



Extension Agronomy

eUpdate

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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. Weed control strategies for grain sorghum

Severe grass and broadleaf weed pressure will reduce grain sorghum yields and can make harvest very difficult. Good crop rotation and herbicide selection are essential components of managing weeds in grain sorghum.

The best choice of herbicides in sorghum will depend on the weed species present. Broadleaf weeds are best managed in a sequential weed control program consisting of the combination of pre-emergence and post-emergence applied herbicides. With the development of herbicide-resistant weeds, however, complete weed control is becoming increasingly difficult.

Controlling weeds prior to planting: Burndown and soil-applied residuals

In a wheat-sorghum-fallow rotation, it is essential that broadleaf and grassy weeds do not produce seed during the fallow period ahead of grain sorghum planting. Always control those summer annual weeds after wheat harvest soon enough to prevent seed production. It is equally important that winter annual grasses and broadleaf weeds are not allowed to head/flower in spring, producing seed before the sorghum is planted. Most winter annuals produce seed in April and early May.

If you are anticipating problems with glyphosate-resistant pigweeds, it may be very important to include in the April burndown treatment a soil residual product. This can help minimize pigweed (Palmer amaranth and waterhemp) emergence in late April and May, prior to planting sorghum. A pound of atrazine may provide the needed protection unless the pigweed population is atrazine-resistant. Atrazine + chloracetamide herbicides can be used effectively, however.

The Valor label allows the use of 2 oz product/acre applied 30 days or more prior to sorghum planting. It is essential that at least one inch of precipitation fall during the window between Valor application and sorghum planting. Valor will control glyphosate-resistant and triazine-resistant pigweeds as it has a different mode of action than glyphosate and atrazine.

An effective burndown prior to planting is essential if any weeds have emerged. Sorghum should always be planted into a weed-free seedbed. The addition of a dicamba product or 2,4-D with glyphosate generally will control broadleaf and grass weeds effectively, provided an earlier burndown treatment has been applied in March or April. There is a waiting period of 15 days between application and sorghum planting when using 8 fl oz of Clarity. Current 2,4-D labels do not address a waiting period ahead of planting sorghum; however, for corn or soybeans a 7-day waiting period is required for 1 pint or less of 2,4-D ester when used in the burndown.

Control of pigweeds in sorghum is an increasing concern across the state. Using a soil-applied chloracetamide herbicide with atrazine (such as Bicep II Magnum, Bicep Lite II Magnum, Outlook + atrazine, Degree Xtra, Fultime NXT, or generic equivalents of these products) will greatly enhance pigweed control. Some of the broadleaf escapes producers can expect when using the chloracetamide/atrazine mixtures are devilsclaw, puncturevine, velvetleaf, morningglory, and atrazine-resistant kochia.

The addition of 10 oz of Verdict, which is a mix of 2 oz of Sharpen and 8.3 oz of Outlook, with a chloracetamide/atrazine herbicide can help control triazine-resistant pigweeds and kochia, and control large-seeded broadleaf weeds such as velvetleaf, morningglory, sunflower, and others. The

chloracetamide/ atrazine herbicides will do a very good job of controlling most annual grassy weeds. Using a product such as Lumax EZ or Lexar EZ, which contains mesotrione (Callisto), pre-emergence will help control triazine-resistant pigweeds and kochia. With the lower price of generic herbicides and generic mesotrione, these treatments are becoming very economical.

A weakness of all soil-applied programs is that precipitation is required for activation. Without activation, poor broadleaf and grass control can be expected. Once precipitation is received, the herbicides are activated and weed control measures are in place. Weed escapes prior to this activation will need to be controlled with early post-emergence applied herbicides.

Grass control options

Grass control in sorghum can be a difficult task. If a field has severe shattercane, johnsongrass, or longspine sandbur pressure, planting grain sorghum is not recommended. For other annual grassy weeds, it will be important to apply one of the chloracetamide herbicides. Grasses that emerge before the soil-applied herbicides are activated will not be controlled with the PRE herbicide. Currently, there are no herbicides labeled for post-emergence grass control in conventional grain sorghum. Although atrazine and Facet L have grass activity and can control tiny grass seedlings, it's generally not a good practice to depend on these herbicides for grass control. Facet L is a liquid formulation of quinclorac (previously Paramount 75 DF) that has activity on certain grasses and has excellent activity on field bindweed.

A new technology for grass management is Inzen sorghum, a non-GMO type of sorghum. Growing Inzen sorghum will allow the use of nicosulfuron ("Zest"- an ALS grass herbicide) applied post-emergence to control labeled small annual grasses. Do not apply Zest to and sorghum hybrids that do not have the Inzen trait or sorghum will be killed or severely injured.

