Issue 634

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eUpdate

05/19/2017

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, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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1. Late planting of corn: How location and hybrid maturity affect probability of success

While the precipitation received in western and central Kansas recently has been wonderful for filling the soil profile and thus has increased yield potentials, it has created significant delays in planting both irrigated and dryland corn. This late planting situation raises several considerations for producers, particularly hybrid selection with respect to maturity and potential crop insurance implications of late planting from a risk management standpoint.

Corn hybrid maturity

Many growers are familiar with corn hybrid maturity being expressed as days of "relative maturity" or RM. This system, in place for many years, has generally been more effective at comparing hybrid maturities within a company as opposed to across companies. Fortunately, in recent years many seed companies have started providing maturity information expressed as growing degree units (GDU's). Some companies provide both GDU's to silking and GDU's to maturity.

What is a GDU?

Growing degree units or growing degree days are a weather-based scale to measure the progression of crop phenology in thermally driven crops such as corn. GDD or GDU's are calculated as:

GDU = (Daily Maximum Air Temperature + Daily Minimum Air Temperature)/2 – 50

In the case of corn, when the maximum air temperature is greater than 86° F then the maximum air temperature is set to 86°, as the rate of growth for corn does not increase with increasing temperature above 86° F. Similarly, when the minimum air temperature is less than 50° F we use 50° as the value.

In general, it takes 90-120 GDU's for corn to emerge, residue and soil conditions contribute a great deal of variability to this range. A 110-day hybrid typically needs around 1500 GDU's to reach silking and 2670 GDU's to reach black layer or physiological maturity.

A "Growing Degree Day" calculator is now available on the Kansas Mesonet. This calculator will automatically figure the number of GDU's for corn (and other crops) at several locations across Kansas for any time period you'd like during the growing season. See: http://mesonet.k-state.edu/agriculture/degreedays/

Probabilities of corn reaching physiological maturity based on location, planting date, and hybrid maturity

Using historical weather data, the probability of reaching physiological maturity before a 28° F freeze can be calculated. The threshold of 28° F was used as long-term weather records only report the minimum, and not the duration of any given temperature. It takes multiple hours of 32° F to kill corn, but only a few minutes of temperatures at 28° F.

GDU's were totaled for each year from each of multiple planting dates to determine cumulative GDU's. This calculation was performed for 33 locations and 11 planting dates across western and central Kansas. GDU's to physiological maturity for a given relative maturity (in days) were

determined by averaging the GDU's of a given relative maturity across multiple hybrids from multiple companies.

As an example, the probability table for Colby is shown below. This is based on weather records from 1900 through 2016. If we were to plant a 113-day hybrid on May 22nd, we see that the probability of reaching physiological maturity before a 28° freeze is 52.4%. Switching to a 108-day hybrid would improve that probability to 80%.

Historical Probability of Reaching Black Layer Before a 28° F Freeze - Colby, 1900-2016

Hybrid		Planting Date										
Relative Maturity	Black Layer GDU	17-Apr	24-Apr	1-May	8-May	15-May	22-May	29-May	5-Jun	12-Jun	19-Jun	26-Jun
118	2815	88.9%	83.8%	81.9%	78.1%	58.1%	43.8%	28.6%	16.2%	10.5%	1.0%	0.0%
113	2768	91.5%	88.6%	85.7%	81.9%	71.4%	52.4%	33.3%	17.1%	11.4%	1.9%	0.0%
110	2670	95.7%	93.3%	91.4%	85.7%	81.0%	73.3%	50.5%	31.4%	17.1%	10.5%	0.0%
108	2604	97.4%	96.2%	94.3%	91.4%	85.7%	80.0%	68.6%	46.7%	21.0%	13.3%	1.0%
105	2520	98.3%	97.1%	96.2%	95.2%	92.4%	86.7%	80.0%	59.0%	40.0%	18.1%	7.6%
103	2463	100.0%	99.0%	97.1%	95.2%	93.3%	90.5%	82.9%	78.1%	50.5%	21.0%	13.3%
96	2357	100.0%	100.0%	100.0%	98.1%	96.2%	94.3%	90.5%	84.8%	72.4%	44.8%	18.1%
91	2250	100.0%	100.0%	100.0%	100.0%	100.0%	97.1%	96.2%	91.4%	85.7%	61.9%	32.4%
Average GDU		3158	3099	3038	2969	2891	2799	2701	2593	2470	2336	2188
Maximum GDU		3849	3778	3689	3579	3460	3325	3236	3102	2944	2817	2650
Minimum GDU		2492	2421	2358	2302	2254	2144	2054	1984	1841	1706	1593

Local data is important in evaluating these probabilities as relatively short distances can result in large changes in probability of success for a given hybrid x planting date combination due to changes in elevation and rate of in-season accumulation of GDU's. For example, again looking at a 113-day hybrid planted on May 22nd, while the probability of black layer before a 28° freeze at Colby is only 52.4%, it is 91.3% at Hill City, 64 miles to the east, and 88.5% at Hoxie, a mere 33 miles to the east .

Historical Probability of Reaching Black Layer Before a 28° F Freeze - Hoxie, 1939-2016

Hybrid		Planting Date										
Relative Maturity	Black Layer GDU	17-Apr	24-Apr	1-May	8-May	15-May	22-May	29-May	5-Jun	12-Jun	19-Jun	26-Jun
118	2815	97.4%	96.2%	96.2%	93.6%	92.3%	84.6%	67.9%	39.7%	17.9%	5.1%	0.0%
113	2768	98.7%	97.4%	96.2%	96.2%	93.6%	88.5%	75.6%	52.6%	24.4%	7.7%	0.0%
110	2670	98.7%	98.7%	98.7%	97.4%	94.9%	93.6%	87.2%	73.1%	46.2%	16.7%	5.1%
108	2604	98.7%	98.7%	98.7%	98.7%	97.4%	93.6%	92.3%	82.1%	59.0%	26.9%	7.7%
105	2520	98.7%	98.7%	98.7%	98.7%	98.7%	96.2%	94.9%	89.7%	74.4%	43.6%	16.7%
103	2463	100.0%	100.0%	100.0%	100.0%	98.7%	98.7%	96.2%	91.0%	82.1%	59.0%	23.1%
96	2357	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.7%	96.2%	89.7%	79.5%	44.9%
91	2250	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	96.2%	89.7%	69.2%
Average GDU		3403	3336	3267	3188	3099	2999	2891	2772	2640	2495	2339
Maximum GDU		3993	3941	3830	3701	3611	3480	3368	3222	3060	2918	2745
Minimum GDU		2520	2520	2488	2469	2423	2367	2330	2256	2166	2023	1881

Probability charts for additional locations can be found at www.northwest.ksu.edu/agronomy

Click on the link titled NEW - Hybrid Maturity x Planting Date x Location Probabilities Based on Historical Weather Data near the top of the page.

