



K-STATE
Research and Extension

Extension Agronomy

eUpdate

11/16/2023

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. Safety first when planning deep tillage or earthwork: Call before you dig!

With harvest complete and some mild temperatures heading into winter, farmers might take to the field for deep tillage such as ripping, or to make earthwork repairs around the farm. A few days before you want to start these activities, call 811 for your safety and to prevent expensive damage to underground utilities. The website, <http://call811.com>, has easy-to-follow instructions for requesting this free service and detailed information concerning why you need to know what's below.

A video produced by Marathon Oil tells the story of a farm family and their close call with a pipeline when installing tile drains. The landowner knew where the pipeline entered and exited the field, and they assumed the pipeline was straight—it wasn't. Watch this 6-minute, eye-opening video for the whole story: <https://youtu.be/oe-iknpYzF8>.

Sadly, fatal accidents do happen in soil excavations. If you dig any trenches or soil pits, safety should be considered from the very beginning of the project. Soils with sandy textures are more susceptible to collapse than soils with a higher clay content. If standing water is present in the pit, the walls are more apt to collapse. Digging in soils that have been disturbed before, such as digging next to a hydrant or foundation, means that the soil is far less stable than you might expect if that soil had never been disturbed before.

Occupational Safety and Health Administration (OSHA) guidelines exist on excavation safety, such as when it is necessary to shore the walls of a soil pit or trench. One important consideration is soil should be piled a minimum of 2 feet away from the walls of the trenches for two reasons:

1. Soil clods or excavating tools could roll back into the trench and cause injury to occupants.
2. It helps reduce the risk of a trench collapse by keeping the weight of the soil piles away from the trench edges.

Even if a soil pit is 5 feet deep or less, it is a good idea to angle the edges, especially if the texture is sandy, the soil is wet, or if the soil is otherwise unstable. This does create more disturbance, but if it prevents an accident, it's worth it.

For more information on trenching and excavation safety, see the following OSHA publication:

Trenching and Excavation Safety, <https://www.osha.gov/Publications/osh2226.pdf>

**You Never
Know What's
Below.**



REMEMBER!
811 is the number
you should call
before you begin
any digging project.

Smart digging means
calling 811 before
each job. Whether you
are a homeowner or a
professional excavator,
one FREE call to 811
gets your underground
utility lines marked
for FREE.

**Know what's below.
Call before you dig.**

Progressive Agriculture Safety Day in
Partnership with Common Ground Alliance
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www.call811.com

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2. What is a Super El Niño, and how will one potentially affect Kansas?

Scientists with the National Center for Atmospheric Research (NCAR) stated in a recent press release that a Super El Niño will likely occur this winter. The name conjures up images of a meteorological superhero; as it turns out, a Super El Niño could be a hero for Kansans. This article discusses El Niño, what it takes for an ordinary El Niño to be called super, and how it might affect Kansas' weather.

What is a regular El Niño?

El Niño conditions occur when there are extended periods of above-normal sea surface temperatures in the equatorial Pacific Ocean. Scientists at NOAA identified a specific part of the Pacific Ocean to use when determining if there is an El Niño event: a box extending from 5°N to 5°S latitude and from 120°W to 170°W longitude. This box even has a name: Niño 3.4. There are other Niño boxes in the Pacific, numbered 1, 2, 3, and 4, and 3.4 gets its name because it contains parts of both Niño 3 and Niño 4 (Figure 1).

