

Extension Agronomy

eUpdate

05/15/2015

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.

eUpdate Table of Contents | 05/15/2015 | Issue 511

1. Stripe rust and leaf rust update	3
2. Effect of standing water and saturated soils on corn growth and yield	4
3. Soybean response to standing water and saturated soils	9
4. Nitrogen loss potential in wet soils	13
5. Chemical control of roughleaf dogwood	16
6	18
7. South Central Experiment Field Spring Field Day, May 19	19
8. Canola clinics and field tour set for May 19, 21	21
9. Southeast Agricultural Research Center Spring Crops Field Day planned May 27	23
10. Wheat plot tour scheduled at North Central Experiment Field, June 3	25
11. Northwest Research-Extension Center Spring Field Day, June 4	26
12. Southwest Research-Extension Center-Tribune Dryland Wheat Tour, June 5	27
13. Southwest Research-Extension Center-Garden City Spring Field Day, June 5	28
14. Comparative Vegetation Condition Report: April 28 - May 11	29

1. Stripe rust and leaf rust update

The wheat in south central Kansas is currently into the early stages of grain development but the kernels are not yet watery ripe. Stripe rust was severe at many locations this past week, with incidence near 100% and severity ranging from 20-80% depending on the variety. Severe disease pressure during the early stages of grain development will likely have a significant impact on grain yield. Fields with severe damage to the flag leaves may experience more than 20% yield loss.

Varieties with the most stripe rust included Armour, Everest, Garrison, LCS Wizard, Ruby Lee, TAM 111, and WB-Redhawk. Interestingly, varieties with a Jagger pedigree, such as 1863, Danby, Fuller, and WB4458, appeared to be moderately resistant. The varieties Oakley CL, Gallagher, WB-Cedar, and WB-Grainfield also appear resistant or moderately resistant at this time. This pattern of susceptibility among varieties indicates that the stripe rust population is similar to what was present in 2012.

Leaf rust was also present on many of the same locations I visited this week in south central Kansas. In most cases, incidence of leaf rust was around 10-20% with severity less than 1% on the flag leaves. There was more leaf rust at the South Central Experiment Field near Hutchinson than at other locations. At this location, leaf rust severity was approaching 10-15% on the flag leaves of the susceptible variety Overley.

Reports from the central and western regions of the state also indicate that stripe rust has moved to the upper leaves in many fields. There are a few reports of severe disease incidence on the flag leaves in some fields.

Fungicides may be an option for some fields with good yield potential and seed production fields where the value of the grain is greater. Be mindful of the harvest restrictions on the fungicide products, however. Many fungicide products can no longer be applied once the wheat is flowering, while others have a 30-day pre-harvest interval. Take these label restrictions seriously. Failure to follow the label directions can result in quarantines on harvested grain.

Erick De Wolf, Extension Plant Pathology dewolf1@ksu.edu

2. Effect of standing water and saturated soils on corn growth and yield

Where there has been standing water or saturated conditions in areas of a field for a couple straight days or more, producers may wonder if this will have any effect on corn, either now or as the season goes along. Periods of early-season water saturation can cause immediate problems for small corn plants, and can at times have season-long implications as well. Hopefully the affected areas are small and confined to spots that are low-lying or poorly drained.

Saturated soils inhibit root growth, leaf area expansion, and photosynthesis because of the lack of oxygen and cooler soil temperatures. Yellow leaves indicate a slowing of photosynthesis and plant growth. Leaves and sheaths may turn purple from accumulation of sugars if photosynthesis continues but growth is slowed. Corn plants can recover with minimal impact on yield if the plants stay alive and conditions return to normal fairly quickly.



Figure 1. Young corn plants affected by water standing and soil erosion. Photo by Ignacio Ciampitti, K-State Research and Extension.

Although root growth can compensate to some extent later in the season, a saturated profile early in the season can confine the root system to the top several inches of soil, setting up problems later in the season if the root system remains shallow. Corn plants in this situation tend to be prone to late-season root rot if wetness continues throughout the summer, and stalk rots if the plants undergo mid- to late-season drought stress. Plants with shallow root systems also become more susceptible to standability problems during periods of high winds.