Post-emergence options

Postemergence broadleaf herbicides for sorghum are most effective when applied in a timely manner. Weeds that are 2-4 inches tall will be much easier to control than weeds that are 6-8 inches tall, or larger. Controlling weeds in a timely manner will result in less weed competition with the crop compared to waiting too long to control the weeds. Atrazine combinations with Huskie, Banvel, 2,4-D, Buctril, or Aim (or generic versions of these herbicides) generally can provide excellent broad-spectrum weed control unless weeds are resistant.

Huskie should be applied at 12.8 to 16 fl oz/acre with 0.25 to 1.0 lb of atrazine, NIS 0.25% v/v or 0.5% v/v HSOC (high surfactant oil concentrate), and spray grade ammonium sulfate at the rate of 1 lb/acre to sorghum from 3-leaf to 12 inches tall. Huskie alone, without atrazine, can now be applied to sorghum up to 30 inches tall prior to flag leaf emergence, however it will be less effective if weeds are large. Huskie is effective on kochia, pigweeds, and many other broadleaf weed species. Huskie is most effective on small weeds. The larger pigweed and kochia, the more difficult they are to control. Temporary injury to sorghum is often observed with Huskie.

The presence of certain weed species will affect which post-emergence herbicide programs will be most effective. See the grain sorghum section in the K-State [2019 Chemical Weed Control Guide](#) to help make the selection.

The crop stage at the time of post-emergence herbicide applications can be critical to minimize crop

injury. Delayed applications to large sorghum increase the risk of injury to the reproductive phase of grain sorghum, thus increasing crop injury and yield loss from the herbicide application. Timely applications not only benefit weed control, but can increase crop safety. Always read and follow label guidelines.

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2. Considerations for split fungicide treatments on wheat

Fungicides are an effective way to reduce the risk of yield loss caused by leaf diseases on wheat in Kansas. Research continues to demonstrate that it is often possible to achieve high levels of disease control with a single fungicide applied between flag leaf emergence and heading growth stages. The yield response to this fungicide application is influenced by the level of disease risk (amount of disease and predicted weather conditions), variety resistance to the most threatening fungal diseases, yield potential of the crop, foliar fungicide efficacy, and other factors.

Fungicides can also be applied in a split application, with an early application made between “spring green-up” and jointing, followed by a later application at flag leaf to early heading stage. That approach adds a little extra expense, and may or may not pay off compared to the single application approach, as the majority of the yield response is normally associated with the flag leaf application. It is also important to remember that fungicides will only protect the leaves present at time of application; thus, an application during jointing does not substitute for a flag leaf application, as any leaf that emerged after the application will not be protected.

When making split applications, the early application often uses a lower rate than the flag leaf/heading applications. While this lower rate helps to keep the product cost down, it also reduces residual life of the fungicide relative to applications made at the full-rate. With the prevalence of low-cost generic fungicides on the market now, some producers are using a full rate of fungicide for the early application. The full-rate of most fungicides provides about two weeks of good protection, followed by a third week of partial protection to the leaves present at the time of application. Using a full rate early, however, could have implications for the second application. Growers will need to select a product and rate that stays within the labeled limits on the amount of each active ingredient used in a single season. You don’t want an early fungicide application to remove the ability to apply your preferred product at flag leaf.

Advantages and limitations of split applications

Some advantages to making an early application include:

- **Low cost.** There is no additional cost for application if the fungicide is tank mixed with other products, such as liquid nitrogen fertilizer or herbicide. Often, however, the optimal timing for an early fungicide application is not until after the wheat has jointed – with one or two joints present. This is usually sometime in mid- to late-March in southern Kansas and a little later in northern Kansas. Top-dressed nitrogen and many post-emergence herbicides should be applied before this stage to be most effective, so the optimal timing of both applications may not match. A separate trip for an early fungicide application adds to the cost.

Since the payoff for an early application is less certain than with later applications, it is perhaps best to consider using a low-cost generic fungicide for the early application and saving more expensive products, if desired, for the later application.

- **Provides suppression of early-season disease** caused by tan spot, powdery mildew, and

septoria leaf blotch (Figures 1 & 2) that overwinter locally in Kansas. The benefits of fungicides applied at green-up is more sporadic for diseases like leaf rust and stripe rust (Figure 3), which are less likely to survive the winter in Kansas. The rust diseases typically blow into the state from Texas and Oklahoma during the spring, and often become established as the crop transitions from jointing to flag leaf emergence. If a field has hot spots of stripe rust at jointing or earlier, a fungicide application made at jointing could help suppress the developing epidemic. However, a second application will be needed to protect the flag leaves during the early stages of grain development.

