Issue 641

K-STATE Research and Extension

Extension Agronomy

eUpdate

07/07/2017

These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update 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 Steve Watson, 785-532-7105 swatson@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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

eUpdate Table of Contents | 07/07/2017 | Issue 641

1. Dicamba drift to non-Xtend soybeans

Most folks have probably heard or read about the problems with dicamba drift injury on non-Xtend soybeans from illegal applications in 2016. It was hoped that with the new formulations and strict application guidelines on the new approved dicamba products for Xtend soybeans, drift could be minimized. Unfortunately, drift injury on non-Xtend soybeans has already been a widespread problem in Arkansas, Tennessee and Missouri this year, even with the new lower volatility products. Arkansas has gone so far as to ban further dicamba use during the rest of the growing season.

We hadn't heard many complaints of dicamba drift to soybeans until the last couple of weeks. That is because we plant our soybeans later than the southeastern states and it takes a couple of weeks following application before the symptoms of drift or contamination injury become evident on the new soybean growth. Dicamba injury to soybeans is expressed as cupping of the new leaves (Figures 1 and 2) and if severe enough, twisting of stems and petioles and possible death of the terminal growing point.

Figure 1. Dicamba damage on beans that are now just beginning R1, or just beyond that stage. Most symptoms are found on the top two or three trifoliate leaves, but beans are still blooming and the terminal still is green and growing. This photo was taken July 5 in Marshall County by Stu Duncan, K-State Research and Extension.

Figure 2. Significant cupping of leaves from dicamba drift on non-Xtend soybeans planted next to Xtend beans in research plots at the Ashland Bottoms farm near Manhattan. Photo by Dallas Peterson, K-State Research and Extension.

There appears to be some problems even where applicators were following the application guidelines and some of the problems appear to be vapor drift even with the new lower volatility formulations, but very difficult to know for sure.

The primary problem is that soybeans are simply very susceptible to very low rates of dicamba. Over the years, there has been quite a bit of research on drift injury to soybeans from dicamba. The impact of dicamba drift injury varies dramatically and depends on a number of different factors, including soybean stage at exposure, exposure rate, soybean variety, and environmental conditions through the rest of the season. Thus, it is nearly impossible to estimate yield loss based solely on symptomology.

Fortunately, the injury often looks more serious than it turns out to be in terms of yield loss, at least from early exposure before soybeans begin to bloom. Past experience and research in Kansas has indicated that yield loss will be minimal from early-season cupping, unless the growing point is killed. However, yield loss can increase dramatically if the exposure happens after soybeans begin to

bloom. Most of the symptoms we are seeing now were from an early-season exposure. Applications at this point in time pose a much greater risk of yield loss as many of our earlier-planted soybeans are now blooming.

Below are the results from a simulated drift study conducted by K-State a few years back. Dicamba was applied to soybeans in the V2 to V3 growth stage at rates equal to 1/100, 1/33, 1/10, and 1/3 of the standard rate of 0.5 lb of dicamba per acre.

Fraction of dicamba rate	% Visual injury 7 Days after Treatment	% Visual Injury 30 Days after Treatment	% Height Reduction 30 days after Treatment	% Soybean Yield Loss
1/100	18	35	15	2
1/33	23	50	27	10
1/10	33	70	50	45
1/3	70	95	63	80

Research from the University of Arkansas has shown a 10% yield loss from dicamba at 1/1024 of the field use rate when exposure occurred at the R1 (early blooming stage) growth stage and yield loss was often twice as great from exposure at R1 vs earlier vegetative growth stages.

Assessing the severity of dicamba drift injury to soybeans and the source of the dicamba injury can be very challenging and contentious. Pesticide application complaints can be filed with the Kansas Department of Agriculture (785) 564-6700, but remember that once a complaint is filed it becomes official. It may be wise to try and resolve the problem amicably before proceeding with a complaint.

Further information and pesticide application complaints can be filed at the following KDA website: http://agriculture.ks.gov/kda-services/complaint-form/pesticide-application-complaint

Dallas Peterson, Weed Management Specialist
dpeterso@ksu.edu

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

2. Start scouting soon for sugarcane aphids

The sugarcane aphid (SCA) has not been found as of yet on sorghum in Kansas. There have been a few reports of the sugarcane aphid in Oklahoma and Texas, however (Figure 1). Activity is generally light so far, but the situation on the ground can change quickly with this aphid.

