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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. Starter fertilizer for corn - Nitrogen placement and rate

Starter fertilizer is typically considered as the placement of a small rate of fertilizer, usually nitrogen (N) and phosphorus (P), near the seed at planting time. This fertilizer is intended to "jump start" growth in the spring, and it is not unusual for a producer to see an early-season growth response to starter fertilizer application. But some producers might also consider using this opportunity to apply higher rates of fertilizer that can supply most of the N and P needs for the corn crop.

Producers should be very cautious about applying starter fertilizer that includes high rates of N (and/or K). It is best to have some soil separation between the starter fertilizer and the seed. The safest placement methods for starter fertilizer are either as a deep-band application 2 to 3 inches to the side and 2 to 3 inches below the soil surface (2x2) or as a surface-band application to the side of the seed row at planting time (2x0), especially in conventional tillage or where farmers are using row cleaners or trash movers in no-till (Figure 1).

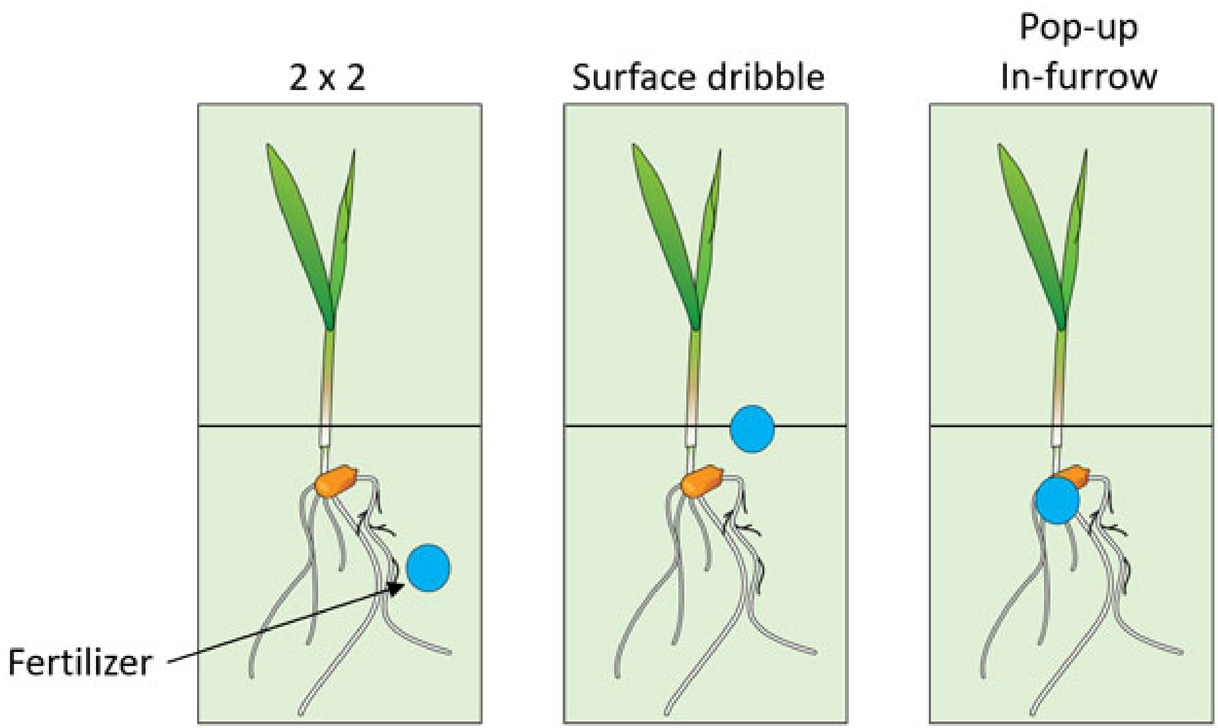

Figure 1. Example illustrations of starter fertilizer placement with respect to the corn plant. Graphic by Dorivar Ruiz Diaz, K-State Research and Extension.

What are the risks with "pop-up" placement?

If producers apply starter fertilizer with the corn seed ("pop-up" in-furrow), they run an increased risk of seed injury when applying more than 6 to 8 pounds per acre of N and K_2O combined in direct seed contact on a 30-inch row spacing (Table 1). Nitrogen fertilizer can result in salt injury. Urea-containing fertilizers can also result in ammonia toxicity. Urea converts to ammonia, which is very toxic to seedlings and can significantly reduce final stands (Figure 2).

What is a "salt"?

"Salts" are ionic compounds that result from the neutralization reaction of an acid and base. Most fertilizers are soluble salts (e.g. KCl from K+ and Cl- ions). Salt injury can occur when fertilizer addition increases the osmotic pressure in the soil solution (due to an increase in salt concentration) around the germinating seed and roots. This can cause *plasmolysis*, which is when water moves out of the plant cell, shrinking cell membranes and collapsing the cell. Symptoms of salt damage are short, discolored roots and a reduced corn population.

Figure 2. Symptoms of ammonia toxicity from urea-containing fertilizers placed too close to the seed. Photos by Dorivar Ruiz Diaz, K-State Research and Extension.

Table 1. Suggested maximum rates of fertilizer to be applied directly with corn seed for "pop-up" fertilizer.

	Pounds N + K_2O (No urea or UAN)	
Row Spacing (inches)	**Medium-to-fine textured soil**	**Sandy soil**
40	6	4
30	8	6
20	12	8

N rates with 2x2 placement or "surface dribble"

Starter fertilizer placements, such as 2x2 or surface dribble (2x0), provide enough soil between the fertilizer and the seed and are considered safe alternatives for higher rates of N application. Recent studies in Kansas suggest that the full rate of N can be applied safely using these placement options. One concern from some producers is related to the additional time demands for the application of high rates of fertilizer during planting. However, from an agronomic perspective, this can be an excellent time for N application, minimizing potential N "tie-up", and providing available N to the corn, particularly under no-till systems with heavy residue.

Take-home message

Producers can apply most of the N needs for corn at planting as long as the fertilizer placement provides enough soil separation between the fertilizer and the seed. The best options are the 2x2 placement or surface-dribble, with similar results in terms of crop response. Nitrogen applications with these starter fertilizer options can provide an excellent alternative for producers who might not have the opportunity for anhydrous ammonia applications this spring or are planning to apply additional N as a side-dress application.

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2. Spring planting update - Soil temperature and moisture

Planting date is one of the most critical factors to decide on for row crops such as corn and soybean. Rather than just calendar dates, please consider basing this decision on soil temperature and moisture.

