Issue 803

K-STATE Research and Extension

Extension Agronomy

eUpdate

06/05/2020

These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, Agronomy eUpdate Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 dpeterso@ksu.edu.

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

eUpdate Table of Contents | 06/05/2020 | Issue 803

1. Federal court vacates registration of some dicamba herbicide labels..... 3
2. Late planting of soybeans: Management considerations..... 6
3. Post-emergence marestail control in soybean fields..... 9
4. When the temperature rises, remember the Kansas Mesonet Cattle Comfort Tool..... 11
5. Soybean planting and emergence progress report for Kansas and select Midwest states..... 15
6. Late-season wheat diseases: Be on the lookout for Fusarium head blight..... 20
7. Kansas weather: Early June heat, drought...repeat?..... 27

1. Federal court vacates registration of some dicamba herbicide labels

On Wednesday, June 3, the Ninth Circuit Court of Appeals in San Francisco issued a decision that nullifies the current labels for Engenia, FeXapan, and XtendiMax herbicides. The decision was in response to a 2017 lawsuit stating that the EPA understated the risks of using the products. There are a lot of questions about the consequences of this decision and few answers at the moment. We are in a position where we must wait for the legal process to play out and for the EPA to issue clear guidance. What we do know at the present time is that the court order makes applications of Engenia, FeXapan, and XtendiMax illegal. However, the current statement from the Kansas Department of Agriculture is that these products are still available for use in Kansas.

This is a season where weed management activities are essential and decisions must be made quickly. Some of the best alternatives to dicamba will be products containing Group 14 herbicides such as fomesafen (Reflex, FlexStar). A list of these products is presented in Table 1. Weed size and spray coverage will be important factors affecting control by these products. Also, consider that dicamba does have some residual activity that you may want to replace and is important for control of difficult weeds like Palmer amaranth. Group 15 herbicides containing active ingredients such as metolachlor or acetochlor will be the likely candidates for this purpose. These products are also listed in Table 1.

Table 1. Herbicide alternatives to dicamba for post-emergence control of broadleaf weeds in dicamba-tolerant soybean.

Herbicide	Group	Active ingredient (s)	Comments
Classic	2	chlorimuron	Many pigweed populations are resistant
Cobra, others	14	lactofen	Expect crop injury
Dual II Magnum, others	15	S-metolachlor, metolachlor	Apply through V3
FirstRate	2	cloransulam	Many pigweed populations are resistant
Flexstar GT	14 + 9	fomesafen + glyphosate	Expect crop injury 10-month rotation to corn Regional application restrictions
Flexstar, Reflex, others	14	fomesafen	Expect crop injury 10-month rotation to corn Regional application restrictions
Marvel	14 + 14	fluthiacet + fomesafen	Apply before full flower soybean

Expect crop injury

Outlook	15	dimethenamid-P	Apply before V5
Prefix	14 + 15	fomesafen + S-metolachlor	Expect crop injury 10-month rotation to corn Regional application restrictions
Pursuit	2	imazethapyr	Many pigweed populations are resistant
Raptor	2	imazamox	Many pigweed populations are resistant
Storm	14 + 6	acifluorifen + bentazon	Expect crop injury
Synchrony	2 + 2	thifensulfuron + chlorimuron	Many pigweed populations are resistant
Tavium	4 + 15	dicamba + S-metolachlor	Apply through V4 or 45 days after planting
Ultra Blazer, others	14	acifluorifen	Expect crop injury
Warrant	15	acetochlor	Apply before R2 soybean
Warrant Ultra	14 + 15	fomesafen + acetochlor	Apply before R2 soybean 10-month rotation to corn Regional application restrictions
Zidua	15	pyroxasulfone	Apply through V6

We will share any updates to this decision as more information and guidance becomes available in the coming days.

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

2. Late planting of soybeans: Management considerations

Soybean planting progress in Kansas is ahead of last year's growing season but still there are soybean fields to get planted. In the latest USDA Crop Progress and Condition report (June 1, 2020), soybeans planted was at 62% complete, well ahead of 25% for last year and the long-term average of 40%.

Looking back a little to the historical planting dates for our state, in recent decades Kansas producers have been planting soybeans slightly earlier -- at the rate of about one-third day per year (Figure 1). In the past five growing seasons (2015-19, except for 2018), the "50% planting date" mark was achieved at a similar time (first week of June) statewide. Moreover, the same "50% planting date" mark was attained in 1980 as this current growing season, averaging 50% planting progress by June 1. The largest delay experienced in Kansas was in 1982 with 50% achieved close to the end of June, and getting closer in 2019 with 50% achieved after June 9.

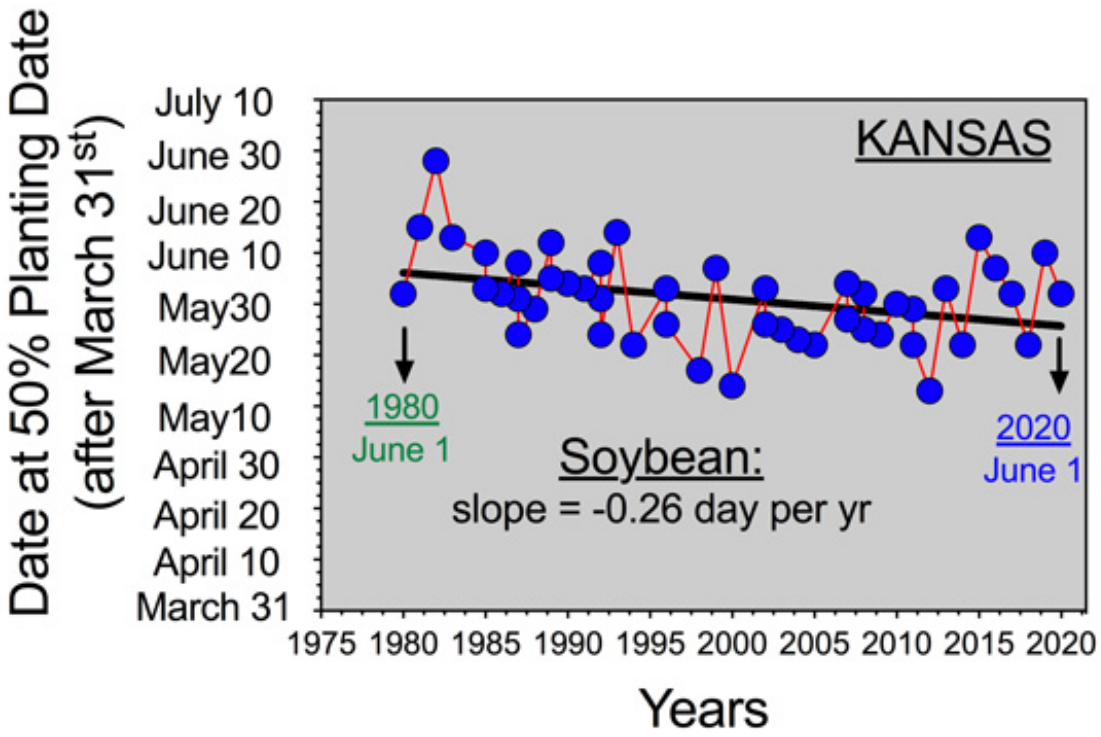


Figure 1. Trend in the date at which 50% of planting progress was achieved for soybean from 1980 to 2020 in Kansas (the last four decades of soybean progress in Kansas). Source: USDA-NASS.

In few of the places where soybean planting has been delayed (or in double crop soybean systems), producers should consider a few key management practices. Planting soybeans in the right soil conditions is essential for establishing an adequate soybean canopy and improving chances to increased yield potential.

Figure 2. Late-planted soybeans (June 10) into adequate soil conditions. Photo by Ignacio A. Ciampitti, K-State Research and Extension.