The limitations of early-season fungicide application include:

- Leaves not present at the time of application will not be protected. Therefore, these applications will not control leaf rust or stripe rust epidemics that come in from the south at later stages of growth. The early applications are most effective when combined with a second, later application of a fungicide.
- Additional product cost may not pay off under some conditions, especially this growing season when the wheat prices are low. Remember, the second application does the heavy lifting in the dual-application approach. If capital resources are limited because of low prices, it may be best to invest your money where you are likely to see the largest yield response.

K-State research

K-State test results of early, low-rate fungicide applications indicate this practice is most likely to be effective in continuous wheat grown in high-residue conditions that favor the local survival of many disease-causing fungi. The value of the early applications is diminished in other rotations, conventional tillage systems, or with varieties that are moderately resistant or resistant to the targeted diseases – usually tan spot or septoria leaf blotch, and powdery mildew. K-State has not tested the practice of making split applications using a full-rate of product at both times.



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Figure 1. Symptoms of tan spot on wheat. Lesions are tan, with yellow margins, and mature lesions often have a darkened spot in the center. Photos by Erick DeWolf, K-State Research and Extension.



Figure 2. Symptoms of septoria leaf blotch. Lesions are tan, elongated, with thin yellow margins. Black speckles in the center are key identifying features. Photos by Romulo Lollato, K-State Research and Extension.



Figure 3. Symptoms of stripe rust on wheat. Notice the blister-like lesions arranged in stripes. Photos by Erick DeWolf, K-State Research and Extension.

Product rates and restrictions

Producers considering the use of split applications must pay close attention to label restrictions. Every active ingredient in a fungicide has a maximum total amount that can be applied during the season.

For example, if an early application of a generic form of tebuconazole is applied at 4 oz/acre, a subsequent application of any fungicide containing tebuconazole alone or in combination with other ingredients (e.g. premix) around heading could put you over the limit for the crop season.

Thus, be sure to read the label to determine the maximum amount of a chemical that can be applied

in a single season and the exact amount of a chemical(s) that is in a fungicide.

For information on the efficacy of different foliar fungicide products, refer to K-State Research and Extension publication: *Foliar Fungicide Efficacy Ratings for Wheat Disease Management 2017*, EP130.

Conclusions

The main conclusions we can draw from recent studies in Kansas and Oklahoma are:

- In K-State studies, the greatest average profit has come from the flag leaf application of fungicides. Fungicides applied prior to jointing are less likely to result in a positive profit.
- The likelihood of profit for an early-season fungicide application is greatest for susceptible varieties in continuous wheat systems with a high level of surface wheat residue.
- Fields with hot-spots of tan spot, septoria leaf blotch, and stripe rust prior to flag leaf emergence are candidates for an early fungicide application, provided environmental conditions are conducive for further disease development and yield potential of the crop. These applications are often most effective when made around the jointing stages of growth.

For information on disease susceptibility of wheat varieties, see K-State Research and Extension publication [Wheat Variety Disease and Insect Ratings 2018](#), MF991.

For information on assessing the need for wheat foliar fungicide, refer to K-State Research and Extension publication [Evaluating the Need for Wheat Foliar Fungicides](#), MF3057.

Another publication providing good information, from which a few excerpts were used in this article, is Oklahoma State University's [Split Versus Single Applications of Fungicides to Control Foliar Wheat Diseases](#), PSS-2138.

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3. What are the causes of yellow wheat?

There may be large areas, small patches, or streaks of yellowish wheat in some fields this spring. What are some of the main causes of yellow wheat in the spring?

Nitrogen deficiency. Nitrogen deficiency causes an overall yellowing of the plant, with the lower leaves yellowing and dying from the leaf tips inward (Figure 1). Nitrogen deficiency also results in reduced tillering, top growth, and root growth. The primary causes of nitrogen deficiency are insufficient fertilizer rates, application problems, applying the nitrogen too late, leaching from heavy rains, denitrification from saturated soils, and the presence of heavy amounts of crop residue, which immobilize nitrogen. This year, the excessive fall and winter soil moisture might have increased leaching in sandier soils and denitrification under water-logged soil conditions.



Figure 1. Nitrogen deficiency on wheat. The lower leaves are the first to become chlorotic (yellow). Photo by Dorivar Ruiz Diaz, K-State Research and Extension.