Soil temperature

After a below-normal March, April has started out warm. Many locations in eastern Kansas had their warmest day so far in 2023 on April 4. As a result, 7-day average soil temperatures, which were running well below normal, have warmed to near seasonal normal (Figure 1). Only the northwest is lagging behind, thanks to more snow in late March. Rawlins County had almost 8 inches of snow, while the Goodland area had another 5 inches, bringing their seasonal snow total to just over 40 inches. The 8 to 14-day temperature outlook (Figure 2) for the first half of April presents high probabilities of above-normal temperatures for the state, which should lead to an additional warming of soil temperatures.

You can monitor soil temperatures across the state by using the Kansas Mesonet's soil temperature tracking tool at https://mesonet.k-state.edu/agriculture/soiltemp/.

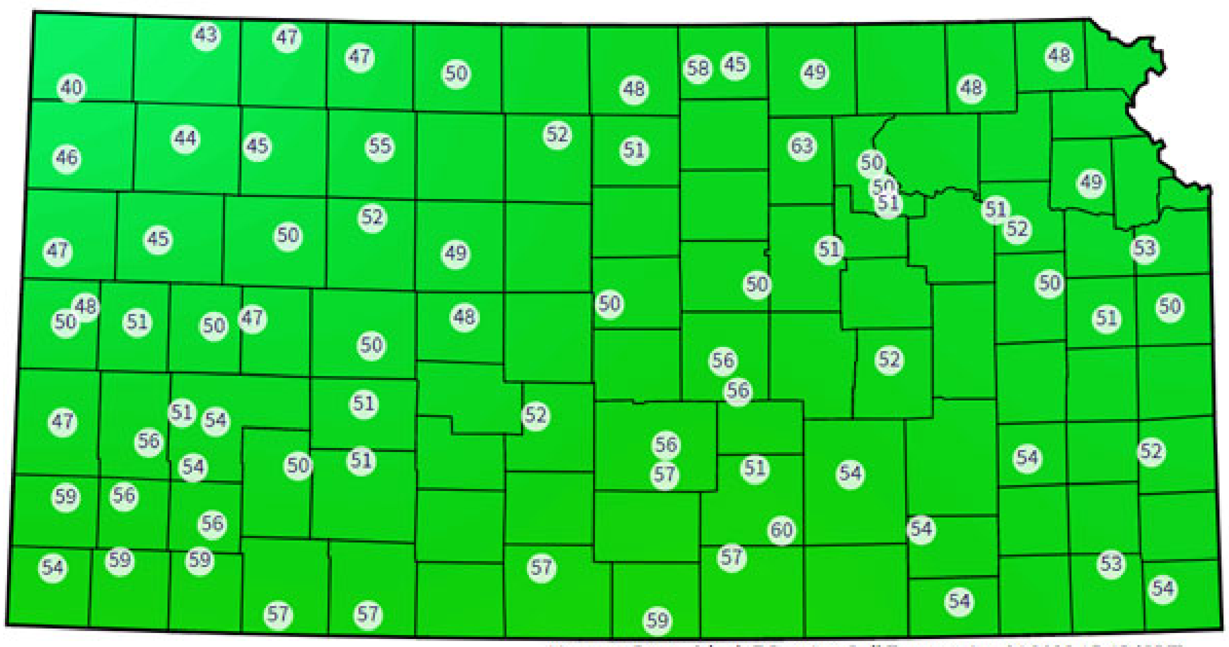

Figure 1. Average soil temperatures at 2-inch soil depth for the week of March 29 to April 4, 2023. Source: Kansas Mesonet https://mesonet.k-state.edu/agriculture/soiltemp/

Precipitation and temperature outlooks

The 8 to 14-day precipitation outlook has slightly higher probabilities of above-normal precipitation statewide (Figure 3). Year-to-date totals are above normal in northeast and northwest Kansas (Figure 4) but much below normal across the south. Precipitation deficits during periods with little to no precipitation add up quickly during spring, so it is critical to have adequate precipitation in the spring months, especially given the precipitation deficits of last year.

It is worth mentioning that topsoil temperature differences could be large depending on multiple factors. Several factors will affect changes in any field, including soil type, soil moisture, residue cover, tillage, landscape position, and others. For example, wet soils under a no-tillage system are expected to warm up at a slower pace. Dry soils will fluctuate more rapidly, matching air temperatures, particularly if the skies are clear.

