



Extension Agronomy

eUpdate

05/10/2019

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. Effect of standing water and saturated soils on corn growth

If corn has been planted, standing water or saturated soil conditions in areas of a field can produce impacts now or later for corn. Periods of early-season water saturation can cause immediate problems for small corn plants, and can have season-long implications as well. Hopefully, the affected areas are small and confined to spots that are low-lying or poorly drained.

If corn is yet to be planted, please check the companion articles published in this issue of the eUpdate titled “Considerations for corn planted under wet conditions” and “Sidewall compaction from planting into wet soils.”

Saturated soils after corn emergence

After corn emerges, 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.

Tolerance of young corn plants to full submersion

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.

Complicating factors

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 warm water. Luckily, much of the flooded areas in the last couple weeks have stayed relatively cool. 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. Ironically, what is often best for the silt covered plants is to receive a small shower to help wash off the leaves.

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.

Disease considerations

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 both the tassel and ear 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.

Other concerns: Denitrification, cold weather crown stress, green snap, and root lodging

Saturated soils can also cause loss of N fertilizer by either denitrification (loss of N to the atmosphere, mainly as nitrous oxide gas) or leaching (movement of N 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 N applications if a large portion of early-applied N is lost to these processes. If corn remains N 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.

The best advice is to scout your corn after water drains from the fields. Check the appearance of new leaves and the standability of the corn.

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2. Soybean response to standing water and saturated soils

Soybean planting has yet to begin in Kansas (only 5% planted), based on the USDA-NASS Crop Progress and Condition Report from May 6, 2019. Nonetheless, a few farmers have already planted. These beans have gotten off to a very slow start, constrained by rain events and wet soil conditions.



Figure 1. Soybean slowly emerging and showing lack of uniformity. Photo by Ignacio

Ciampitti, K-State Research and Extension.

Wet soil conditions will slow emergence, make the soil more susceptible to compaction (limiting root growth), and cause poor plant-to-plant uniformity after emergence. Sidewall compaction occurs when soybeans are planted when the soil is too wet, immediately followed by dry weather. Soil surface crusting is another potential challenge for soybean emergence.

After emergence, 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 2. 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 3. 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 along 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 are a long way 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 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 4. Stand loss in a wet area due to *Phytophthora* root rot. Photo by Doug Jardine, K-State Research and Extension.

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3. Sidewall compaction from planting into wet soils

Conducting field work -- including planting, tillage, or traffic in general -- after wet weather can cause soil compaction, and in particular sidewall compaction in the seed furrow. The worst cases of sidewall compaction are seen after a field has been planted when the soil was too wet, followed by a period of dry weather. If the soil stays moist, the roots are usually able to grow through the walls of the seed furrow. But if the soil gets dry, the roots can have a harder time growing through that seed furrow wall, and instead grow along the furrow, resulting in what is referred to as sidewall compaction (Figure 1).



Figure 1. Sidewall and seed zone compaction in heavy clay soil. Photo by Stu Duncan, K-State Research and Extension.

With corn, the plants might look fine for a while, but the symptoms of this problem will probably show up after the plants get to be several inches tall. Symptoms will look like drought stress, nutrient deficiency, or both (Figures 2 and 3).



Figure 2. Potassium deficiency in a field with sidewall and seed zone compaction in a wet, clayey soil. Photo by Stu Duncan, K-State Research and Extension.



Figure 3. Planting into a cold, saturate soil resulted in sidewall compaction which led to crown rot resulting in "chromic" corn. Photo by Stu Duncan, K-State Research and Extension.

Since there are not any good ways to fix sidewall compaction once it exists, the best practice would be to avoid creating the problem in the first place. This means waiting until soils are dry enough to plant. The way to test for this is to dig down to the desired planting depth and try to make a ball with the soil. Next, see if the ball will crumble or crack apart, or if it deforms like molding putty. If it crumbles, it is ready to plant. If it deforms, it would be best to wait before resuming field operations. Even waiting as little as half a day could make a big difference.