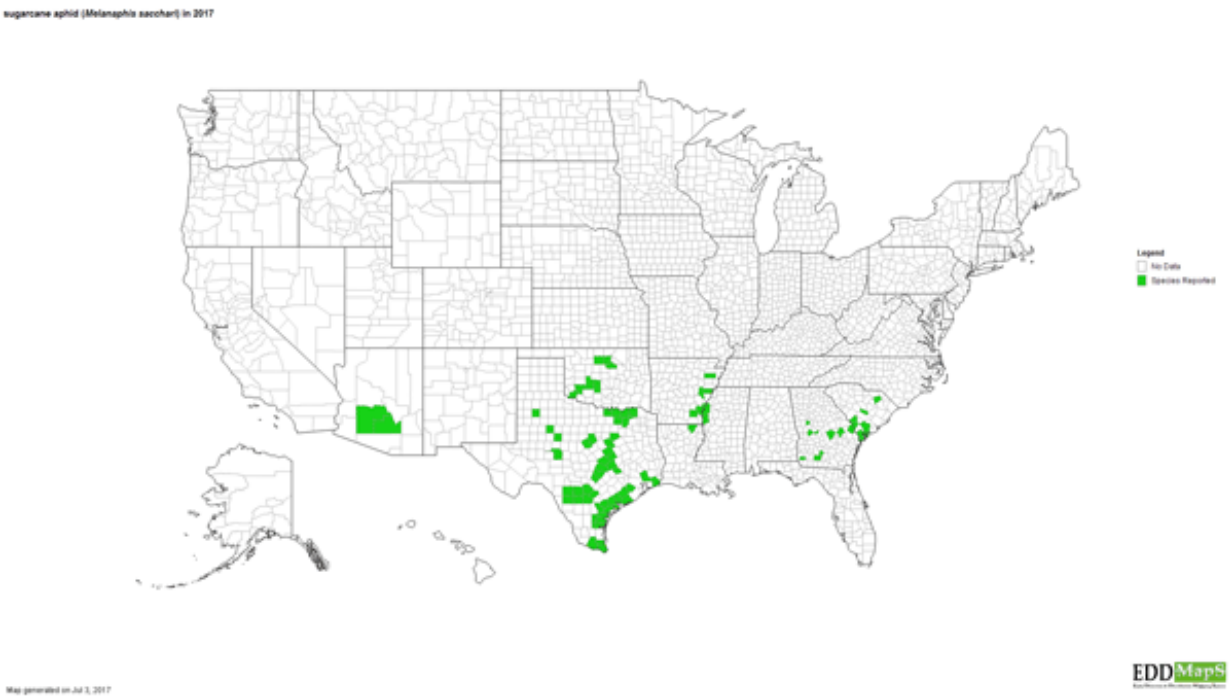


Figure 1. Current status of the SCA. The map indicates only the counties in which the SCA has been found, and does not indicate how many or how few aphids were found in that county. Source: https://www.myfields.info/pests/sugarcane-aphid

What can we expect this season? It's impossible to know for sure at this time, but in 2016, sugarcane aphids were a significant problem on grain sorghum in Kansas, Texas, Oklahoma, and most southern states (Figure 2).

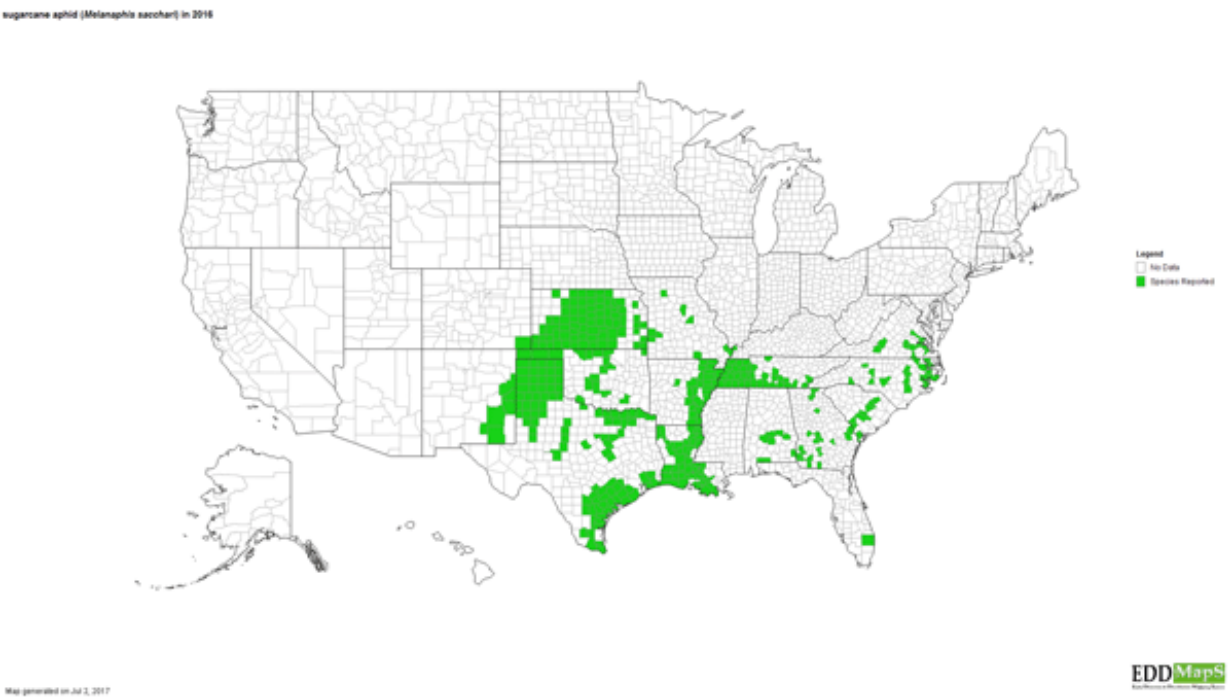
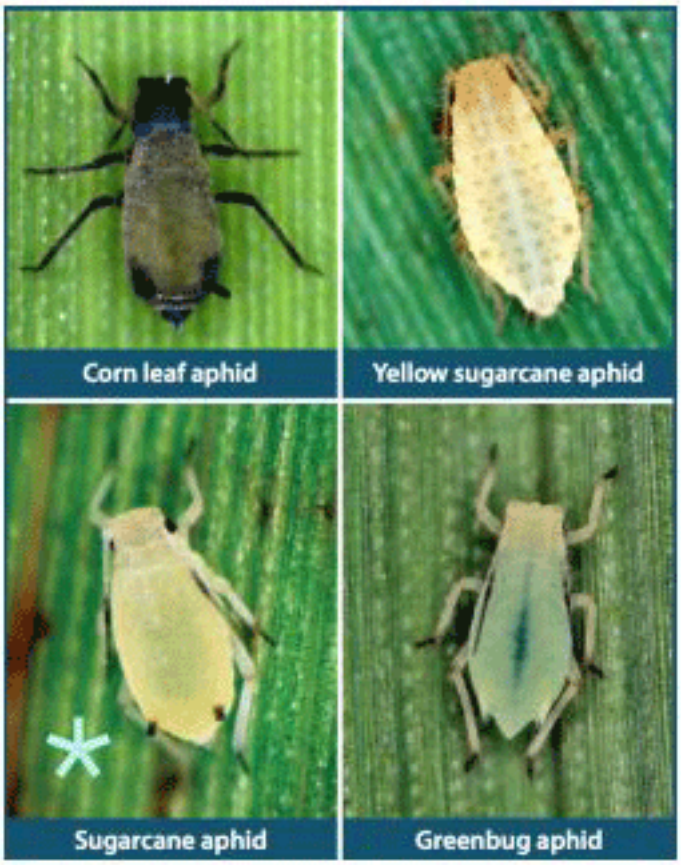