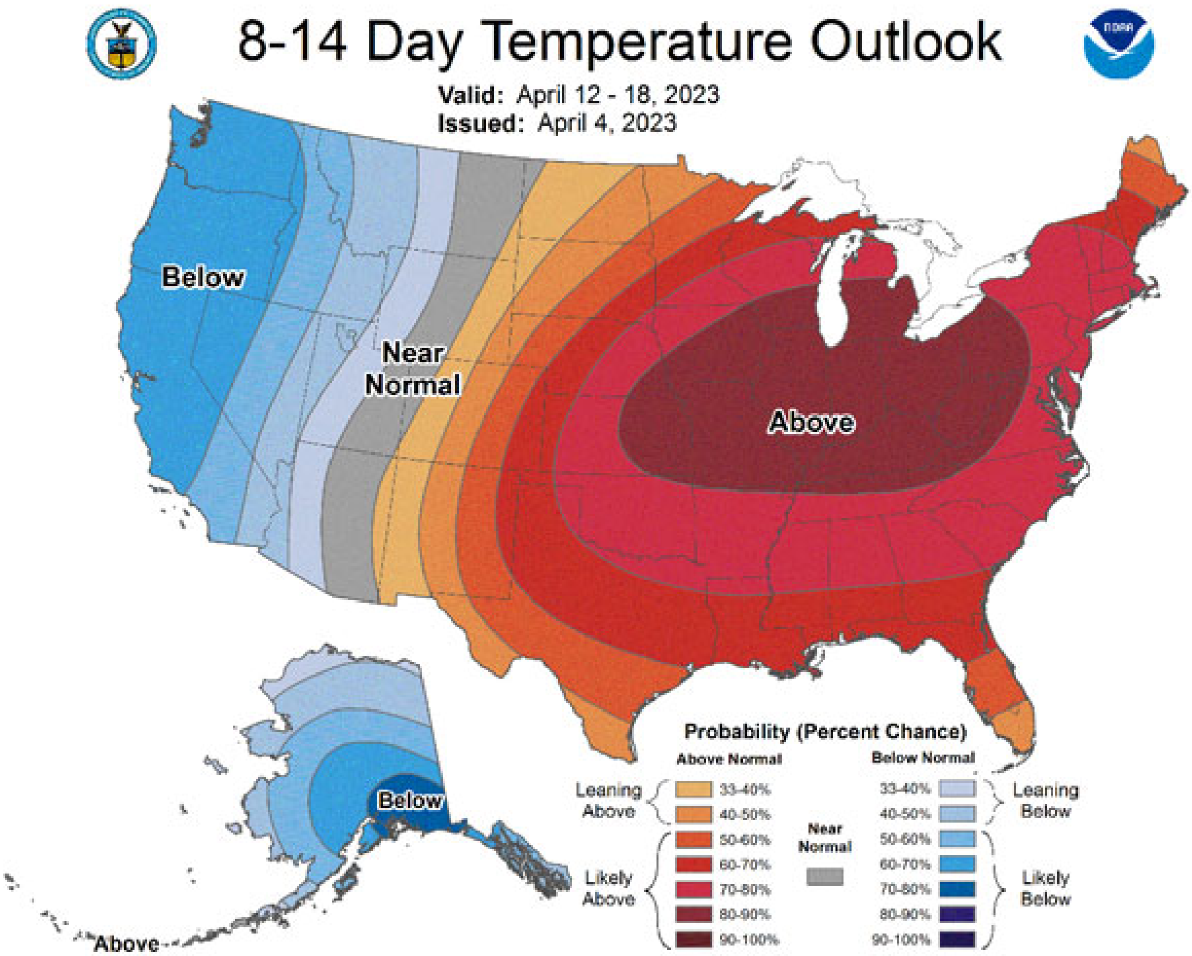

Figure 2. 8 to 14-day outlook temperature outlook for April 12-18, 2023. Source: NOAA.

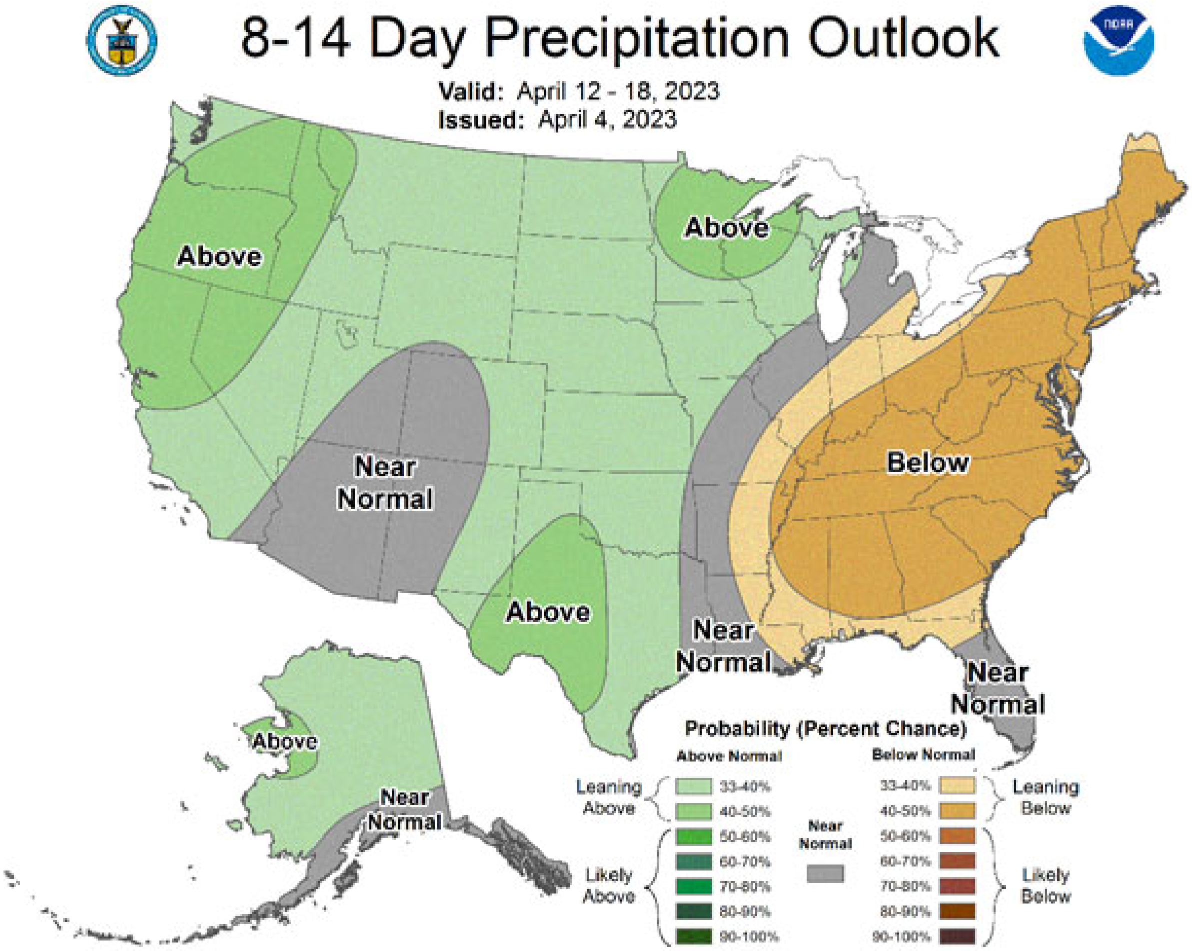

Figure 3. 8 to 14-day outlook precipitation outlook for April 12-18, 2023. Source: NOAA.

Soil moisture

Current soil moisture status across Kansas indicates particularly dry conditions toward the southwest portion of the state, increasing to moderate or high saturation when moving to north central, northwest, and northeast regions, respectively (Figure 4).