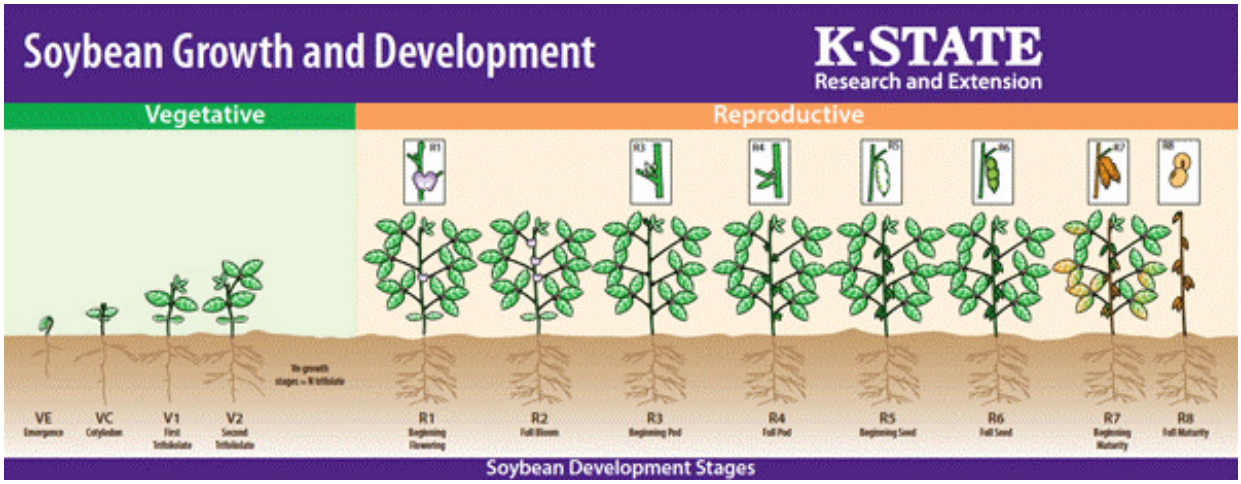
Maturity group factor: From our 'planting date x maturity group' study in 2014, 2015, and 2016, late planting did not clearly result in a yield reduction at the dryland sites, and caused only a minimal yield reduction at the irrigated site. Medium maturity groups (ranging from 3.8 to 4.8) yielded better, depending on the site and growing season evaluated (Figures 3, 4, and 5). More information related to this study can be found in Agronomy eUpdate issue 743: April 19, 2019.

Seeding rate factor: Increasing the seeding rate of late-planted soybeans by 10-20% as compared to the optimal seeding rate can help compensate for the shortened growing conditions. Research information on seeding rate and late planting of soybeans is currently being investigated further, with more updates on this topic in future issues of the Agronomy eUpdate. The same soybean cultivar planted early in the planting window, under normal conditions, will develop nearly 50% more productive nodes than when planted in late June: 19-25 nodes when planted early vs. 13-16 nodes when planted late. For soybean seeding rates and optimum plant populations, see the associated article from eUpdate issue 796: April 24, 2020.

Row spacing factor: Information on late-planted soybeans across multiple row spacing suggests that narrow-rows (e.g. 7" or 15" vs. 30") can hasten canopy closure, increasing season-long light interception, weed suppression, and potentially improving biomass and final yield. In some cases,

the likelihood of a positive yield response to narrow rows increases as the planting is delayed later in the season.

Finally, proper identification of soybean growth stages can make a difference in yield. We have worked with the United Soybean Board and the Kansas Soybean Commission recently to produce a soybean growth and development chart. It can be downloaded at: https://www.bookstore.ksre.ksu.edu/pubs/MF3339.pdf



More information about key aspects of each growth stage and management practices can be found in that soybean chart.

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

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

3. Post-emergence marestail control in soybean fields

Timely herbicide applications are key for post-emergence control of marestail. Marestail is difficult to control even when the plants are in the rosette stage, but becomes even tougher when plants are greater than 6 inches tall (Figure 1). That is why fall and early burndown treatments are critical to the long-term management of marestail. Unfortunately, those applications don't always happen. Management is also complicated by the fact that some marestail populations in Kansas have developed resistance to glyphosate and ALS-inhibiting herbicides. However, there are some options for control of large marestail. These options are generally associated with the herbicide-resistance trait of your soybeans.

Figure 1. Herbicides control marestail more effectively in the rosette growth stage (left) than after the plant has bolted (right). Photos by Dallas Peterson and Sarah Lancaster, K-State Research and Extension.

In Xtend soybean, Xtendimax, FeXapan, or Engenia are some of the most effective herbicides for post-emergence control of marestail. Be aware of label restrictions associated with application of these herbicides, including nozzle selection and environmental conditions.

If you planted Enlist E3 soybean, Enlist One or Enlist Duo can effectively control marestail. Similar to Xtendimax, FeXapan, and Engenia, Enlist products have label restrictions on nozzle selection. Careful attention to tank-mix order has also been shown to be important to prevent physical incompatibility with Enlist products. In addition, Enlist could be tank-mixed with Liberty for multiple effective herbicide modes of action.

Liberty (glufosinate) can be effective for marestail control in soybean varieties with the Liberty Link trait, including Enlist E3 and LLGT27. Liberty requires higher spray volumes and good coverage for

best results. Ammonium sulfate is essential to optimize Liberty performance.

A tank-mix of glyphosate plus FirstRate is a good option for marestail control in soybeans with the Roundup Ready trait. Some marestail populations are still susceptible to glyphosate, and even resistant plants will be affected to some degree. However, the combination of the two herbicides seems to work better than either herbicide alone, even on resistant plants. It is important to use ammonium sulfate to optimize control. Other tank-mixes to consider with glyphosate for controlling marestail would include Classic and Synchrony herbicides. Unfortunately, some marestail may also be ALS-resistant, in which case FirstRate, Classic, and Synchrony would also be fairly ineffective.

With all herbicides, it is important to use the full rates and observe label requirements to maximize weed control, prevent crop injury, and slow the development of herbicide resistance.

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

4. When the temperature rises, remember the Kansas Mesonet Cattle Comfort Tool

The winter of 2019-2020 was not as harsh as the previous winter, but there were still conditions that resulted in negative impacts on cattle, particularly calves. One indication of the winter weather impacts was the number of requests for Mesonet data to document losses under the Livestock Indemnity Program.

The switch from cool spring conditions to very warm temperatures brings up the other side of stress to cattle. A comprehensive tool on the weather impacts should prove useful for future events. Besides cold weather stress, this tool also helps assess the response to excessive heat and humidity.

Actual animal response to temperature stress will be dependent on a number of factors not accounted for in the index. Those include, but are not limited to: age, hair coat (winter vs summer; wet vs dry), health, body condition, micro-environment, and acclimatization.

Users can access this tool from either the main Mesonet page by selecting from the drop down menu, Agriculture, and then Comfort Index (Figure 1); or directly from this link: http://mesonet.k-state.edu/agriculture/animal/

