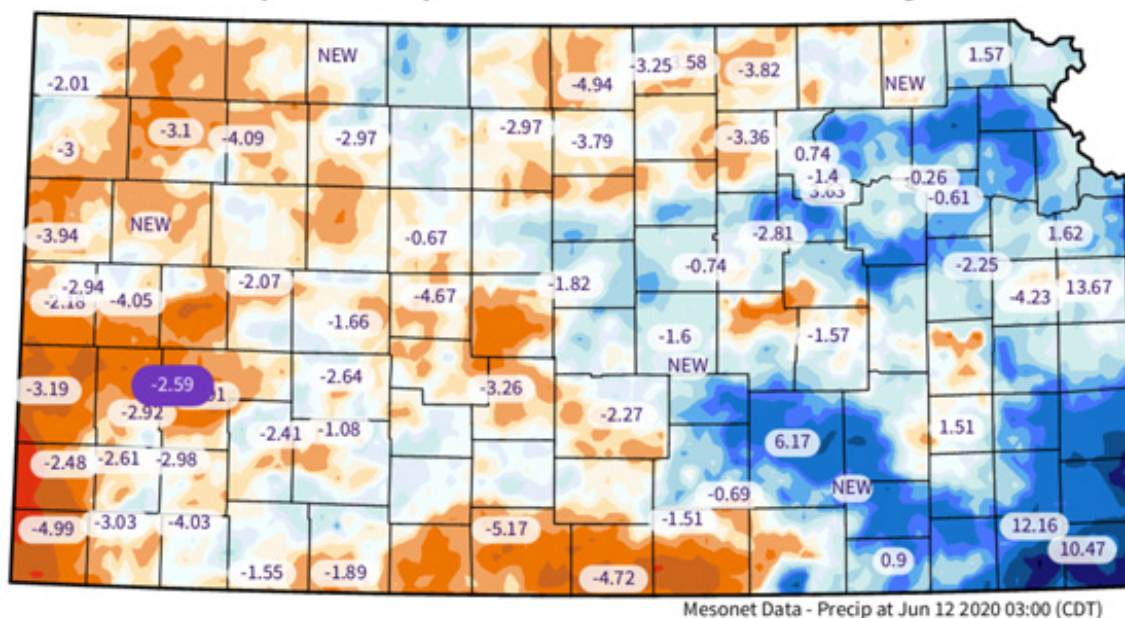
**Figure 2. Latest U.S. Drought Monitor for Kansas with explanation of categories (National Integrated Drought Information System – NIDIS).**

Source: <https://www.drought.gov/drought/states/kansas?places=Garden%20City%2C%20KS>

### Conditions in Southwest Kansas

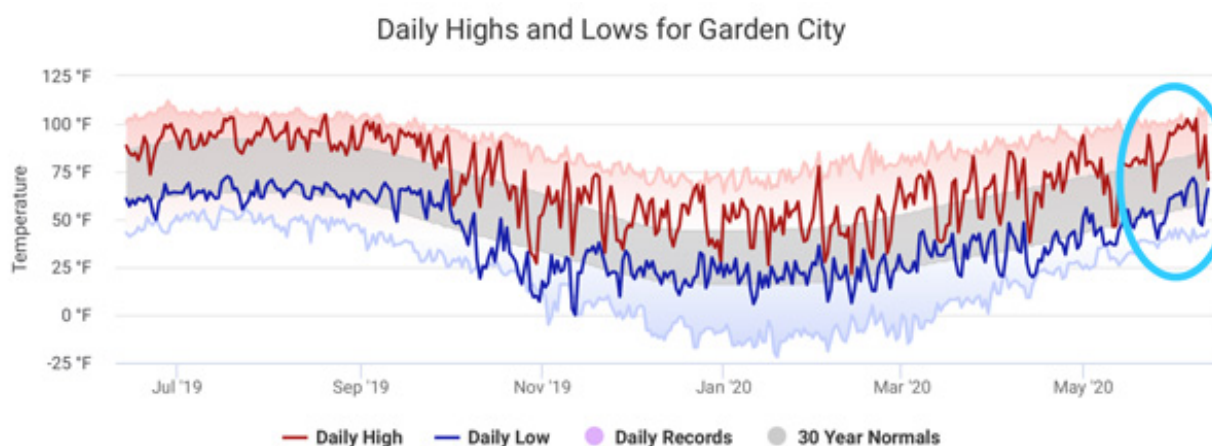
The Southwest Division is the epicenter for the most severe conditions currently displayed on the US Drought Monitor. Precipitation deficits since November illustrate just how dry it has been, with departures as much as 5 inches and localized higher amounts (Figure 3). A five-inch deficit in the southwest relates to a one third of their annual average moisture.

## Dep Precipitation - last 180 days



**Figure 3. The last 180 days of precipitation departure in Kansas as seen on the Kansas Mesonet ([mesonet.ksu.edu](http://mesonet.ksu.edu)).**

Precipitation alone does not capture all the components of drought. Temperature and wind are contributors to the evapotranspiration rates, or the amount of water used by vegetation. Temperatures in the Southwest Division have been much warmer than normal to start June, as can be seen at the Garden City Mesonet station (Figure 4).



