Issue 546

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eUpdate

01/29/2016

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, Jim Shroyer, Crop Production Specialist 785-532-0397 jshroyer@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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1. Topdressing wheat with nitrogen: Timing, application methods, source, and rates

Now is a good time to start planning for topdressing nitrogen (N) of the winter wheat crop. With adequate soil moisture in most areas of the state, and some fairly small wheat in many fields due to late planting and dry weather in early fall, there are some key elements that need to be considered when deciding on the exact program you plan to use. These include: timing, N source, application method and N rate.

Ideally, the N in topdress applications will be moved into the root zone with precipitation well before jointing begins in order to be most efficiently utilized by wheat. With some of the small wheat out there this spring, having adequate N available to support spring tillering when it breaks dormancy will be important. Some combination of fall preplant or at-seeding N, and/or early topdressed N, is also normally needed to supply adequate N to support head differentiation. This is the stage when head size is being determined, and can begin about two weeks before jointing. The following will discuss some of the issues to considering when making topdressing decisions.

Timing

The most important factor in getting a good return on topdress N is usually timing. It is critical to get the N on early enough to have the maximum potential impact on yield. While some producers often wait until spring just prior to jointing, this can be too late in some years, especially when little or no N was applied in the fall. For the well-drained medium- to fine-textured soils that dominate our wheat acres, the odds of losing much of the N that is topdress-applied in the winter is low since we typically don't get enough precipitation over the winter to cause significant denitrification or leaching. For these soils, topdressing can begin anytime now, and usually the earlier the better.

For wheat grown on sandier soils, earlier is not necessarily better for N applications. On these soils, there is a greater chance that N applied in the fall or early winter could leach completely out of the root zone if precipitation is unusually heavy during the winter. Waiting until closer to spring green-up to make topdress N applications on sandier soils will help manage this risk.

On poorly drained and/or shallow claypan soils, especially in south central or southeast Kansas, N applied in the fall or early winter would have a significant risk of denitrification N loss. Waiting until closer to spring green-up to make topdress N applications on these soils will help minimize the potential for this N loss.

Also keep in mind that N should not be applied to the soil surface when the ground is deeply frozen and especially when snow covered. This will help prevent runoff losses with snow melt or heavy precipitation.

On both sandy soils subject to leaching and poorly drained soils prone to denitrification, split applications may be a strategy to consider. This would involve applying enough N in the fall at or prior to planting to give good support for fall growth and tillering -- generally 20-30 pounds of N. Then follow this up with an additional shot of about 20-30 pounds of N in late winter or early spring to support spring tillering, possibly applied with herbicides. Finally, come back around jointing or a few days later with a final application to support heading and grain fill.

Application method

Most topdressing is broadcast applied. In high-residue situations, this can result in some immobilization of N, especially where liquid UAN is used. If no herbicides are applied with the N, producers can get some benefit from applying the N in a dribble band on 15- to 18-inch centers. This can minimize immobilization and may provide for a little more consistent crop response.

Figure 1. Streamer bars used for topdressing wheat in a surface band. Photo by Ray Asebedo, K-State Research and Extension.

Source

The typical sources of N used for topdressing wheat are UAN solution and dry urea. Numerous trials by K-State over the years have shown that both are equally effective. In no-till situations, there may be some slight advantage to applying dry urea since some of it will fall to the soil surface and be less affected by immobilization than broadcast liquid UAN, which tends to get hung up on surface residues.

Figure 2. Urea broadcast to tillering wheat in a topdress application. Photo by Romulo Lollato, K-State Research and Extension.

Dribble (surface band) UAN applications would also avoid some of this tie-up on surface crop residues as well. But if producers plan to tank-mix with a herbicide, they'll have to use liquid UAN and broadcast it.

Some of the new controlled-release products such as polyurethane coated urea (ESN) might be considered on very sandy soils prone to leaching, or poorly drained soils prone to denitrification. Generally a 50:50 blend of standard urea and the coated urea -- which will provide some N immediately to support tillering and head development and also continue to release some N in later stages of development. This probably works best in settings with high loss potential.

Rate

Producers should have started the season with a certain N recommendation in hand, ideally based on a profile N soil test done before the crop is planted and before any N has been applied. It is not too late to use the profile N soil test if taken in late winter/very early spring before the wheat greens up. While it won't be as accurate as when sampled in the fall, it can still point out fields or areas in fields with high levels of available nitrate N. Unfortunately it is not reliable in measuring recently applied N. So if a high rate of N has already been applied, a late winter profile sample probably

shouldn't be taken. Remember that topdressing should complement or supplement the N applied in the fall and the residual soil N present in the soil. The total N application, planting and topdressing, should equal the target recommended rate.