Young corn plants can tolerate only a few days of full submersion. In some cases, symptoms and stand problems seen late in the season may trace back to flooding when the plants were young. Before V6, when the growing point is at or below the soil surface, corn can survive only 2-4 days of flooding. Chances of plant survival increase dramatically if the growing point was not completely submerged or if it was submerged for less than 48 hours. After 48 hours of soil saturation, soil oxygen is depleted and critical plant functions (photosynthesis, water and nutrient uptake) are impaired. Thus, young corn plants are more susceptible than corn beyond the V6 stage, when the plants are taller and the growing point is above the surface. Research has demonstrated yield reductions from early-season flooding ranging from 5% to 32% depending on soil nitrogen status and duration of flooding.

Temperatures can influence the extent of damage from flooding or saturated soils. Cool, cloudy weather limits damage from flooding because growth is slowed and because cool water contains more oxygen than does warm water. Warm temperatures, on the other hand, can increase the chances of long-term damage.

Silt deposition in the whorls of vegetative corn plants can inhibit recovery of flooded corn plants. Enough soil can be deposited in the whorl that emergence of later leaves is inhibited. A heavy layer of silt on leaf surfaces can potentially inhibit photosynthesis or damage the waxy surface layer of the leaf (cuticle), making the leaves subject to drying out. New leaves should not be affected if they can emerge normally. In some instances, the soil in the whorl may contain certain soft-rotting bacteria. These bacteria can cause the top of the plant to rot. The whorl can easily be pulled out of a plant infected with these soft-rotting bacteria. In addition, a rather putrid odor will be present. These plants will not recover.

Flooding can increase the incidence of moisture-loving diseases like crazy top downy mildew. Saturation for 24 to 48 hours allows the crazy top fungus spores found in the soil to germinate and infect flooded plants. The fungus grows systemically in the plant, often not causing visual symptoms for some time. Symptom expression depends on the timing of infection and amount of fungal growth in the plant. Symptoms include excessive tillering, rolling and twisting of upper leaves, and proliferation of the tassel. Eventually the tassel can resemble a disorganized mass of small leaves, hence the name "crazy top."



Figure 2. Crazy top in corn. Photo by Doug Jardine, K-State Research and Extension.

Saturated soils can also cause loss of nitrogen fertilizer by either denitrification (loss of nitrogen to the atmosphere, mainly as nitrous oxide) or leaching (movement of nitrogen beyond the rooting zone). Thus, under wet spring planting conditions, split N application are more effective in insuring a greater synchrony between crop N demand and soil N supply as compared when all the fertilizer N needed by the crop is applied at planting time. Corn may respond to in-season nitrogen applications if a large portion of early-applied nitrogen is lost to these processes. If corn remains nitrogen deficient later in the season, expect considerably higher levels of stalk rot.

Another condition associated with extended periods of cool, wet soils is commonly referred to as *cold weather crown stress*. Internal stalk cells in the crown nodes can become "leaky" when cell membranes become chilled and oxygen is limited because of the saturated soils. Hybrids with "southern" genetics are more susceptible to this problem than are northern types. Plants may recover from this damage, but they will be much more susceptible to stalk rot later in the season if hot, dry temperatures occur. Since water and nutrients cannot be efficiently moved through the damaged crown.



Figure 3. Corn plant showing symptoms of cold weather crown stress. Photo by Doug Jardine, K-State Research and Extension.

Stalk breakage (green snap) or root lodging (plants uprooted) can also occur if plants are affected by wind damage, with older corn plants being more susceptible than young plants. Young plants have better ability to straighten up. Stalk breakage and root lodging can be seen later in the season if the roots were inhibited by flooding during early growth stages. Hybrid differences are a factor that can influence the susceptibility to lodging, but no hybrid is immune to this production issue.



Figure 4. Corn showing effects of wind damage, "green snap," early during the vegetative period. Photo by Ignacio Ciampitti, K-State Research and Extension.

Scout your corn after water drains from the fields; check the appearance of new leaves and the standability of the corn.

Ignacio Ciampitti, Crop Production Specialist <u>ciampitti@ksu.edu</u>

Doug Jardine, Extension Plant Pathology jardine@ksu.edu

Dorivar Ruiz Diaz, Nutrient Management Specialist ruizdiaz@ksu.edu

3. Soybean response to standing water and saturated soils

How will soybeans respond to standing water and saturated soil conditions? If soybean plants are submerged for less than 48 hours, there is a good chance they will survive. Plants can survive under water longer under cool than warm temperatures. Submerged soybean plants can survive for up to 7 days when temperatures are less than 80 degrees F.



Figure 1. Soybean seedlings under water. Photo by Doug Shoup, K-State Research and Extension.