Figure 2. The distribution of SCA in 2016.

To prepare for the possibility of another widespread infestation, it would be advisable to begin scouting while sorghum is still in the pre-boot stage.



Scouting time

Plants are vulnerable to infestation by SCA at any growth stage, but Kansas sorghum is most at risk from boot stage onward. The ability of sugarcane aphid to overwinter on Johnsongrass and re-sprouting sorghum stubble represents challenges to the management of this pest in more southerly regions.

In 2016, the SCA overwintered as asexual females on Johnsongrass rhizomes just north of Lubbock, Texas. No sexual forms or egglaying females have been observed; asexual females will survive only where some plant tissue remains green throughout the winter. Therefore, SCA cannot overwinter in Kansas and infestations are initiated annually by winged aphids carried from southern latitudes; the timing, extent and exact regions affected are difficult to predict and largely a function of wind direction during periods of aphid flight in Texas and Oklahoma.

Infestations begin when swarms of winged aphids settle in a field and begin to establish colonies. Their daughters can mature in less than a week, lack wings, and have a much higher reproductive rate than their winged mothers. Established colonies of wingless aphids quickly become large and crowded, which causes winged forms to develop, until the final generation is exclusively winged once again. Thus, the trend will be for Kansas to receive SCA only after infestations to the south mature and produce winged migrants. Growers are advised to plant sorghum as early as agronomically feasible to maximize plant growth and maturity before aphids arrive. In 2016, large flights of winged sugarcane aphid arrived in Kansas somewhat earlier than in 2015 and a larger area of the state was affected, despite cold wet spring weather in the south that delayed the aphids initially. It remains to be seen how the 2017 season will develop.

Sampling method

Once a week, walk 25 feet into the field and examine plants along 50 feet of row:

If honeydew is present, look for SCA on the underside of a leaf above the honeydew.

Inspect the underside of leaves from the upper and lower canopy from 15–20 plants per location.

Sample each side of the field as well as sites near Johnsongrass and tall mutant plants.

Check at least 4 locations per field for a total 4 locations per field for a total of 60-80 plants.

If no SCA are present, or only a few wingless/winged aphids are on upper leaves, repeat this sampling method once a week thereafter.

If SCA are found on lower or mid-canopy leaves, begin twice-a-week scouting. Use the same sampling method, but be sure to include % plants with honeydew. Estimate the % of infested plants with large amounts of SCA honeydew (shiny, sticky substance on leaf surface) to help time foliar insecticides for SCA control on sorghum (refer to Thresholds section below).

Thresholds

Growth Stage	Threshold
Pre-Boot	20% plants infested with localized area of heavy honeydew and established aphid colonies
Boot	20% plants infested with localized area of heavy honeydew and established aphid colonies
Soft dough	30% plants infested with localized area of heavy honeydew and established aphid colonies
Dough	30% plants infested with localized area of heavy honeydew and established aphid colonies
Black Layer	Heavy honeydew and established aphid colonies in head *only treat to prevent harvest problems **observe preharvest intervals

The myFields web site: Keeping updated on SCA in Kansas and reporting findings

For ongoing current information on SCA in Kansas, check out the myFields web site often in the coming weeks and months: https://www.myfields.info/pests/sugarcane-aphid

It would be helpful if producers would report findings of SCA in their fields on the myFields web site as soon as the insects are found. Reports of findings are used in developing the maps seen in Figures 1 and 2.

The reports used to develop each map are, in part, those submitted through the myFields web site from account holders that also have special permissions as "Verified Samplers." Only reports submitted by these verified samplers get mapped so that we can account for data quality. However, we do encourage any account holder to report their observations on the SCA. Web site administrators can see these reports and can contact the submitter for a confirmation, a great way to get an early detection in new areas. Web site visitors will need to: 1) sign up for an account, 2) log in, 3) to get access to the '*Scout a Field*' feature to make reports. The *Scout a Field* tool is easy, you just map the observation location and select yes or no for SCA presence.

Here is the sign up page: https://www.myfields.info/user/register

Also, if sorghum producers are interested in receiving alerts, which are triggered by new reports submitted by verified samplers, they just need to sign up for a myFields account. Signing up for an account automatically signs them up for SCA alerts, but they can also opt out of them in their user preferences. The alerts include a statewide email notice when SCA is first detected in the state, and then are localized by county as SCA moves into the state. The notices will also contain latest recommendations and contact info for local Extension experts.