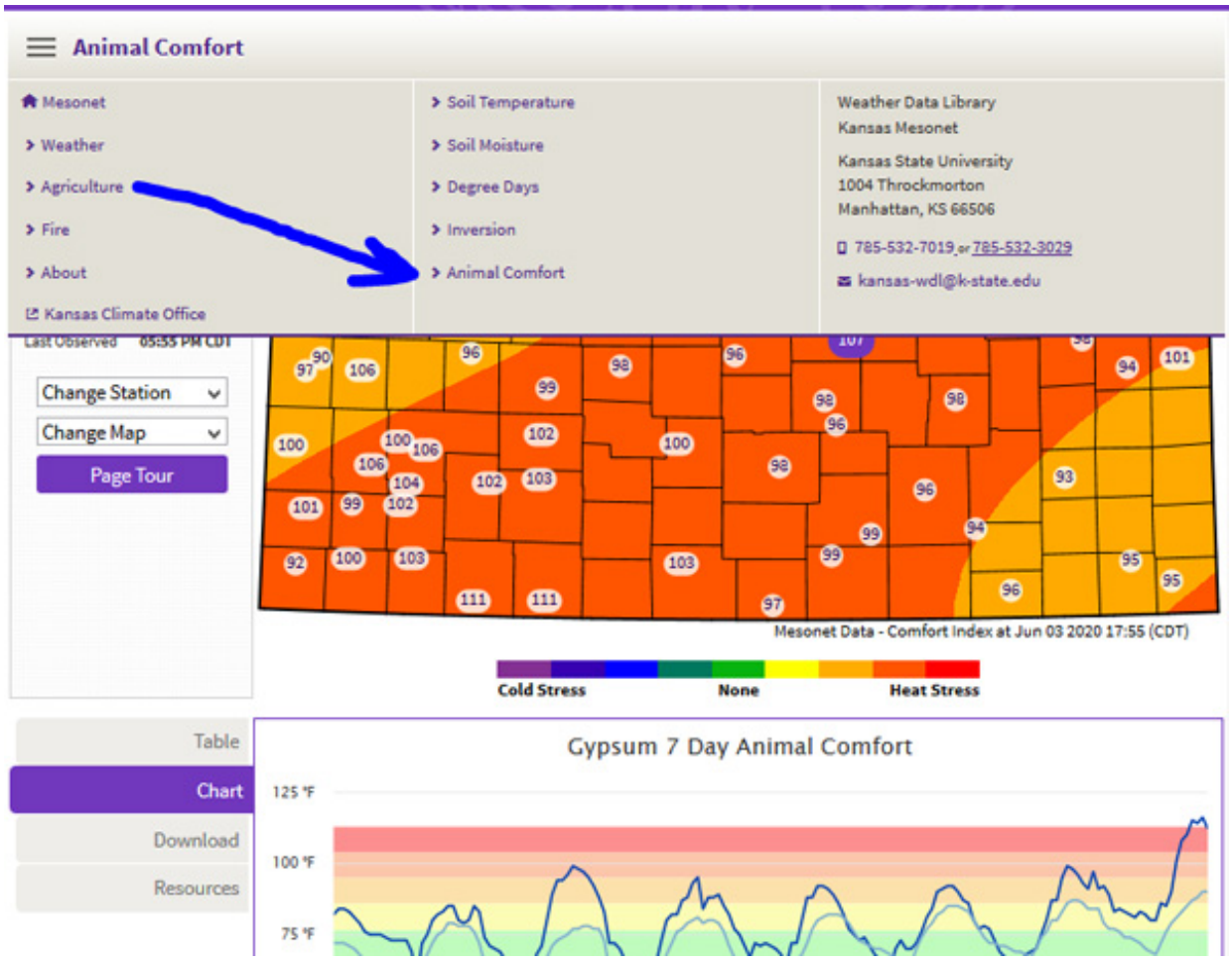


Figure 1. Screenshot of the menu path to the Comfort Index page on the Kansas Mesonet.

Understanding the Comfort Index

Building on the Comprehensive Comfort Index, produced at University of Nebraska, this tool illustrates the impact of both extremes of hot and cold. The index is unique in that it includes, in addition to air temperature and relative humidity, effects of wind speed and solar radiation. Development and validation of the index used data from beef and dairy cattle. The map indicates where current conditions fit on the scale.

On the "About" page, there is a description of the values on the scale and their potential impact (Figure 2). There is also a link to the publications used to produce the page. For more information on navigating this resource, users can select a page tour from the main animal comfort page located at the top of the featured map.

Heat and cold stress level categories for the cattle comfort advisor:

Comfort level	Map indicator	Index Value, °F	General Interpretation
Heat Danger		> 105	Animal deaths may exceed 5%
Heat Caution		> 95 to 105	Decreased production, 20% or more Reduced conception , as low as 0%
Heat Caution		> 85 to 95	Decreased production, 20% or more Reduced conception , as low as 0%
Comfortable		77 to 85	
Comfortable		32 to 77	
Comfortable		15 to 32	
Cold Caution		< 15 to -20	18 to 36% increase in dry matter intake
Cold Danger		< -20 to -40	
Cold Danger		< -40	

Figure 2. Cattle comfort ranges. Graphic from Kansas Mesonet.

Tracking conditions

A particularly useful resource is the chart feature. This allows you to monitor how conditions have fluctuated over the past week (Figure 3). Since stress impacts can be cumulative, having this feature allows producers to evaluate management requirements.

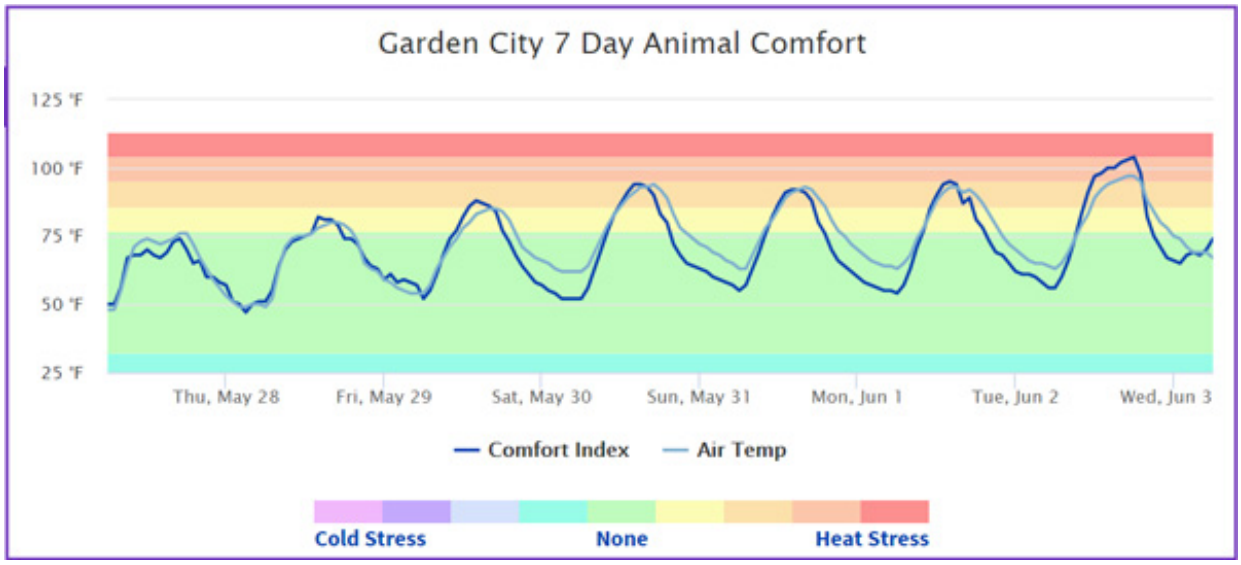


Figure 3. Animal Comfort index history at Garden City Mesonet station. Graphic from Kansas Mesonet.

Figure 4. Cattle on a pasture near the Sedan Mesonet station. Photo by Chip Redmond, K-State Research and Extension.

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

Mary Knapp, Weather Data Library
mknapp@ksu.edu

5. Soybean planting and emergence progress report for Kansas and select Midwest states

According to the latest USDA report, more than 50% of soybean acreage has been already planted in the major producing states in the US, ranging from 49% in Missouri to 95% in Iowa, Minnesota, and Nebraska, including 62% in Kansas (Figure 1, left). Soybeans emerged area follows a similar trend, ranging from 30% in Missouri to 76% in Iowa, with 46% in Kansas (Figure 1, right).

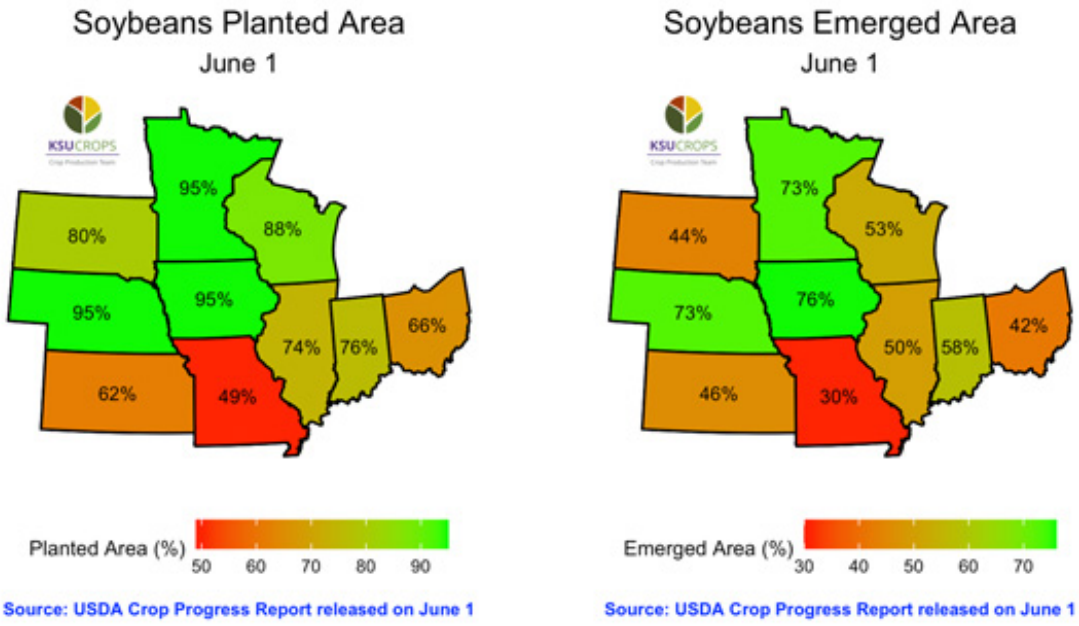


Figure 1. Percent of soybean planted (left) and emerged (right) areas for selected US Midwest states reported on the USDA Crop Progress Report released on June 1st 2020. Maps created by Leonardo Bastos, K-State Research and Extension.