Locations included in the analysis with tables that can be found at the link above include: Alton, Atwood, Belleville, Beloit, Bison, Brewster, Burr Oak, Cimarron, Colby, Concordia, Ellsworth, Garden City, Goodland, Hays, Hill City, Hoxie, Lakin, Leoti, Lincoln, Ness City, Norton, Oberlin, Phillipsburg, Plainville, Quinter, Russell Springs, Scott City, Sharon Springs, Smith Center, St. Francis, Syracuse, Tribune, and WaKeeney.

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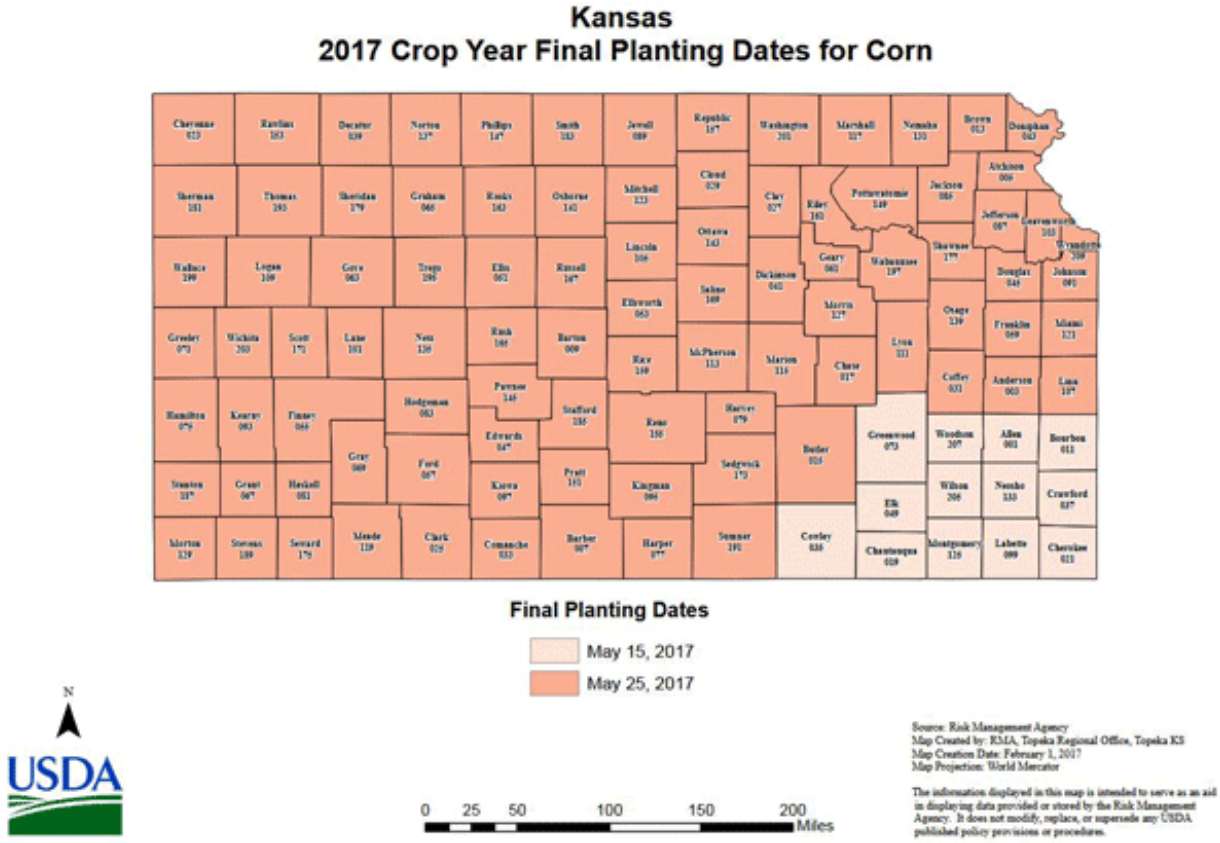
2. Insurance implications for late-planted corn

The final planting date for corn from the USDA Risk Management Agency Topeka Regional Office in the majority of Kansas is May 25th (see map below). After the final planting date there is a "late planting period" that extends for 20 days after the final plant date.



The map can be viewed at: https://www.rma.usda.gov/fields/ks_rso/2017/final/kscorn.pdf

For corn acres that haven't been planted by the final planting date growers have several options:

1. Plant the insured crop during the late planting period, and insurance coverage will be provided. The late planting period for corn in Kansas and Nebraska is 20 days after the final planting date. The production guarantee is reduced 1% per day for each day that planting is delayed after the final planting date.
2. Plant the insured crop after the late planting period has ended if you have been prevented from planting during the late planting period, and insurance coverage will be provided. The insurance guarantee will be 55% of the original production guarantee.
3. Acreage that was prevented from being planted due to an insured cause of loss can be left idle and receive a full prevented planting payment, also equal to 55% of the original production guarantee.
4. Plant a cover crop during or after the end of the late planting period and receive a full prevented planting payment as long as it is not hayed or grazed before November 1. The cover crop cannot be harvested for grain or seed at any time.
5. Plant another crop (second crop) after the late planting period (if also prevented from planting through the late planting period), and receive a prevented planting payment equal

to 35% of the prevented planting guarantee.

For example, consider a grower with a dryland corn APH yield of 105 bushels per acre who has signed up for Revenue Protection coverage with a 75% coverage level. Using the spring projected price of $3.96/bushel, this grower would have a production guarantee of 78.8 bushels per acre and a revenue guarantee per acre of $311.85 (= 105 bu/acre x 75% x $3.96/bu). An acre of corn planted five days after the final planting date, for example, would have its production guarantee reduced 5% (1% for each late day), meaning the revenue guarantee would decline 5% from $311.85 to $296.26.

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3. White heads in wheat: Possible causes

White heads have been appearing in many wheat fields around the state this year. Sometimes the white heads are just single tillers scattered throughout part or all of a field, and sometimes they occur in small to large patches. Heads might be completely white starting from the stem, or may just have a few spikelets showing the discoloration.