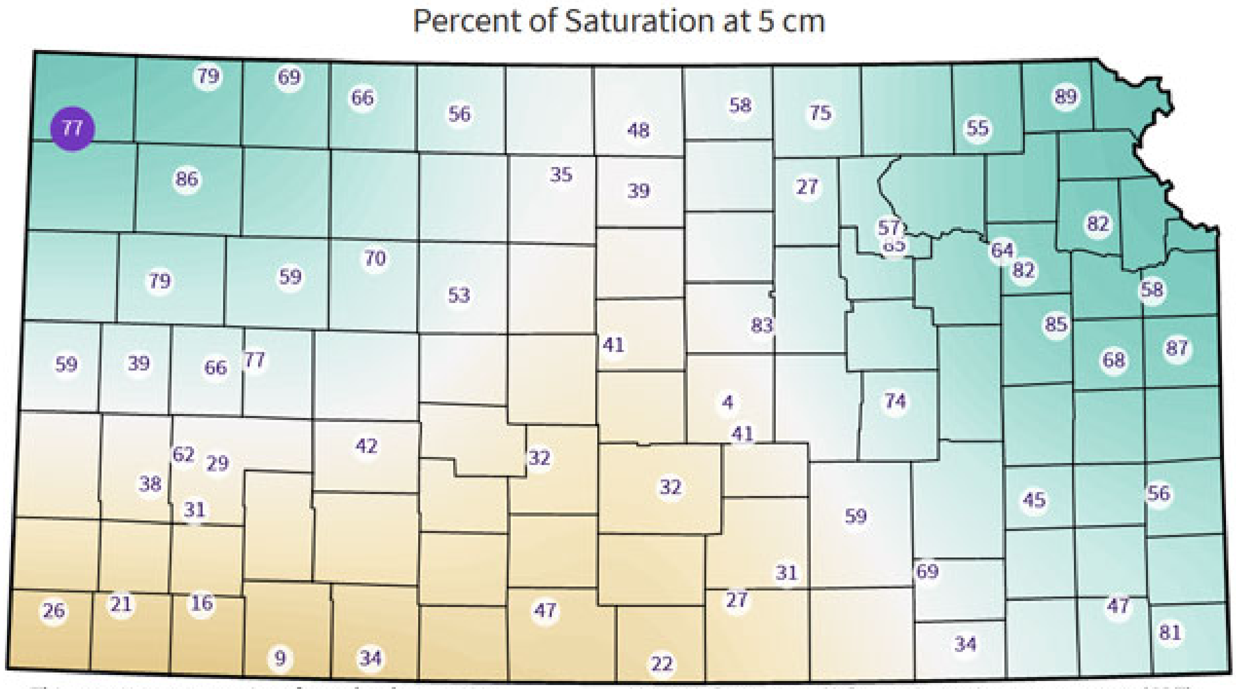

Figure 4. Soil moisture at 2 inches (5 cm) as of April 5, 2023. Source: Kansas Mesonet https://mesonet.k-state.edu/agriculture/soilmoist/

The largest weekly departure in precipitation occurred in the southeast corner of Kansas (Figure 5). The precipitation outlook for this coming week is generally dry, with slightly elevated changes of above-normal precipitation the following week (Figure 3).

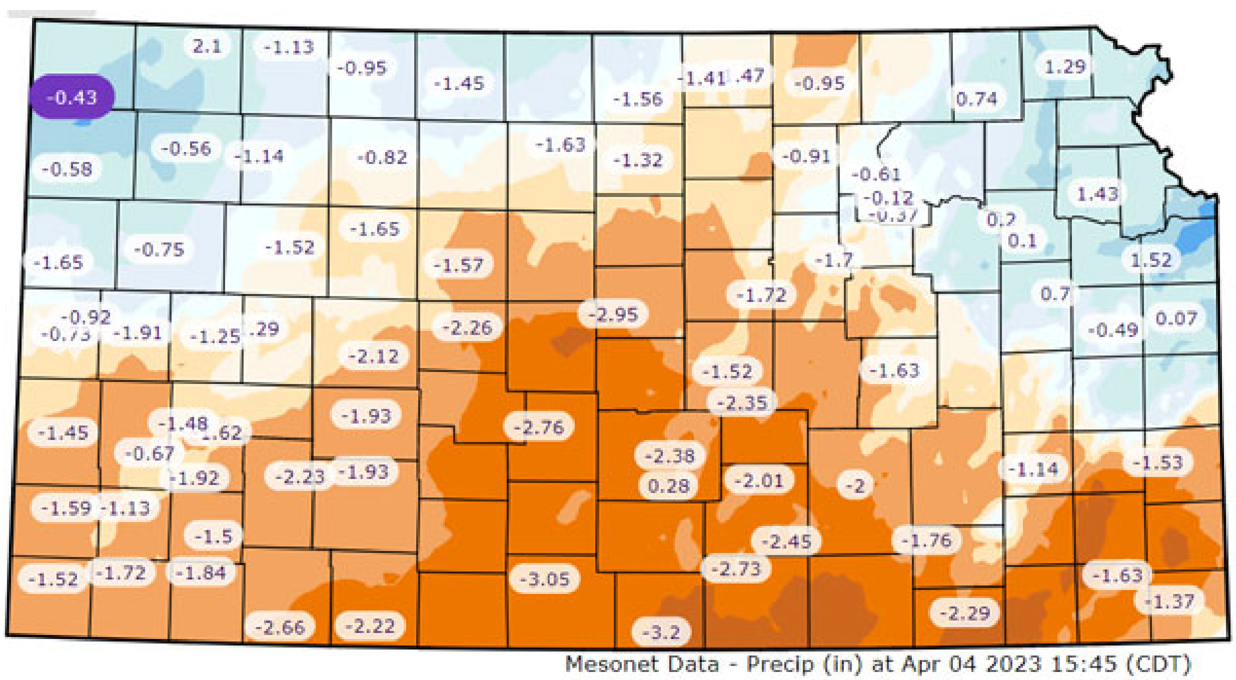

Figure 5. Departure from normal precipitation since January 1, 2023. Source: [Kansas Mesonet](https://mesonet.k-state.edu).

Management considerations

Optimal soil temperature for crop emergence

Optimal soil temperatures for the emergence of row crops indicate a minimum of 50°F for appropriate corn germination and early growth. When soil temperatures remain at or below 50°F after planting, germination issues and severe seedling damage will be expected.

When soil temperatures are consistently above 55°F, uniformity and synchrony in emergence are expected. However, uneven soil temperatures around the seed zone (e.g. due to uneven sowing depth, moisture, and/or residue coverage) can produce non-uniform crop germination and emergence. These conditions could considerably impact corn potential yields due to uneven plant establishment in space and time. Competition between early-emerged and late-emerged plants and competition with weeds may negatively impact biomass and grain production. Compensation mechanisms like tillering have limited potential compared to other crop compensation mechanisms like branching in soybeans.

Hard freeze risks

Corn is also more likely than other summer crops to be affected by a hard freeze after emergence if it is planted too early. The impact of a hard freeze on emerged corn will vary depending on how low the temperature gets, the intensity and duration of the low temperatures, field variability, residue distribution, tillage systems, soil type, and moisture conditions (more severe under dry conditions), and the growth stage of the plant. Injury is most likely on very young seedlings or on plants beyond the V5-6 growth stage when the growing point is above the soil surface.

The average day for last spring freeze (32°F) is considerably variable across the state (Figure 6). From southeast to northwest Kansas; the earliest last spring freeze date is April 1-14 and the latest is May 5-12. Thus, corn planting dates before the second week of April in the southeast or the second week of May in the northwest would represent a high risk of suffering from late spring frost damage.

Figure 6. Average last spring freeze (32 degrees F) for Kansas. Source: Kansas Mesonet.

More information about the planting status of summer row crops will be provided in upcoming issues of the Agronomy eUpdate. Stay tuned!

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3. First hollow stem update - April 6, 2023

Cattle should be removed from wheat pastures when the crop reaches first hollow stem (FHS).

Grazing past this stage can severely affect wheat yields (for a full explanation, please refer to the eUpdate article "Optimal time to remove cattle from wheat pastures: First hollow stem").

First hollow stem update

In order to screen for FHS during this important time in the growing season, the K-State Extension Wheat and Forages crew measures FHS on a weekly basis in 21 different commonly grown wheat varieties in Kansas. The varieties are in a September-sown replicated trial at the South Central Experiment Field near Hutchinson.