The progress of soybeans planted area for 2020 has exceeded the five-year average for Illinois, Indiana, Iowa, Kansas, Minnesota, and Nebraska (Figure 2). The current season progress is largely ahead from 2019 season, when planting was delayed due to wet spring conditions in the Midwest states. Iowa, Minnesota, and Nebraska are already reaching the end of their planting operations, with Kansas, Illinois, and Indiana likely catching up in the week to follow depending on weather conditions.

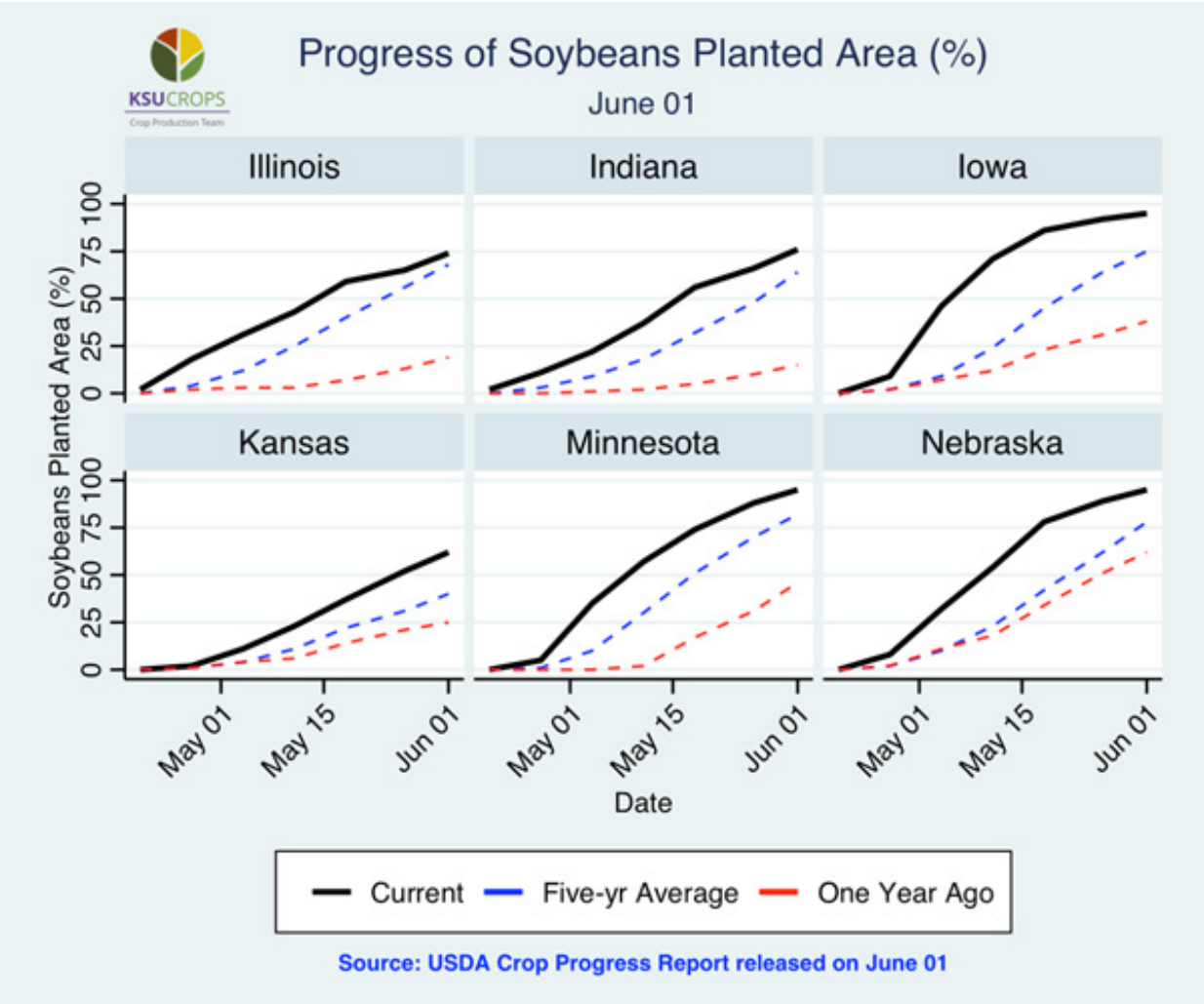


Figure 2. Progress of percent soybeans planted area for selected US Midwest states reported on the USDA Crop Progress Report released on June 1st 2020, including current week, five-year average, and same-week one year ago. Graphs created by Leonardo Bastos, K-State Research and Extension.

Weather during the spring is one of the main reasons for the 2020 planting season to be ahead of both the five-year average and last year. This situation is reflected on the number of days suitable for fieldwork in a week, which has been generally 4 days or greater since planting started in Illinois, Indiana, Iowa, Kansas, Minnesota, and Nebraska (Figure 3). In Kansas, farmers have had between 4 and 6 days per week when fieldwork was possible since mid-April. The current number of days suitable for fieldwork is considerably greater compared to 2019, when most farmers had very small windows of planting each week.