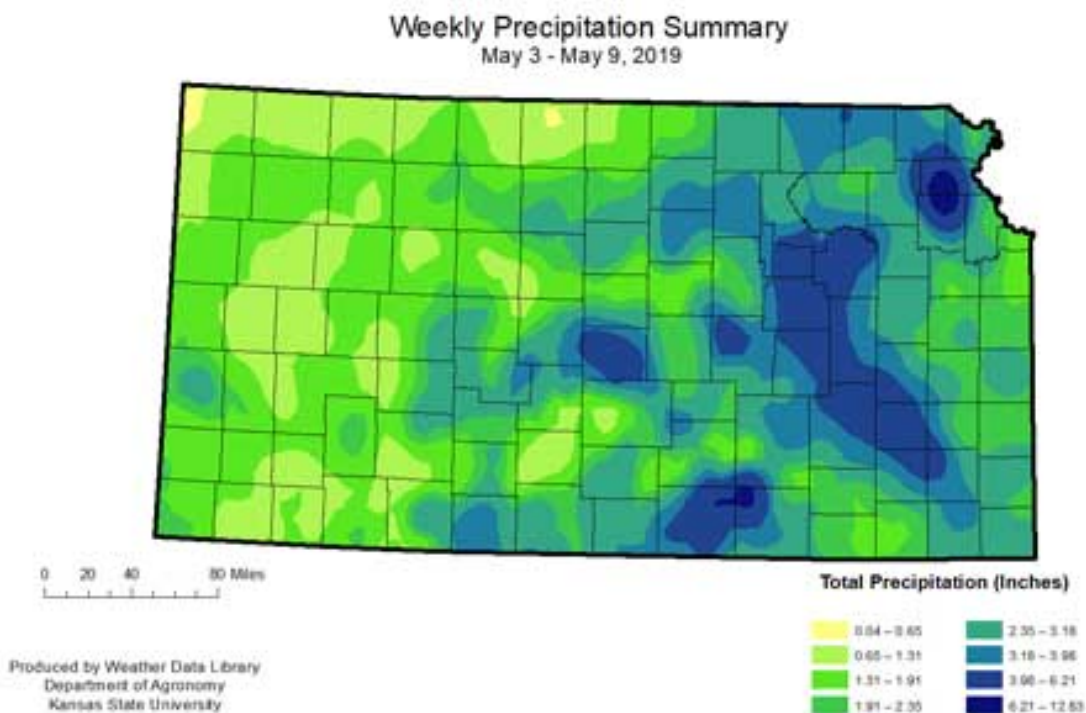
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4. Considerations for corn planted under wet conditions

Recent rains have created very wet soil conditions throughout most of Kansas. Some corn remains to be planted (about 59 percent as of May 5th). Weekly and monthly precipitation summaries are presented in Figure 1. The Kansas Mesonet soil moisture network reflects the saturation at both the shallow (2 inch) and the subsoil (10 inch) depths (Figure 2).