Sulfur deficiency. There has been an increasing number of fields with sulfur deficiency symptoms in recent years. Deficiency can be more common in areas where organic matter levels are low --

especially on sandier soils or eroded areas of a field. It can also occur where soils are cold in the spring due to a reduced rate of release of sulfur from organic matter. The symptoms of sulfur deficiency are very similar to nitrogen deficiency. However, sulfur deficiency differs from nitrogen deficiency in that the whole plant is pale, with a greater degree of chlorosis (yellowing of plant tissue) in the young leaves (Figure 2). The pattern of chlorosis may show gradation in intensity with the younger leaves at the tip yellowing first because sulfur is not easily translocated within the plant. But the entire plant can quickly become totally chlorotic and take on a light yellow color. Symptoms often become more pronounced when plants begin growing rapidly while soil conditions are such that organic matter mineralization and sulfur release rates are low. Symptoms may disappear as the temperature warms up and moisture conditions improve, which increases the rate of mineralization of sulfur from organic matter and the rate of root growth.



Figure 2. Sulfur deficiency in wheat, with symptoms appearing first on the younger leaves. Photo by Romulo Lollato, K-State Research and Extension.

Poor root growth. This may be due to dry soils, later sowing, waterlogging, or elevated crown height caused by shallow planting depth or excessive residue in the root zone (Figure 3). If the plants have a poor root system, then the plants are yellow because the root systems are not extensive enough to provide enough nutrients. This situation is characteristic of a large wheat area around Kansas this growing season, mostly led by a combination of late-sown fields (delayed due to early October rainfalls), cold fall and winter restricting crop growth, and waterlogging.



Figure 3. Left panel shows the lack of development of the crown rooting system of a wheat field due to drought conditions in the topsoil. Photo taken mid-March 2018 by Romulo Lollato, K-State Research and Extension. Right panel shows a slightly more developed but also extremely shallow rooting system, likely due to a restrictive dry topsoil layer. Photo taken by Tyler Ediger, wheat producer in Meade County, KS.

Cold weather injury at the tillering stage. A sudden drop in temperatures after the wheat has greened up but before it reaches the jointing stage will burn back the top-growth, often giving the field a yellowish cast but not reducing yield potential (Figure 4). The cold temperatures experienced April 11, 2019, might cause these symptoms in the next few weeks. This injury is likely cosmetic, provided the growing point is still healthy. Variety release from winter dormancy can also affect the extent of the symptoms, as early varieties would have been less cold hardy and thus likely sustain more injury.



Figure 4. Yellowing wheat from cold weather injury at the tillering stage. Wheat variety on the

left (WB-Grainfield) has a later release from winter dormancy as compared to WB-Cedar (variety depicted in the right). Thus, WB-Cedar sustained more leaf injury. Photo by Romulo Lollato, K-State Research and Extension.

Freeze injury at the jointing stage. Jointing wheat can usually tolerate temperatures in the mid-to-upper 20's with no significant injury. But, if temperatures fall into the low 20's or below for several hours, the lower stems, leaves, or developing head can sustain injury (Figure 5). Temperatures dropped suddenly on April 11; thus, producers whose fields are already jointed should scout their fields to assess the yield potential. If the leaves of tillers are yellowish when they emerge from the whorl, this indicates those tillers have been damaged.



Figure 5. Comparison between a healthy developing wheat head (left hand side, typically light green and firm) versus a developing wheat head that sustained freeze injury (right hand side, whitish/brown and mushy). Photo by Romulo Lollato, K-State Research and Extension.

While the extent of potential freeze damage depends on minimum temperatures achieved, duration of cold temperatures, and stage of wheat development; other factors such as crop residue, position on the landscape, wind speed, snow cover, and soil temperatures also play a role. Figure 6 shows an example of the effect of heavy residue on potential wheat damage. In this photo, parts of the field with a heavier layer of residue show greater cold damage than lighter residue. This can be partially explained because under a thicker layer of residue, the wheat crown tends to form closer to the surface and therefore is more exposed to freezing temperatures.



Figure 6. Effect of soil residue on wheat freeze damage. Wheat is showing more damage from freezing temperatures in thicker residue layers. Photo by Tyler Ediger, wheat producer in Meade County, KS.

Iron chlorosis. Iron chlorosis is not common in wheat in Kansas, but does occur on certain high-pH, calcareous soils in western Kansas. Newly emerging leaves will have green veins, with yellow striping between the veins. Eventually, the entire leaf may turn yellow or white.