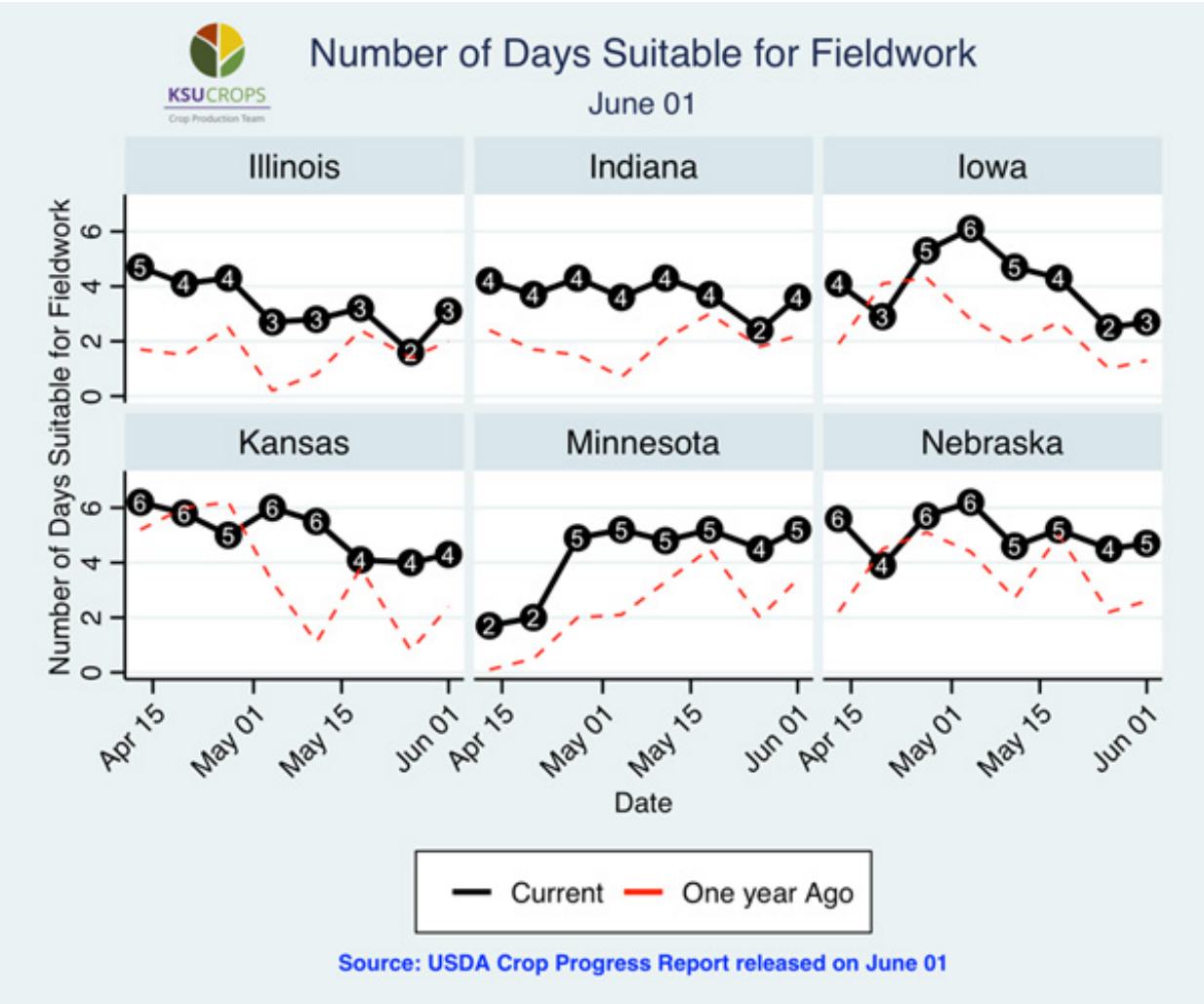


Figure 3. Number of days suitable for fieldwork for selected US Midwest states reported on the USDA Crop Progress Report released on June 1st 2020, including current week, and same-week one year ago. Graphs created by Leonardo Bastos, K-State Research and Extension.

Another reflection of good planting weather is the topsoil moisture condition during the planting season (Figure 4). Since mid-April, most of the soybean cropland area has been under adequate topsoil moisture condition in Illinois, Indiana, Iowa, Kansas, Minnesota, and Nebraska (Figure 4). In the latest report, adequate topsoil moisture ranged from 64% of the cropland area in Kansas to 82% of the area in Nebraska. Cropland area with surplus topsoil moisture conditions has been limited in Kansas and Nebraska since mid-April, while 27% of the cropland area was under surplus moisture condition in Illinois and Indiana this past week.

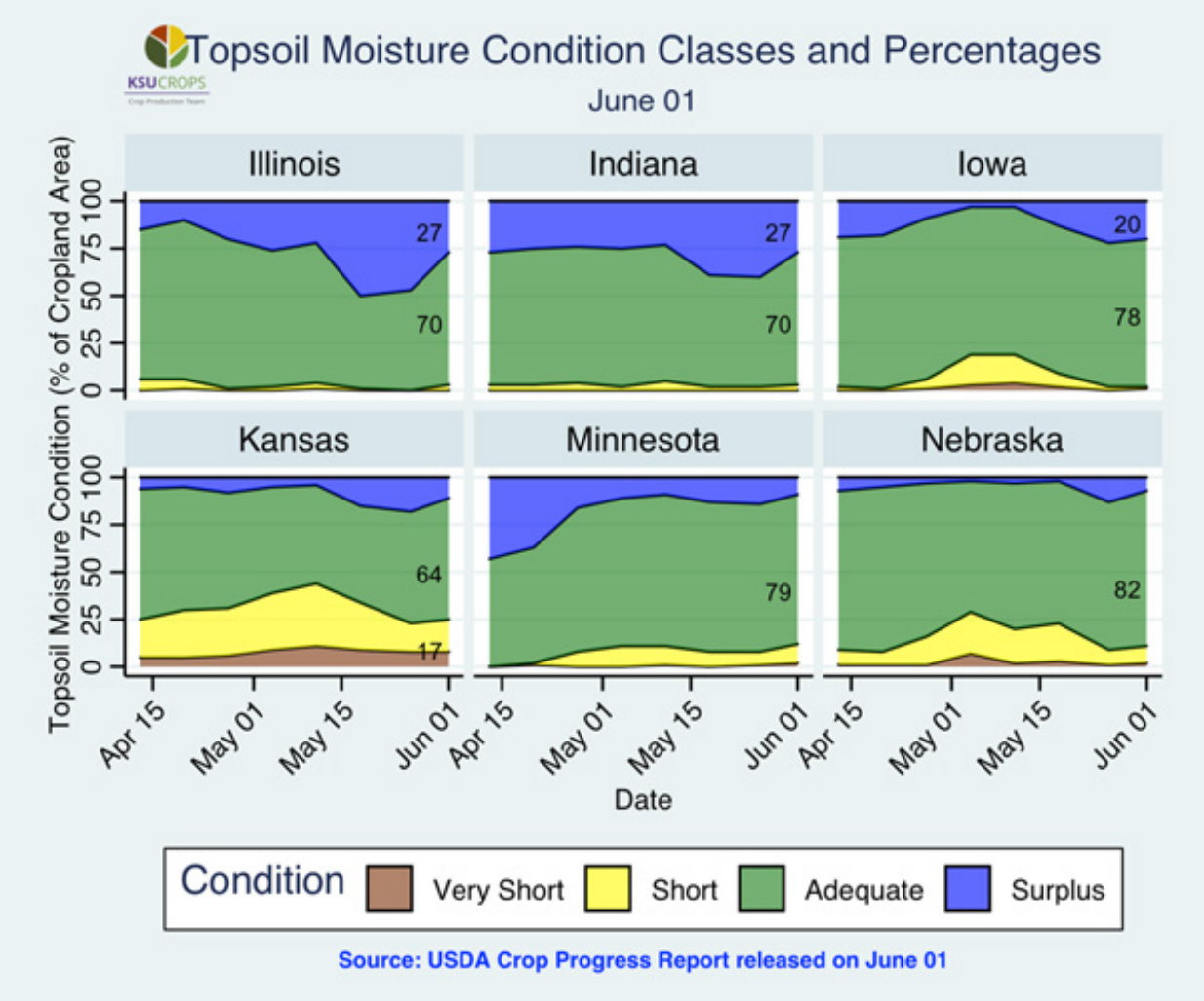


Figure 4. Topsoil moisture condition class and extent (percent, %, of cropland area) for selected US Midwest states reported on the USDA Crop Progress Report released on June 1st 2020. Graphs created by Leonardo Bastos, K-State Research and Extension.

Looking ahead

Weather conditions in the following weeks will determine how quickly farmers will be able to finish planting operations. According to the 6-10 day weather outlook from the National Weather Service Climate Prediction Center (http://www.cpc.ncep.noaa.gov/), most of the Midwest states will have 32-50% chance of above-normal precipitation and 57-79% chance of above-normal temperatures. In Kansas, the chance of above-normal precipitation ranges from 21% in southwest Kansas to 33% for northeast Kansas. The chance of above-normal temperature ranges from 64% in northwest Kansas to 79% in northeast Kansas. This next week will be key for making progress on finishing most of the full-season soybean planting, but the double crop soybean acreage will not be defined until harvest of the winter crop. In most situations winter wheat is finalized across the state, with precipitation playing a key role for improving water status in soils and success of the establishment of the double crop. For more information on current temperature and soil moisture in Kansas, check our Mesonet: https://mesonet.k-state.edu.

Summary

The 2020 planting season for soybeans has moved passed half the acreage and is ahead of both the five-year average and the 2019 season due to favorable weather conditions in many Midwest states. Since lower chances of above-normal precipitation are expected for many states reaching the end of planting season in the next following weeks, timing for finishing planting and/or replanting acreage will be key for the success of the crop. Lastly, considering the greater chances of above-normal temperatures in the coming weeks, crop emergence and overall growth/progress will be able to pick up.

Leonardo Bastos, Post-doctoral researcher, Dr. Ciampitti's Lab
lmbastos@ksu.edu

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

6. Late-season wheat diseases: Be on the lookout for Fusarium head blight

It is early June and warm weather is moving wheat in the southern part of the state into the soft dough stage, while wheat in the north is moving past flowering. By now, fungicide decisions should have already been made for the season. Fusarium head blight (head scab) symptoms have started to show up in southeast and central Kansas. Most reports and fields we have visited have had very low levels of disease (less than 1 in 100 heads affected).