**Figure 4. Daily temperatures at Garden City Kansas Mesonet station with June temperatures circled in blue. Data source: [mesonet.ksu.edu/weather/maxmin](http://mesonet.ksu.edu/weather/maxmin)**

Conditions in the southwest are verified by reports on the ground. Substantial ground cracking from dry soil and a poor wheat stand in Scott Co reflect such conditions (Figure 5).



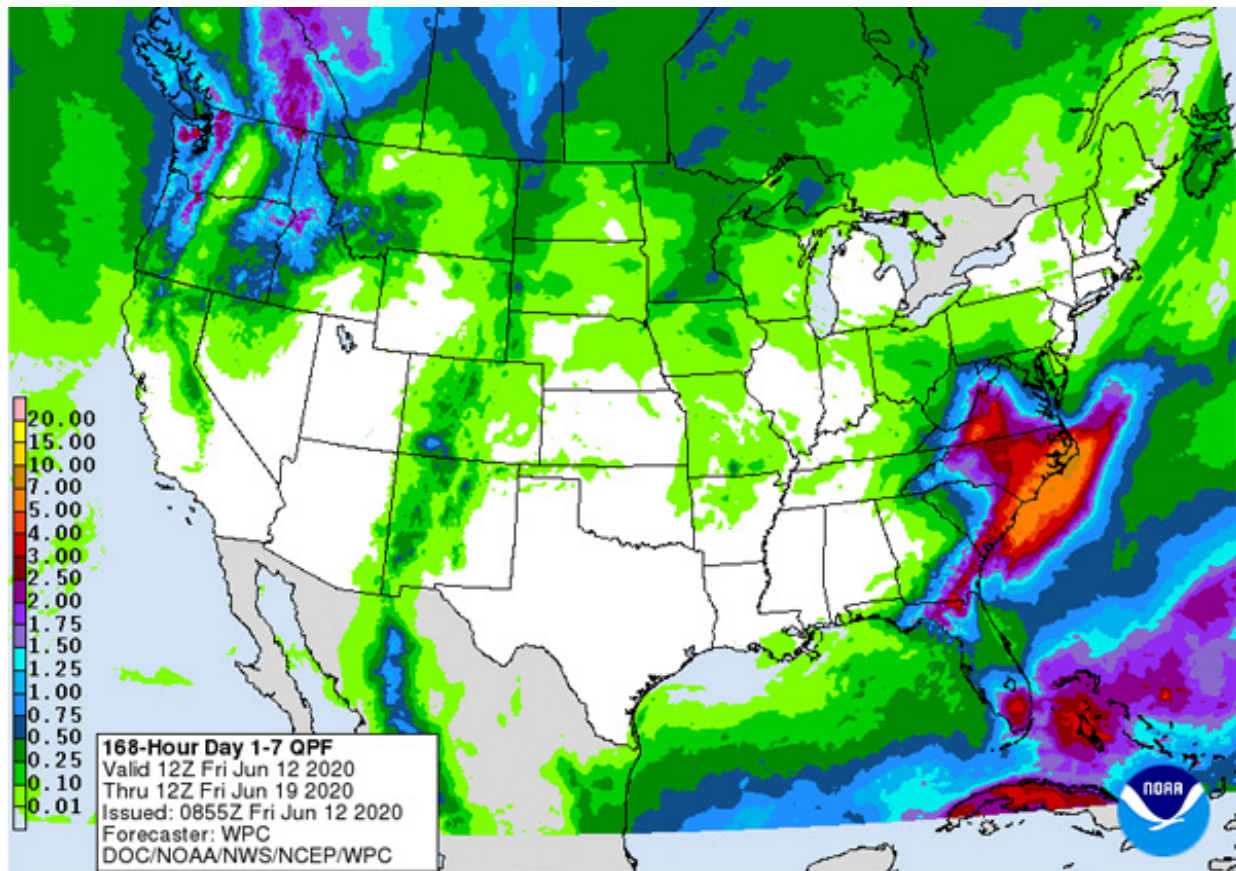


**Figure 5. Substantial ground cracks. Photo submitted by Josh Coltrain from Scott County, KS ([twitter.com/josh\\_coltrain](https://twitter.com/josh_coltrain)).**

### **Temperature and Precipitation Outlooks**

Unfortunately, conditions are unlikely to improve anytime soon. Both the 6-10 and 8-14 day outlooks favor warmer-than-normal temperatures. The 6-10 day precipitation outlook is for drier-than-normal conditions across the state. Also, the quantitative precipitation outlook for the next week indicates that less than a tenth of an inch of rain is expected anywhere in the state (Figure 6). In

Garden City, the normal daily precipitation amount is a tenth of an inch. In Parsons, the normal daily precipitation is 0.20 inches.