To find out whether the soybeans are damaged after the water recedes, split the stem at the tip and examine the growing point. A healthy growing point will be firm and white or cream colored. A soft, dark growing point indicates injury. In some cases, the silt coating the plant after short-term flooding can cause more injury and plant death than the water itself.

Even if the fields did not have standing water and plants were not totally submerged, waterlogged soils can cause problems if the waterlogging lasts too long. When soils are saturated for a prolonged period of time, a lack of oxygen in the roots can lead to the accumulation of lactic acid and other

products of anaerobic respiration. This is the underlying cause of damage to plants in waterlogged soils where only the roots are flooded.

Injury can depend on variety, growth stage, duration of waterlogging, soil texture, fertility levels, and diseases present. Interactions of these factors make it hard to predict how a given soybean field will react to waterlogged soils.



Figure 2. Soybean seedlings under full submersion. Photo by Ignacio Ciampitti, K-State Research and Extension.

Variety differences have been reported and researchers have identified possible genes associated with tolerance to waterlogged conditions. Scientists in Missouri have screened a number of soybean varieties, subjecting them to two periods of flooding, each two weeks in duration. The average yield reduction for all varieties was 61%. Yields were reduced by 39% for the most tolerant varieties and 77% for the least tolerant. Producers should check with their seed supplier regarding information about a particular variety.

Growth stage factors

Research examining the influence of growth stage on the degree of injury from waterlogged soils has provided mixed results.

• Germination. Saturated conditions during germination can reduce successful germination by up to 40% and can inhibit seedling growth. Seeds that are further in the germination process at the time of saturation sustain more injury.

- Vegetative growth stages. Excess water during vegetative stages usually causes less injury than waterlogging during the reproductive and grain filling stages. Short-term waterlogging (2 to 3 days) at V2 to V4 can cause yield reductions of 0% to 50%, depending on soil texture, variety, and subsequent weather. Yield reductions from waterlogging during the early vegetative stages have been attributed to reduced plant population and shorter plants with reduced branching and fewer pods per plant.
- We're a long ways from the reproductive stages at the moment, but for the record, waterlogging for 2 to 3 days at R2 usually causes greater yield reductions than if it occurs during the vegetative stages. Waterlogging at R1 reduced the number of pods per node. At R5, yield reductions have been attributed to reduced seed size.

Duration of soil saturation

The longer the soil is saturated, the greater the injury, mortality, and consequent yield reductions. During germination, saturated conditions for 48 hours can decrease germination by 30% to 70% depending on the timing of the saturation, nearly twice the yield decrease resulting from durations of 24 hours or less. For plants that have emerged, a waterlogged condition that lasts for less than two days often causes little or no noticeable yield reduction. Intolerant varieties begin to show yield reductions after 2 days of saturation, but tolerant varieties can withstand up to 4 days of waterlogging with little reduction in yield. As the duration of soil saturation increases, researchers have documented greater reductions in population, height, pods per plant, yield, and leaf tissue nitrogen.

Other factors

Soil conditions play a role in the severity of injury from waterlogging as well. Coarser textured soils will drain more quickly, minimizing the duration of oxygen deprivation to the roots. Fine textured soils maintain saturation longer, increasing the chances of injury.

Fields that are flooded, or are at or above the water-holding capacity of the soil, will be more likely to develop root rot problems. Flooding accompanied by cooler temperatures would be favorable to *Pythium* root rot whereas as warmer temperatures would favor *Phytophthora* and *Rhizoctonia* root rots. Whether *Phytophthora* root rot develops often depends on the tolerance or resistance of the variety used. If the flooding occurs beyond the first week or two after emergence, any seed treatment fungicides that may have been used will no longer be effective.



Figure 3. Stand loss in a wet area due to Phytophthora root rot. Photo by Doug Jardine, K-State Research and Extension.

Ignacio Ciampitti, Crop Production Specialist ciampitti@ksu.edu

Doug Jardine, Extension Plant Pathology jardine@ksu.edu

Doug Shoup, Southeast Area Crops and Soils Specialist <u>dshoup@ksu.edu</u>

4. Nitrogen loss potential in wet soils

Some areas of Kansas are faced with the potential for leaching or denitrification loss of nitrogen from fields planted or intended for corn or intended for sorghum due to recent persistent rains and very wet soils.