Sarah Zukoff, Entomologist, Southwest Research-Extension Center
snzukoff@ksu.edu

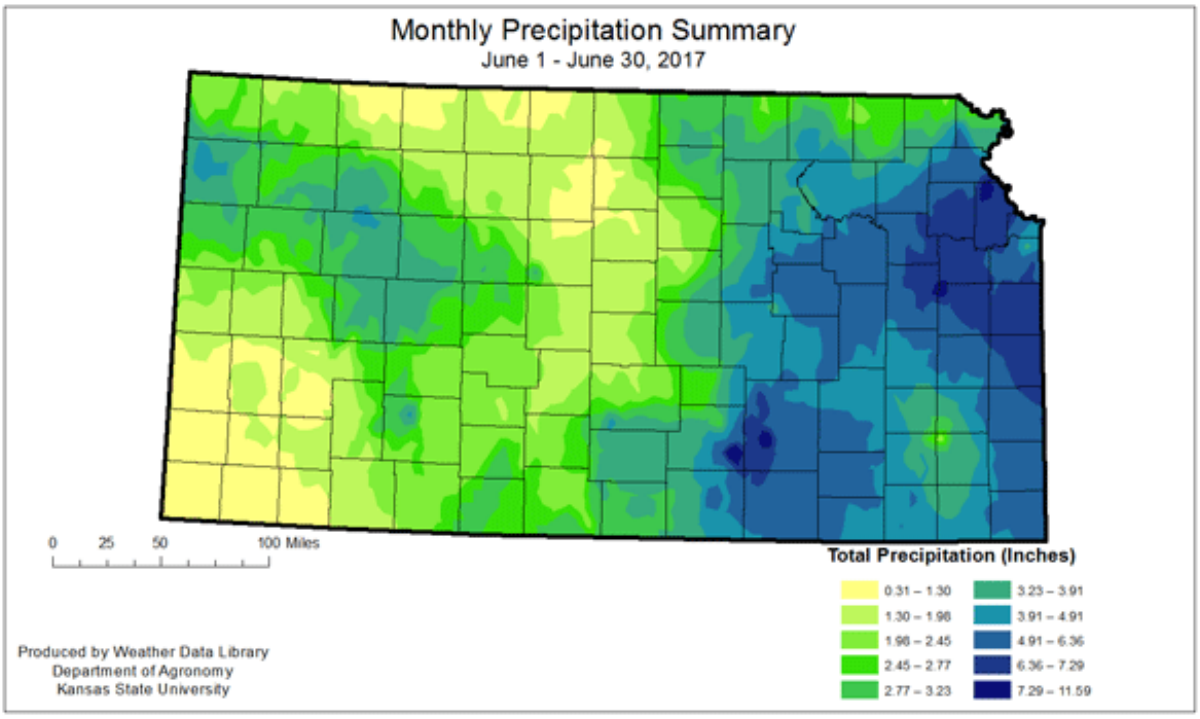
J.P. Michaud, Entomologist, Agricultural Research Center-Hays
jpmi@ksu.edu

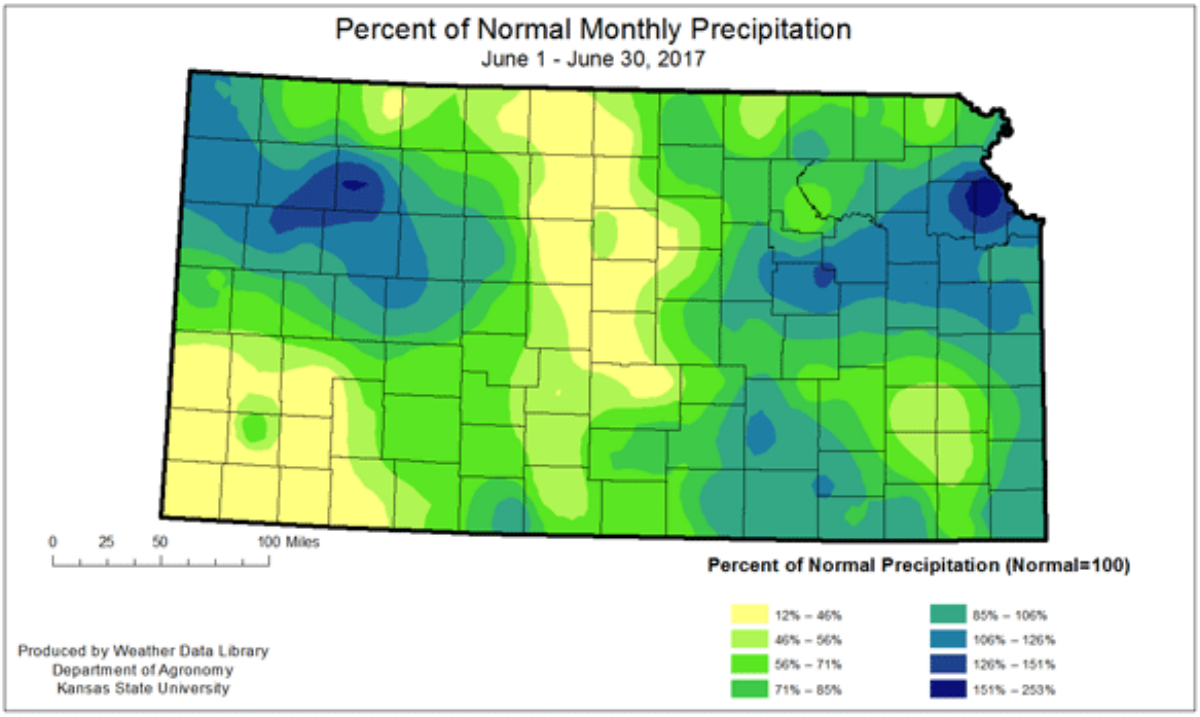
Brian McCornack, Entolomogist
mccornac@ksu.edu