Although infection of the wheat head by the fungus *Fusarium graminearum* occurs during flowering, symptoms only begin show up in the late milk and early dough stages. Cool, wet weather during flowering favors disease development. A fungicide application to control head scab must be made during flowering, before symptoms are present. When symptoms are visible, a fungicide will no longer be effective for control. Also, fungicide label pre-harvest intervals would restrict fungicide applications at this point in the season.

Symptoms of head scab include one or more spikelets that have become tan or bleached in color, while the stem typically remains green (Figure 1). In some cases, pinkish-orange structures of the fungus are also visible on infected spikelets. Symptoms can be quickly masked by maturity and may be easily missed.

Figure 1. Typical symptoms of Fusarium head blight (head scab). Photo taken on June 2, 2020 in Marion County, Kansas. Photo courtesy of Kelsey Andersen Onofre, Kansas State Research and Extension.

Diseased kernels will have a white, chalky appearance (Figure 2). Kernels may also have a pinkish discoloration. The diseased grain may also contain mycotoxins that may be harmful to humans and livestock. Deoxynivalenol (DON) is the most common mycotoxin associated with Fusarium damaged

wheat. This mycotoxin is also called “vomitoxin”.

Figure 2. Grain from heads with Fusarium head blight will be lightweight, chalky, and may have a pink coloration. Photo courtesy of Erick DeWolf, Kansas State Research and Extension.

Controlling Fusarium Head Blight

- Choose a variety with moderate resistance (such as Zenda, WB4269, Everest)
- Apply a fungicide labeled for Fusarium head blight at the start of flowering (evaluate your current risk: wheatscab.psu.edu)
- Reduce corn residue through tillage or rotation

Other late-season disease considerations

Stripe rust severity (how bad the disease is in any given field) this year has been lower overall than in previous years. Part of this lower severity could be attributed to lower levels of stripe rust in Texas and Oklahoma early in the season and a later arrival of the pathogen to Kansas this year. Additionally, weather may not have been as favorable for disease development in parts of the state.

Leaf spotting diseases (tan spot, Stagonospora nodorum blotch, Septoria tritici blotch) may be

showing up more frequently as plants approach maturity on lower and upper leaves (Figure 3). These fungal diseases live through the winter on wheat stubble, so may be worse in fields with a wheat on wheat crop rotation. Reactions to these diseases will differ between varieties. Fungicides are an effective control option.

Figure 3. Classic symptoms of leaf spot diseases such as tan spot and Stagonospora nodorum blotch. Definitive diagnostics typically require laboratory diagnostics to distinguish between

pathogens in this group of diseases. Photo courtesy of Kelsey Andersen Onofre, Kansas State Research and Extension.

Root diseases (take-all, common root rot, Fusarium crown rot, sharp eye spot) may be more pronounced this time of year, presenting as white plants scattered in fields that are otherwise green. When plants are pulled up from the roots, there may be discoloration of the lower stem and poor root development (Figure 4).

Figure 4. Bleached wheat plants in an otherwise healthy wheat plot in Saline County, Kansas. Plants appear to have talk-all and sharp eyespot. Photos courtesy of Kelsey Andersen Onofre, Kansas State Research and Extension.

Kelsey Andersen Onofre, Extension Plant Pathologist
andersenk@ksu.edu

Erick De Wolf, Extension Plant Pathologist
dewolf1@ksu.edu

7. Kansas weather: Early June heat, drought…repeat?

Early June 2020 heat wave compared to past years

The heat is on and the forecast into the weekend is not very promising. Many times, the first thing that comes to mind is a comparison to previous events/years. While this pleases our way of thinking, every event is different. From the period of May 30 to June 15, the warmest five day periods (what we are using as a definition of heat wave) occurred in 1952, 1953, and 2011. June monthly average temperatures range in the 70s across the state (Figure 1). Of the previously mentioned three years, great attention is paid to 2011, one of the worst droughts in recent memory. Average temperatures for the month were up to six degrees warmer than average (Figure 2). June 1953 takes the cake however with some monthly departures over eight degrees (Figure 3).

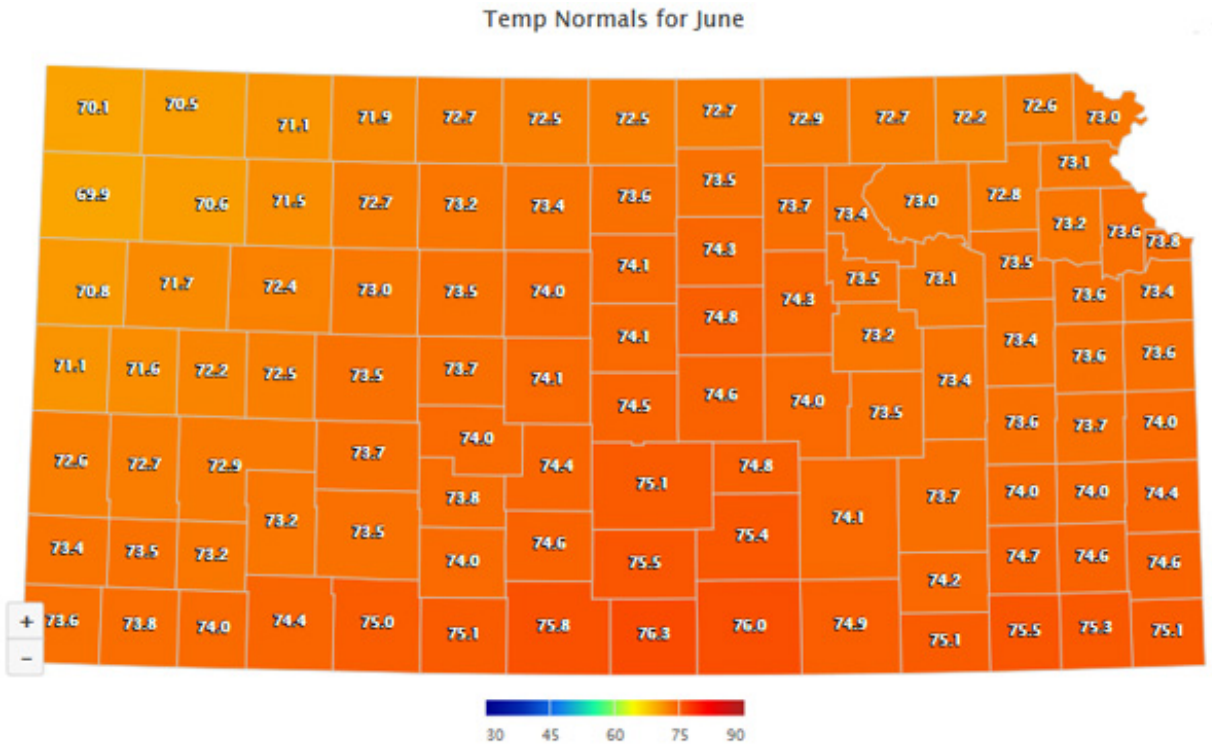


Figure 1. County based temperature averages for June via the Weather Data Library (climate.ksu.edu/temp/county).