The leaching and denitrification processes are quite different, and normally occur on different types of soils and under different situations. But both involve the loss of nitrate nitrogen. The nitrate-N present in fertilizers such as ammonium nitrate (50% nitrate) or UAN solution (25% nitrate) is immediately susceptible to leaching or denitrification loss. The residual soil nitrate-N measured by a soil test is also susceptible to leaching or denitrification loss. Other forms of nitrogen have to be converted in the soil to nitrate-N before leaching or denitrification would become a problem. This conversion is a biological process, and requires conditions appropriate for the activity of the bacteria involved.

Before estimating how much N may have been lost in wet soils from leaching or denitrification, producers should first try to get some idea of how much of the N they applied may have undergone nitrification into nitrate-N at this point in the season.

Factors affecting nitrification

Since nitrification is a biological process, how quickly ammonium-N in soil converts to nitrate-N is a function of soil oxygen content, soil temperature, pH, how the N is applied, some characteristics of the fertilizer, and perhaps most importantly, how long the N has been in the soil. Nitrification is an aerobic process and requires high levels of soil oxygen. Conditions that reduce oxygen supplies, such as wet soils, will inhibit nitrification and keep N in the ammonium form.

Optimum soil temperatures for nitrification are in the range of 75-80 degrees. But nitrification occurs any time the soil temperature is above freezing, just at a slower rate. As a result, the timing of N application is critical for estimating the amount of N that may be present as nitrate. Winter applications of urea are much more likely to have been converted to nitrate by this time of year than a preplant application of urea made in late April.

Another key factor impacting nitrification rate is how the fertilizer was applied. When urea or UAN are broadcast, nitrification will occur more rapidly than when those materials are banded. Broadcast fertilizer is in contact with more soil containing the bacteria responsible for nitrification, so the nitrification process occurs more rapidly. Banded UAN or urea reduces fertilizer-soil contact, and has fewer potential microorganisms in contact with the fertilizer, thus slowing the conversion rate.

The nitrification rate of anhydrous ammonia is even slower, due to the toxic effect of the ammonia on the organisms in the application band. It can take 2-3 weeks for nitrification to begin where ammonia has been applied. In general, the wider the fertilizer spacing and higher the rate, the slower nitrification will proceed. This is why many people refer to ammonia as a self-inhibiting product. The addition of a nitrification inhibitor, especially with banded ammonia, will slow the process of nitrification even further. This is an especially effective tool on poorly drained, heavier-textured soils.

Leaching

Leaching involves the physical movement of nitrate-N below the root zone with water. Leaching

losses are primarily a concern on coarse-textured, sandy soils, where water moves quickly through the soil profile. Fortunately, many of our sandy soils contain lenses or layers of heavy-textured soil below the surface which can slow water movement and reduce the rate of leaching. This can significantly reduce the loss of nitrate from the root zone by leaching. Unlike nitrate-N, ammonium-N is not rapidly lost to leaching, even on coarse-textured soils. Ammonium-N has a positive charge and is retained on the cation exchange capacity (CEC) sites of soils, while nitrate-N has a negative charge and is repelled by the soil and remains in the soil water.

Denitrification

Denitrification is the conversion of nitrate-N to gaseous N by soil microbes in anaerobic (low-oxygen, waterlogged) soils. These organisms are always present in the soil, but are capable of utilizing the oxygen from nitrate to support their respiration when free oxygen is not present in the soil. Denitrification loss is a problem normally associated with medium- to fine-textured soils under wet conditions, when the soil pores fill with water and oxygen is depleted. There are several conditions that must be met for denitrification to occur. These include:

- Lack of soil oxygen. Denitrification only occurs under anaerobic soil conditions. Poorly drained, compacted, and/or waterlogged soils have the highest potential for denitrification loss. Poorly drained soils in central and eastern Kansas, and the claypan soils of southeast Kansas are normally the soils in the state with the most significant potential for denitrification. Well-drained soils normally pose little risk of significant denitrification loss.
- Nitrate-nitrogen. Denitrification only affects nitrate-N; it has no impact on ammonium-N. Maintaining N in an ammonium form is an effective strategy to avoid denitrification losses, and is the reason there are differences among N sources in denitrification potential.
- Warm soil temperatures with organic residue and/or organic matter. Denitrification is a microbial process, and ample food (organic materials) and warm soil temperatures are required for microbial activity. Like nitrification, the optimum temperatures for denitrification are in the 75-80 degree range.

Summary

While it has been a cool spring, it has been warm enough that a large part of the N applied early, especially the fall and winter-applied N, has likely been nitrified. Where recent heavy rainfall resulted in several days of saturation, some significant denitrification loss likely has or will occur. Not all of the N has been or will be lost, but producers who applied all their N in the fall or very early spring should be in position to apply additional N if needed.