If the wheat was grazed this fall and winter, producers should add an additional 30-40 lbs N/acre for every 100 lbs of beef weight gain removed from the field. If conditions are favorable for heavy fall and/or spring grazing, additional N maybe necessary, especially for a grain crop.

One other tool growers should consider to help set the right rate is the use of an active crop sensor, such as the Ag Leader OptRx or Trimble GreenSeeker. These can be very useful tools to help assess the N needs of a growing wheat crop between spring tillering (Feekes 4) and second joint (Feekes 7).

Figure 3. Ag Leader OptRx sensor mounted on boom. Photo by Ray Asebedo, K-State Research and Extension.

Figure 4. Top and bottom view of Trimble GreenSeeker sensor. Photo by Ray Asebedo, K-State Research and Extension.

Figure 5. Using handheld GreenSeeker sensor prior to topdressing wheat. Photo by Dave Mengel, K-State Research and Extension.

In 2015, we conducted a demonstration project at eight locations around Kansas comparing the value of using soil testing or crop sensors to making traditional N recommendations based on yield goal. Where yield goal recommendations were made in the absence of soil test information, the normal recommendation averaged 78 pounds N per acre across the eight sites. Adding the results from fall or winter profile soil tests into the standard K-State N recommendation equation reduced the average N recommendation across these sites by 24 pounds per acre to 54 pounds per acre (the soil test actually increased the N recommendation at one location).

Using a crop sensor-based N management system at Feekes 4, shortly after greenup during tillering, further reduced the N recommendations by an additional 10 pounds per acre to an average of 44 pounds N per acre. Using the sensor twice, shortly after greenup and at second joint, N rates were reduced another 17 pounds per acre to a total of 27 pounds of total spring N.

How did the yields turn out? Only one of the 8 sites showed a clear statistically significant response to N in 2015. The average yield across the sites was 52 bushels per acre, and ranged from 27 to 73 bu/acre.

Sensors can offer a great deal to Kansas wheat growers at relatively low cost. This study was done using the Trimble hand held Greenseeker, which has a retail cost of around $500. For additional information of using crop sensors on wheat, contact Dave Mengel, dmengel@ksu.edu or Ray Asebedo, ara4747@ksu.edu at the K-State Department of Agronomy.

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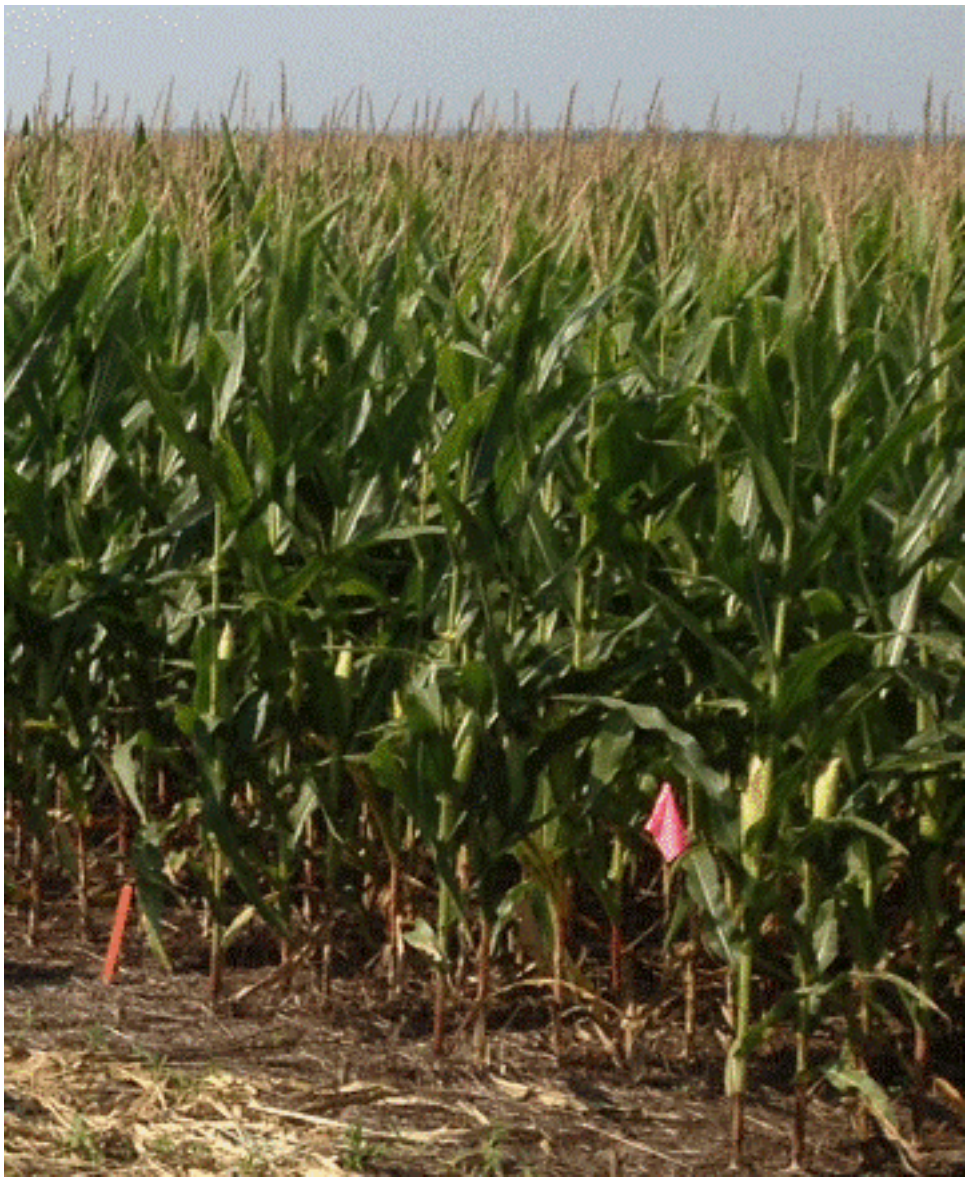
2. New corn herbicides for 2016