Soilborne mosaic or spindle streak mosaic. Soilborne mosaic and spindle streak mosaic are viral diseases that occur primarily in eastern and central Kansas, but are rare in western Kansas. These diseases are most common in years with a wet fall, followed by a cool, wet spring. The disease is often most severe in low areas of a field where soil conditions favor infection. Symptoms are usually most pronounced in early spring, then fade as temperatures warm. Leaves will have a mosaic of green spots on yellowish background. Infected plants are often stunted in growth.

Wheat streak mosaic complex. This viral disease is vectored by the wheat curl mite. Yellow areas in field will appear in spring around that jointing stages of growth; usually on field edges adjacent to volunteer wheat. Leaves will have a mosaic of yellow streaks, stripes, or mottling. Plants infected with wheat streak mosaic are often smaller than healthy plants.

Barley yellow dwarf. This viral disease is vectored by bird cherry oat aphids and greenbugs. Small or large patches of yellow plants will occur, typically around boot stage. Leaf tip turns yellow or purple, but midrib remains green. The yellowing caused by barley yellow dwarf are less botchy than the yellowing caused by other viral diseases. Plants infected by barley yellow dwarf are often stunted.

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4. Alfalfa weevil activity in Kansas - Early April 2019

Very small alfalfa weevil larvae were first detected on April 5, 2019 in north central Kansas. Every field sampled had at least one newly hatched larva. There were not enough to sample for a treatment threshold as they are just hatching. The first indication of these small larvae are very tiny pinholes in the leaves, or a little chewing on plant terminals (Figure 1). These tiny larvae are quite difficult to dislodge from their feeding sites when they are this small. Thus, sampling at this early stage to determine an infestation level is not practical using the bucket-shake method or a sweep net.





Figure 1. Examples of alfalfa weevil larvae feeding. Photos by Extension Entomology, K-State Research and Extension.

As a reminder, producers can visit the Kansas Mesonet website and utilize the Growing Degree Day predictive system for alfalfa weevils at: <http://mesonet.k-state.edu/agriculture/degreedays/>. Users can select the nearest station to their field, input the date range as January 1 to current date, select "Alfalfa Weevil" in the calculation window, and then select "Submit". This will generate a table that lists the actual growing degrees, the normal, and the departure from normal (Figure 2). For more information on the life cycle of alfalfa weevils and the influence of growing degree days, please see the KSRE publication "Alfalfa Weevils: Kansas Crop Pests" at <https://www.bookstore.ksre.ksu.edu/pubs/mf2999.pdf>

