extension AGRONOMY e-Updates

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1. Controlling problem weeds in Roundup Ready corn

A postemergence application of glyphosate alone in Roundup Ready corn often can do a good job of controlling most broadleaf and grassy weeds. But producers should not rely strictly on glyphosate alone for several reasons:

* Relying just on glyphosate for weed control increases the risk of yield loss from early-season weed competition due to weather delays and late applications.
* Control of certain broadleaf weeds, such as kochia, velvetleaf, morningglory, or marestail, often is not adequate with glyphosate alone.
* Glyphosate-resistant weeds will not be controlled.
* Using glyphosate alone will select for glyphosate-resistant weeds.

The following is a list of some of the most common broadleaf weed problems in corn, both in eastern and western Kansas, and some of the most effective herbicides that can be applied preplant or preemergence, or tank-mixed with glyphosate in Roundup Ready corn, to help control each of these problem weeds.

* ***Waterhemp, Palmer amaranth, and other pigweeds***. Waterhemp, Palmer amaranth, and other pigweeds are vigorous weeds, with multiple growing points on a plant. With contact herbicides, thorough spray coverage and early application is required for adequate control. These small-seeded pigweeds emerge throughout the summer, making them difficult to control without preemergence herbicides or postemergence herbicides with residual activity. Some populations of waterhemp and Palmer amaranth have become resistant to glyphosate.

There are several products that can help control waterhemp and Palmer amaranth in corn.

Lumax EZ or Lexar EZ (which contain Callisto plus S-metolachlor and atrazine), Zemax (which contains Callisto and S-metolachlor), and Corvus or Balance Flexx (which contain isoxaflutole) are HPPD-inhibiting herbicides that effectively control pigweed species when applied preemergence. Corvus contains Balance Flexx and thiencarbazone-methyl (a grass herbicide), which also will provide good grass control. Corvus or Balance Flexx performance is always improved if tank-mixed with atrazine. If Corvus or Balance Flexx are applied postemergence to

corn, only atrazine (no other herbicides or adjuvants) can be tank-mixed when applied from emergence through the 2-leaf stage. These herbicides will provide varying degrees of residual control for later-emerging waterhemp and Palmer amaranth.

All chloroacetamide herbicides (active ingredients may include acetochlor, alachlor, metolachlor, S-metolachor, and dimethenamid), including the new products Zidua, Anthem, Anthem ATZ, and Fierce (all of which include the active ingredient pyroxasulfone) have excellent activity on pigweeds. As rates of these products increase, the length of residual control of pigweeds will increase.

Postemergence products Callisto, Impact, Laudis, and Capreno contain HPPD-inhibiting herbicides that can be tank-mixed with glyphosate to help control waterhemp and Palmer amaranth. Status, which is Distinct with an added crop safener tank mixed with glyphosate, will also help control glyphosate-resistant waterhemp and Palmer amaranth. Status will provide a little residual activity compared to applying glyphosate alone, however the residual activity is generally very short when applied during days with warm temperatures. Halex GT, is a premix that includes a high rate of glyphosate along with Callisto and S-metolachlor, providing good postemergence pigweed control with residual activity.

* ***Velvetleaf***. Velvetleaf is sometimes not controlled with glyphosate alone. This may be due to the time of day glyphosate is applied, poor choice of AMS replacement product in the glyphosate, and the stress condition of the plants. Frequently, velvetleaf plants in the sprayer wheel tracks will not be effectively controlled.

As with the pigweeds, adding Callisto, Impact, Laudis, Lumax EZ, Lexar EZ, or Capreno to the glyphosate, or using Halex GT, can help with velvetleaf control. Corvus or Balance Flexx applied preemergence up through 2-leaf corn can provide good velvetleaf control. Another option is to tank-mix glyphosate with Cadet, Aim EW, or Priority (a premix of Aim EW and Permit, an ALS herbicide). These herbicides are excellent on velvetleaf. One of the concerns about a tankmix of Aim or Cadet and glyphosate, however, is that these herbicides might reduce the ability of glyphosate to translocate to the growing points. Adding Sharpen or Verdict to a chloroacetamide/atrazine tankmix, or using either the new Zidua, Anthem, or Anthem ATZ products as a preemergence or Fierce as an early preplant, will greatly enhance a velvetleaf control program -- provided the preemergence herbicides are rainfall activated.