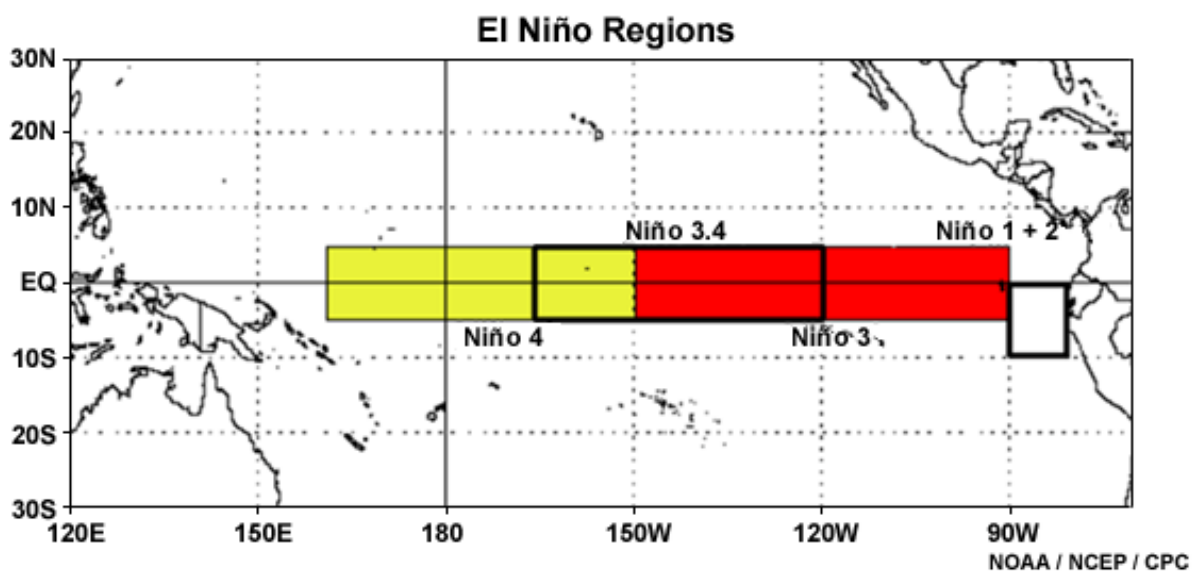


Figure 1. The bounds of Niño regions used in determining El Niño conditions. Source: NOAA.

NOAA also has a specific definition regarding how much above normal sea surface temperatures must be and for how long to be classified as an El Niño event. Sea surface temperatures inside the Niño 3.4 region must average at least 0.5°C (0.9°F) above normal for five consecutive three-month periods to be classified as an El Niño. Each three-month period overlaps with the one before and after it. For example, November-December-January (NDJ for short, using the first letter of each month's name) comes before December-January-February (DJF), but each share two consecutive months with the other. Thus, five consecutive three-month periods include parts of seven consecutive calendar months. The opposite event, La Niña, is defined the same way, only the threshold is the negative of the one for El Niño: less than -0.5°C (-0.9°F).

To simplify things, scientists created an index that describes the average sea surface temperature

anomalies across the entire box: the Oceanic Niño Index, or ONI. Since each Niño box can have its own ONI, the number of the box inside which the ONI was calculated becomes part of the name of the index, so for El Niño classification, the index used to make that determination is called ONI 3.4.

What is a Super El Niño?

There is a single ONI 3.4 value that covers each three-month period, based on weekly values that are averaged together since, just like air temperature, sea surface temperatures fluctuate from week to week and from location to location. The most recent ONI 3.4 reading for August-September-October (ASO) of 2023 was +1.5°C. Since this was the fifth consecutive three-month period with an ONI greater than or equal to +0.5°C, we are officially in an El Niño phase for the first time since 2018-19 (Table 1). You may recall that before this, last year, scientists and the media talked about a “Triple Dip La Niña,” which occurred when we had three consecutive years with La Niña conditions. This El Niño event is getting stronger as the ONI 3.4 value increases. If the three-month average ONI 3.4 reaches +2.0°C, this current El Niño event will be dubbed a Super El Niño. The NCAR press release stated that one of their models forecasts a peak ONI 3.4 of +2.4°C this winter. Until this threshold is reached, we could consider ourselves under a “Super El Niño Watch.”

Table 1. Three-month average ONI 3.4 values since 2020. Source: NOAA’s Climate Prediction Center.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2020	0.5	0.5	0.4	0.2	-0.1	-0.3	-0.4	-0.6	-0.9	-1.2	-1.3	-1.2
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4	-0.1	0.2	0.5	0.8	1.1	1.3	1.5			

How does a Super El Niño affect Kansas?

Should we be concerned if the Super El Niño Watch gets upgraded to a Warning (which will happen if a future ONI 3.4 three-month index reaches +2.0°C)? Not at all! Kansans should root for a Super El Niño to occur, especially this year, because we tend to get more precipitation in Kansas during El Niño events, and given the drought conditions plaguing the state, any additional rainfall would be welcome. Let’s look back at what has happened in Kansas during previous El Niño events.

The beginning of historical ONI 3.4 records started in 1950. We can classify each winter since 1950 as El Niño, La Niña, or neither (“neutral”) by applying the five consecutive three-month periods ONI 3.4 data threshold discussed earlier and by including a requirement that the ONI 3.4 value for the winter months of December, January, and February (DJF) be one of those five periods. We looked at monthly precipitation provided by NCEI, the National Centers for Environmental Information. NCEI has archived average monthly precipitation back to 1895, and there are no missing years in their data record, so that we can examine all 73 winters between 1950-51 and 2022-23.