All corn that appears yellow at this time won't be seriously N deficient. In fields where the N application was made in April or early May, especially where ammonia was applied, the majority of the N is likely still present as ammonium and the corn is likely yellow due to the effect of soil saturation. In this case, the corn will green up when conditions dry out and oxygen gets back into the soil. No additional N may be needed at all.

If you have access to a chlorophyll meter or active crop sensor, you can use these instruments to make measurements of greeneness and growth, and make some fairly good estimates of the amount of N needed. One idea to help you assess your situation is to create some reference strips in the field by adding some additional N when conditions become a little drier. Adding 1 pound of urea to an area 4 rows wide by 25 feet long would be equivalent to adding around 100 pounds of additional N.

Observing the differences between the "reference strip" and the balance of the field can provide a good idea of the degreee of N loss which has occurred.

If you don't have access to a chlorophyl meeter, counting fired leaves at the base of the plant is a simple way to assess N loss. We will provide more information on these different methods of assessing N loss in corn in future issues of the Agronomy eUpdate.

Recent work at K-State has shown that N applied as late as the 16-leaf stage can be used effectively by both dryland and irrigated corn. That will require dribbling the N on between the rows to minimize leaf damage with high-clearance application equipment. But if the wet weather continues and your corn "runs out of gas" in a few weeks, it gives you an option to correct the problem.

Dave Mengel, Soil Fertility Specialist dmengel@ksu.edu

Dorivar Ruiz Diaz, Nutrient Management Specialist ruizdiaz@ksu.edu

5. Chemical control of roughleaf dogwood

Roughleaf dogwood (*Cornus drummondii*) is a native shrub found throughout the eastern two-thirds of Kansas. It is commonly found along fencerows, edge of trees, on streambanks, and open prairies. The plant does provide wildlife cover and nesting sites for birds.

Roughleaf dogwood is rarely grazed and invades grassland in the absence of prescribed burning. The species continues to spread on the Konza Prairie, especially on sites with a 4-year burning frequency. Pastures that are frequently burned usually do not have a roughleaf dogwood problem. Once established, roughleaf dogwood is difficult to remove with fire alone as the plant usually leafs out after the burning season.



Figure 1. Roughleaf dogwood in full bloom in Riley County. Photo by Walt Fick, K-State Research and Extension.

Right now roughleaf dogwood is in full bloom. The optimum time to spray roughleaf dogwood is between the flower bud state and early seed production. This time frame corresponds to increasing food reserves in the root/crown of the species.

A number of foliar-applied herbicides including triclopyr (Remedy Ultra), dicamba (Banvel), and picloram (Tordon 22K) used alone or in combination with 2,4-D will defoliate roughleaf dogwood, but actual mortality is usually less than 25%. Roughleaf dogwood can be difficult to control. High-volume treatments providing greater than 50% mortality include 1% PastureGard (triclopyr + fluroxypyr), 1% Surmount (picloram + fluroxypyr), and 1% Grazon P+D + 0.5% Remedy Ultra (picloram + 2,4-D + triclopyr). All these herbicides are applied with water. Adding a 0.25 to 0.5% v/v non-ionic surfactant may enhance control. Aerial applications should be applied in a minimum 3

gallons per acre total spray solution to insure adequate coverage.

A single application of any herbicide does not completely eliminate roughleaf dogwood, but may open up the stand enough to carry a fire. In subsequent years, a combination of prescribed burning in the late spring followed by a herbicide application 4-6 weeks post burning should provide good control.

Soil-applied materials such as Spike 20P (tebuthiuron) and Pronone Power Pellets (hexazinone) can provide control of roughleaf dogwood. Spike 20P should be applied during the dormant season at 0.75 ounces product per 100 square feet. This is equivalent to 20 pounds of product per acre. Pronone Power Pellets should be applied when the soil is moist and rainfall is expected within 2 weeks of application. For plants 3-6 feet tall apply 2-4 pellets at the base of the plant. Expect to see grass damage following use of Pronone Power Pellets.

These dry soil-applied products may be useful in areas where spray drift may cause considerable non-target damage.

Walt Fick, Rangeland Management Specialist whfick@ksu.edu

Massive flooding along the Little Blue River has caused a lot of erosion and sedimentation. As a result, a special response meeting has been scheduled for May 19, from 10 a.m. to noon at the Kloppenberg Senior Center in Hanover (Washington County). Speakers at the meeting will discuss various aspects of the overall topic "Reclaiming Fields after Flooding."