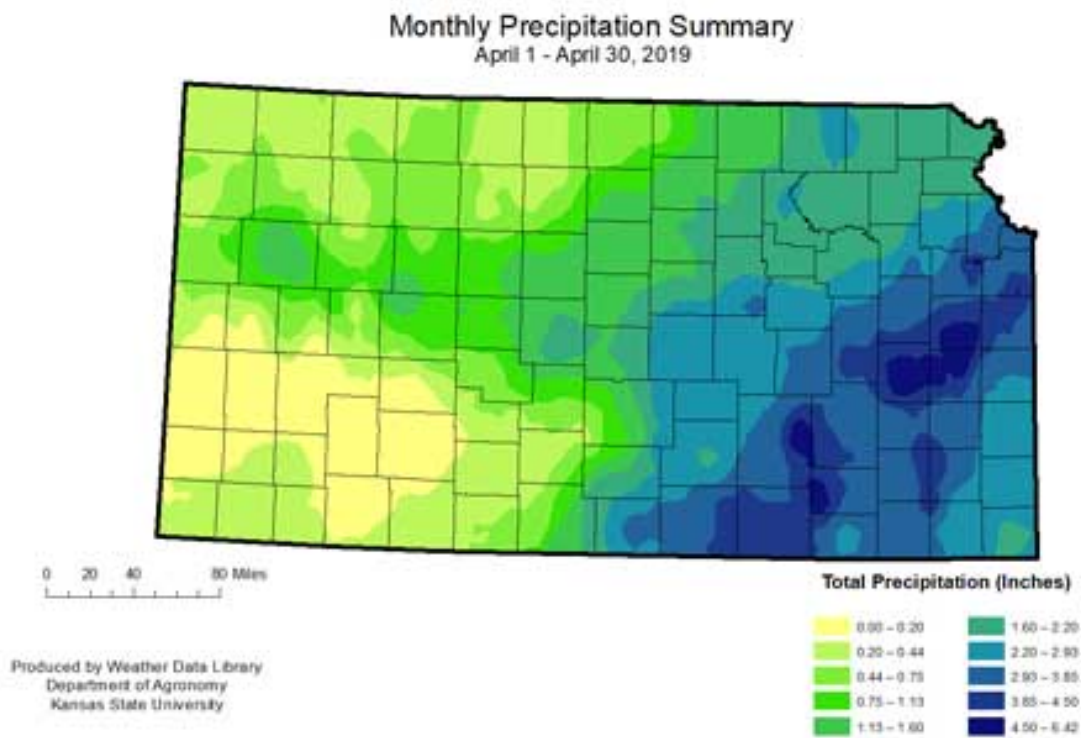
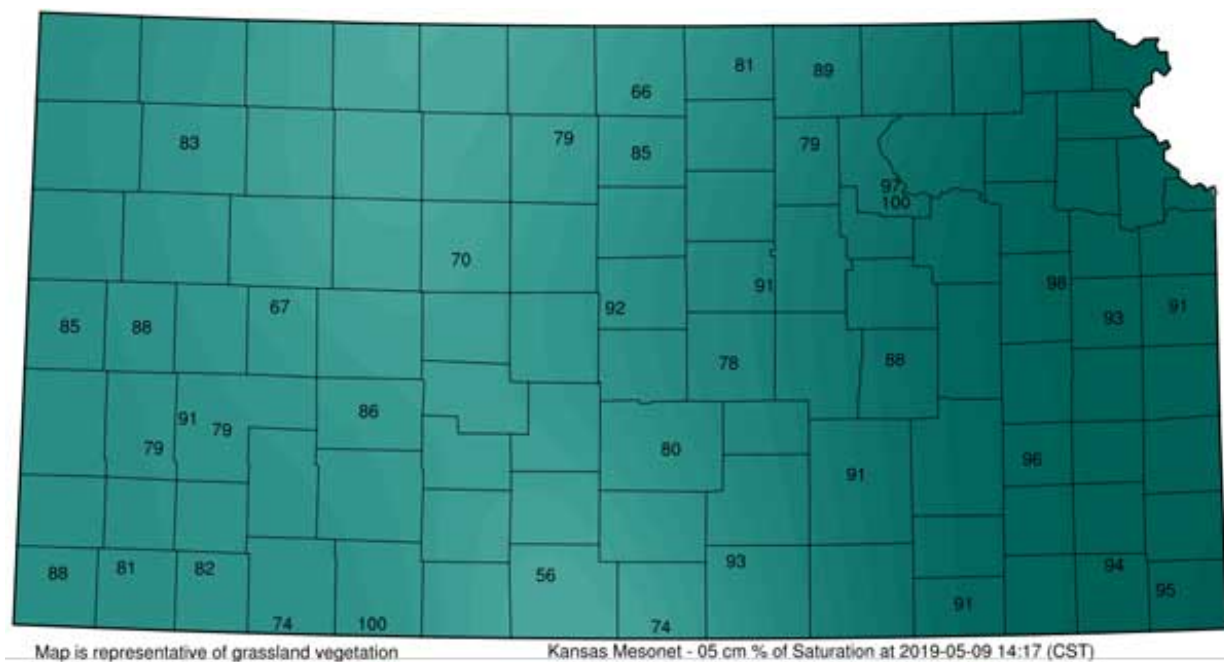