Wendy Johnson, myFields Coordinator, Entomology Extension Associate
wendyann@ksu.edu

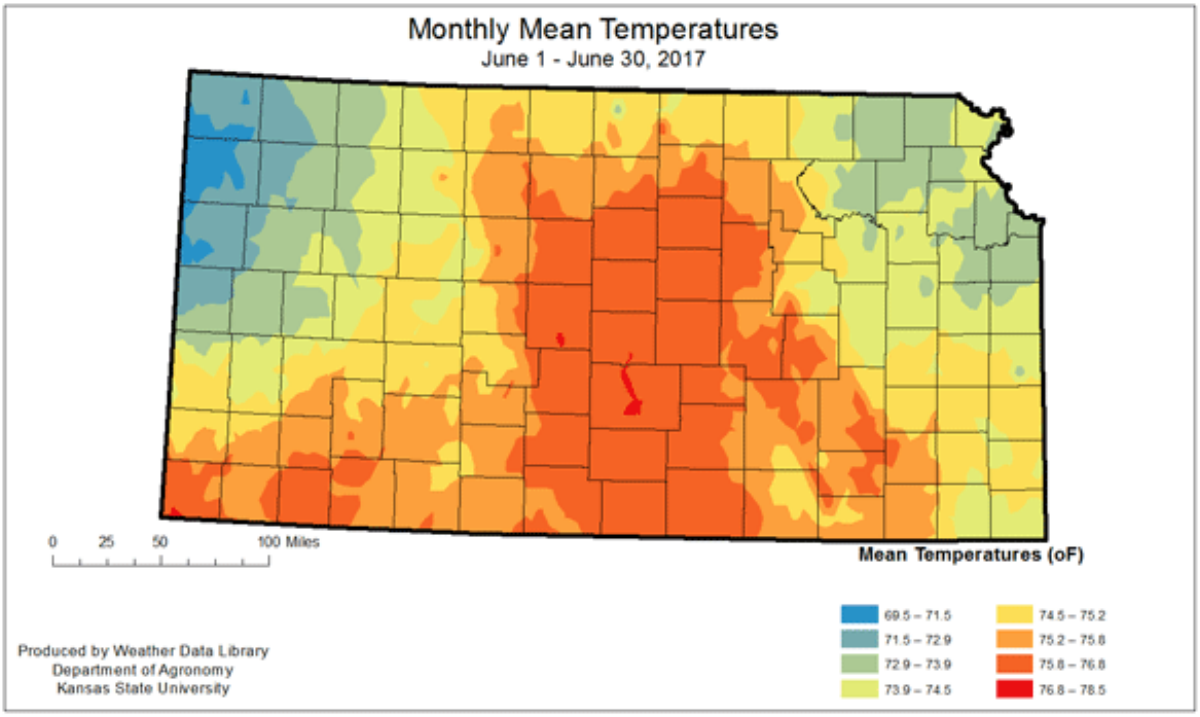
3. Kansas weather summary for June: Uneven rainfall

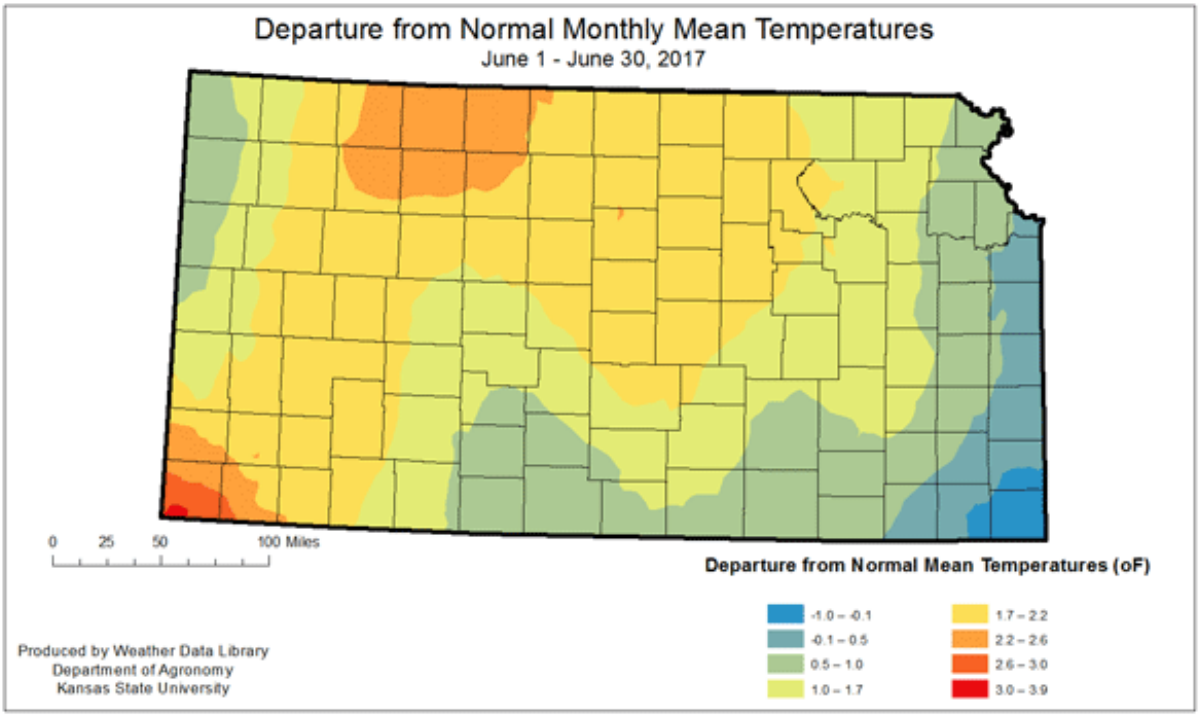
The wet May in Kansas gave way to uneven rainfall in June. The statewide average precipitation was 3.23 inches, or 74 percent of normal. The East Central and West Central Divisions came closest to normal. The East Central Division averaged 5.57 inches, or 99 percent of normal. The West Central Division averaged 2.74 inches, or 98 percent of normal. In contrast, the Southwest Division averaged just 1.63 inches, or 50 percent of normal, marking it as the division with the lowest percent of normal. The greatest monthly precipitation total for a National Weather Service (NWS) Coop station was 11.59 inches at Easton, Leavenworth County. The greatest monthly total for a Community Collaborative Rain, Hail and Snow (CoCoRaHS) station was 9.65 inches at Derby 2.9 N, Sedgwick County. The highest 24-hour totals: 4.45 inches at Blue Rapids, Marshall County, on the 17th (NWS); and 4.85 inches at Hope 9.4 WNW, Dickinson County, on the 30th (CoCoRaHS).