* ***Morningglory***. This is another broadleaf weed that is not always controlled well with glyphosate. Adding Status (Distinct plus a crop safener) to glyphosate is one of the best ways to improve morningglory control in Roundup Ready corn. Callisto, Impact, and Laudis may not be the best choice if morningglory is a severe problem, although if a pound of atrazine is added, these herbicides can be very effective. Actually, 2,4-D is very good on morningglory as well. As discussed with velvetleaf, having a preemergence program in place with the herbicides discussed for velvetleaf will help.

* ***Kochia***. Kochia, like the pigweeds, is a small-seeded broadleaf weed. However, it starts emerging in early spring and continues with some emergence all through the summer. This weed often will escape control with glyphosate alone as glyphosate-resistant populations of kochia have spread through western Kansas. Always use full rates of glyphosate (0.75 lb ae/a) and use a good source of ammonium sulfate. We do not recommend that glyphosate be applied alone. Producers can tank-mix glyphosate with Status or other dicamba products to enhance kochia control. Another option to enhance kochia control would be to tank-mix glyphosate with Callisto, Impact, Capreno, or Laudis; or use Halex GT. If Corvus or Balance Flexx plus atrazine,

Lumax EZ, Lexar EZ, or the new pyroxasulfone products with atrazine are applied preemergence, they can be very effective in controlling kochia and greatly benefit a kochia management program in corn.

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2. Winter/spring options for winter annual broadleaf control in wheat

There are several herbicide options for controlling winter annual broadleaf weeds in wheat. Generally, fall applications will provide the best control of winter annual weeds with any herbicide, as long as the weeds have emerged. The majority of winter annual weeds usually will emerge in the fall, although you can still have some emergence in the spring, especially if precipitation after planting is limited in the fall. However, winter annual weeds that emerge in the spring often are not very competitive with the crop, at least in years when there is a decent crop.

Some herbicides can work well even when applied during the dormant part of the season, while others perform best if the crop and weeds are actively growing. The key difference relates to the degree of soil activity provided by the herbicide. Herbicides that have good residual activity, such as Glean, Finesse, Amber, and Rave can generally be applied in January and February when plants aren't actively growing and still provide good weed control, assuming you have proper conditions for the application. Most other herbicides, which depend more on foliar uptake, will not work nearly as well during the mid-winter months, when the wheat and weeds aren't actively growing, as compared to a fall or early spring application.

Spring herbicide applications can be effective for winter annual broadleaf weed control as well, but timing and weather conditions are critical to achieve good control. Spring applications generally are most effective on winter annual broadleaf weeds soon after green-up when weeds are still in the rosette stage of growth, and during periods of mild weather. Once weeds begin to bolt and wheat starts to develop more canopy, herbicide performance often decreases dramatically.

Spring-germinating summer annual weeds often are not a serious problem for a good healthy stand of wheat coming out of the winter. However, if wheat stands are thin and the wheat is very late developing, early-germinating summer annual weeds such as kochia, Russian thistle, and wild buckwheat may be a problem, especially at harvest time. Many of these weeds may be controlled by residual herbicides applied earlier in the season. If not, postemergence treatments should be applied soon after weed emergence and before the wheat gets too large in order to get good spray coverage and achieve the best results.

Another important consideration with herbicide application timing is crop tolerance at different application timings. For example, 2,4-D should not be applied in the fall or until wheat is fully tillered in the spring. On the other hand, any herbicide containing dicamba can be applied after wheat has two leaves, but should not be applied once the wheat gets close to jointing in the spring, Herbicides containing dicamba include Banvel, Clarity, Rave, Pulsar, Agility SG, and

several generic dicamba products. Dicamba is one of the most effective herbicides for kochia control, but if the wheat is starting to joint, it shouldn't be applied. At that point, Starane Ultra or other herbicides containing fluroxypyr would be a safer option and could still provide good kochia control. Most other broadleaf herbicides in wheat can be sprayed from the time that wheat starts tillering until the early jointing stages of growth, but the label should always be consulted to confirm the recommended treatment stages before application.