Topics include:

- Reclaiming Ground / Field Repair
- Soil Quality Issues
- NRCS Response and State Regulations
- Emergency Watershed Protection Program for Infrastructure Damage
- FSA Update on Possible Assistance
- Crop insurance Considerations

Speakers will include:

Kim Larson, River Valley Extension District Agent

DeAnn Presley, K-State Soil Management Specialist

Andy Brozerman, NRCS Area Engineer

Tim With and Kenny Nelson, NRCS Technicians

Rebecca Palmer and Brandon Wilson, FSA Directors

Dustin Minge, Hanover Insurance Representative

This is a free event. Anyone affected by the Little Blue River flooding is welcome to come and bring questions. For more information, contact the River Valley Extension District Concordia office at 785-243-8185. Or email Kim Larson, River Valley Extension District Agent, at <u>kclarson@ksu.edu</u>.

Kim Larson, River Valley Extension District Agent kclarson@ksu.edu

7. South Central Experiment Field Spring Field Day, May 19

The Spring Field Day at the South Central Experiment Field will be held May 19, starting at 5 p.m. The event will be held at the field headquarters, 10620 S. Dean Road.

The main topics will include:

- Review of canola research Mike Stamm, K-State Canola Breeder
- Wheat breeding research, variety plots Allan Fritz, K-State Wheat Breeder, Manhattan
- Simulated grazing and N fertility management with sensors Tyler Gardner, Graduate Student
- Kansas Wheat Alliance update Daryl Strouts, Kansas Wheat Alliance

Also, representatives of the Hutchinson Chamber of Commerce Ag Committee will discuss their activities in the community. More information about the field day is available by calling Gary Cramer, agronomist-in-charge, at 620-662-9021, or email at gcramer@ksu.edu. A meal will follow the field day.



Figure 1. Map to South Central Experiment Field.

8. Canola clinics and field tour set for May 19, 21

A series of canola educational activities is set for May. First up are two harvest clinics in south central Kansas. Canola harvest is fast approaching, and producers will get the latest information and recommendations on harvesting their crop. The clinics are offered in collaboration with the Great Plains Canola Association and Oklahoma State University.

Canola is a crop that needs special attention during ripening, so we want to make sure producers have the tools necessary to make informed management decisions to prepare for harvest.

Topics for the harvest clinics include staging of the crop and harvest preparation, a harvesting methods overview, and a harvest equipment set-up discussion and demonstration. Speakers at the clinics will be canola extension specialists from the Great Plains Canola Association and Oklahoma State University. The two clinics are:

May 19 - Canola harvest clinic

- 2-4 p.m.
- South Central Kansas Experiment Field, North Redd Field -- 2 miles west of Partridge on West Trail West Road and ¹/₂ mile south on S. Highpoint Rd. The address is 7904 South Highpoint Road.
- Contact Gary Cramer (620-662-9021) for more information.

May 21 – Canola harvest clinic

- 9-11 a.m.
- Harper County Fairgrounds, Harper
- Contact Jenni Carr (316-323-7330) for more information.

A field tour on May 21 will be held for producers to learn more about basic agronomics and what canola producers in south central Kansas are doing to incorporate winter canola into their cropping systems. This tour is sponsored by K-State Research and Extension and Rubisco Seeds.

Canola has had a tough year in central Kansas, mostly due to the major cold snap we experienced in mid-November and fluctuating temperatures over the winter. For this reason, we would like to showcase some of the fields that pulled through and talk about ways to make canola more consistent in the state.

This field tour includes two stops:

May 21 - Canola agronomics field tours

- 1st stop: 8:30-10:30 a.m.
- The tour will start at the David Seck farm, 5605 S. Kent Rd., Hutchinson. Drive 2 ³/₄ miles south of US Hwy. 50 on Kent Rd. east of Hutchinson.
- See a hybrid winter canola field planted with a 20-inch row planter. Learn how winter canola fits into a cropping system that includes irrigated corn, soybeans, and wheat.
- 2nd stop: 11 a.m.-noon.

- The field is at the Larry Reichenberger farm 5 miles north of Garden Plain on N 295th Street W.
- View the K-State--AGCO canola row spacing (20-inch versus 30-inch) by seeding rate study. Learn how managing seeding rate can benefit both winter survival and yield.

For more information on any of these events, contact Mike Stamm, K-State Research and Extension Canola Breeder, at 785-532-3871 or <u>mjstamm@ksu.edu</u>.