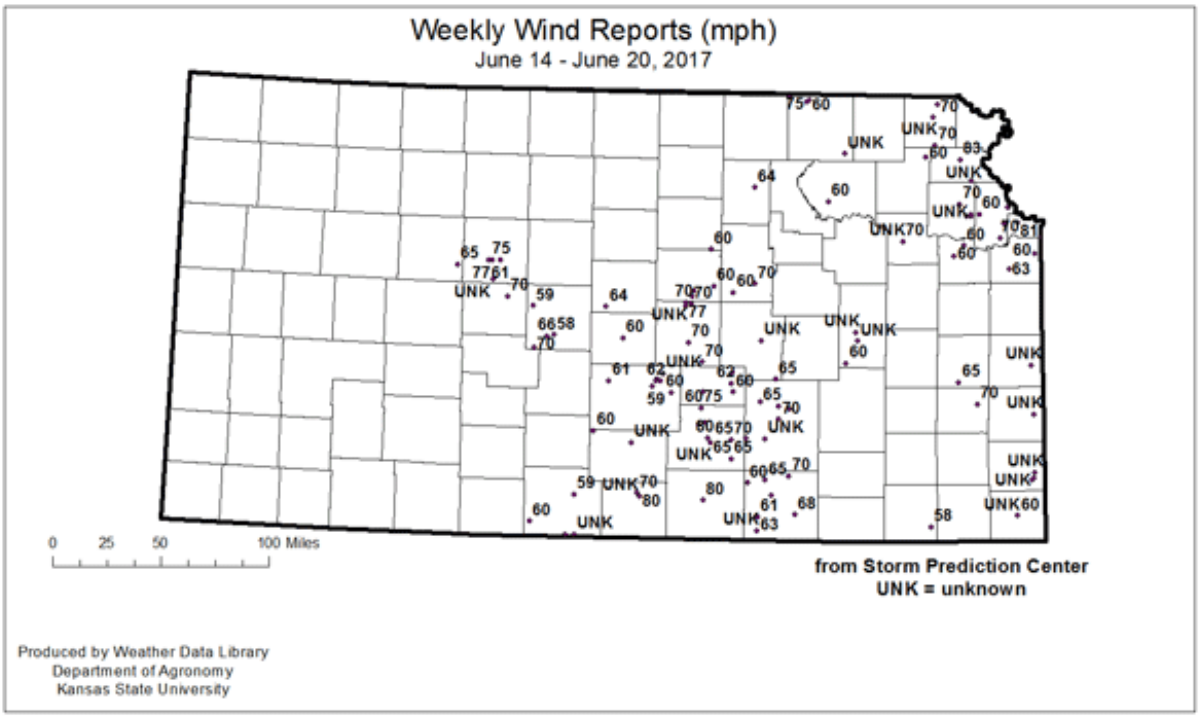
Temperatures rebounded from the cooler-than-normal conditions in May. Statewide, temperatures averaged 74.9 degrees F, or 1.6 degrees warmer than normal. The Southeast Division averaged closest to normal with an average of 74.6 degrees F, or 0.4 degrees warmer than normal. The Southwest Division had the greatest departure with an average of 76.4 degrees F, which was 2.9 degrees warmer than normal. The warmest reading for the month was 110 degrees F at Tribune 14N, Greeley County, on the 17th. The coldest reading was 39 degrees F, recorded at Atchison 1S, Leavenworth County, on the 23rd. Despite the warm temperatures, there were only four record high maximum temperatures during the month and 12 record high minimum temperatures. On the cold side, there were 17 new record cold maximum temperatures in June and 10 new record low minimum temperatures. None of the temperature records set new records for June. All divisions had high temperatures reach 90 degrees F or more, with all but the eastern divisions having highs in the 100s.