There has been some discussion about wheat tolerance to herbicides, especially when applied with fertilizer carrier. The best advice regarding crop safety with herbicide-fertilizer combinations and application timing is to follow the label guidelines. We generally see minimal crop injury and no yield loss from topdress fertilizer/residual herbicide applications during the winter months. However, these combinations can often cause considerable burn to the wheat if applied when the crop is actively growing and with warmer weather. The foliar burn is generally temporary in nature and the wheat usually will recover if good growing conditions persist.

Research at Hays several years ago found as much as 47% foliar injury to the wheat 4 days after treatment following a late March treatment of Amber plus 2,4-D, but wheat recovered and yields were not reduced. However, research in Nebraska did show some yield loss from Ally plus 2,4-D applications with fertilizer applied in late April to more advanced wheat and under moisture stress conditions. Crop injury with herbicide-fertilizer combinations will depend on the total amount of fertilizer applied, dilution with water, and the addition of surfactant. Again the herbicide label provides the best guidelines regarding if, when, and how herbicides can be applied with fertilizer.

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3. December 2012 Kansas climate summary: Roller coaster to end the year

The warm start to December gave way to winter-like weather as the year ended. December temperatures averaged above normal across the state, with the warmest conditions in the southern and eastern divisions. December preliminary statewide average temperature was 34 degrees F, which is 9.2 degrees above normal. Still, cold weather was present. There were 22 daily record low minimum temperatures set and 12 tied. All divisions saw low temperatures dip into the single digits, with the Western, North Central and Central divisions dropping below zero for the lowest readings.

Statewide, December averaged 38th warmest since 1895. This dropped the annual average temperature from the warmest (as of the end of November) to the 17th warmest on record (119 years). The warmest year on record goes to 1934.

Preliminary statewide average precipitation was 0.52 inches, which was 59% of normal. This makes it the 9th driest December since 1895. In contrast to November, both the Northwest and the West Central divisions averaged above normal for the month. The South Central division had the lowest precipitation in December, with a divisional average of 0.23 inches, or 18 percent of normal.

Drought conditions persist across the state. Little change was made in December. All of the state is in severe to exceptional drought. The latest Drought Monitor shows that extreme drought now

covers 79.4 percent of the state, with nearly 36 percent of the state in exceptional drought. Normal precipitation in December is low, so even the areas with above normal moisture in December have not seen improvement.

The latest Drought Outlook indicates drought conditions are expected to continue through March. The El Niño/Southern Oscillation (ENSO) is expected to remain neutral through the winter. That means the signal for increased winter precipitation will also be weaker. The jet stream is expected to shift northward. For January, chances are equally likely for precipitation to be above or below normal statewide. The temperature outlook calls for above normal temperatures statewide. This does not indicate how much warmer conditions might be, and does not exclude the possibility of significant cold weather in the period.