Several new herbicides have received a label for corn, and most of them will be on the market in 2016.



Acuron (Syngenta)

Use: Corn – grain or silage

Active ingredients (lbs/gallon): Atrazine 1.0 lb + bicyclopyrone 0.06 lb + mesotrione 0.24 lb + S-metolachlor 2.14 lbs

Use rate: 2.5 qt/acre on soils with less than 3 percent organic matter; 3 qt/acre on soils with 3 percent or higher organic matter. Maximum of 3 qt/year.

Target weeds: Key broadleaf weeds include Palmer amaranth, waterhemp, kochia, marestail, velvetleaf, common cocklebur, and others. Most annual grasses in Kansas except shattercane likely won't be controlled. Will provide improved control of large-seeded broadleaf weeds when compared to Lumax EZ or Lexar EZ.

Timing: Apply from 28 days prior to planting up to emerged corn that is less than 12 inches tall.

Adjuvants: If applied postemergence to weeds, use NIS at 0.25% v/v. COC can be used up to 1% v/v, but this may increase the risk of crop injury. Do not use MSO, AMS, or UAN.

Comments: This has been described as "Lumax on steroids." The active ingredients are the same as Lumax, with the addition of bicyclopyrone, a new HPPD-inhibitor chemical. Acuron cannot and should not be used on grain sorghum; it will cause significant injury to grain sorghum.

Armezon PRO (BASF)

Use: All corn

Active ingredients (lbs/gallon): Dimethenamid-P (Outlook) 5.25 lbs + topramezone (Armezon) 0.1 lb

Use rate: 14 to 24 fl oz/acre, depending on soil texture and organic matter level.

Target weeds: The spectrum of weeds controlled postemergence is identical to Armezon. However, the addition of dimethenamide-P will provide residual that controls pigweeds and annual grasses.

Timing: Apply postemergence to corn up to V8 or 30 inches tall. Use directed application without atrazine when corn is 12 to 30 inches tall.

Adjuvants: When applying postemergence, use MSO, COC, or HSOC at 0.5 to 1% v/v or NIS at 0.25 to 0.5% v/v. Add a nitrogen fertilizer, either UAN at 1.25 to 2.5 v/v or AMS at 8.5 to 17 lb/100 gal.

Comments: Armezon PRO can be tankmixed with other corn herbicides. It is synergistic with atrazine. In K-State tests, there has been some crop injury with oil type adjuvants and atrazine.

DiFlexx (Bayer CropScience)

Use: All corn and fallow

Active ingredients (lbs ae/gallon): Diglycolamine salt of dicamba 4 lbs + Bayer CropScience cyprosulfaminde (CSA) safener for corn only. Same form of dicamba salt as in Clarity.

Target weeds: Weed spectrum will be the same as other dicamba products. Tank mixing with other corn products will provide control of kochia, palmer amaranth, waterhemp, marestail, ragweeds, and others.

Use rate and timing: As a preemergence, 8 to 16 fl oz/acre, from 14 days prior to planting up to planting time. As a postemergence, 8 to 16 fl oz/acre at spike through 6-collar stage. Maximum amount used is 24 fl oz per season.

Adjuvants: Adjuvants may be used – NIS at 0.25% v/v, COC or MSO at 1% v/v, and UAN at 2 to 4 qt/acre or AMS at 8.5 to 17 lb/100 gallons.

Comments: DiFlexx has a different safener than Status, and does not contain diflufenzopyr, which is in Distinct and Status. The safener in DiFlexx has soil and foliar activity.