There are many causes of white heads. Here are some of the most common causes and their diagnosis.

• **Premature dying** (drowning, hot dry winds, etc.). As wheat begins to mature, plants in some areas of the field may have an off-white color similar to take-all. This is premature dying could be due to drowning, hot dry winds, or some other stress. The pattern of off-colored heads will often follow soil types or topography, and may occur in large patches. The grain will be shriveled and have low test weight. Due to the recent rainfall events from mid-March through mid-May, with many areas of the state receiving more than 10 inches of rainfall in this period, several fields of wheat across south central and central Kansas are showing drowning symptoms in poorly drained areas. The area that seems to be most affected by drowning spans the region between Edwards through Sumner counties (Fig. 1).

Figure 1. Large patches of drowned wheat in central (upper panel) and south central (lower panel) Kansas. Photos taken May 16 and 17, 2017, by Romulo Lollato, K-State Research and Extension.

Another possible cause of white heads this spring seems to derive from the recent snowstorm event on western Kansas. The heavy snowfall broke and at least kinked several stems towards the base in the western third of the state (for a full report, please see eUpdate article "Effects of snowfall April 29 & May 1, 2017 on Kansas wheat"). Due to the broken or kinked stem, affected wheat plants cannot keep up with the atmospheric demand for water and are more exposed to heat stress. Signs of this susceptibility are starting to appear in the affected areas (Fig. 2).

Figure 2. Wheat stem damaged by the April 29 – May 1 snowstorm near Leoti, KS. Affected plants are more exposed to heat stress and starting to show signs of abortion, such as whitening of the lower stem. This symptom will likely develop into white, aborted heads.

Photo by Rick Horton, wheat producer in Wichita and Finney counties.

• **Freeze injury to stem or crown**. Depending on the stage of growth at the time of a late spring freeze, parts or all of the heads may die and turn white.

In years when the freeze occurs about the boot stage or a little earlier, there can be injury to the lower stem, which then cuts off water and nutrients to the developing head. In years when the wheat is in the early heading stage at the time of the freeze, the freeze can damage the heads directly.

Often, wheat on north-facing slopes, on ridge tops, or in low-lying areas will be most affected by freeze injury. But freeze injury can also be so severe that it occurs throughout the fields, in no particular pattern. Crown rot is another potential problem that can be traced back to freeze injury.

When the crown is damaged by cold temperatures or a freeze, part or all of the tillers can die. If the tiller from a damaged crown forms a head, this head will almost always be white. The crown will have internal browning, and stands will usually be thinner than normal.

• **Hail**. Hail can occasionally damage just a portion of a head, and cause that damaged portion to turn white. The hail impact to the heads may also remove spikelets and expose the rachis (Figure 3).

Figure 3. The heads in this photo have had a few spikelets removed due to hail impact and have their rachis exposed. Photo by Romulo Lollato, K-State Research and Extension.

• **Dryland root rot (also known as dryland foot rot)**. This disease, caused by the *Fusarium* fungus, causes white heads and often turns the base of the plants pinkish (Fig. 4). As with take-all, dryland root rot causes all the tillers on an infected plant to have white heads. This disease is usually most common under drought stress conditions, and is often mistaken for either drought stress or take-all.

Figure 4. White wheat head caused by Fusarium root rot. Detail on the right shows pink discoloration inside the stem typical of the Fusarium pathogen. Photo by Romulo Lollato, K-State wheat extension specialist.

• **Head scab**. When there are periods of rainy weather while the wheat is flowering, as seen across most of Kansas this growing season, some heads may become infected with Fusarium head blight and turn white. The heads of some red-chaffed varieties turn a darker red when infected with scab, but the heads of most varieties turn white. Symptoms can be restricted to one or few spikelets in the head, but often times the upper half or the entire head might be affected (Fig. 5). Head scab is most

common where wheat is grown after corn, or after a wheat crop that had head scab the previous year. Head scab can be identified by looking for pink spores of the Fusarium fungi, as well as by a darker discoloration to the rachis of the wheat head. During the current growing season, head scab has being observed in south-central and southeast Kansas, but it is probably still early to see symptoms in central and north-central Kansas as it takes approximately three weeks from flowering for the first symptoms to appear.

Figure 5. Wheat heads affected by head scab or Fusarium head blight. Symptoms range from one or few spikelets that turned white, to the upper half or entirety of the head. Photo by Romulo Lollato, K-State Research and Extension.

• **Take-all**. This disease often causes patches of white heads scattered throughout the field. It occurs most frequently in continuous wheat, and where there is a moderate to high level of surface residue. Take-all is also favored by high pH soils, so a recently limed field might also show symptoms. To diagnose take-all, pull up a plant and scrape back the leaf sheaths at the base of a tiller. If the base of the tiller is shiny and either black or dark brown, it is take-all. All tillers on a plant infected with take-all will have white heads. Plants will pull up easily.

• **Sharp eyespot**. This disease is common in Kansas, but rarely causes significant yield loss. Sharp eyespot causes lesions with light tan centers and dark brown margins on the lower stems. The ends of the lesions are typically pointed. If the stems are girdled by the fungus, the tiller may be stunted with a white head. Each tiller on a plant may be affected differently.

• **Wheat stem maggot**. Wheat stem maggot damage is common every year in Kansas, but rarely results in significant yield loss. It usually causes a single white head on a tiller, scattered more or less randomly through part or all of a field. One typical symptom of white heads caused by wheat stem

maggot is that the flag leaf and lower stem are often green, and only the last internode (peduncle) and head are white. If you can grab the head and pull the stem up easily just above the uppermost node, the tiller has probably been infested with wheat stem maggot. Scout for symptoms of chewing close to the base of the plants, which could indicate that the head has died as function of wheat stem maggot (Fig. 6).

Figure 6. White wheat head due to wheat stem maggot, characterized by a white head and peduncle but healthy and green lower stem. Detail on the right shows chewing of the base of the peduncle by the maggot. Photo by Romulo Lollato, K-State Research and Extension.