Of the 73 winters since 1950, based on the ONI 3.4 criteria, 21 are classified as El Niño, 19 as La Niña, and the remaining 33 are neutral winters. When we sum up the DJF precipitation totals for all occurrences of each of the three events, we see there is a tendency for Kansas to receive more winter precipitation during El Niño events (Table 2). During an El Niño winter, Kansas averages about 0.4 inches more precipitation than in a neutral winter. Interestingly, La Niña winters also average more

precipitation than neutral events but less precipitation during El Niño winters.

Table 2. Average December-February precipitation during El Niño, La Niña, and neutral events.

Event	# of Winters	Average DJF Precipitation (inches)
El Niño	21	2.72
Neutral	33	2.34
La Niña	19	2.48

We can further examine precipitation during El Niño winters and see if there is more precipitation during strong El Niño events than during weak events. Suppose we change the minimum ONI 3.4 threshold to be higher than +0.5°C and average winter precipitation for the stronger El Niño events that meet the more stringent requirement. Do we see a tendency towards even higher precipitation? When we classify by this method (Table 3), we see that there is a tendency for precipitation to increase even more as the ONI 3.4 threshold increases. The last line in Table 3 is the threshold for Super El Niño events. Since 1950, there have been only five El Niño events during which the ONI reached at least +2.0°C. These were in the following years: 1965-66, 1972-73, 1982-83, 1997-98 and most recently in 2015-16.

Table 3. Average December-February precipitation for El Niño events of varying magnitudes.

ONI 3.4 El Niño Threshold	El Niño Events	Average DJF Precipitation (inches)
≥ +0.5°C	21	2.72
≥ +1.0°C	14	2.75
≥ +1.5°C	9	3.17
≥ +2.0°C	5	3.49

It does appear that the stronger the El Niño event, the more precipitation Kansas gets on average. Those last two words are key. On average, it does not mean every year was above normal. There are La Niña and neutral years that had above-normal precipitation, and there were also El Niño years with below-normal precipitation. There is no guarantee that a Super El Niño event will result in above-normal precipitation if it happens this winter. Still, the averages suggest reason to be optimistic should a Super El Niño occur.

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3. Kansas Ag-Climate Update for October 2023

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

October 2023: Around normal climate conditions in October

The average statewide temperature for October was 57.8°F, or 1.6°F above normal. This ranked as the 40th warmest October out of 129 years of records, dating back to 1895. All nine climate divisions were above normal. Anomalies ranged from +0.8°F (northwest) to +2.0°F (north central).

Average statewide precipitation for October was 1.93", or 83% of normal. This amount was 0.39" below normal and ranked as the 60th wettest October on record. East central Kansas was the wettest division (4.52") and the only division above normal in October. Northwest (0.64") and west central (0.72") were the driest divisions.

Since April 1st, the three eastern climate divisions all rank between the 16th and 22nd driest, with anomalies ranging from -7.54" (northeast) to -10.13" (southeast). Southwest Kansas is the only division above normal (+4.68"), currently ranking 14th wettest.

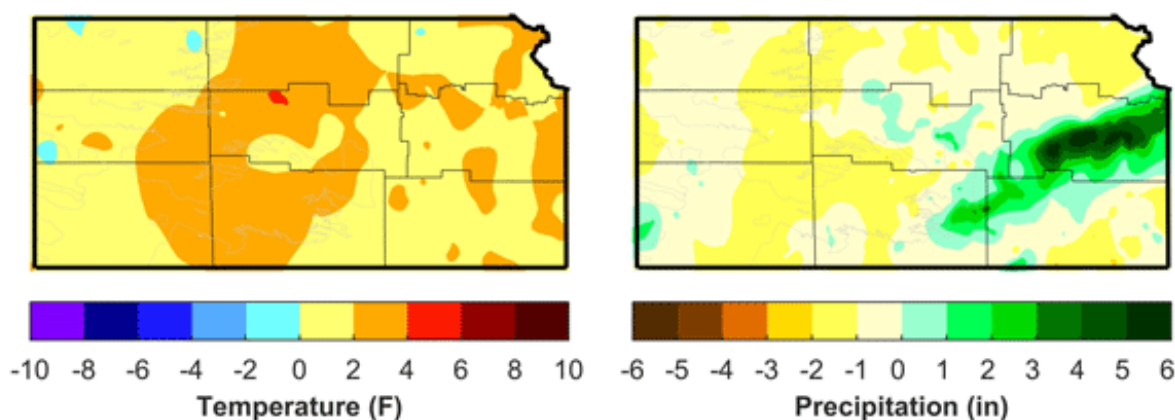


Figure 1. Departures from normal temperature (°F) and precipitation (inches) for October 2023.