Ten stems are split open per variety per replication (Figure 1), for a total of 40 stems monitored per variety. The average length of hollow stem is reported for each variety in Table 1. As of April 3, 2023, all varieties had already reached first hollow stem. Cattle should be removed from wheat pastures if these are to be harvested for grain yield.

Figure 1. Ten main wheat stems were split open per replication per variety to estimate first hollow stem for this report, for a total of 40 stems split per variety. Photo by Romulo Lollato, K-State Research and Extension.

Table 1. Length of hollow stem measured on February 22, 27, March 6, 13, 20, and 27, and April

3 for 21 wheat varieties sown mid-September 2022 at the South Central Experiment Field near Hutchinson. The critical FHS length is 1.5 cm (about a half-inch or the diameter of a dime). Value(s) in bold indicate the highest FHS group.

	First hollow stem (cm)						
Variety	**2/20**	**2/27**	**3/6**	**3/13**	**3/20**	**3/27**	**4/3**
AM Cartwright	0	0	0.08	0.19	0.26	0.86	**2.56**
AP EverRock	0	0	0.08	0.29	0.35	1.18	**5.61**
AP Prolific	0	0	0.04	0.16	0.2	0.61	**2.95**
AP18 AX	0	0	0.06	0.3	0.31	0.64	**2.93**
ARMOR EXP55	0	0	0.05	0.24	0.31	0.97	**2.82**
ARMOR EXP6 AX	0	0	0.05	0.29	0.36	1.05	**3.68**
CP7017 AX	0	0	0.06	0.29	0.31	0.91	**3.32**
CP7050 AX	0	0	0.06	0.27	0.42	1.13	**4.91**
CP7266 AX	0	0	0.07	0.2	0.27	0.7	**2.88**
CP7869	0	0	0.08	0.26	0.35	0.93	**2.53**
CP7909	0	0	0.11	0.23	0.31	1.33	**4.43**
Guardian	0	0	0.05	0.22	0.21	0.91	**3.17**
Kivari AX	0	0	0.08	0.21	0.35	0.91	**3.11**
KS Ahearn	0	0	0.09	0.21	0.28	0.46	**2.69**
KS Hatchett	0	0	0.06	0.18	0.38	**2.03**	-
KS Providence	0	0	0.07	0.2	0.31	0.65	**2.94**
LCS Atomic AX	0	0	0.06	0.32	0.58	**2.68**	-
LCS Galloway AX	0	0	0.06	0.22	0.33	1.21	**3.99**
LCS Steel AX	0	0	0.05	0.25	0.3	0.95	**2.25**
LCS19DH-152-6	0	0	0.02	0.17	0.32	0.78	**2.75**
Whistler	0	0	0.05	0.25	0.28	0.62	**2.12**

The intention of this report is to provide producers with an update on the progress of first hollow stem development in different wheat varieties. Producers should use this information as a guide, but it is extremely important to monitor FHS from an ungrazed portion of each individual wheat pasture to take the decision of removing cattle from wheat pastures.

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4. Effect of early planting dates on soybean yield

In an effort to increase soybean yield potential, early planting dates have been promoted as a management practice that can increase soybean yield. Early planting of soybeans can be a relative term, meaning late April/early May for some soybean producers in Kansas, but this definition of early-planted soybeans is late March/early April. Theoretically, the earlier planting date could allow for more vegetative growth and light interception before blooming, increasing the yield potential. With the improvement of soybean seed treatments to protect seed when emergence is slowed due to cool and wet conditions, early planting may be a viable option. This article summarizes research conducted in northeast and north central Kansas to determine the effect of early planting dates, seed density, and maturity group on soybean yield. The planting dates were late March, mid-late April, and May.

Procedures

Early soybean planting studies were conducted at three Kansas State University Experiment Fields, Kansas River Valley (Topeka), North Central (Scandia), and the Southeast Research and Extension Center (Parsons) in 2022. The experimental fields at Topeka and Scandia were irrigated and the Parsons field was dryland. The Parsons location had a failed crop due to drought. The planting dates were late March, mid-late April, and May. Two varieties were planted at two seeding rates (100,000 and 150,000 seeds/acre) at each of the three planting dates in both locations.

Results

The first planting date at Topeka emerged by April 25. In spite of taking three weeks to emerge, there were no large gaps in the stand. The second planting date emerged 12-14 days after planting, and the third took 7 days. The first planting date emerged 99 Growing Degree Days (GDD) before the second planting date and 338 GDD before the third date.

Canopy closure with the April 4 planting date was 0.5 and 2.4 days earlier than the April 21 and May 9 planting dates at Topeka. The maturity dates of the three planting dates at Topeka were less than 2 days apart for all treatments. There were very low levels (<5%) of sudden death (SDS) foliar symptoms visible at R6 on September 6, and there were no differences between treatments.

The highest yields were just over 80 bu/a for both varieties planted April 4 at 150,000 seeds/acre at Topeka, and the lowest yield was 76 bu/a planted May 9 (Figure 1). There was no significant difference between yields of any of the variety/seeding rate/planting date combination yielding between the high and low-yielding treatments.

At Scandia, there was a significant yield response to the planting date (Figure 2). The fuller season variety yields ranged from 84 bu/a with the 1st planting date to 64 bu/a in the 3rd. (Figure 2). The shorter season variety showed no response to the planting date with an average yield of 72.8 bu/a. (Figure 2).