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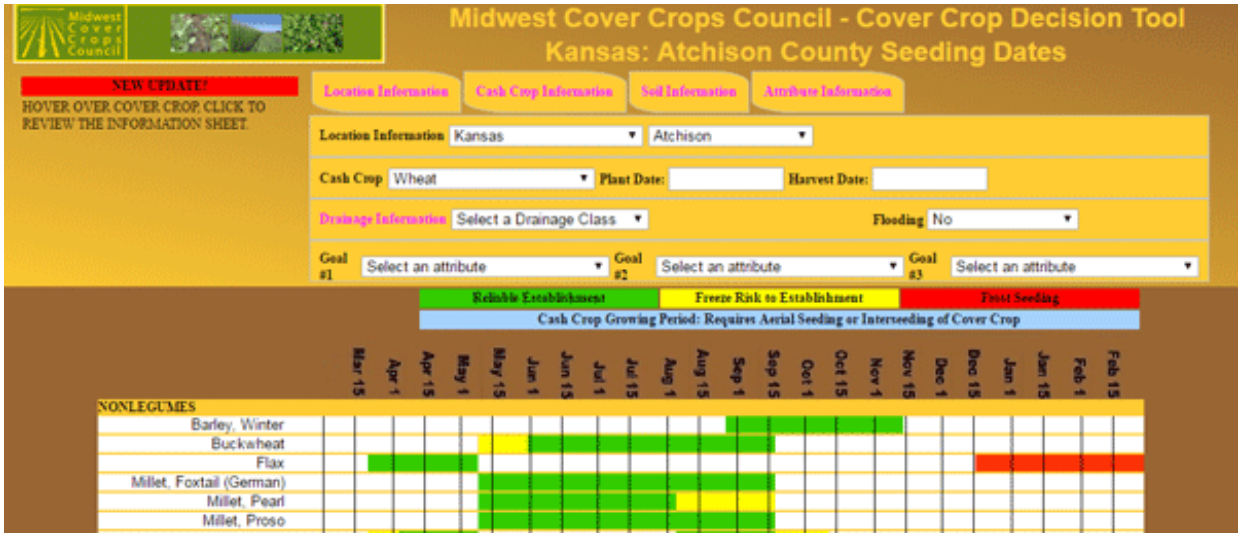
4. Finding detailed information on the attributes of cover crops

Considering planting a cover crop after wheat? If you are looking for ideas, the Midwest Cover Crops Council's selector tool is a good place to find some basic information. See: http://mccc.msu.edu/selector-tool/

This tool allows the user to select their county, enter some information about the cash crop and soil environment, and choose the goals they want to achieve by planting a cover crop. One question that comes up often is where to find information on seeding rates, depths, and other agronomic details. This information is available by clicking in the chart on the name of the cover crop for which you'd like these details.

For example, let's say you were interested in learning about proso millet as a cover crop. Just click on "Millet, Proso" in the chart of cover crop options suited to your situation and goals. A detailed page of information on proso millet will pop up in a new window.

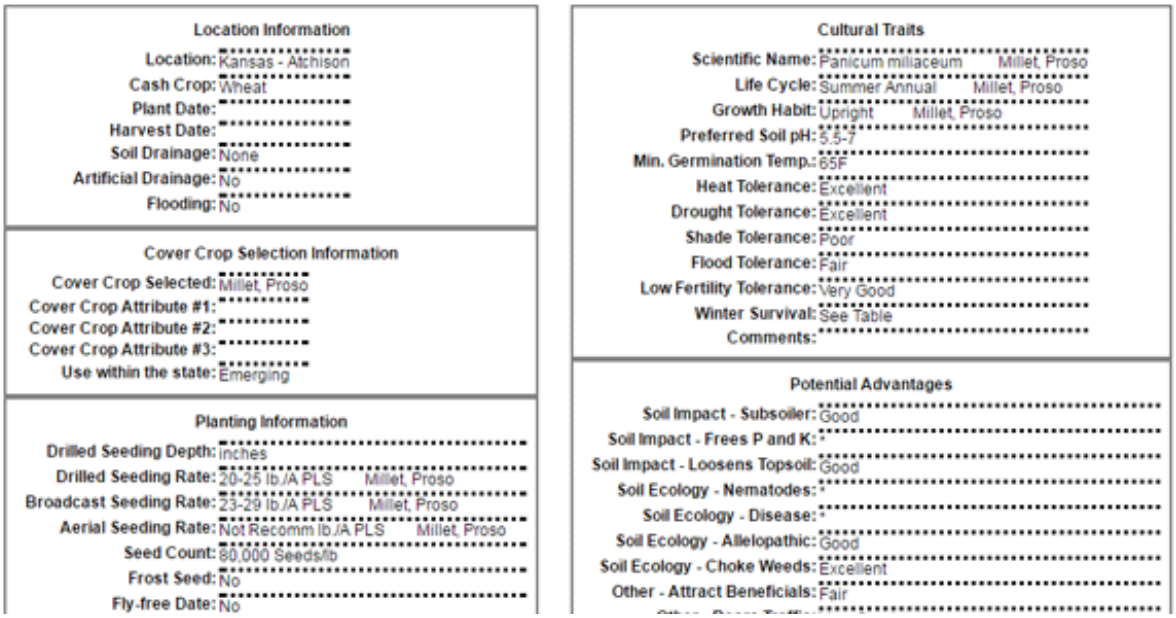


A portion of the proso millet information sheet is shown below.

Millet, Proso Information Sheet

Considerations for using Millet, Proso in Kansas

Links to information on using Cover Crops in Kansas can be found at: http://mccc.msu.edu/states/Kansas.html



Location Information

Location:	Kansas - Atchison
Cash Crop:	Wheat
Plant Date:	
Harvest Date:	
Soil Drainage:	None
Artificial Drainage:	No
Flooding:	No

Cover Crop Selection Information

Cover Crop Selected:	Millet, Proso
Cover Crop Attribute #1:	
Cover Crop Attribute #2:	
Cover Crop Attribute #3:	
Use within the state:	Emerging

Planting Information

Drilled Seeding Depth:	inches	
Drilled Seeding Rate:	20-25 lb./A PLS	Millet, Proso
Broadcast Seeding Rate:	23-29 lb./A PLS	Millet, Proso
Aerial Seeding Rate:	Not Recomm lb./A PLS	Millet, Proso
Seed Count:	80,000 Seeds/lb	
Frost Seed:	No	
Fly-free Date:	No	

Cultural Traits

Scientific Name:	Panicum miliaceum	Millet, Proso
Life Cycle:	Summer Annual	Millet, Proso
Growth Habit:	Upright	Millet, Proso
Preferred Soil pH:	5.5-7	
Min. Germination Temp.:	65F	
Heat Tolerance:	Excellent	
Drought Tolerance:	Excellent	
Shade Tolerance:	Poor	
Flood Tolerance:	Fair	
Low Fertility Tolerance:	Very Good	
Winter Survival:	See Table	
Comments:		

Potential Advantages

Soil Impact - Subsoiler:	Good
Soil Impact - Frees P and K:	*
Soil Impact - Loosens Topsoil:	Good
Soil Ecology - Nematodes:	*
Soil Ecology - Disease:	*
Soil Ecology - Allelopathic:	Good
Soil Ecology - Choke Weeds:	Excellent
Other - Attract Beneficials:	Fair

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5. Field research: Replicated comparisons vs. side-by-side comparisons

Producers are interested in knowing what works best, yields the most, and especially what is most profitable during these tight economic times. Some may want to compare products or practices on their own farm or look at information from other farms or industry studies.