View the entire October 2023 Ag-Climate Update, including the accompanying maps and graphics (not shown in this eUpdate article), at <http://climate.k-state.edu/ag/updates/>

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4. Registration is open for the K-State/KARA Crop Production Update: Dec. 6-7

Don't miss out on the 2023 Crop Production Update, hosted by the Kansas Agribusiness Retailers Association (KARA) and in cooperation with K-State Research and Extension. The two-day event is set for December 6 and 7 at the Hilton Garden Inn, Manhattan, KS. Each day will kick off at 8:30 a.m. and conclude around 4:00 p.m. There will be 12 CCA CEUs offered, four 1A credits, and one core hour.

This training provides the latest research and technological advances in weed and insect control, fertilizer and chemical recommendations, crop production, water management, soil fertility, and more.

Speakers and Topics

December 6 – Wednesday

- Northwest Kansas crop production update – Lucas Haag
- Fertility management in winter wheat – Romulo Lollato
- Cover crops management strategies in water-limited cropping systems – Logan Simon
- Corn tillers: Plasticity or atrocity – Rachel Veenstra
- Advancing corn and soybean management for yield and quality – Ana Carcedo and Ignacio Ciampitti
- Soil water dynamics research update – Andres Patrignani
- Core hour – Kansas Department of Agriculture

December 7 – Thursday

- Irrigation and water management – Jonathan Aguilar
- Weather outlook and expectations for 2023 – Chip Redmond
- Row crops disease update – Maira Duffeck, Oklahoma St. Univ.
- Palmer amaranth control in row crops – Sarah Lancaster
- Rangeland management in Kansas – Walt Fick
- Digital ag applied to entomology – Brian McCornack

You can register for the conference by visiting <https://www.ksagretailers.org/events-training/crop-production-update/>. The cost breakdown can be found by clicking on the registration button.



2023 KARA Crop Production Update

Kansas Agribusiness Retailers Association
K-State Research and Extension

9:20 a.m. – 4:40 p.m. December 6 and

8:30 a.m. – 2:50 p.m. December 7

Hilton Garden Inn (Kaw Nation Room), 410 S 3rd St., Manhattan, KS

Topics

- Row crop production in NW Kansas
- Fertility management in winter wheat
- Cover crops in semi-arid environments
- Considerations on corn tillering
- Corn and soybean production update
- Soil water dynamics research
- Irrigation technologies
- Weather outlook and expectations
- Row crops disease update
- Palmer amaranth control in row crops
- Rangeland management in Kansas
- Digital Ag applied to Entomology

Speakers

- Lucas Haag
- Romulo Lollato
- Logan Simon
- Rachel Veenstra
- Ana Carcedo
- Ignacio Ciampitti
- Andres Patrignani
- Jonathan Aguilar
- Maira Duffeck (Oklahoma State Univ.)
- Sarah Lancaster
- Walt Fick
- Brian McCornack

This event will offer 12 CCA CEUs and four Commercial Applicator credits.

Register online at <https://www.ksagretailers.org/events-training/crop-production-update/>
For registration questions, please contact Clay Fagan at clay@kansasag.org or 785-234-0461.
Prices differ depending on membership status and program selected.

Coffee breaks and lunch are included with registration and will be provided both days.

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5. New in January 2024 - K-State Corn and Soybean Schools held together

In January 2024, look for a new format for the traditional K-State Corn and Soybean Winter Crop Schools. K-State Research and Extension, in collaboration with Kansas Corn and Kansas Soybean, has combined the schools for a whole-day program covering both crops. Save the date for one of the locations near you!

2024 K-State Corn and Soybean Crop Schools

- **January 16 (Tuesday) – Parsons**
K-State Southeast Research and Extension Center
- **January 17 (Wednesday) – Hesston**
Agco Corporation
- **January 18 (Thursday) – Garden City**
Corteva Agriscience Research Center
- **January 19 – Olathe**
John Deer Ag Marketing Center

Stay tuned to the Agronomy eUpdate in the coming weeks for the complete agendas and how to register.