December 2012
Kansas Climate Division Summary

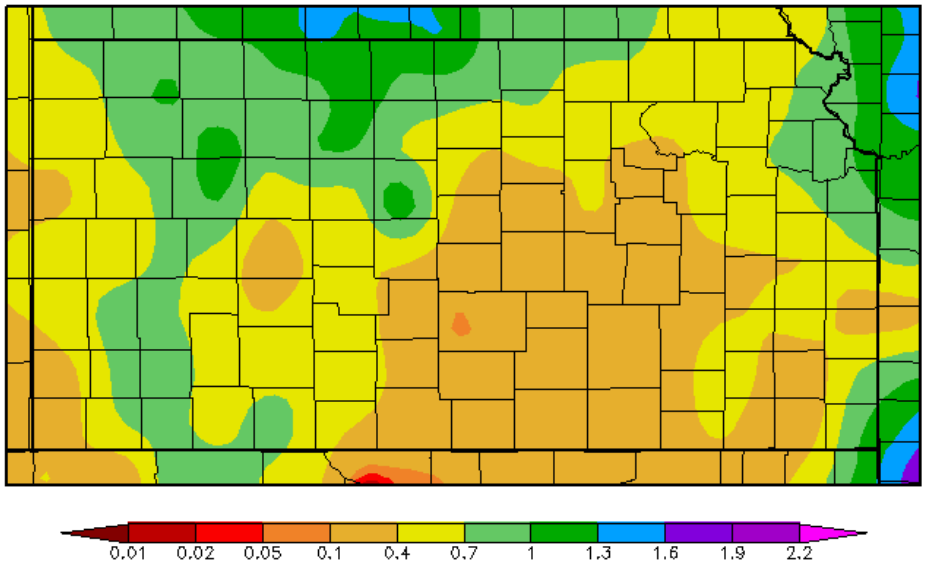
	Precipitation (inches)						Temperature (°F)			
	December 2012			2012 Jan through December					Monthly Extremes	
Division	Total	Dep. [1]	% Normal	Total	Dep. [1]	% Normal	Ave	Dep. [1]	Max	Min
Northwest	0.76	0.24	125	11.58	-7.82	51	43.1	3.8	80	9
West Central	0.74	0.15	112	12.08	-7.45	54	45.0	4.9	84	9
Southwest	0.68	0.09	91	14.26	-3.23	62	47.6	5.1	87	11
North Central	0.65	-0.16	73	19.08	-6.75	63	44.5	3.6	81	9
Central	0.39	-0.42	39	18.80	-6.75	56	46.7	3.8	82	11
South Central	0.23	-0.74	18	20.68	-6.59	57	48.2	4.0	87	15
Northeast	0.63	-0.54	51	22.97	-10.14	62	44.8	2.5	80	9
East Central	0.39	-0.96	25	23.47	-13.07	59	46.4	2.7	80	10
Southeast	0.38	-1.30	19	30.13	-8.14	66	47.8	2.2	87	15
STATE	0.52	-0.43	59	19.34	-7.49	59	46.0	3.6	87	9

1. Departure from 1981-2010 normal value

2. State Highest temperature: 81 oF at Healy (Lane County) on the 15th.
3. State Lowest temperature: -13 oF at Brewster 4W (Thomas County) on the 26th.

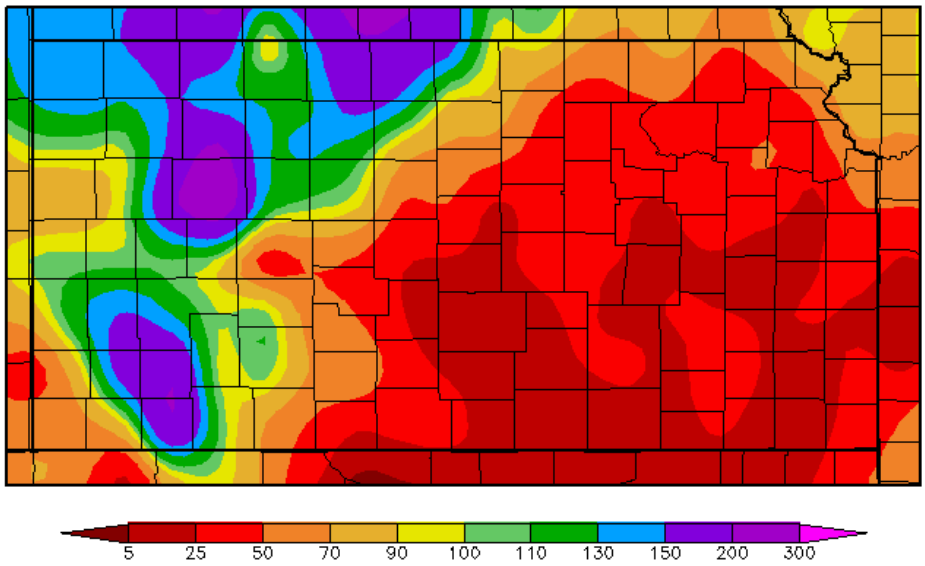
4. Greatest 24hr rainfall: 1.37 inches at Gove, Gove County, (NWS); 1.61 inches at Norton 0.4 N, Norton County (CoCoRaHS)
Source: KSU Weather Data Library