DiFlexx Duo (Bayer CropScience)
Not registered as of February 1, 2016 but registration expected prior to corn planting.

Use: Corn

Active ingredients: DiFlexx and tembrotrione (active ingredient in Laudis)

Target weeds: The combination of these two active ingredients will provide excellent control of most annual broadleaf weeds, including kochia, pigweeds, velvetleaf, morningglory, sunflower, and others.

Comments: Will help manage glyphosate-resistant broadleaf weeds.

Enlist Duo (Dow AgroSciences)

Use: Enlist corn

Active ingredients (lbs /gallon): 1.7 lbs glyphosate acid and 1.6 lbs 2.4-D acid as a choline salt.

Target weeds: Glyphosate component will control many weed species that are susceptible to glyphosate, and the 2,4-D component will help manage several glyphosate-resistant broadleaf weeds, including pigweeds, marestail, morningglory, velvetleaf, and others. This product will be very weak on glyphosate-resistant kochia.

Use rate and timing: Use 3.5 to 4.75 pts/acre to corn no larger than V8 or 30 inches tall. Make 1 to 2 postemergence applications with a minimum of 12 days between applications. Enlist Duo may be used preemergence or postemergence. However, the total application cannot exceed 14.25 pts of Enlist Duo/acre per season.

Adjuvants: Adjuvants may be used – NIS at 0.25% v/v, COC or MSO at 1% v/v, and UAN at 2 to 4 qt/acre or AMS at 8.5 to 17 lb/100 gallons.

Comments: Enlist Duo received a full federal label in November 2014. We are waiting now for foreign export approvals (most importantly from China) of corn produced from Enlist hybrids. Enlist Duo cannot be aerially applied. This product contains Colex-D technology, which is a choline salt of 2,4-D

that will reduce potential off-target movement when used according to the label. The gene in Enlist corn confers resistance to the "Fop" grass herbicides – fluazifop (Fusilade) or quizalofop (Assure II). Grass herbicides that will control volunteer Enlist corn include clethodim (Select Max and generics) and sethoxydim (Poast and generics). NOTE: There has been a Dow AgroSciences update as of January 27, 2016 regarding a court case involving a recent EPS motion concerning the registration of Enlist Duo. **The court denied EPA's motion to vacate the Enlist Duo registration. As a result of the decision, the current U.S. registration for Enlist Duo remains fully intact for all labeled uses**

Resicore (Dow AgroSciences)

Use: All corn

Active ingredients (lbs/gallon): 2.8 lbs ai acetochlor, 0.3 lb ai mesotrione, and 0.19 lb ae clopyralid.

Target weeds: When used PRE and applied with atrazine will have excellent activity on pigweeds and most broadleaf weeds, and good control of annual grasses except shattercane. When used POST with atrazine will provide control of most broadleaf weeds; however, will not provide adequate control of most annual grasses.

Use rate: 2.25 to 2.75 qts/acre on soils with less than 3% organic matter (OM) and 2.5 to 3 qts on soils with 3% OM or greater. Maximum use rate per season is 3.25 qt/acre.

Timing: Used PRE from 28 days before through post planting and POST (prior to 11 inches tall field corn only).

Adjuvants: N/A.

Comments: DO NOT APPLY POST to sweetcorn or popcorn. Applying with atrazine will enhance broadleaf weed control. Postemergence activity on emerged grass is not adequate. To get grass control when used POST, it should be tankmixed with an herbicide having grass activity.

Revulin Q (DuPont)

Use: All corn

Active ingredients: 14.4% nicsulfuron and 36.8% mesotrione

Target weeds: Has activity on grass and broadleaf weeds. Best control will be attained if tankmixed with glyphosate (which enhances grass control) and/or atrazine (synergizes mesotrione, enhancing broadleaf weed control).

Use rate: 3.4 4o 4.0 oz/acre; not to exceed 2.0 oz/acre/season for grass and broadleaf weed control.

Timing: Apply to corn up to 20 inches tall or 6 collars, or with drop nozzles up to 30 inches tall or 8-collar corn, whichever is more restrictive.

Adjuvants: Apply with COC 1 to 2% v/v or HSOC at 0.5% v/v. NIS can be used at 0.25% v/v, however less weed control may be observed. Use an N source, either UAN at 2 qt/acre or AMS at 2 lbs/acre.

Comments: Do not apply with methylated seed soil (MSO). Rotational restrictions – wheat 4 months; alfalfa, canola, cotton, sorghum, soybeans, and sunflower 10 months.