How should a basic study be set up or laid out in the field? One very common approach is to divide a field in half and compare the halves, or possibly compare two fields in close proximity, and see which variety or practice yields highest. This approach can produce very misleading results because of the variability that exists across a field or fields due to many factors. Some sources of variability include: variations in soil type, topography, varying management practices, drainage, pesticide residues, disease pressure, compaction, and weather events. Just as you can count on yield monitor results to change across a field, you can essentially count on sources of variability within a field or between fields that would impact study results if you just split the field in half or compared fields across the road from each other.

A better approach, which provides a better estimation of future performance of a treatment you want to test, is to put out replicated studies with random placement of treatments in each replication. This simply means that the same treatment is put out at more than one place across the area of study to be assured that treatment performance is not based on location in the field. Using three to six replications is common in most agricultural studies. The more replications, the more reliable the results will be in a given comparison. Repeating the replicated comparisons for more than one year is also a good idea to test performance over more than one environment. This will allow you to come to stronger conclusions and better estimations of real differences between treatments.

As an example, an on-farm trial completed in 2016 is described below, showing how replication affected the results. This study compared two systems commonly used in planting pinto beans in Nebraska. The treatments were applied and replicated six times with random placement. One treatment was pinto beans planted in 30-inch rows at a population of 90,000 plants per acre; the second treatment was pinto beans planted in 7.5-inch rows at 120,000 plants per acre (Figure 1). This was a large field trial with each treatment being 60 feet wide by 1,400 feet long. The randomization was as follows:

Rep 1		Rep 2		Rep 3		Rep 4		Rep 5		Rep 6	
7.5″	30″	30″	7.5″	7.5″	30″	7.5″	30″	30″	7.5″	30″	7.5″

Figure 1. Left, 30-inch rows at 90,000 plants/acre; right, 7.5-inch rows at 120,000 plants/acre.

The average yields from the treatments in the six replications were as follows: 7.5-inch with 120,000 population yielded 52 bu/acre and the 30-inch treatment with 90,000 population yielded 44 bu/acre. The 7.5-inch treatment yielded 8 bu/acre more than the 30-inch treatment. Having analyzed the yield data statistically (at the 0.05 probability level), yields were significantly different, with the least significant difference being 2 bu/acre. This means that due to variability within the study, a yield difference of less than 2 bu/acre would not indicate any treatment differences.

During early August a hail storm damaged the field, with the most significant damage occurring on the half of the field containing replications 4, 5 and 6. If the field had just been split with one treatment on each side, results would have looked different.

If we lump the 7.5-inch treatments from the hailed side of the field together we would find an average yield of 49 bu/acre. In comparison, if we lumped the 30-inch treatments together on the side with minimal hail, average yield for this treatment would have equaled 45 bu/acre. This equals a difference between treatments of 4 bu/ac (half the difference that was detected by the full, replicated trial).

Conversely, if we had the 30-inch treatments on the side of the field that received the most hail, yield for this treatment would have been 43 bu/acre and yield for the 7.5-inch treatment on the side receiving minimal hail would have equaled 54 bu/acre, for a difference of 11 bu/acre (Figure 2).

It is clear that when the six replications were spread out across the field we found a more accurate

estimation of the impact of these systems on yield than splitting the field in half. In all three layouts the 7.5-inch treatment yielded the most. The split field design either exaggerated or diminished the yield advantage of the 7.5-inch treatment, depending on which treatment was exposed to the heavier hail damage (Figure 2). Poorly laid out field studies can generate misleading data and can lead to incorrect conclusions. Also keep this in mind when you are looking at data from other studies you encounter. In our modern era with GPS guidance, it is relatively easy to put in replicated, randomized studies, even on large field-scale comparisons.