Precipitation (in)
12/1/2012 – 12/31/2012



Generated 1/2/2013 at HPRCC using provisional data. Regional Climate Centers

Percent of Normal Precipitation (%)
12/1/2012 – 12/31/2012



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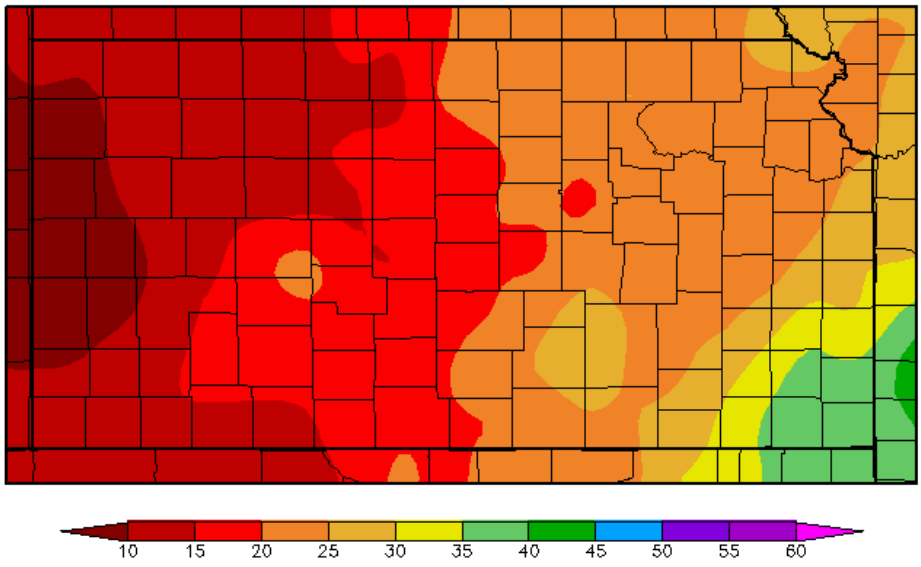
Precipitation (in)
1/1/2012 – 12/31/2012



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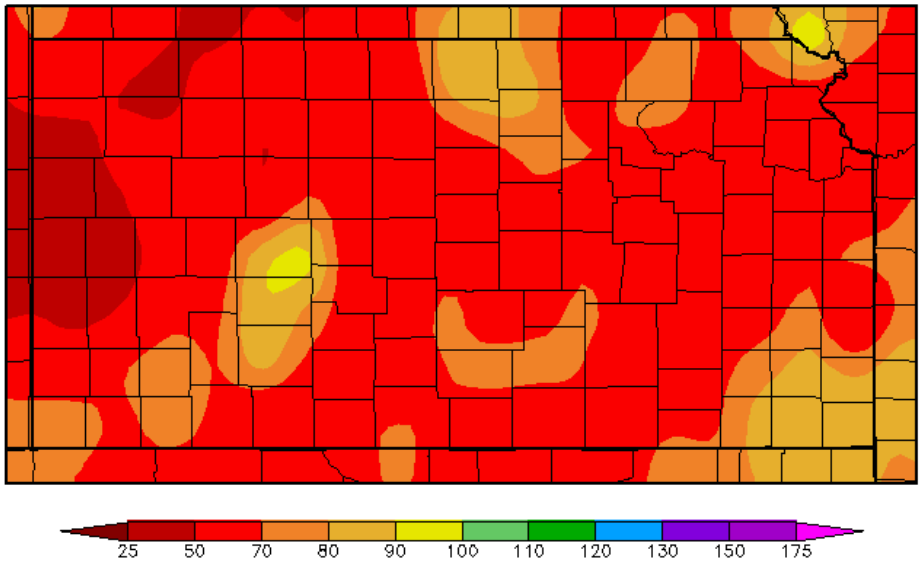
Percent of Normal Precipitation (%)
1/1/2012 – 12/31/2012