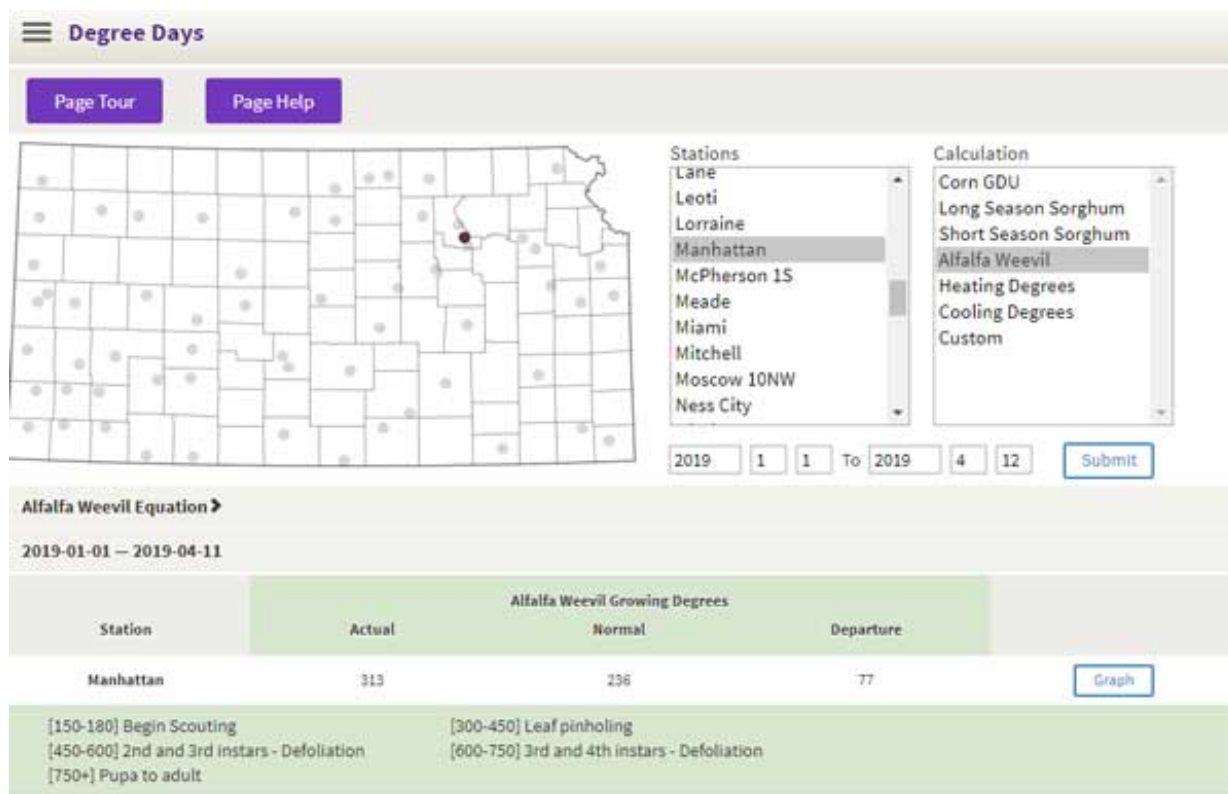


Figure 2. Screenshot of the Growing Degree Day predictive tool for alfalfa weevils on the Kansas Mesonet.

Treatment thresholds generally are when infestation levels reach between 33-50%, or when there is one larva per 2 or 3 stems. This can occur very quickly, so monitoring should be conducted every 2-4 days. If the treatment threshold is reached, and the determination is made to treat with an insecticide labeled for alfalfa weevil control, please remember to use sufficient carrier to get good coverage throughout the entire canopy. For more information, please refer to the Alfalfa Insect Management Guide: <https://www.bookstore.ksre.ksu.edu/pubs/mf809.pdf>

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5. First hollow stem update: April 9, 2019

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 36 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.



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 April 9 of 36 wheat varieties sown mid-September

2018 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). Varieties that already passed first hollow stem are highlighted.

Variety	12-Mar	18-Mar	25-Mar	27-Mar	1-Apr	3-Apr	9-Apr
	----- cm -----						
AM Eastwood	0.41	0.63	1.62	3.30	--	--	--
Bentley	0.24	0.25	0.49	0.97	2.22	--	--
Bob Dole	0.21	0.39	0.80	1.35	2.45	--	--
Byrd	0.23	0.39	0.90	1.57	--	--	--
Doublestop CL Plus	0.20	0.28	0.54	1.00	1.56	--	--
EXP	0.33	0.39	1.07	1.44	2.72	--	--
EXP 40-1	0.21	0.21	0.67	1.14	1.74	--	--
Gallagher	0.21	0.44	1.13	1.87	--	--	--
Green Hammer	0.19	0.35	0.59	1.56	--	--	--
Iba	0.14	0.29	0.55	1.39	2.77	--	--
Joe	0.19	0.35	0.98	0.56	0.87	1.30	6.20
Langin	0.23	0.29	0.56	1.80	--	--	--
Larry	0.18	0.37	0.55	0.90	2.02	--	--
Lonerider	0.22	0.36	0.76	1.03	1.46	3.34	--
NE10478-1	0.23	0.36	0.61	1.10	2.51	--	--
Paradise	0.32	0.53	0.99	1.16	2.61	--	--
Ruby Lee	0.14	0.44	0.89	2.38	--	--	--
Showdown	0.18	0.39	1.23	0.88	1.82	--	--
Smith's Gold	0.18	0.37	0.99	1.56	--	--	--
Spirit Rider	0.21	0.51	1.83	3.28	--	--	--
Stardust	0.41	0.49	1.00	1.91	--	--	--
SY Achieve CL2	0.28	0.63	1.55	3.80	--	--	--
SY Benefit	0.28	0.54	2.12	3.16	--	--	--
SY Grit	0.14	0.54	1.11	1.65	--	--	--
SY Rugged	0.17	0.28	0.56	0.83	1.40	1.96	--
TAM 204	0.24	0.39	1.02	1.54	--	--	--
Tatanka	0.29	0.48	0.90	1.34	3.93	--	--
WB4269	0.29	0.30	0.73	1.50	--	--	--
WB4303	0.36	0.67	2.70	3.25	--	--	--
WB4515	0.23	0.34	0.67	1.25	2.07	--	--
WB4595	0.23	0.45	0.97	1.90	--	--	--
WB4699	0.21	0.39	0.67	0.74	1.48	2.72	--
WB4792	0.30	0.37	1.17	1.96	--	--	--
WB-Grainfield	0.26	0.46	0.68	0.84	1.70	--	--
Whistler	0.23	0.31	0.52	0.94	2.08	--	--
Zenda	0.22	0.49	1.41	1.47	3.63	--	--

As of April 9, 2019, all varieties evaluated had reached first hollow stem (Table 1). We advise producers to remove cattle from the pastures by this time to avoid potential yield losses.