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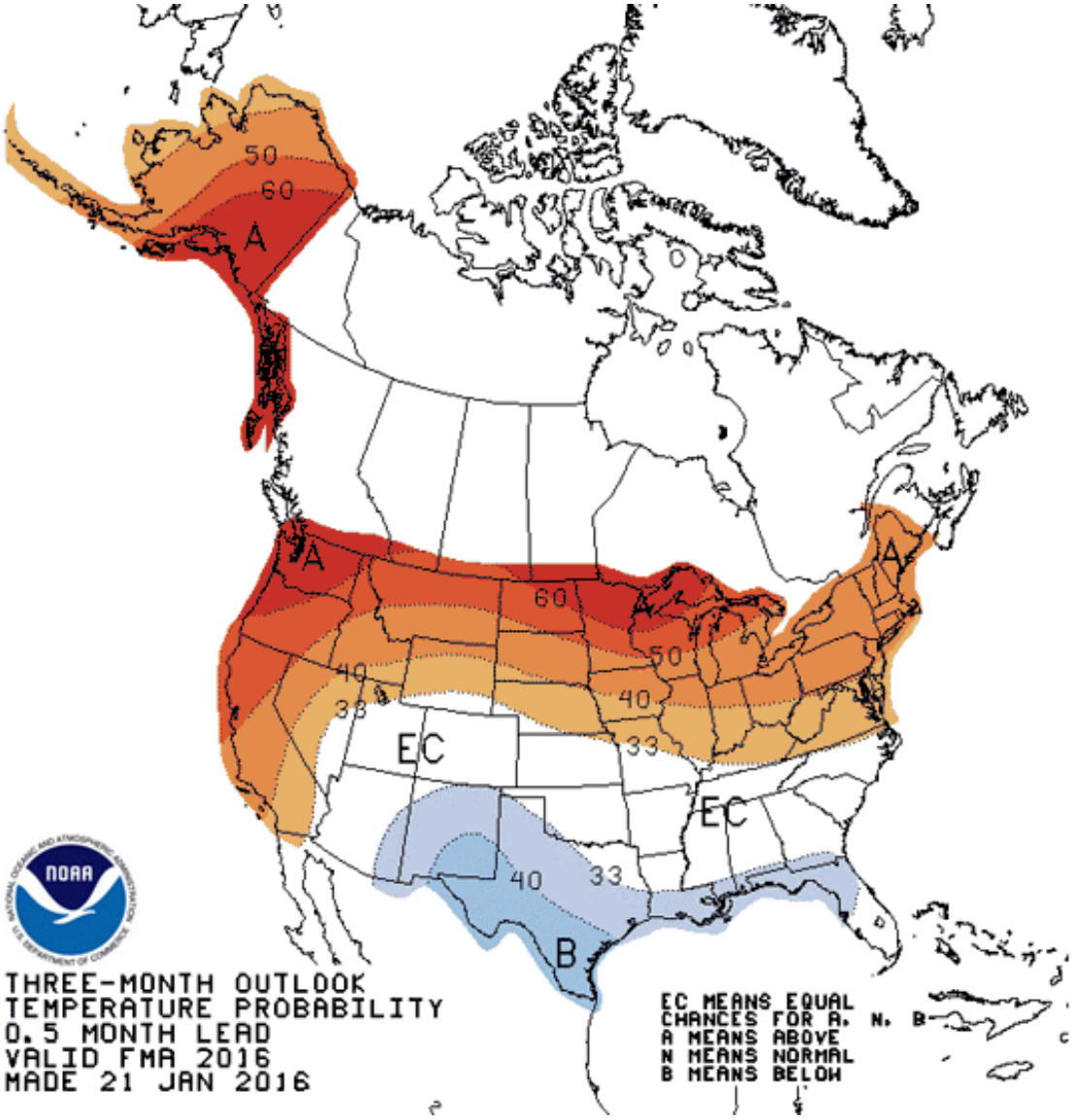
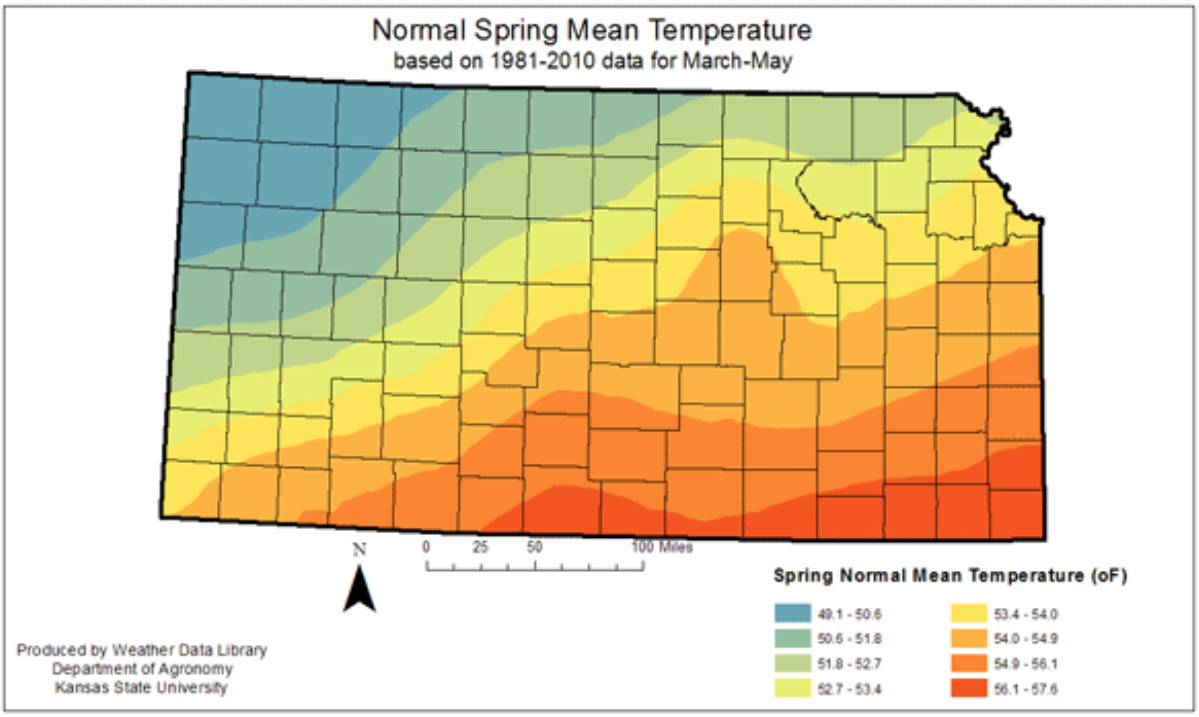
3. Spring weather outlook