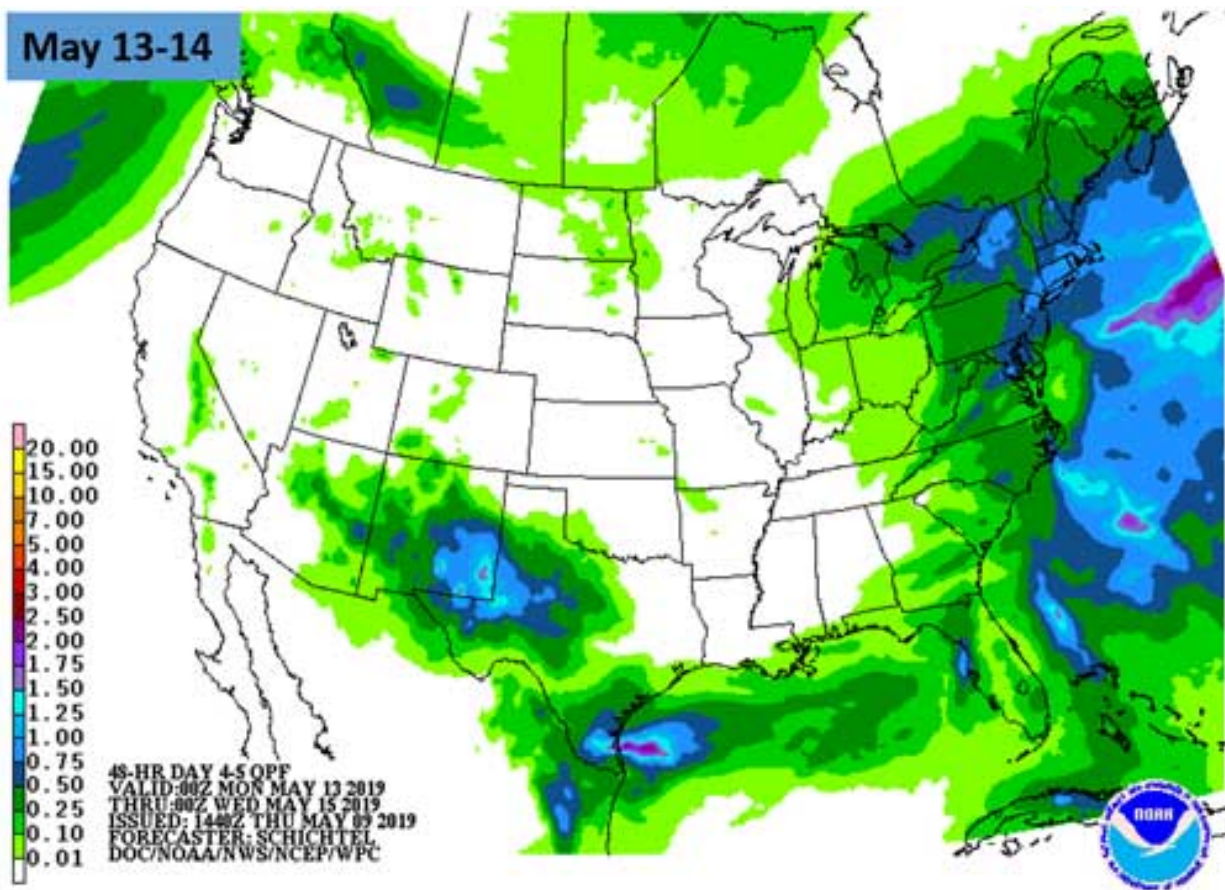