The intention of this report is to provide producers 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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6. 2017 Census of Agriculture results released April 11

With information provided by farmers and ranchers across Kansas and the rest of the United States, the United States Department of Agriculture has compiled the results of the 2017 Census of Agriculture. County, state, and national results were made public on Thursday, April 11.

In addition to state and county data publications, online resources are available such as a Census Data Query Tool, Agricultural Atlas, and Ag Census Highlights. Additional resources, scheduled to become available in September 2019, include Ag Census web maps and zip code tabulations.

Find results and supplemental resources for the 2017 Census of Ag at: www.nass.usda.gov/AgCensus

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2017 CENSUS OF AGRICULTURE

RESULTS NOW AVAILABLE



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United States Department of Agriculture
National Agricultural Statistics Service

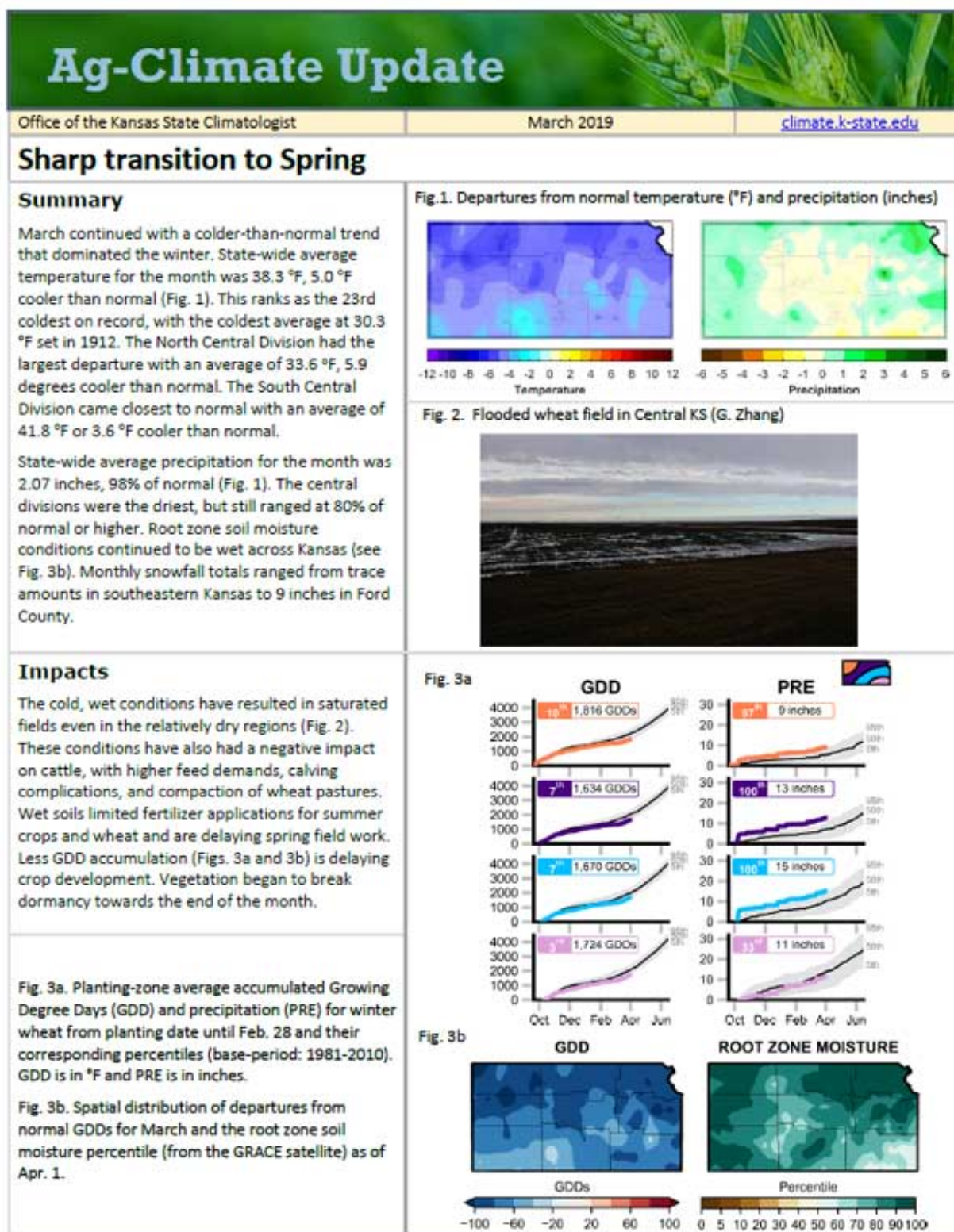
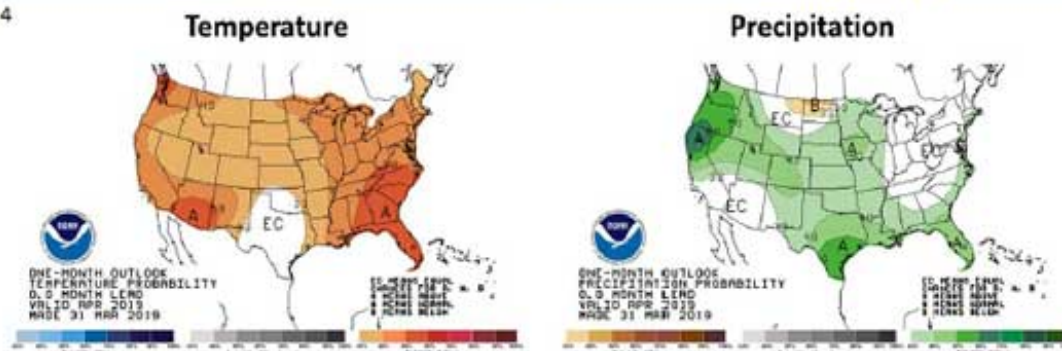