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6. 2023 K-State Crop Pest Management Schools - Dec. 5 and 6

K-State Research and Extension and the NW Region Extension Counties/Districts are hosting two Crop Pest Management Schools, December 5 in Colby at the City Limits Convention Center and December 6 in Russell at the Elks Lodge starting at 7:45 a.m. with registration and concluding at 5:00 PM.

Join us in person to learn how to control the latest pests – weeds, insects, and diseases – affecting all crops in central and western Kansas! The entire agenda with speakers and topics is featured in the flyer below.

Commercial Applicators will earn 1 Core Hour & 7 Hours for 1A, certified by the Kansas Department of Agriculture. Certified Crop Advisors (CCA) will also earn 8 Pest Management Credits. These schools would also be an excellent educational opportunity for producers.

The cost to participate is \$50 if registered by November 27; after that date, the fee is \$75. Those wishing to participate are asked to **register by Monday, November 27, by midnight**. Go to <http://www.northwest.k-state.edu/events/crop-pest-management-school> or any Extension Office website in the NW region. You can also call Jeanne Falk-Jones, K-State Research and Extension, Multi-County Agronomist, at 785-462-6281 or Craig Dinkel, Midway Extension District, at 785-472-4442.

K-State Crop Pest Management School

Focused on weeds, diseases and insects found in central and western Ks

December 5 in Colby

City Limits Convention Center

December 6 in Russell

Elks Lodge

\$50, if registered by November 27

After November 27, cost is \$75

Continuing Education Credits:

For 1A Commercial Applicators, 7 hours and core hour

For Certified Crop Advisors, 8 pest management credits

Register online:

www.northwest.ksu.edu/events



The Schedule:

- 7:45 Registration
- 8:05 Welcome
- 8:15 **Weather Influences on Herbicides**
Chip Redmond, K-State Climatologist and Mesonet Manager
- 9:10 **Herbicide Application Technology Update**
Ajay Sharda, K-State Agricultural Engineer
- 10:05 Break
- 10:20 **Emerging Diseases in Corn and Soybeans**
Maira Duffeck, Oklahoma State Plant Pathologist
- 11:15 **Controlling Palmer Update in Row Crops**
Sarah Lancaster, K-State Extension Weed Scientist
- 12:10 Lunch
- 12:50 **What You Need to Know About Adjuvants**
K-State Weed Science Team and Jay Wisbey, K-State Central Kansas District
- 1:45 **Wheat Diseases That Are Problematic in Central and Western Kansas**
Craig Dinkel, K-State Midway District, Jeanne Falk Jones, K-State Agronomist, K-State Wheat Pathology
- 2:40 Break
- 2:55 **Insects to Be on the Lookout for in 2024**
Anthony Zukoff, K-State Entomologist
- 3:50 **Kansas Regulation (Core Hour)**
Kansas Dept of Ag
- 4:45 Questions/Adjourn

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7. Cover Your Acres Winter Conference, January 16-17 in Oberlin

K-State Research and Extension will host the 21st annual [Cover Your Acres Winter Conference](#) for crop producers and consultants on January 16 and 17. The conference will take place in the traditional in-person format at the Gateway Civic Center in Oberlin, KS.

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's conference will feature university specialists and industry representatives discussing what's driving profitability in northwest Kansas farms. **Confirmed session topics** will include economic drivers on northwest Kansas farms, weed resistance management, cropping systems, and soil fertility management. Additional session topics and speakers are still being finalized and will be announced in an upcoming eUpdate article and on the conference website (link included below).

The same programs will be offered on both days of the conference. Participants attending both days will find catching most or all of the programs easier. The sessions are followed by a social on Tuesday evening, where attendees can visit with industry representatives and conference speakers while enjoying appetizers.

Online registration is open. The fee is \$55 for Tuesday, January 16, \$60 for Wednesday, January 17, or \$80 for both days. After January 10th, and for walk-ins, the cost is \$80 per day. The conference fee includes lunch, morning and afternoon refreshments and educational materials. The program will offer continuing education unit (CEU) credits for Certified Crop Advisors and 1A for Commercial Applicators credit.

To view the preliminary conference details, lodging accommodations, and online registration, visit www.northwest.ksu.edu/coveryouracres. For questions, call 785-462-6281.

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