9. Southeast Agricultural Research Center Spring Crops Field Day planned May 27

Wheat, weather and cropping systems will take center stage at the Southeast Agricultural Research

Center's Spring Crops Field Day on Wednesday, May 27 in Parsons.

The event will be held just south of U.S. Highway 400 on Ness Road (North 32nd St.). It starts with registration and a complimentary breakfast from 7:30 to 8:30 a.m.

Doug Shoup, Southeast Area Crops and Soil Specialist and Lonnie Mengarelli, Agricultural Technician along with seed company representatives, will lead a tour of 30 wheat variety plots.

Chip Redmond, Weather Data Library manager, will present "Weather Tools for Agriculture and Future Weather Outlook."

Ignacio Ciampitti, K-State Research and Extension crop production specialist will present "Finetuning Cropping Systems via Integration of New Technologies."

In case of rain, the field day will be held indoors.

More information is available by calling 620-421-4826.



Figure 1. Map to Southeast Agricultural Research Center, Parsons.

10. Wheat plot tour scheduled at North Central Experiment Field, June 3

The North Central Experiment Field Wheat Plot Tour is scheduled for Wednesday, June 3, 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. Tour topics include:

- Wheat Varieties
- Wheat Disease Update
- Production Updates

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.

11. Northwest Research-Extension Center Spring Field Day, June 4

The Northwest Research-Extension Center in Colby will host its 2015 Spring Field Day on Thursday,

June 4, with a complimentary lunch to follow.

Registration, coffee and donuts plus introductions start at 8:30 a.m. Field tours and presentations begin at 9 a.m.

- Solid stem wheat varieties for Kansas Lucas Haag, Northwest Area Crops and Soils Specialist
- Emerging crop pests: Wheat stem sawfly and sugarcane aphid J.P. Michaud, Agricultural Research Center-Hays entomologist
- Nitrogen management with crop sensors Jeanne Falk-Jones, Sunflower District Agronomy
- Kochia management in wheat stubble and fallow Curtis Thompson, Weed Management Specialist and Extension Agronomy State Leader
- Field peas for fallow replacement Lucas Haag
- Why are some wheat varieties more drought resistant? Rob Aiken, Northwest Research-Extension Center Agronomist
- Wheat marketing and management outlook Dan O'Brien, Northwest Area Agricultural Economist

Lunch, compliments of several sponsors, will be served at noon, following the last presentation.

More information is available at <u>http://www.wkarc.org</u> or by calling 785-259-2723.

12. Southwest Research-Extension Center-Tribune Dryland Wheat Tour, June 5

The Southwest Research-Extension Center will host its 2015 Dryland Wheat Tour on Friday, June 5 at the Tribune Unit, 1474 State Highway 96 (one mile west of Tribune).

K-State Research and Extension specialists will give updates on the latest research linked to dryland wheat varieties, as well as disease and insect management.

Registration begins at 8:30 a.m. MDT, with the tour and presentations starting at 8:45 a.m.

More information is available by calling 620-376-4761.

13. Southwest Research-Extension Center-Garden City Spring Field Day, June 5

The focus is on wheat and triticale at the 2015 Spring Field Day planned for Friday, June 5 at the

Southwest Research-Extension Center in Garden City.

The educational event begins with registration and introductions at 4:30 p.m. K-State Research and Extension specialists will provide the latest information on wheat varieties, plus managing diseases and insects that pose a challenge to wheat production.

A presentation on triticale forage varieties wraps up the program, which is followed by a complimentary supper.

More information about the Spring Field Day is available by calling 620-276-8286.

14. Comparative Vegetation Condition Report: April 28 - May 11

K-State's Ecology and Agriculture Spatial Analysis Laboratory (EASAL) produces weekly Vegetation

Condition Report maps. These maps can be a valuable tool for making crop selection and marketing decisions.

Two short videos of Dr. Kevin Price explaining the development of these maps can be viewed on YouTube at:

http://www.youtube.com/watch?v=CRP3Y5NIggw http://www.youtube.com/watch?v=tUdOK94efxc

The objective of these reports is to provide users with a means of assessing the relative condition of crops and grassland. The maps can be used to assess current plant growth rates, as well as comparisons to the previous year and relative to the 26-year average. The report is used by individual farmers and ranchers, the commodities market, and political leaders for assessing factors such as production potential and drought impact across their state.