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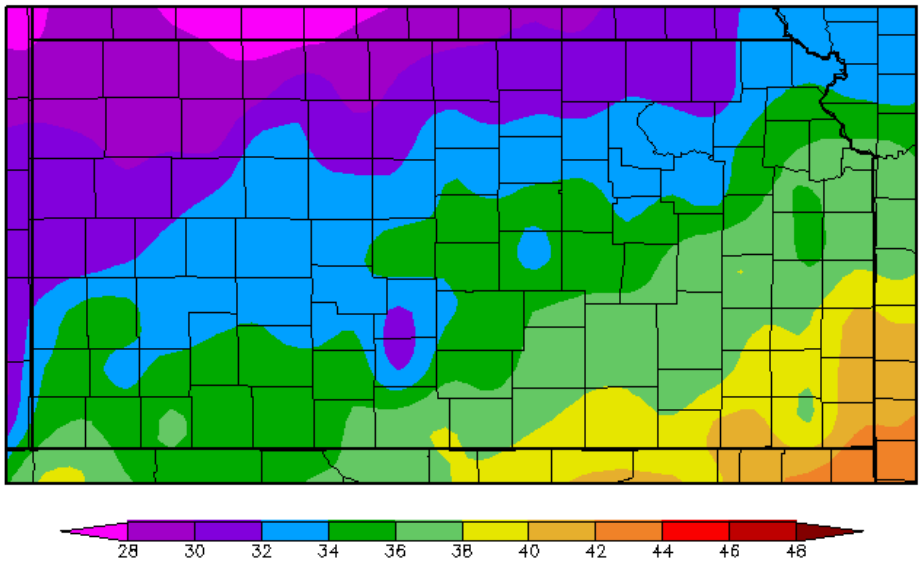
Temperature (F)
12/1/2012 – 12/31/2012



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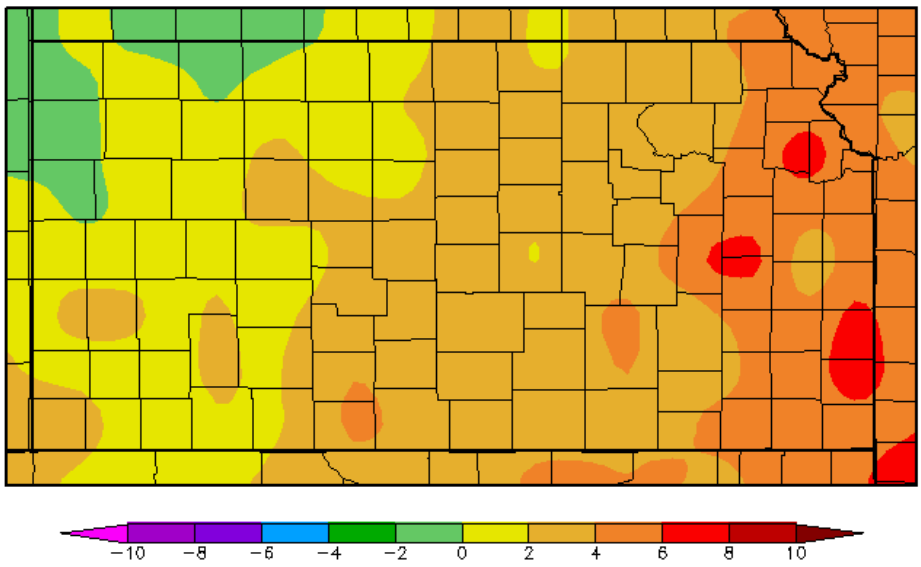
Departure from Normal Temperature (F)
12/1/2012 – 12/31/2012