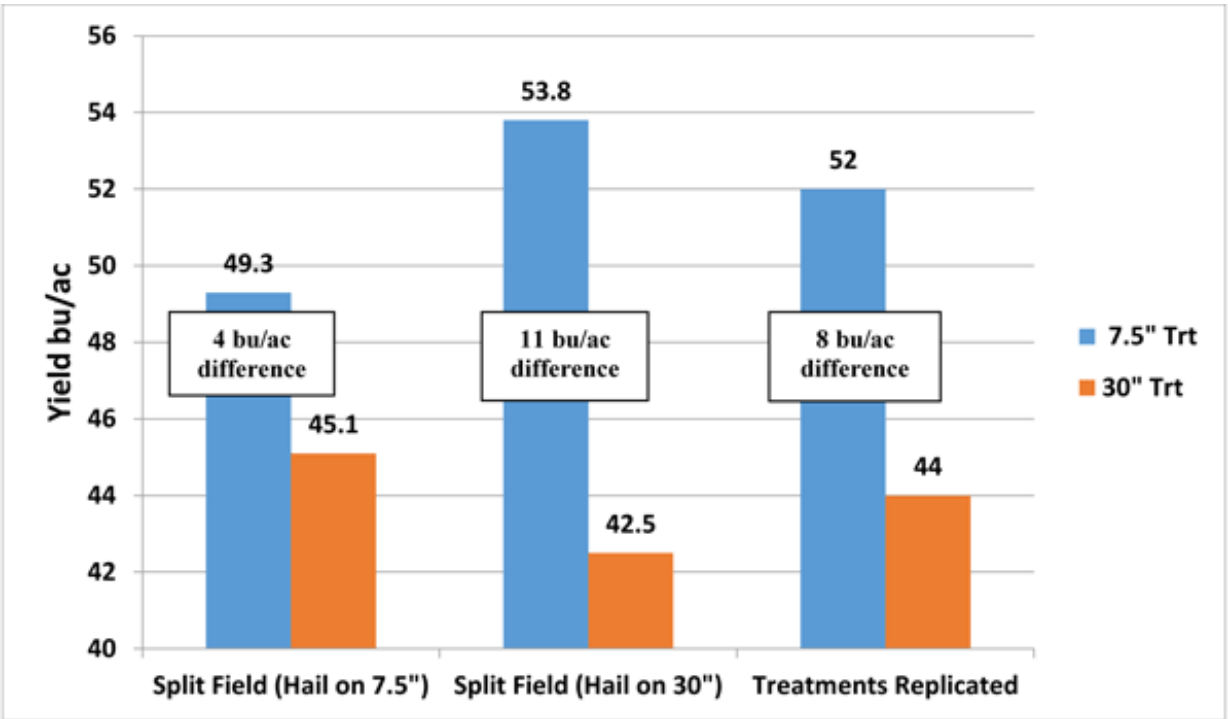

Figure 2. Change in yield advantage of the 7.5-inch treatment as compared in split field layout vs. a replicated randomized field layout. An early August hail storm had greater damage on one half of the field. Like treatments were lumped together on the hailed half vs. the lightly hailed half to get the above yield averages in the split field comparisons.

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6. K-State wheat plot tours for May 22-26

The week of May 22-26 has 17 wheat plot tours in Kansas. Producers willing to learn about the different varieties can choose to attend one (or several) plot tours in their county or agricultural district.

The plot tours generally include a discussion of wheat conditions across the state, as well as tips on what to look for when selecting wheat varieties for one operation. New and upcoming varieties are discussed, as well as older and more established ones and a discussion of how all these varieties are responding to this growing season's conditions.

For the week of May 22-26, the scheduled plot tour locations include:

H. **5/22/2017, 7:00 a.m.**
Location: Sedgwick Co., Andale
Contact: Zack Simon, 316-660-0153, zsimon@ksu.edu
Directions: From Andale, 8 mi south on S 247th St W to 6th St S

Monday, 5/22/2017, 10:30 a.m.
Location: Sedgwick Co., Clearwater
Contact: Zack Simon, 316-660-0153, zsimon@ksu.edu
Directions: Clearwater - 101st St South and 199th St West, ¼ mile west of intersection on south side

Monday, 5/22/2017, 3:00 p.m.
Location: Harvey Co., Newton
Contact: Ryan Flaming, 316-284-6930, flaming@ksu.edu
Directions: ½ mi. south of SE 84th and S Hillside, Newton

? **5/23/2017, 7:30 a.m.**
Location: Labette Co., Parsons
Contact: Doug Shoup, 620-421-4826, dshoup@ksu.edu
Directions: SE Research and Extension Center in Parsons, just south of Hwy 400

Tuesday, 5/23/2017, 9:30 a.m.
Location: Smith Co., Smith Center
Contact: Sandra Wick, 785-282-6823, swick@ksu.edu
Directions: Theron Haresnape. 4.5 mi. east of Smith Center on Hwy 36 (south side) N Sensor Study

Tuesday, 5/23/2017, 10:30 a.m.
Location: Jewell Co., Jewell
Contact: Sandra Wick, 785-282-6823, swick@ksu.edu
Directions: Bohnert Seed Farm. Turn west on H Road, on the north side. Noon, lunch at Jewell Park Shelter House

Tuesday, 5/23/2017, 1:00 p.m.
Location: Osborne Co., Osborne
Contacts: Sandra Wick, 785-282-6823, swick@ksu.edu
Directions: Noon—lunch (Solomon Rapids Seed) 1/2 mi. west of Osborne on Hwy 24 at the plant. Plot tour: Rick Mans, 1/2 mi. S of Osborne to 388 Co. Road, 2.5 mi. W

Tuesday, 5/23/2017, 4:30 p.m.
Location: Mitchell Co., Beloit
Contact: Sandra Wick, 785-282-6823, swick@ksu.edu
Directions: Marty Fletchall -- South of Beloit to Hunter Road. From Hunter, go 1.5 mi. N (east side).

Tuesday, 5/23/2017, 5:00 p.m.
Location: Reno Co., Hutchinson
Contact: Gary Cramer, 620-662-9021, gcramer@ksu.edu
Directions: South Central Kansas Experiment Field, 10702 South Dean Road, Field Day

Wednesday, 5/24/2017, 5:30 p.m.
Location: Ford Co., Dodge City
Contact: Andrea Burns, 620-227-4542, aburns@ksu.edu
Directions: Highway 50 Bypass and 116 Road, across from Koch Nitrogen Plant

Wednesday, 5/24/2017, 12:00 p.m.
Location: Comanche Co., Protection
Contact: Aaron Sawyers, 620-582-2411, asawyers@ksu.edu
Directions: East of Sawyers' Farmstead – 2 miles north on County Road 6 (east of Protection). 1 Mile East on Avenue L to Road 7, turn South on Road 7. Field location will be on the west side of road.

Thursday, 5/25/2017, 4:00 p.m.
Location: Finney Co., Garden City
Contact: A.J. Foster, 620-275-9164, anserdj@ksu.edu
Directions: Southwest Research-Extension Center, Field Day

Friday, 5/26/2017, 8:30 a.m.
Location: Saline Co., Solomon
Contact: Tom Maxwell, 785-309-5850, tmaxwell@ksu.edu
Directions: Located 3 miles west of Solomon on Old Hwy 40, 2 miles south on Gypsum Valley Road and ½ mile west on Stimmel Road.

Friday, 5/26/2017, 11:00 a.m.
Location: Saline Co., Mentor
Contact: Tom Maxwell, 785-309-5850, tmaxwell@ksu.edu
Directions: Located ½ mile west of Mentor on Mentor Rd.

Friday, 5/26/2017, 1:30 p.m.
Location: Ottawa Co., Minneapolis
Contact: Tom Maxwell, 785-309-5850, tmaxwell@ksu.edu
Directions: Located 1 ½ miles west of K-106 Highway on Justice Rd., then south on Ray Myers Lane

Friday, 5/26/2017, 8:30 a.m.
Location: Rooks Co., Stockton
Contact: Cody Miller, 785-543-6845, codym@ksu.edu
Directions: 1/2 mile south of Stockton on HWY 183 and 1/2 mile East of the HWY on K Terrace. It is on the north side of the road.