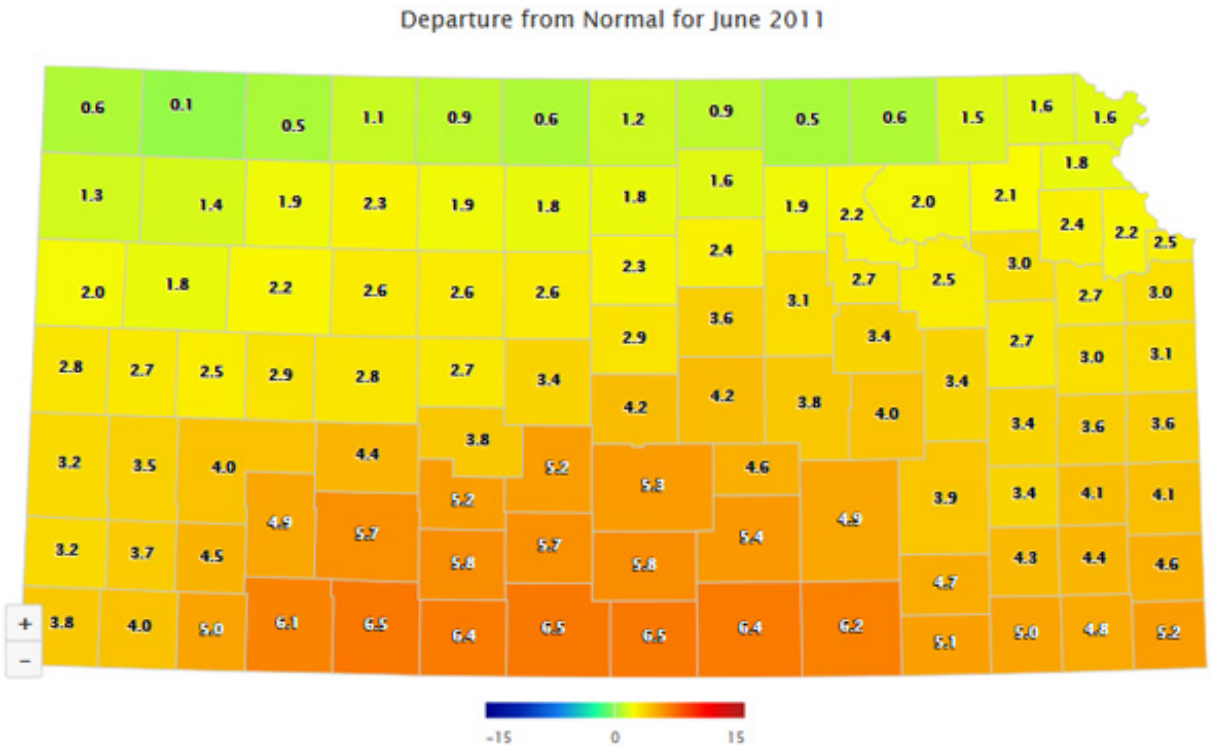


Figure 2. County based temperature anomalies for June 2011 via the Weather Data Library (climate.ksu.edu/temp/county).

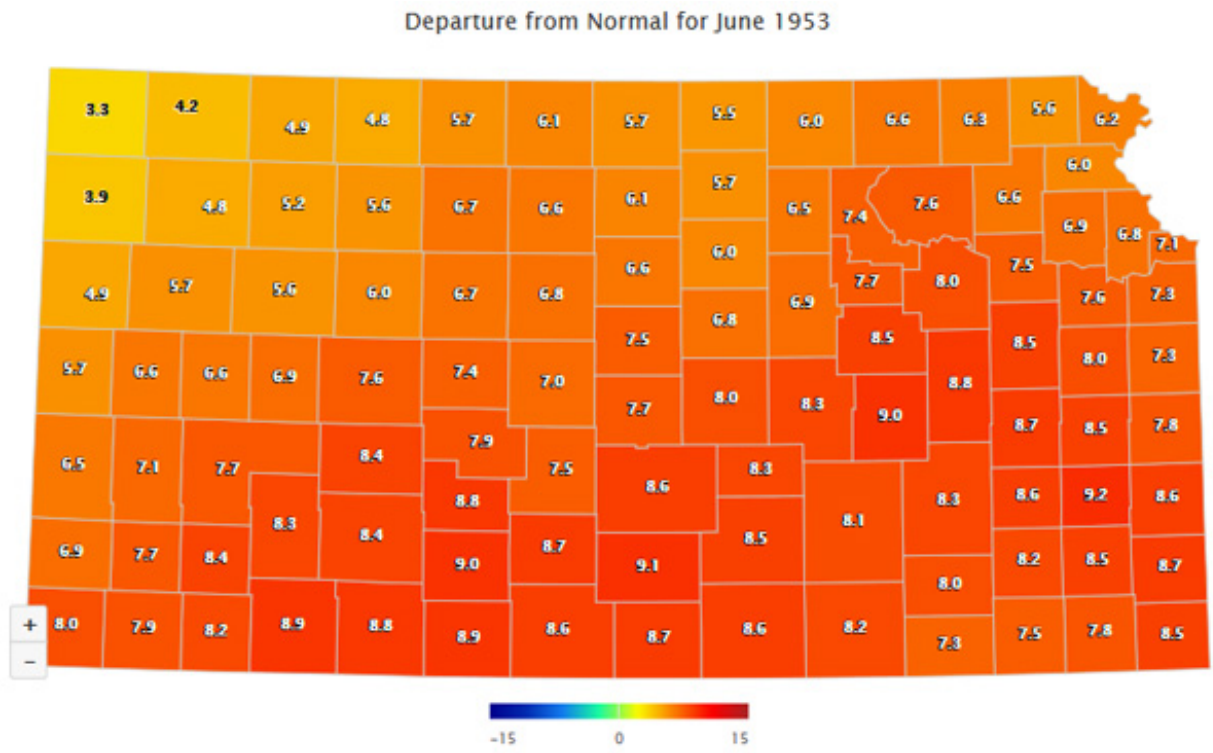


Figure 3. County based temperature anomalies for June 1953 via the Weather Data Library (climate.ksu.edu/temp/county).

When considering previous starts to June, thus far in 2020, there have been only been three stations which have set their warmest start (out of about 160 weather stations in the state). This is tied for 10th most with a few other years. 1953 holds the record with 63 stations holding their warmest heat wave for early June. Many of these averaged a heat wave (five or more days) with high temperatures above 100! The year 2011 had 25 weather stations holding their warmest start to the month for second most. During that heat wave to start June 2011, average maximum temperatures during the five-day period were 98 or higher.

Note: the forecast calls for persistent 90s to 100s through early next week (June 7-8, 2020). If that holds true, 2020 will move up in the ranks quickly as one of the hottest heat waves to start June on record.

Preceding drought conditions

Drought exists across much of the west, especially the southwest. Substantial impacts have been observed to winter crops, especially wheat. Dry soils tend to develop negative feedback effects to the atmosphere. They can warm up much faster than wet soils, lack moisture to help develop thunderstorms, and can become hydrophobic - preventing water penetration and soil saturation during a rain event. Despite dry conditions thus far in 2020, it was much drier to start the year in 2011. Precipitation over a wider area was observed in 2020 for east and central Kansas. Therefore, only western parts of the state reside in extreme drought thus far in 2020.

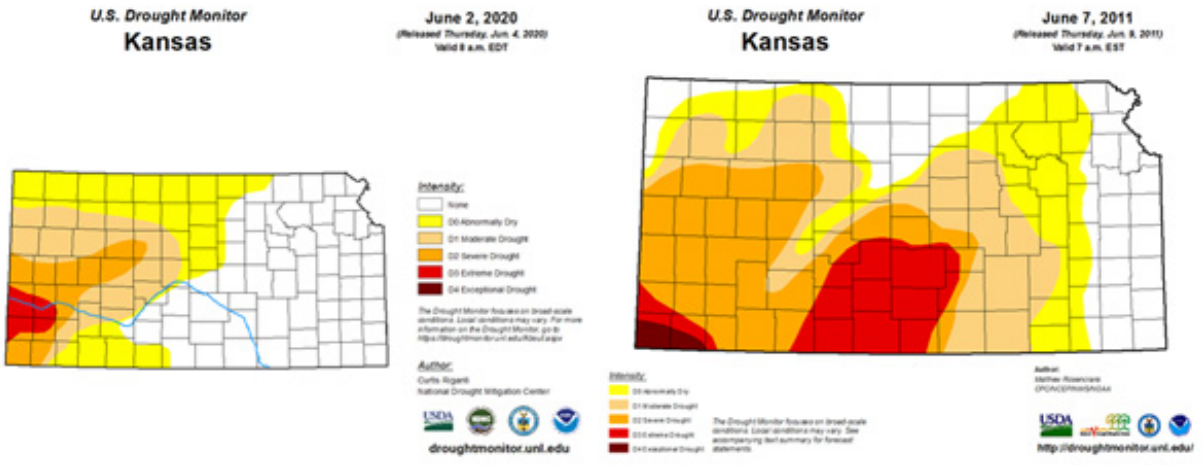


Figure 4. Drought conditions to begin June 2020 compared to that of 2011 (droughtmonitor.unl.edu).