NOTE TO READERS: The maps below represent a subset of the maps available from the EASAL group. If you'd like digital copies of the entire map series please contact Nan An at nanan@ksu.edu and we can place you on our email list to receive the entire dataset each week as they are produced. The maps are normally first available on Wednesday of each week, unless there is a delay in the posting of the data by EROS Data Center where we obtain the raw data used to make the maps. These maps are provided for free as a service of the Department of Agronomy and K-State Research and Extension.

The maps in this issue of the newsletter show the current state of photosynthetic activity in Kansas, the Corn Belt, and the continental U.S., with comments from Mary Knapp, assistant state climatologist:

Kansas Vegetation Condition

Period 19: 04/28/2015 - 05/11/2015



Figure 1. The Vegetation Condition Report for Kansas for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the highest level of photosynthetic activity continues in the central to southeastern quarter of the state. Patches of moderate photosynthetic activity are visible in northwest Kansas, and in southwest Kansas along the Arkansas River basin.

Kansas Vegetation Condition Comparison

Late-Apr/Early-May 2015 compared to the Late-Apr/Early-May 2014

Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows most of the state with much higher NDVI values than last year. At this time last year, statewide moisture was only 40 percent of normal for the year-to-date. This year, the statewide average is 78 percent of normal. Northeast Kansas is the exception. Last year, it was slightly above normal for the year-to-date, while this year it is averaging only 76 percent of normal.

Kansas Vegetation Condition Comparison

Late-Apr/Early-May 2015 compared to the 26-Year Average for Late-Apr/Early-May

Figure 3. Compared to the 26-year average at this time for Kansas, this year's Vegetation Condition Report for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the greatest departure from average is in north central and northeast Kansas. Drought and winterkill are major factors.

U.S. Corn Belt Vegetation Condition Comparison Late-Apr/Early-Mayl 2015 Compared to Late-Apr/Early-May 2014

Figure 4. The Vegetation Condition Report for the Corn Belt for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that highest NDVI values are in southern Missouri into Kentucky. Mild temperatures and favorable moisture have favored growth in that area. The exception is in the Boot Heel of Missouri, where excess moisture has been a problem.

U.S. Corn Belt Vegetation Condition Comparison Late-Apr/Early-Mayl 2015 Compared to Late-Apr/Early-May 2014

Figure 5. The comparison to last year in the Corn Belt for the period April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows higher NDVI values across much of Kansas and Missouri. Higher precipitation amounts have favored plant development in these areas. Central South Dakota has lower photosynthetic activity this year, as moisture levels have been less favorable. The impact from the most recent rains have yet to be seen.

U.S. Corn Belt Vegetation Condition Comparison Late-Apr/Early-May 2015 Compared to the 26-Year Average for Late-Apr/Early-May

Figure 6. Compared to the 26-year average at this time for the Corn Belt, this year's Vegetation Condition Report for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows above-average photosynthetic activity is concentrated in the southwestern portion of the region. South Dakota has the largest area of below-average photosynthetic activity. Recent moisture in the area has not yet been reflected in increased biomass production.

Continental U.S. Vegetation Condition Period 19: 04/28/2015 - 05/11/2015

Figure 7. The Vegetation Condition Report for the U.S. for April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that biomass production is highest in the southern U.S. The exception is along the Mississippi River Valley. High water levels there have reduced plant production.

Continental U.S. Vegetation Condition Comparison Late-Apr/Early-May 2015 Compared to Late-Apr/Early-May 2014

Figure 8. The U.S. comparison to last year at this time for the period April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows the Central and Southern Plains have much higher photosynthetic activity. Precipitation patterns have been much more favorable this year. There is also an area of greater NDVI values along the Pacific Northwest. This is likely to decrease in coming months as summer temperatures stress drought areas.

Figure 9. The U.S. comparison to the 26-year average for the period April 28 – May 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows the Southern Plains with much above-average photosynthetic activity. Kansas is the transition state, with belowaverage biomass production in the northern areas of the state. The most intense area of belowaverage values is in South Dakota. The recent rains in these areas have yet to have an impact on NDVI values. Lack of snow in the west continues to be evident with the above-average NDVI values along the Sierras.

Mary Knapp, Weather Data Library mknapp@ksu.edu

Kevin Price, Professor Emeritus, Agronomy and Geography, Remote Sensing, GIS <u>kpprice@ksu.edu</u>

Nan An, Graduate Research Assistant, Ecology & Agriculture Spatial Analysis Laboratory (EASAL) <u>nanan@ksu.edu</u>