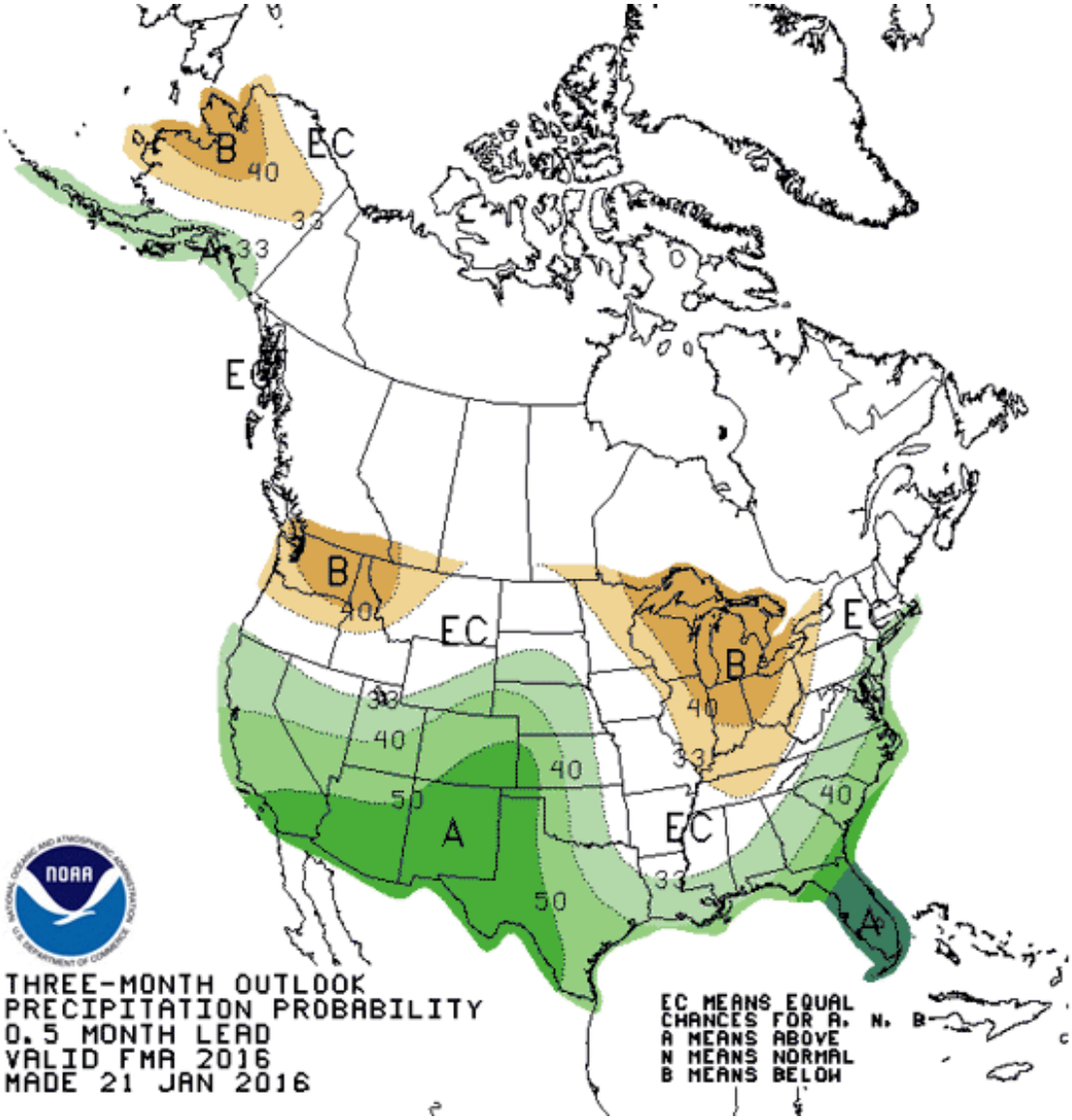
Mild spring-like weather has taken hold of Kansas to end January. However, the weather forecast for the first several days of February calls for winter to return with a vengeance. Temperatures are expected to drop back into the teens. The National Oceanic and Atmospheric Administration's Climate Prediction Center 3-month outlook for February-April is calling for equal chances of above- or below-normal temperatures. This is a good indication that the roller-coaster pattern of warm/cold periods is likely to continue.