Looking Forward

While conditions haven't been as bad this year as in 2011 (yet), the forecast for warm and dry conditions persisting into mid-month is concerning. A brief pattern change is forecasted around June 10 which should provide a brief reprieve from the hot weather. Some precipitation is possible during that period with highest confidence in the eastern part of the state. Some cooler-than-normal temperatures are also possible - once again though, only the east. Shortly after the pattern break,

forecast models are hinting at a return of the large area of high pressure across the south-central portions of the US. That suggests a return of the hot/dry conditions for the last week (Figure 5). Overall the entire month is forecasted for a high probability of below normal precipitation and warmer than normal temperatures for the entire state.

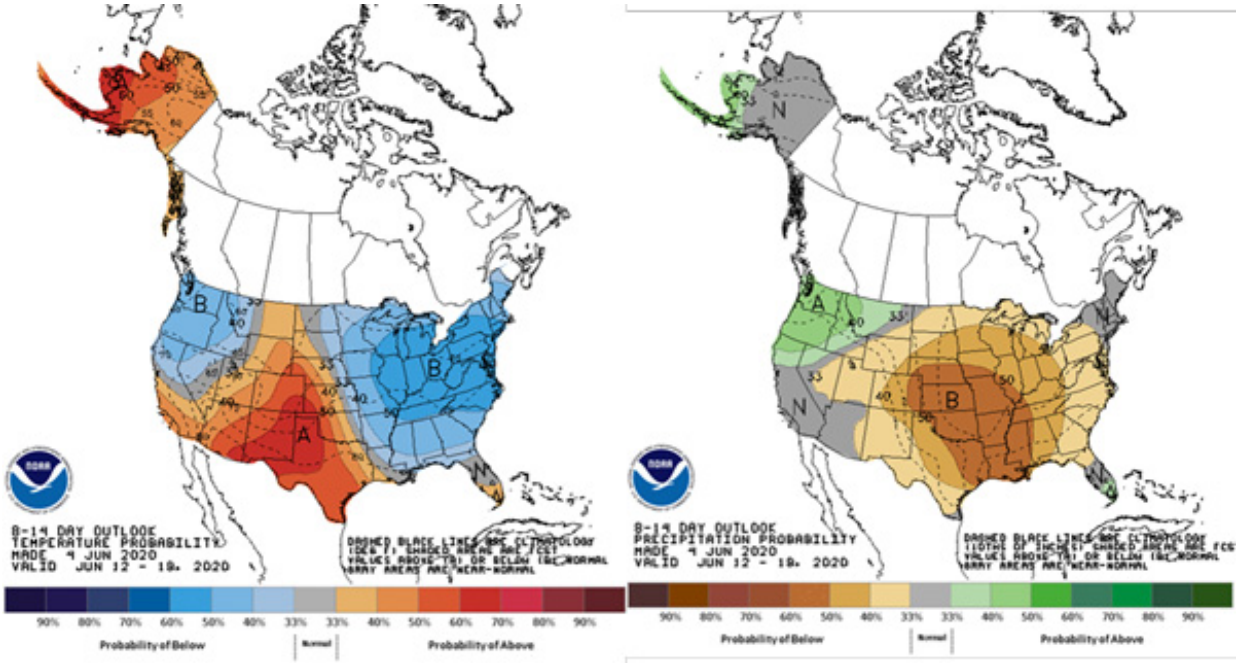


Figure 5. Climate Prediction Center probability for temperature anomalies (left) and precipitation anomalies (right) for June 12-19th 2020 (www.cpc.ncep.noaa.gov).

Precipitation deficits in the west are accumulating fast and spreading east each day without widespread moisture. June is one of the wettest months, averaging between 2.7 – 5.8 inches statewide. Should we see the below-normal precipitation forecasted, it will become very difficult for much of the southwest to recover this year to its normal amounts - requiring a significant wet pattern. Unfortunately, the early precipitation deficits have already taken their toll, ruining some wheat crops and making early establishment of summer dryland crops very difficult. Other trickle down impacts will consist of increased irrigation and more difficulty in reaching water conservation goals across the region, as well as some water supply concerns. In the eastern third of the state, rapid drying would have its own problems, as summer crops planted into saturated soils may not have developed sufficient roots to follow the retreating soil moisture.

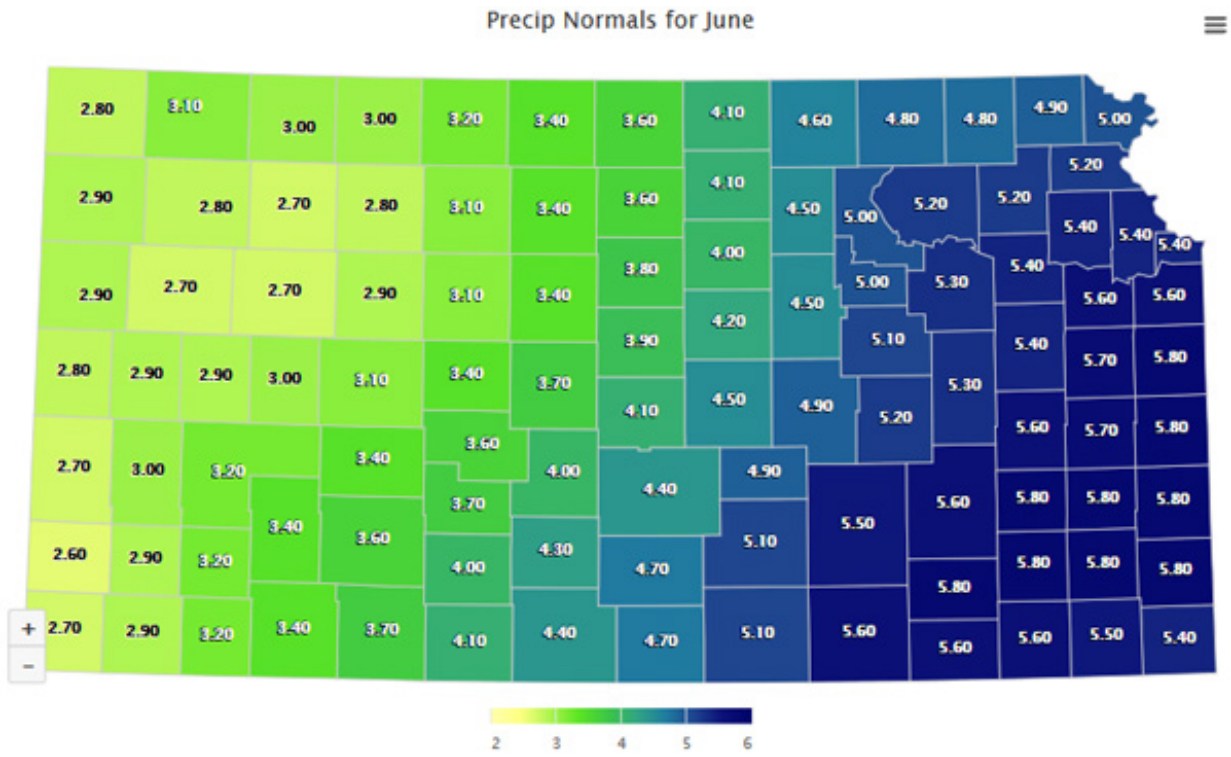


Figure 6. Averaged precipitation by county for the month of June (climate.ksu.edu/precip/county).

Are you impacted?

As conditions rapidly change due to wet/dry conditions, we are always looking for in-field reports. Whether it is flooding, dry grass, dry rivers, or agricultural impacts, we want to hear about them! Please don't hesitate to email us about it. Contact information is listed below. These reports help us provide input into such things as the drought monitor and other resources.

Summary

- Current early June heat wave is uncommon but not unprecedented (yet).
- Preceding drought conditions to the current heat wave differ spatially and in intensity compared to 2011.
- Should dry/hot conditions persist beyond early next week (around June 7), 2020 will rapidly climb the charts for the longest/hottest heat wave to start June.
- The current weather has little implication for the remainder of the summer but growing precipitation deficits will make it difficult to overcome drought in the west.

Christopher “Chip” Redmond - Weather Data Library Manager
christopherredmond@ksu.edu

Mary Knapp - Assistant State Climatologist
mknapp@ksu.edu