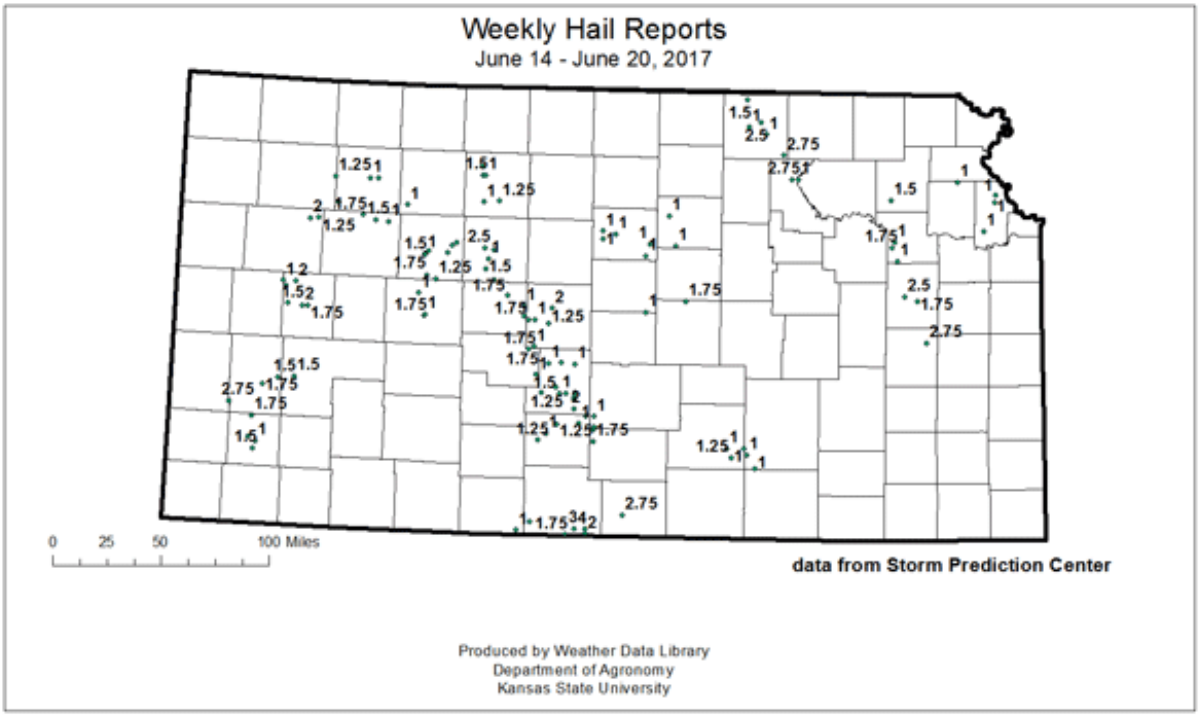




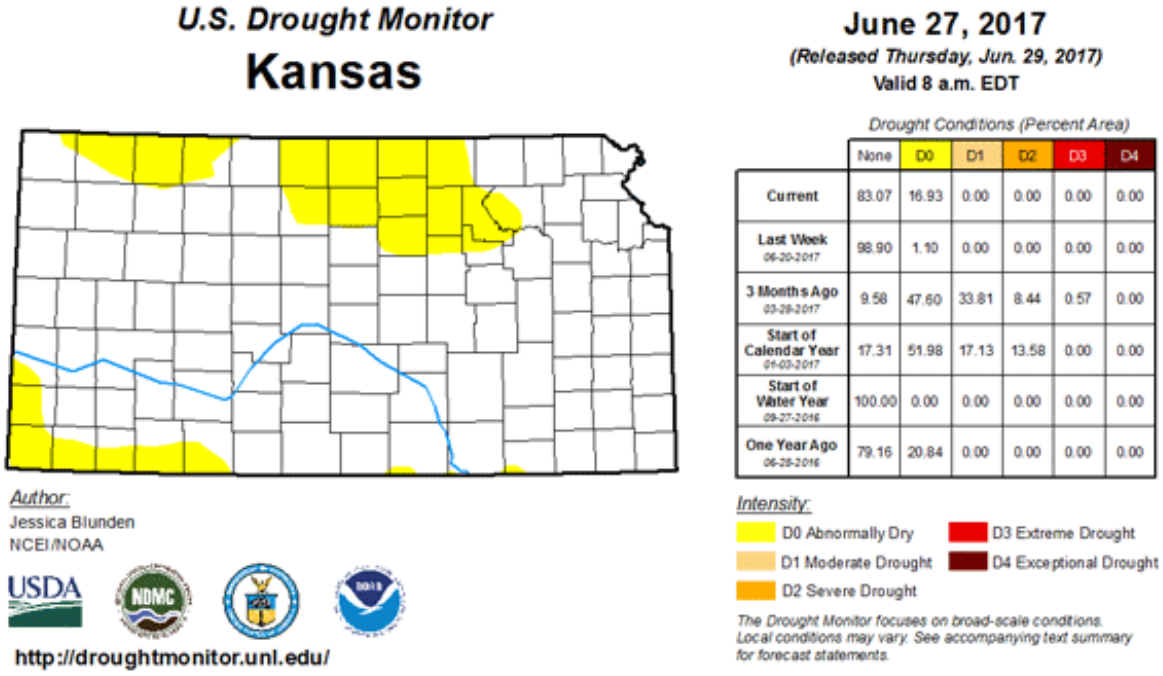
Severe weather was again a feature of the month, with most of the events in the form of hail and high winds. There were three reports of tornadoes, which is less than the 1950-2016 average of 14 tornadoes in June. In addition, there were 152 hail reports, and 178 high wind reports. One of the