Figure 1. Weekly precipitation summaries for May 3 – May 9 (upper panel) and monthly for April 1-30, 2019 (lower panel), for Kansas.





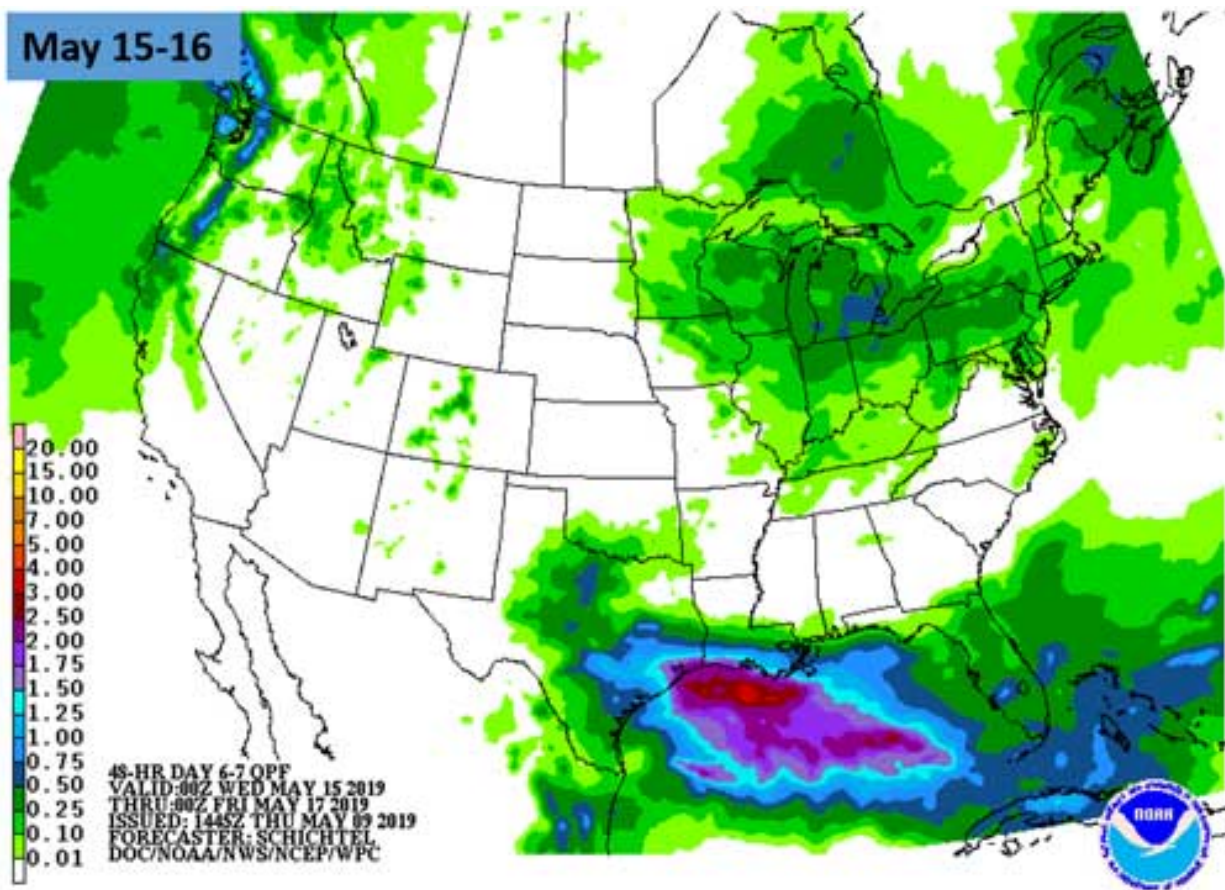


Figure 3. 48-hour precipitation forecast. Upper panel, May 13-14; Lower panel, May 15-16.
Source: NOAA.