Friday, 5/26/2017, 11:00 a.m.

Location: Phillips Co., Phillipsburg
Contact: Cody Miller, 785-543-6845, codym@ksu.edu
Directions: 1 1/2 miles north of Phillipsburg on HWY 183. It is about 1/8 of a mile south of East Osage Road on the east side of the road.

Romulo Lollato, Extension Wheat Specialist
lollato@ksu.edu

Erick DeWolf, Extension Wheat Pathologist
dewolf1@ksu.edu

7. Winter canola tours scheduled May 23, 25, 26

K-State Research and Extension will be co-hosting several opportunities in May to learn more about winter canola varieties and crop production practices.

Having field tours at this time of year gives us a great opportunity to evaluate yield potential of the winter canola crop. As producers gear up for harvest, there are a number of questions we can address to help with those important decisions. We'll also talk about new varieties, variety development, and how well the crop has fared over the growing season.

The following tours are scheduled.

- May 23, starting at 2 p.m. at the South Central Kansas Experiment Field, Redd Foundation Field southwest of Partridge, Kan. To get to the field, drive west of Partridge 1.5 miles on Trail West Rd. Turn south on High Point Rd. and drive 0.5 miles to the field. Attendees will be able to see a National Winter Canola Variety Trial, Roundup Ready canola cultivars under development, fungicide/growth regulator trial, seeding rate trial, and the canola/wheat rotation study. Refreshments will be provided. The South Central Kansas Experiment Field day at the headquarters unit, 10702 S. Dean Rd., will follow at 5 p.m.

- May 25, at the Southwest Research-Extension Center, 4500 E. Mary Street, Garden City, in conjunction with the Center's Spring Field Day. The field day starts at 4:30 p.m. and a meal will be provided. Attendees will hear about canola variety development, production practices, and the National Winter Canola Variety Trial.

- May 26, starting at 10 a.m. near Montezuma. The first stop will be 1 mile north of town on the Ingalls blacktop (12th Road) on the west side of the road. Attendees will learn about canola growth and development, harvest options, and variety development. Lunch will be sponsored by Helena Chemical and Monsanto.

All field days are co-sponsored by K-State Research and Extension and the Great Plains Canola Association. Financial support for these field days was made available through the Great Plains Canola Association's Promote Canola Acres program and the U.S. Department of Agriculture-National Institute of Food and Agriculture Supplemental and Alternative Crops Competitive Grant Program.

Mike Stamm, Canola Breeder
mjstamm@ksu.edu

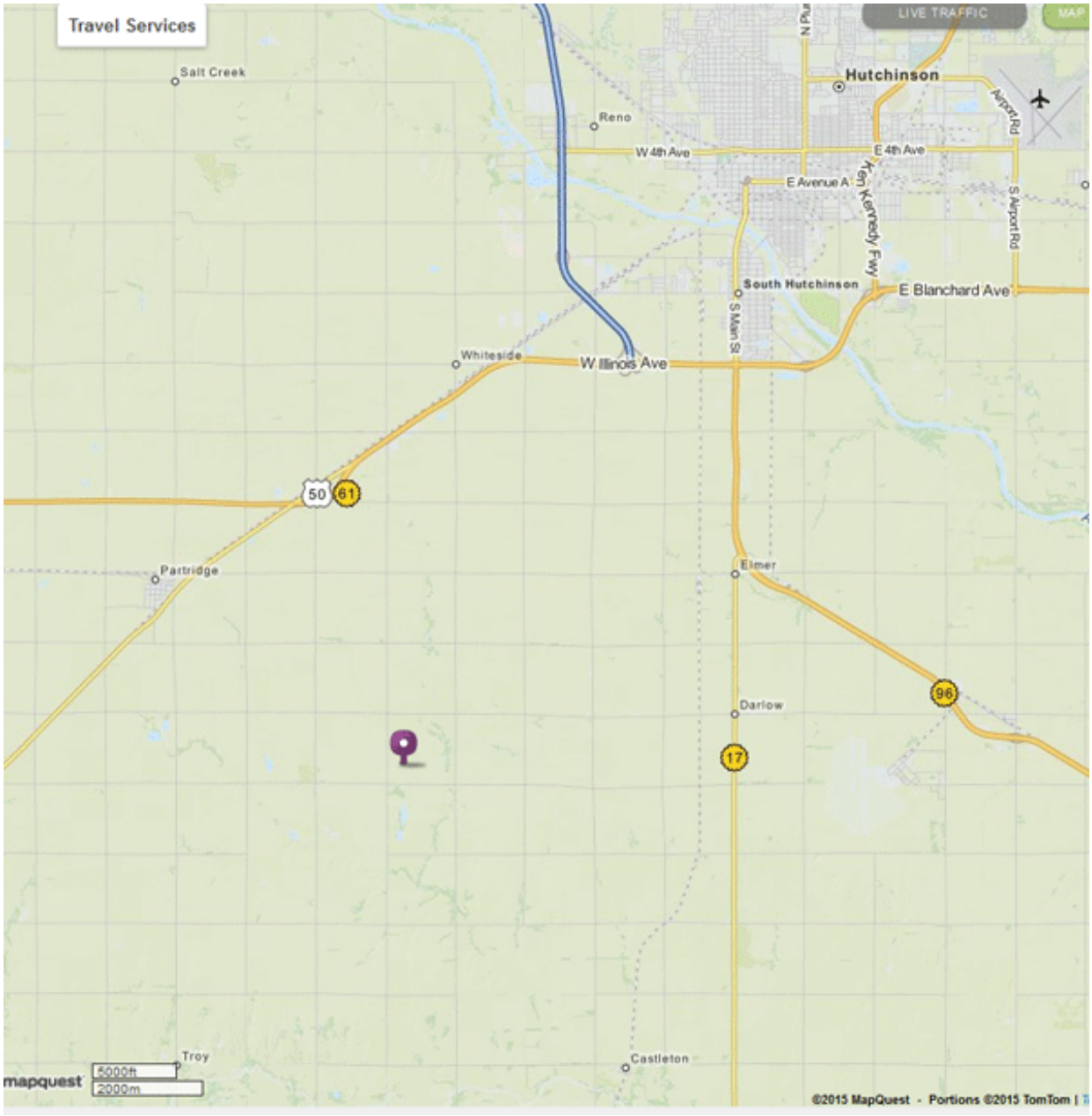
8. South Central Experiment Field Spring Field Day, May 23

The Spring Field Day at the South Central Experiment Field will be held May 23, starting at 5 p.m. The event will be held at the field headquarters, 10702 S. Dean Road.