Fig. 4



CPC 1-month Outlook: Temperature

The Climate Prediction Center (CPC) outlook for April favors a warmer-than-normal pattern across most of the state (Fig. 4). This warmer pattern stretches northward to the Canadian border. For Kansas, normal average temperatures range from 49.7 °F at Colby in the northwest to 57.0 °F at Columbus in the southeast. It is important to remember that this represents the average for April. Wide variations in temperatures are likely to continue, with significant cold temperatures still possible.

CPC 1-month Outlook: Precipitation

Currently, things are settling down. The weak-to-moderate El Niño is expected to increase precipitation throughout most of the US. The outlook for precipitation in April favors greater-than-normal precipitation across the Central Plains and westward (Fig. 4). Wetter-than-normal conditions are also expected in the Desert Southwest and Southern Plains, increasing confidence in the forecast. Atmospheric systems from the southwest tend to bring greater amounts of moisture than those that originate in the north. As we move into spring, the normal expected precipitation amount increases, with a sharp gradient increasing from the northwest to the southeast. Normal precipitation in Colby for April is 2.03 inches. For Columbus, the normal is 4.47 inches.

Highlights

When we examine March, we see a very slow start to spring. Vegetation has been slow to emerge from dormancy, but warm weather at the end of the month has been beneficial for the fall-planted crops such as wheat and canola.

The significant severe weather event for March was the "bomb cyclone" on March 13th. Winds increased dramatically late morning across western Kansas as the storm system strengthened in eastern Colorado. As the low shifted eastward into Kansas, the wind field expanded across the state. Strong winds continued through the duration of Wednesday and even strengthened into Thursday morning. Damage was reported to buildings, trees down across the state, and trucks were flipped as a result.

The only severe weather reports for the month of March were damaging winds associated with the March 13th storm. Minor to moderate flooding was also seen, though not to the degree that affected Nebraska, Iowa, and northwest Missouri.

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March Extremes

Kansas Mesonet, operated by the Department of Agronomy at Kansas State University, observed the following extremes this March (<http://mesonet.k-state.edu/weather/historical/>):

Highest air temperature: 85.2°F on Mar. 28 at Richfield

Lowest air temperature: -14.7°F on Mar. 5 at Cheyenne

Highest 4-in soil temperature: 73.5°F on Mar. 14 at St John 1NW

Lowest 4-in soil temperature: 20.6°F on Mar. 6 at Clay

Highest 30-ft wind speed: 66.1 mph on Mar. 14 at Garden City

8. Cover crops morning field day, April 25 in Geary County

Cover Crops and Coffee

April 25 / Geary County, KS

8:00 / Registration starts (coffee and cinnamon rolls served)

8:30 / Welcome, Peter Tomlinson & Chuck Otte

8:45 / Cover crop updates

- Soil health / Laura Starr
- Water quality / Elliott Carver
- Corn and Soybean yields and economics / Nathan Nelson

9:45 / Questions and wrap-up

The **field day location** is at the intersection of Howard Rd and Clarks Creek Rd southeast of Junction City. Use the following link to open directions in Google Maps.

<https://bit.ly/2JYevEZ>



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