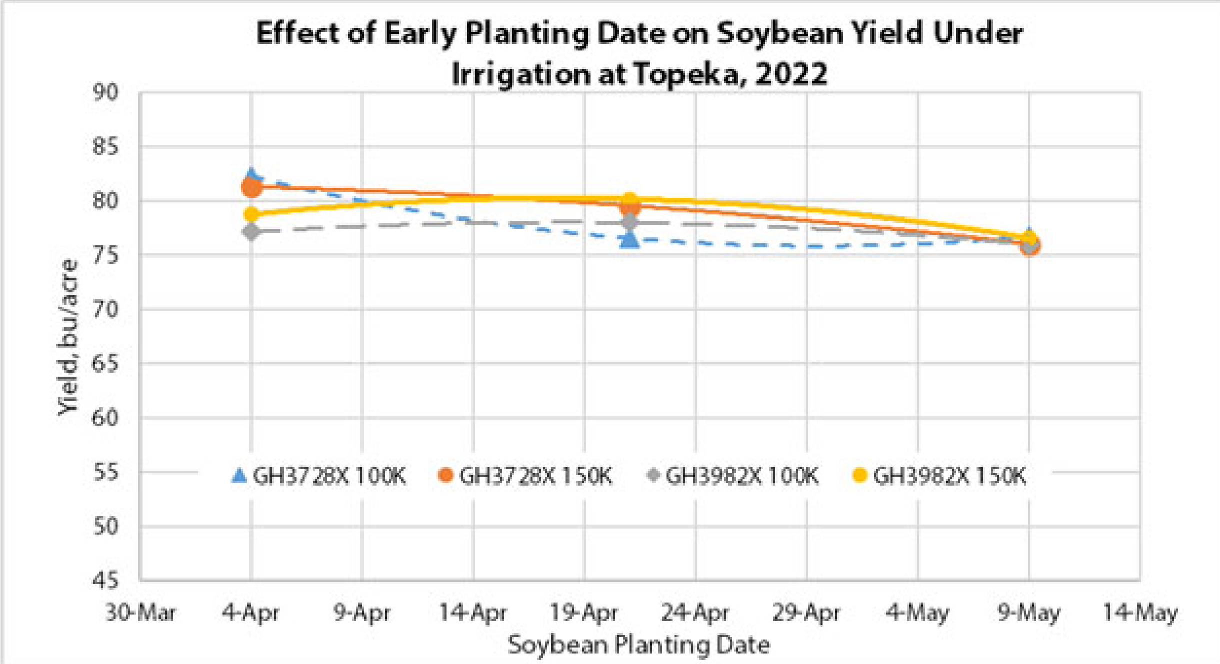

Figure 1. Effect of soybean planting date with soybean varieties of different maturity groups, planted at two seeding rates on yield at Kansas River Valley Experiment Field-Topeka, 2022.

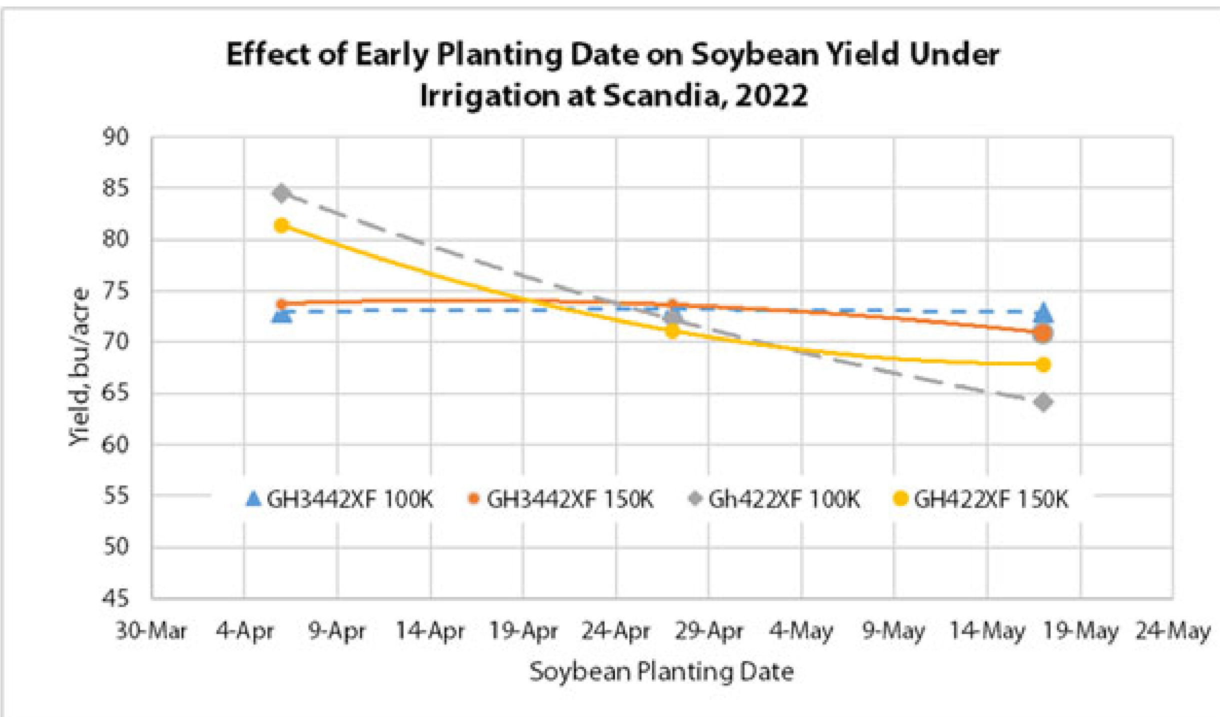

Figure 2. Effect of soybean planting date with soybean varieties of different maturity groups, planted at two seeding rates on yield at North Central Experiment Field-Scandia, 2022.

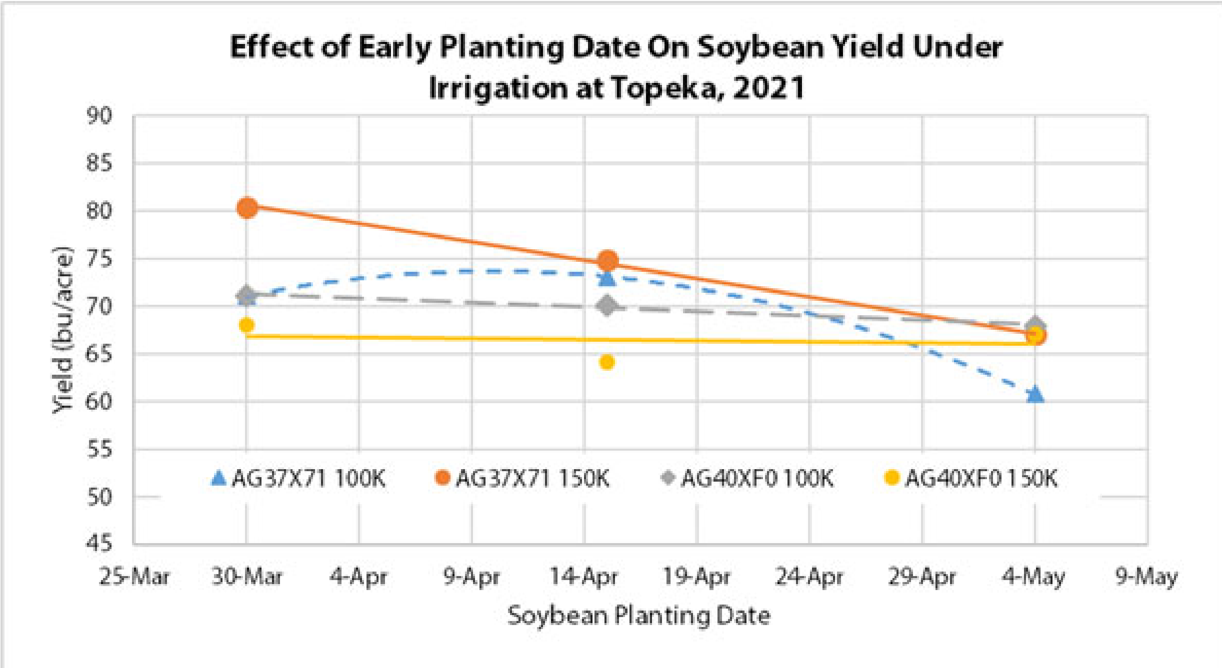

Figure 3. Effect of soybean planting date with soybean varieties of different maturity groups, planted at two seeding rates, on yield at Kansas River Valley Experiment Field, Topeka, 2021.