**Figure 6. Precipitation forecast by the Weather Prediction Center**  
(<https://www.wpc.ncep.noaa.gov>).

### You can help!

More often than not when decision-makers are updating drought conditions, they lack on-the-ground truth of impacts. You can help remedy this issue! Please don't hesitate to send photos to either our Twitter account ([twitter.com/ksmesonet](https://twitter.com/ksmesonet)) or via email at [kansas-wdl@ksu.edu](mailto:kansas-wdl@ksu.edu). Of the most help are photos of the current conditions (wet, dry, normal - we want them all!). Even more useful are impact photos from the same location in comparison to a previous time. For example, taking a photo once a month from the same area/view can greatly describe the changes due to drought (or wetness). Reports of agriculture impact and/or water supply are also extremely useful.

### Summary of current conditions and the Drought Monitor

- The U.S. Drought Monitor quantifies current conditions relative to precipitation trends and respective impacts.
- Extreme drought exists in southwest Kansas with significant agriculture impacts observed.
- Current forecasts for the remainder of the month predict substantial dryness and above normal temperatures to continue for most of the state.

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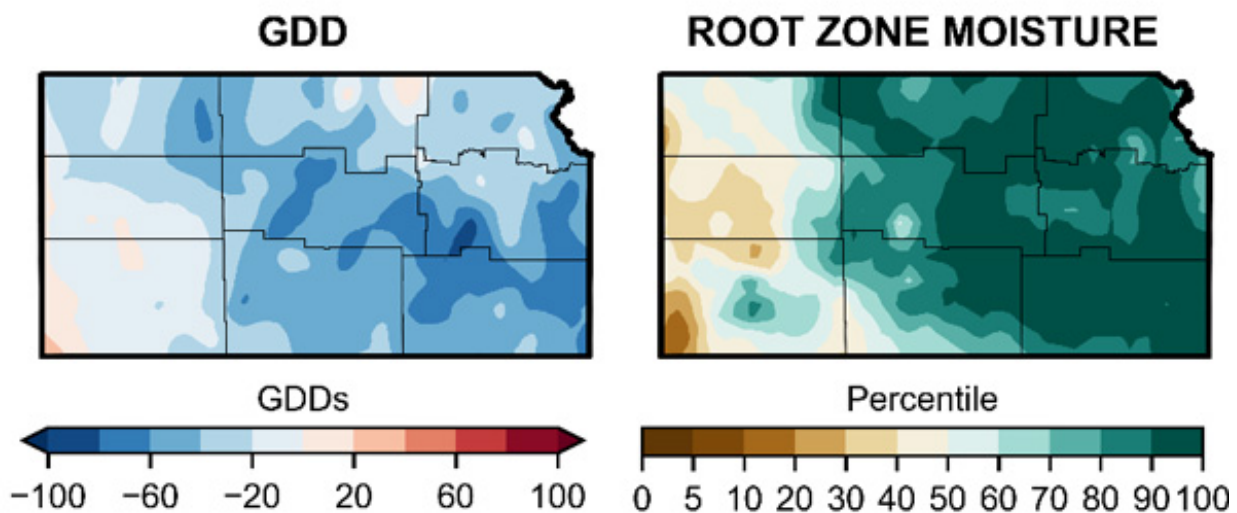
## 9. Ag-Climate Update for May 2020

The Ag-Climate Update is a joint effort between our climate and extension specialists. Every month the update includes a brief summary of that month, agronomic impacts, relevant maps and graphs, 1-month temperature and precipitation outlooks, monthly extremes, and notable highlights.

### May 2020: Growing degree days below normal for winter wheat in Kansas

We had a pretty decent May when comparing this spring to the previous three years. May was cool and near normal for precipitation. It ranked as the 55<sup>th</sup> wettest May and the 25<sup>th</sup> coolest. Statewide only one new daily record high was recorded, but 111 new record cold maximum temperatures were set. Statewide precipitation averaged near normal, with 3.86 inches, 91 % of normal. Parsons recorded the greatest 24hr precipitation: 5.5 inches on the 25<sup>th</sup>. Independence had the greatest total for May: 11.1 inches.

Ambient temperature was slightly colder across the state so that GDDs are currently below the median (50<sup>th</sup> percentile) of climatology. In terms of spatial GDD distribution during May, the monthly GDDs were not too far below the medians of winter wheat GDDs. The much above-normal rainfall in the Southeast continues to exacerbate routine field operations and crop establishment in that area (Fig. 3b).



**Figure 1. Spatial distribution of departures from normal winter wheat growing degree days (GDD) for May and the root zone soil moisture percentile (GRACE satellite) as of May 25, 2020.**

Severe weather was more widespread than in April. The first tornado of the season was reported on May 14 near Council Grove. For the entire month of May, there were 11 reports of tornadoes, 112 reports of hail, and 71 reports of damaging wind. There were no reports of injuries or deaths with the tornadoes.



View the entire May Ag-Climate Summary, including the accompanying maps and graphics (not shown in this summary), at <http://climate.k-state.edu/ag/updates/>.