What should producers expect if they plant corn into soils that are too wet, and what can they do to minimize any problems?

It is best, of course, to allow time for the soil to dry adequately before tillage or planting operations if at all possible. Wet conditions will make the soil more susceptible to compaction. Tilling some soils when they are too wet can produce large, persistent clods, complicate planting, reduce herbicide effectiveness, and destroy the seedbed. Also, compaction can occur in the seed furrow itself, restricting proper root development (also diminishing nutrient accessibility) and early plant growth.

If soils remain or become unusually wet after the corn has emerged, corn may look sickly for a while. 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. For further details on these points, check the companion article in this issue of the eUpdate: “Effect of standing water and saturated soils on corn growth and yield.”

If wet weather conditions persist for more than a week, corn emergence will be delayed and seedlings will be more vulnerable to the presence of insects and diseases. Uneven corn stands likely

will be greater when planting in cold and wet soils. This situation will directly affect plant-to-plant uniformity (Figure 4), impacting potential yield.



Figure 4. Uneven corn stands. Photo by Ignacio Ciampitti, K-State Research and Extension.

Unfortunately, the longer 8 to 14-day outlook is for a wetter-than-normal pattern (Figure 5). This does not exclude dry days during the period, but even light amounts are likely to continue the problem. Warmer-than-normal temperatures and sunshine would allow for quicker drying of the soils.