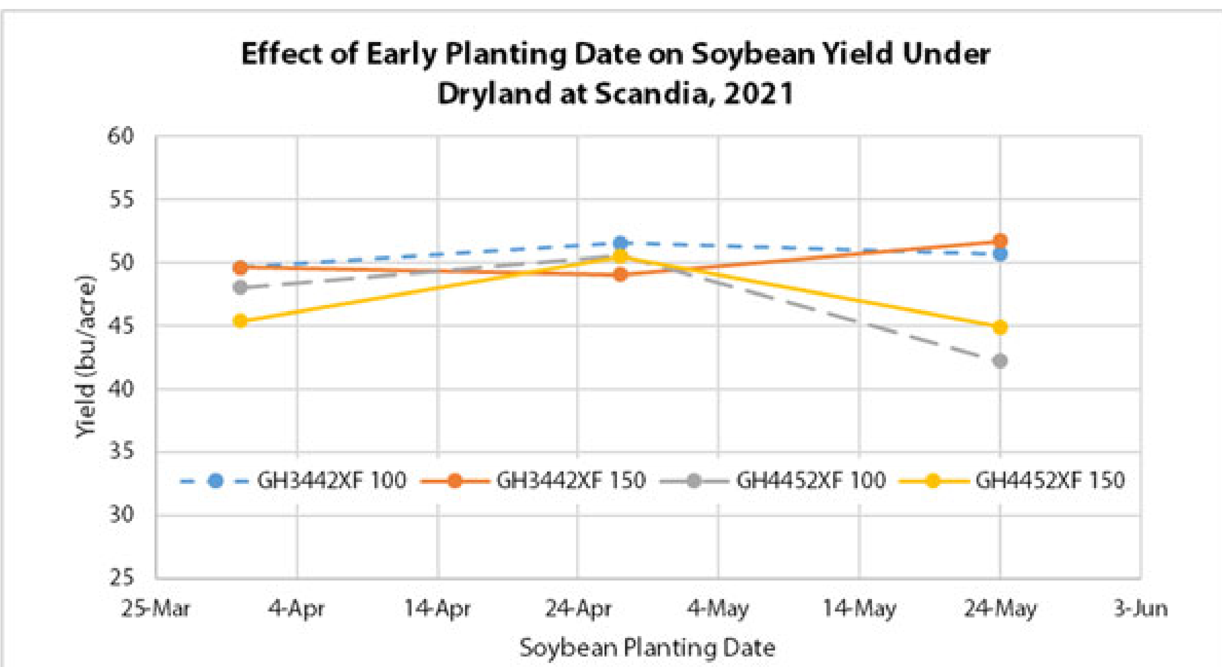

Figure 4. Effect of soybean planting date with soybean varieties of different maturity groups, planted at two seeding rates, on yield at North Central Experiment Field, Scandia, 2021.

Summary

This is the second year this study has been conducted at Topeka and Scandia. Data from the first year of this study (2021) was reported in Kansas Field Research 2022, which had similar results (Figures 3 & 4). While caution should be used in making conclusions from this limited data set, it was shown that there can be a very positive yield response to planting soybeans in late March/early April for certain variety/seeding rate combinations. For most variety/seeding rate treatments, there was no major yield loss due to early planting. The last planting date in these studies is often before most producers historically start planting soybeans in the respective locations. Previous work reported in the Kansas Field Research publications had planting dates from early May to late June at Topeka, showing a yield increase with the earlier planting dates if steps were taken to reduce SDS. Further research is needed to determine if these trends for yield response are consistent. An additional question could be identifying varieties that respond with increased yield due to the early planting date more consistently than other varieties.

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5. Insect activity update - alfalfa weevils

The first pest problem affecting alfalfa every year is usually the alfalfa weevil. This year is no exception (Figure 1). All larvae sampled throughout north central Kansas., have been in the 1st instar (up until April 3), which means they will probably be feeding for another 2-3 weeks at temperatures between 50-90 °F. Feeding by the tiny 1st instar larvae starts on the terminals/leaves, resulting in small pin-prick holes in growing foliage (Figure 2). If left unchecked, alfalfa weevils can defoliate plants prior to the 1st cutting. A common treatment threshold is 30-50% infestation level. For more information relative to alfalfa weevil management, please refer to the KSRE Alfalfa Insect Pest Management Guide, recently updated for 2023 - https://bookstore.ksre.ksu.edu/pubs/MF809.pdf.

Figure 1. 1st instar alfalfa weevil larva. Photo by Cody Wyckoff, K-State Research and Extension.

Figure 2: Alfalfa foliage showing damage by weevil larva. Photo by Cody Wyckoff, K-State Research and Extension.

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6. How common are spring freezes after April 1 in Kansas?

After a cold March, April started out warm in Kansas. The average statewide temperature for the first four days of April was over 6 degrees above normal. The warmest day of the year across much of eastern Kansas was April 4, with afternoon highs in the 80s in most areas. The next morning, temperatures had tumbled into the 20s and 30s. Those waiting for warmer weather endure uncertainty every year. When will it be safe to plant? How much risk should one take to get an earlier start on planting? In this report, we explore the chances of a freeze after April 1 across Kansas.

The National Centers for Environmental Information (NCEI) have calculated average daily high and low temperatures for thousands of locations across the US. These averages, based on the period 1991-2020, can be used to calculate the probabilities of a freeze for any location on any given day. Here in Kansas, there are 167 available sites with daily normals. This report examines 27 of these sites, three in each of Kansas' nine climate divisions (Table 1).

To help interpret Table 1, take a look at the row for Manhattan. In the column headed by "Apr 10," we see 93%. This percentage is the chance of a freeze on or after the given date. For this example, there is a 93% chance of a freeze occurring on or after April 10 in Manhattan. Two columns to the right, we see there is a lower chance, 62%, of a freeze on or after April 20. By the end of April, the chance of a freeze is only 24%, and on or after May 10, it drops to 6%.

After the first of April, a freeze is still likely to occur statewide. We saw a freeze this week, on the morning of April 5, when the entire state, except for southeast and far east central Kansas, fell below freezing. By late April, there is a wide range of probabilities. There is still an 80% chance of a freeze on or after April 30 in Goodland, but just an 8% chance in both Olathe and Fort Scott. On or after May 15, the risk of a freeze is under 10% except in parts of northwest and west central Kansas.