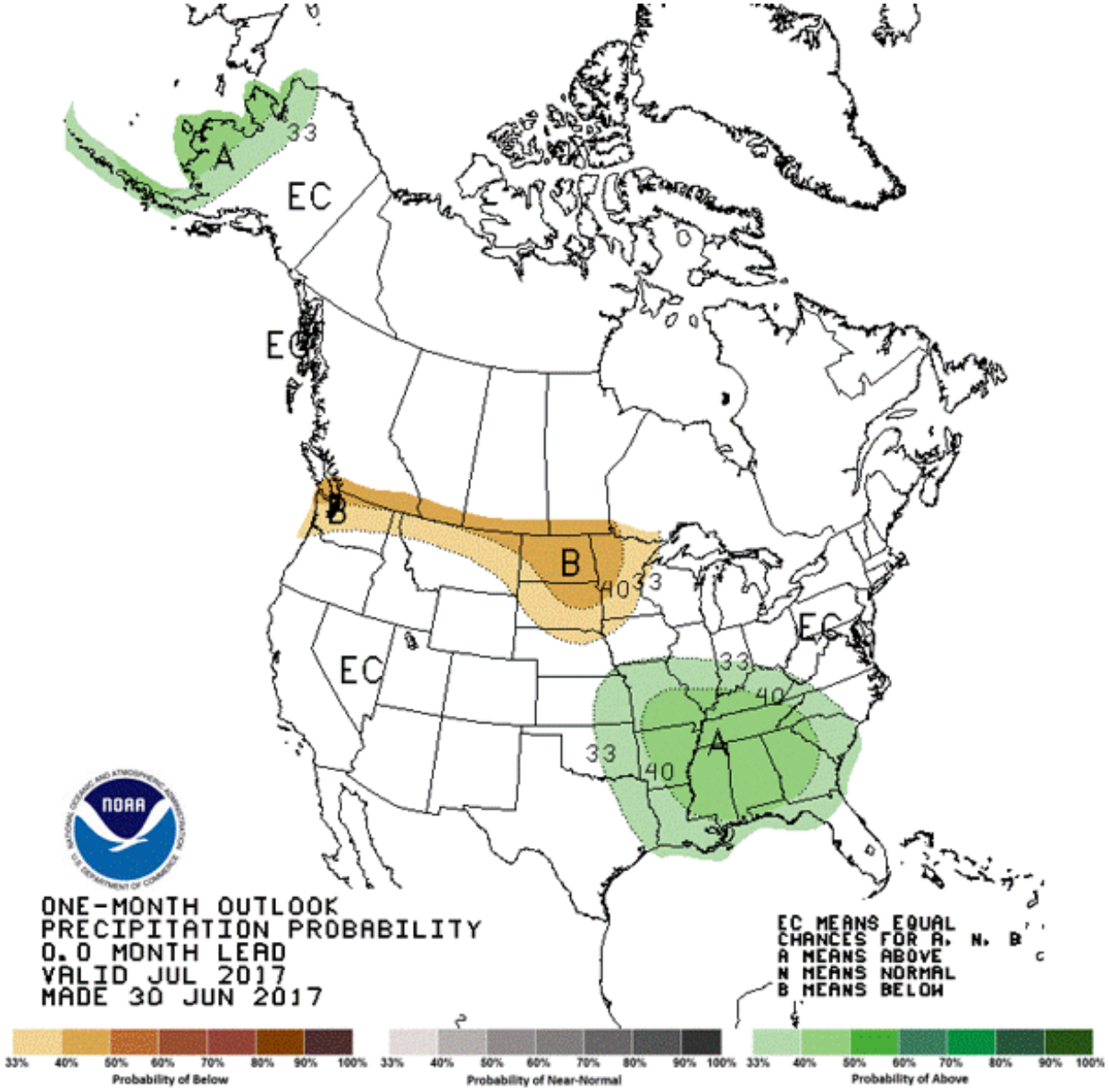
worst outbreaks came during the week of June 14th to June 20th when 117 hail events and 124 wind events were reported. The largest hail stones reported were 4.5 inches in diameter, reported near Ulysses, KS on the 20th.





The lower-than-normal precipitation with warmer-than-normal temperatures resulted in a return to abnormally dry conditions in parts of the state. The July outlook calls for a slightly increased chance of wetter-than-normal conditions the across the eastern third of the state coupled with higher chances of above-normal temperatures. At this point, the dry pattern expected for the next week is providing a window for field work, but increasing concerns for spring field crops, especially those with poorly developed root systems, due to earlier saturated fields.





June 2017										
Kansas Climate Division Summary										
	Precipitation (inches)						**Temperature (°F)**			
	June 2017			**2017 Jan. through June**					**Monthly Extremes**	
Divisio	**Total**	**Dep.**	**%**	**Total**	**Dep.**	**%**	**Ave**	**Dep.**	**Max**	**Min**

n			Normal			Normal				
Northwest	1.95	-0.88	71	12.82	2.15	121	73.0	2.1	105	45
West Central	2.74	-0.07	98	14.52	4.27	142	74.0	2.2	110	46
Southwest	1.63	-1.58	50	14.62	4.66	147	76.4	2.9	105	52
North Central	2.17	-1.66	54	16.08	2.18	115	75.4	2.1	101	47
Central	2.82	-1.26	69	17.48	2.51	118	76.4	2.0	103	50
South Central	3.64	-1.15	75	20.76	4.26	126	76.3	1.3	101	53
Northeast	3.84	-1.30	74	18.33	0.94	106	73.7	0.9	97	48
East Central	5.57	-0.01	99	19.25	0.04	99	74.2	0.9	96	50
Southeast	4.88	-1.06	82	24.67	3.07	114	74.6	0.4	95	49
STATE	3.23	-1.03	73	17.79	2.85	122	74.9	1.6	110	45

1. Departure from 1981-2010 normal value

2. State Highest temperature: 110 oF at Tribune 14N, Greeley County on the 17th.

3. State Lowest temperature: 39 oF at Atchison 1S, Atchison County, on the 22nd.

4. Greatest 24hr: 4.45 inches at Blue Rapids, Marshall County, on the 17th; 4.85 inches Hope 9.4 WNW , Dickinson County, on the 30th (CoCoRaHS).

Source: KSU Weather Data Library

Mary Knapp, Weather Data Library
mknapp@ksu.edu