The main topics will include:

- Enhanced Management of Winter Wheat – Brent Jaenisch, Agronomy Graduate Student
- Dual-Purpose Wheat Varieties – Romulo Lollato, Wheat and Forages Specialist
- Nitrogen Rate Effect on Wheat Varieties – Romulo Lollato, Wheat and Forages Specialist
- Wheat Variety Performance – Allan Fritz, K-State Wheat Breeder, Manhattan
- Wildcat Genetics: The Future of Winter Wheat Development – Daryl Strouts, President, Kansas Wheat Alliance
- Canola Update on Variety Development – Mike Stamm, Canola breeder
- Kansas Wheat Commission Update – Doug Keesling, Kansas Wheat Commission

More information about the field day is available by calling Gary Cramer, agronomist-in-charge, at 620-662-9021, or gcramer@ksu.edu. A meal will follow the field day.


Travel Services
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Troy
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9. Spring Crops Field Day in Parsons, May 23

The Southeast Research and Extension Center will host a Spring Crops Field Day on May 23 to update producers in the region on the latest information on varieties, production methods, and disease management.

The field day starts with registration and a complimentary breakfast from 7:30 to 8:30 a.m. at the research center, 25092 Ness Road, (immediately south of U.S. Highway 400) in Parsons.

The program includes:

Wheat Variety Plot Tour – Doug Shoup, K-State extension crops and soils specialist, Lonnie Mengarelli, K-State research assistant, and seed company representatives

Effectiveness of Precision Planting Row Units – Ajay Sharda, K-State extension precision agriculture/machine systems engineer

Reducing the Impact of Fusarium Head Blight in Wheat – Gretchen Sassenrath, K-State crop production agronomist

Corn and Soybean Disease Update – Doug Jardine, K-State extension plant pathologist

There is no cost to attend. In case of rain, the program will be conducted indoors. More information is available by calling 620-421-4826.

10. Southwest Research-Extension Center Spring Field Day, May 25

The Southwest Research-Extension Center will host its Spring Field Day on Thursday, May 25 from 4:30 to 7 p.m. at the center, located at 4500 E. Mary St. in Garden City.

The Spring Field Day is an annual event hosted at the research center for more than a decade. It provides an opportunity for K-State researchers to engage local producers, to provide updates and to receive feedback on the status of current research programs.

Producers attending the field day will learn about wheat and canola varieties and agronomy management practices to maximize productivity.

This field day provides a platform to keep producers up to date on new research and technology and a medium for dialogue between researchers and producers. Producers should consider this conference as an opportunity to refresh basic principles and to learn new principles they can apply to their own situation.

Supper will be provided courtesy of industry supporters. Continuing education credits have been applied for and should be available at this meeting.

Contact Ashlee Wood at 620-276-8286 or email awood22@ksu.edu by 5 p.m. on May 17 to register. Prior registration is important to ensure supper will be available for all attendees.

For more information on the program contact A.J. Foster at 620-640-1259, or email anserdj@ksu.edu.

A.J. Foster, Southwest Area Crops and Soils Specialist
anserdj@ksu.edu

11. Wheat plot tour scheduled at North Central Experiment Field, June 7

The North Central Experiment Field Wheat Plot Tour is scheduled for Wednesday, June 7, starting at 7:30 a.m. The field is located about two miles west of Belleville on Kansas Highway 36. Juice and rolls will be served ahead of the tour, provided by Belleville Chamber & Main St.

K-State speakers will include Romulo Lollato, Wheat and Forages Specialist. Tour topics include:

- Wheat Varieties (40 varieties)
- Wheat Management Research

More information is available by calling the North Central Experiment Field at 785-335-2836 or contacting Andrew Resser, Agronomist-in-Charge, at aresser@ksu.edu.

12. Field pea plot tours, June 15

Three field pea plot tours from K-State Research and Extension have been scheduled for June 15.

1. Gove County, 8:30 a.m. CT. From Grainfield/Hoxie exit on I-70 go 2 ¾ miles south on Road 50, then 2 ½ miles east on Road Z.

- Variety performance test with 17 entries
- Seeding rate study, seed treatment study, and in-furrow fertilizer study

2. Northwest Research-Extension Center, 1 p.m. CT. 105 Experiment Farm Road, Colby. Come in the main drive and follow the signs.

- Variety performance test with 19 entries
- Seeding rate study
- In-furrow fertilizer application study
- Lentil variety evaluation

3. Rawlins County, 4 p.m. CT. From the intersection of Hwy US 36 and K-25 in Atwood go 6 miles north on K-25, then 1/8 mile west on Road X.

- Variety performance test with 17 entries
- Seeding rate study
- Seed treatment study
- Wheat plot tour to follow at 5:30 p.m. CT

K-State faculty, industry representatives, and experienced producers will be on hand to discuss pea growth and development, variety selection, herbicide options, production practices, disease management and producer experiences.

For more information contact:
Lucas Haag, K-State Northwest Area Agronomist (785) 462-6281, LHaag@ksu.edu
Golden Prairie Extension District (785) 673-4805
Rawlins County Extension (785) 626-3192

K-STATE
Research and Extension

2017 Field Pea Plot Tours
June 15th

Gove County, 8:30 AM CT

- Variety Performance Test with 17 entries
- Seeding rate study, seed treatment study, and in-furrow fertilizer study
- From Grainfield/Hoxie exit on I-70 go 2 ¾ miles south on Road 50, then 2 ½ miles east on Road Z.

Northwest Research-Extension Center – 1:00 PM CT

- Variety Performance Test with 19 entries
- Seeding Rate Study
- In-Furrow Fertilizer Application Study
- Lentil variety evaluation
- 105 Experiment Farm Road, Colby, KS. Come in the main drive and follow the signs

Rawlins County– 4:00 PM CT

- Variety Performance Test with 17 entries
- Seeding Rate Study
- Seed Treatment Study
- Wheat plot tour to follow at 5:30 CT
- From the intersection of Hwy US 36 and K-25 in Atwood go 6 miles north on K-25, then 1/8 mile west on Road X

K-State faculty, industry representatives, and experienced producers will be on hand to discuss pea growth and development, variety selection, herbicide options, production practices, disease management and producer experiences.

For questions or more information contact:

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