The impact of low temperatures on newly emerged crops will vary depending on how low the temperature drops, the duration of the low temperatures, and other factors. Using historical weather data, we can get a better idea of the risk of frost (36° or colder), a freeze (32° or colder), and a hard freeze (28° or colder). Table 2 contains probabilities of these three events for the same nine dates in Table 1, but rather than individual locations, the table contains average dates across all the locations within each climate division.

There is a greater than 90% chance of a frost on or after April 15 across the entire state. A freeze is likely in all divisions, but the chances of a hard freeze are less than 50% in eastern Kansas, but 90% in northwest Kansas. There is an 80% or better chance of a frost in western Kansas on or after April 30, and in northwest Kansas, there is still a 42% chance of a frost on or after May 15.

Table 1. Probabilities of a freeze (a minimum temperature of 32°F or less) occurring at selected Kansas locations on or after the given dates, based on 1991-2020 NCEI daily climate normals.

Region	Location	Apr 5	Apr 10	Apr 15	Apr 20	Apr 25	Apr 30	May 5	May 10	May 15

Northwest	Goodland	>99%	>99%	>99%	99%	94%	80%	57%	33%	15%
	Hill City	>99%	>99%	98%	91%	76%	54%	32%	16%	7%
	Oberlin	>99%	>99%	>99%	98%	91%	76%	54%	32%	16%
North Central	Beloit	99%	95%	84%	66%	45%	27%	14%	6%	2%
	Phillipsburg	>99%	>99%	98%	90%	73%	48%	26%	12%	4%
	Washington	>99%	99%	95%	84%	64%	41%	23%	11%	5%
Northeast	Holton	>99%	98%	93%	80%	62%	42%	26%	14%	6%
	Manhattan	98%	93%	81%	62%	41%	24%	13%	6%	2%
	Troy	99%	95%	84%	67%	46%	29%	16%	8%	3%
West Central	Scott City	>99%	>99%	>99%	97%	89%	70%	45%	24%	10%
	WaKeeney	>99%	99%	96%	87%	68%	44%	23%	10%	4%
	Wallace	>99%	>99%	>99%	99%	93%	79%	55%	30%	13%
Central	Ellsworth	>99%	99%	96%	86%	67%	43%	23%	10%	4%
	Hays	99%	97%	91%	78%	57%	35%	17%	6%	2%
	Marion	88%	74%	55%	35%	19%	9%	4%	1%	<1%
East Central	Emporia	93%	81%	63%	42%	24%	12%	5%	2%	1%
	Olathe	87%	72%	52%	32%	17%	8%	3%	1%	<1%
	Topeka	93%	82%	64%	44%	27%	14%	7%	3%	1%
Southwest	Dodge City	99%	97%	89%	74%	53%	31%	16%	7%	2%
	Garden City	>99%	99%	97%	89%	72%	47%	26%	12%	4%
	Hugoton	99%	96%	87%	69%	45%	22%	9%	3%	1%
South Central	Larned	99%	95%	85%	67%	44%	23%	10%	4%	1%
	Medicine Lodge	92%	82%	67%	48%	30%	16%	8%	3%	1%
	Wichita	87%	74%	57%	39%	23%	11%	4%	1%	<1%
Southeast	Coffeyville	81%	65%	46%	29%	16%	7%	3%	1%	<1%
	Eureka	98%	93%	81%	62%	40%	22%	10%	4%	1%
	Fort Scott	87%	71%	51%	31%	16%	8%	4%	2%	1%
Region	Location	Apr 5	Apr 10	Apr 15	Apr 20	Apr 25	Apr 30	May 5	May 10	May 15

Table 2. Probabilities of minimum temperatures at or below 36°, 32°, and 28°F across each of the nine Kansas climate divisions on or after the given dates, based on 1991-2020 NCEI daily climate normals.

Region	Threshold	Apr 5	Apr 10	Apr 15	Apr 20	Apr 25	Apr 30	May 5	May 10	May 15
Northwest	36°	>99%	>99%	>99%	>99%	>99%	97%	88%	67%	42%
	32°	>99%	>99%	>99%	98%	90%	73%	49%	28%	13%
	28°	99%	97%	90%	76%	54%	33%	17%	7%	3%
North Central	36°	>99%	>99%	>99%	99%	94%	80%	58%	34%	16%
	32°	>99%	99%	95%	85%	65%	42%	23%	10%	4%
	28°	96%	87%	70%	49%	29%	14%	6%	2%	1%
Northeast	36°	>99%	>99%	98%	92%	78%	58%	37%	20%	9%
	32°	98%	94%	82%	63%	42%	24%	12%	5%	2%

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	28°	85%	69%	48%	29%	15%	7%	3%	1%	<1%
West Central	36°	>99%	>99%	>99%	>99%	99%	96%	83%	59%	33%
	32°	>99%	>99%	99%	97%	87%	67%	42%	21%	9%
	28°	99%	96%	87%	71%	48%	27%	13%	5%	2%
Central	36°	>99%	>99%	>99%	97%	89%	72%	49%	28%	13%
	32°	99%	97%	91%	77%	57%	35%	18%	8%	3%
	28°	91%	79%	61%	42%	24%	12%	5%	2%	1%
East Central	36°	>99%	99%	95%	85%	67%	45%	26%	13%	5%
	32°	96%	88%	72%	51%	31%	16%	7%	3%	1%
	28°	76%	57%	37%	20%	10%	4%	2%	1%	<1%
Southwest	36°	>99%	>99%	>99%	99%	94%	80%	55%	31%	14%
	32°	>99%	99%	95%	83%	62%	38%	19%	8%	3%
	28°	93%	83%	65%	44%	24%	11%	4%	1%	<1%
South Central	36°	>99%	>99%	97%	90%	74%	52%	30%	15%	6%
	32°	97%	91%	78%	59%	37%	20%	9%	3%	1%
	28°	79%	62%	42%	25%	13%	5%	2%	1%	<1%
Southeast	36°	>99%	97%	91%	76%	56%	35%	19%	9%	3%
	32°	92%	79%	61%	41%	23%	11%	5%	2%	1%
	28°	65%	46%	28%	15%	7%	3%	1%	<1%	<1%
Region	Threshold	Apr 5	Apr 10	Apr 15	Apr 20	Apr 25	Apr 30	May 5	May 10	May 15

Table 2. Probabilities of minimum temperatures at or below 36°, 32°, and 28° across each of the nine Kansas climate divisions on or after the given dates, based on 1991-2020 NCEI daily climate normals.

It is important to remember that these dates are based on 30-year averages. Conditions vary from year to year. Short-range and medium-range forecasts provide useful information on the likelihood of damaging cold conditions in any given spring. Conditions can change quickly, as we saw earlier this week, so keep an eye on the forecast in the coming weeks for any signs of colder weather.

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