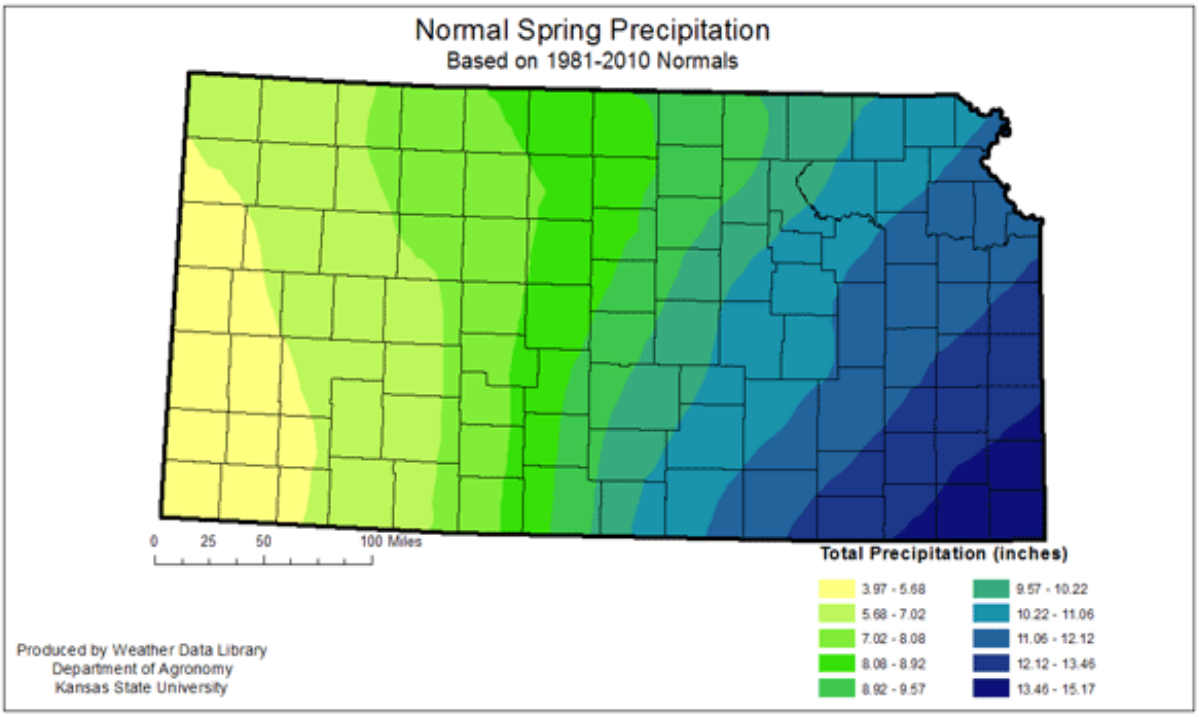
The outlook for February (the first part of the season) calls for equal chances on the temperatures. This means that it is equally likely for temperatures to be above or below average.





The precipitation pattern for February is clearer, with an increased chance of above-normal precipitation. It is important to note that the outlook doesn't indicate by how much the condition might be wetter. Also, it is interesting to note that those increased chances for wetter conditions are strongest in the western divisions. These areas missed out on most of the January precipitation, and will need increasing precipitation to remain out of drought.


THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID FMA 2016
MADE 21 JAN 2016
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW



As the outlook is extended to the full spring season, the temperature outlook continues in the neutral pattern. However, the tilt towards wetter-than-normal conditions is stronger. The pattern also continues to be strongest in the western divisions.

The El Niño continues to be strong, numbering among the strongest on record. An El Niño generally favors wetter-than-normal conditions in the Central Plains. However, this El Niño is expected to fade as we move toward summer. Additionally, the correlation of an El Niño to a given weather pattern is not as reliable during the late spring as during the winter.

Mary Knapp, Weather Data Library
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4. K-State Sorghum Schools scheduled for early February

A series of four K-State Sorghum Production Schools is set for early-February 2016 to provide in-depth training for sorghum producers. The schools will be sponsored by Kansas Grain Sorghum Commission.

The one-day schools will cover issues facing sorghum producers: weed control strategies, crop production practices, soil fertility and nutrient management, insect control, irrigation, limited irrigation and iron chlorosis (western Kansas), sugarcane aphid, and risk management.

The schools will begin at 9 a.m. and adjourn at 3 p.m., including a farmer panel at the end of the School. The dates and locations are:

Feb. 2: **Scott City:** Wm. Carpenter 4-H Building, 608 N Fairground Rd
- John Beckman, Scott County Extension Agent, jbeckman@ksu.edu, 620-872-2930

Feb. 3: **Phillipsburg:** Phillips County Fair Building, 1481 US-183
- Cody Miller, Phillips-Rooks District Extension Agent, codym@ksu.edu, 785-543-6845

Feb. 4: **Ellsworth:** American Legion Post 174, 645 W 15th St
- Michelle Buchanan, Midway District Extension Agent, mbuchanan@ksu.edu, 785-472-4442

Feb. 5: **Emporia:** Bowyer Community Building, 2650 W US Hwy 50
- Brian Rees, Lyon County Extension Agent, brees@ksu.edu, 620-341-3220

Lunch will be provided, courtesy of the sponsors. There is no cost to attend, but participants are asked to pre-register before Jan. 29.

Online registration at K-State Sorghum Schools: **http://bit.ly/KSSORGHUMSchools**

You can also register by emailing or calling the nearest local Research and Extension office for the location you plan to attend.

For more information, contact:

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5. Canola College 2016 in Enid, February 18

Canola College 2016, "Taking Canola Production to the Next Level," will be held February 18, 2016 at the Chisholm Trail EXPO Center, 111 W. Purdue, in Enid, Oklahoma. This conference is sponsored by K-State, Oklahoma State University, Great Plains Canola Association (GPCA), and partners from the canola industry.

This will be the premier canola education/training event in the region in 2016. Canola College 2016 is for anyone with an interest in the canola industry, including experienced and first time growers, crop insurance agents, members of agricultural governmental agencies, and canola industry service and product providers. Attendees will hear from canola experts on a variety of key topics and will have the opportunity to visit with industry members who provide the goods and services needed to produce, handle, and market the crop.

Canola College 2016 topics will include:

Variety Selection – Mike Stamm, K-State Canola Breeder

Environmental and Cultural Impacts on Variety Selection - Heath Sanders, Canola Field Specialist, GPCA

Advanced Production Practices – Bob Schrock, Grower, Kiowa, Kan. and Jeff Scott, Grower, Pond Creek, Okla.

Managing Canola in Conventional and Conservation Tillage Systems – Jason Warren, OSU Extension Soil Management Specialist and Josh Bushong, OSU Canola Extension Assistant

Canola Production in Oklahoma Cropping Systems- Josh Lofton, OSU Cropping Systems Extension Specialist

Impact of Winter Wheat Stubble on Canola Establishment – Angela Post, OSU Extension Weed Specialist

In Season Nutrient Management for Canola Production – Brian Arnall, OSU Extension Soil Fertility Specialist

In Season Risk Management for Canola Production – Josh Lofton, OSU Cropping Systems Extension Specialist and Katie McCauley, OSU PaSS M.S. Candidate

Disease Management – John Damicone, OSU Extension Plant Pathologist

Insect Management – Tom Royer, OSU Extension Entomologist

New for 2016 will be the Canola Learning Laboratory**.** Attendees will be able to attend a learning laboratory where many of the concepts and theories presented throughout the conference will be on display through hands-on demonstrations. Participants will interact with specialists, get specific questions answered, and learn about the demonstrated concepts. Individual stations will focus on critical topics, such as: nutrient deficiency identification, herbicide uptake, weed/disease/insect identification, plant physiological changes with management practice, and winter survival.

Individuals can register for Canola College 2016 at www.canola.okstate.edu

For more information on Canola College, contact Ron Sholar, Executive Director, GPCA, at Jrsholar@aol.com or Josh Lofton, Extension Cropping Systems Specialist, OSU, at josh.lofton@okstate.edu

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