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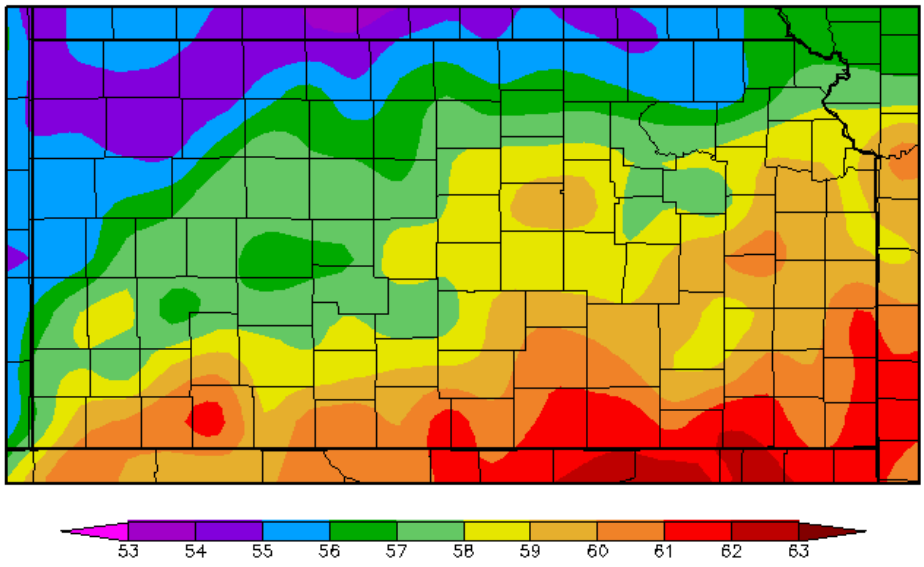
Temperature (F)
1/1/2012 – 12/31/2012



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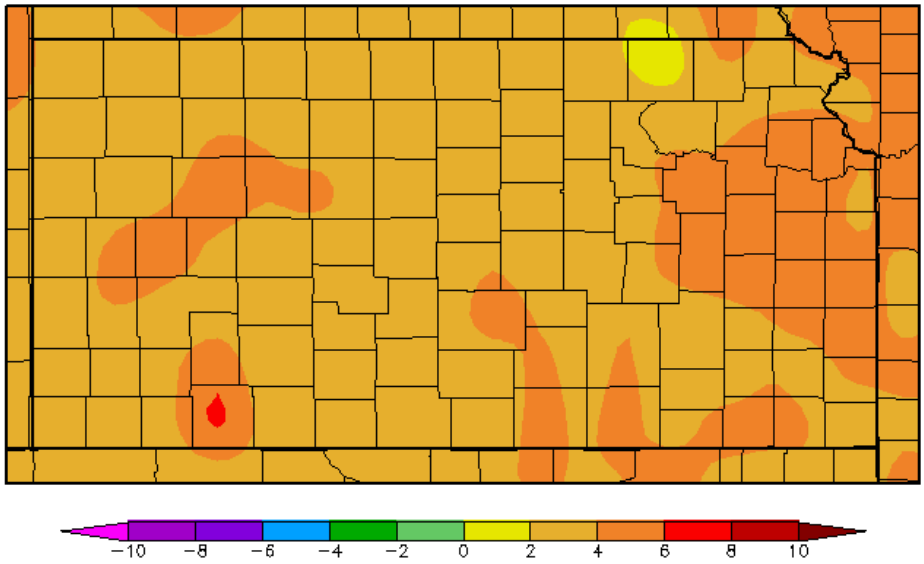
Departure from Normal Temperature (F)
1/1/2012 – 12/31/2012



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4. No Comparative Vegetation Condition Report this week

The Vegetation Condition Report maps, which typically appear in this section of the Agronomy e-Update, could not be posted this week because the data used to create the maps is not posted by EROS Data Center for the most recent 2-week period. The maps should be available again starting with next week's e-Update.

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