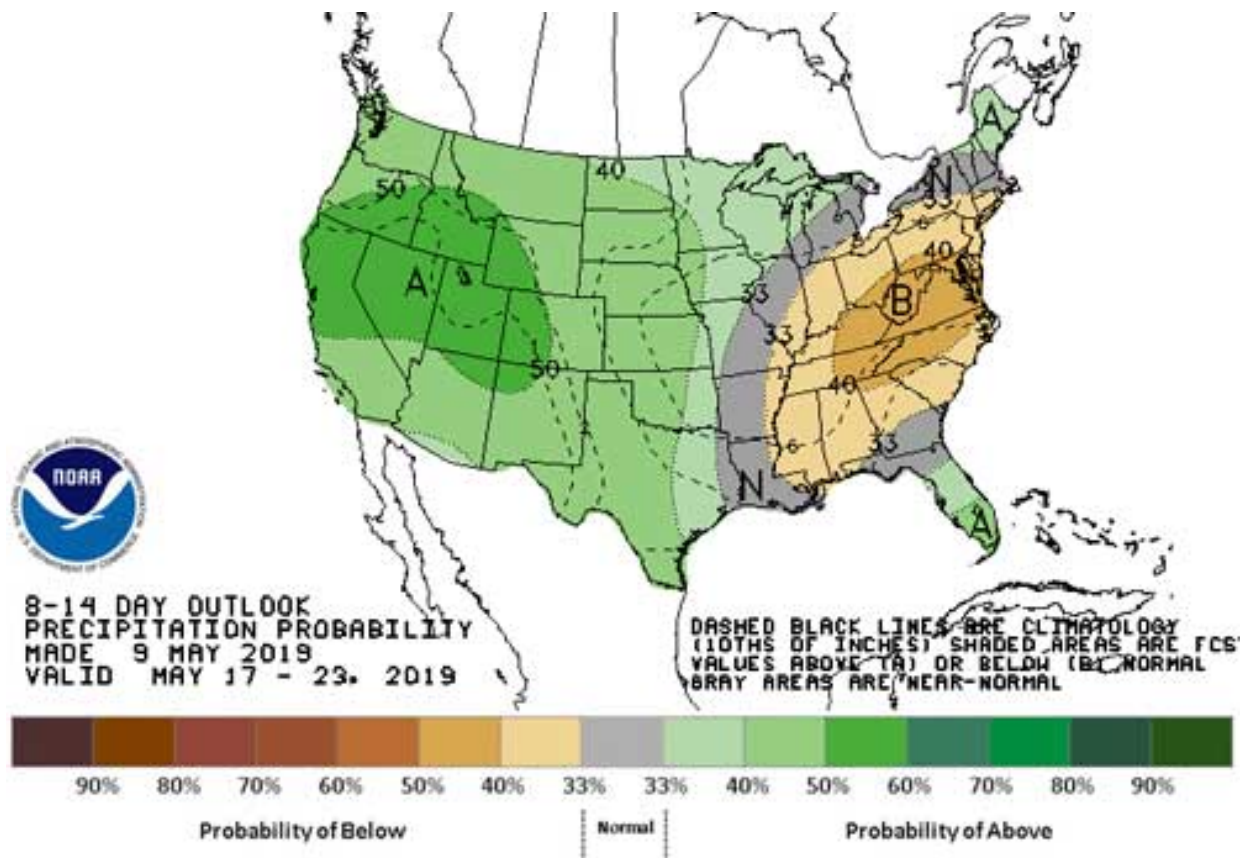


Figure 5. 8-14 Day Outlook (May 17- May 23, 2019) issued May 9, 2019. Source: NOAA.

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5. Control options for buckbrush, roughleaf dogwood, and smooth sumac

Three common brush species native to Kansas are buckbrush (*Symphoricarpos orbiculatus*), roughleaf dogwood (*Cornus drummondii*), and smooth sumac (*Rhus glabra*).

Buckbrush is generally 2-3 feet tall and occurs on prairies and woodlands. Patches of buckbrush provide cover for birds and mammals. Above-ground runners help buckbrush spread around forming clumps.

Roughleaf dogwood is a shrub that can reach 15 feet in height. Flat-topped clusters of white flowers usually appear in late May to early June. Roughleaf dogwood can be found in fence rows, edge of woods, along streams, and open prairies. It provides cover for wildlife and nesting birds.

Smooth sumac will grow to a height of 5-7 feet and produces an open milo-like head in early June. It grows on rocky soils in pastures and along fence rows. Some birds will eat the seed and the plants provide cover for birds and mammals.

All three shrubs can produce clumps that will shade out and reduce forage production. Cattle generally do not browse on these species, but sheep and goats are more likely to utilize these woody plants.

Top removal of buckbrush after the plants have leafed out and the nonstructural carbohydrates stored in the roots are at a low level can be an effective control. One way to accomplish top removal is with prescribed burning. Fire can be an effective control technique if burning is done in the late spring. It may take 2 or 3 years of consecutive burning to reduce buckbrush stands. If you missed the opportunity to burn this year or are located in areas where burning wasn't possible, mowing becomes an option. Again, it may take 2 or 3 years of consecutive mowing at the proper time (generally early to mid-May) to reduce stands.

Herbicides can also be used to control buckbrush. The best time to spray occurs just as the leaves are starting to change from a light to dark green color (Figure 1). This timing corresponds with the low point in the nonstructural carbohydrate cycle. A number of herbicides can be used to spray buckbrush, but 2,4-D low-volatile ester formulations at 1.5 to 2 lbs/acre are usually quite effective. Other herbicides used for buckbrush control include Grazon P+D (picloram + 2,4-D) at 2-3 pint/acre and Chaparral (aminopyralid + metsulfuron). Chaparral can be used alone at 2 to 3 oz/acre for buckbrush control, but I prefer adding 2 pint/acre 2,4-D to 2 oz/acre Chaparral. Caution should be used if treating cool-season grasses with Chaparral. Grazon P+D is a restricted use pesticide. Always read the label when considering the use of herbicides.



Figure 1. Leaf color change on buckbrush. Photo by Walt Fick, K-State Research & Extension.

Roughleaf dogwood is rarely grazed and invades grassland in the absence of prescribed burning. 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. Long-term late spring burning may gradually reduce stands of roughleaf dogwood.

The optimum time to spray roughleaf dogwood is between the flower bud state and early seed production (Figure 2). 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 0.5-1%

PastureGard HL (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.



Figure 2. Roughleaf dogwood in full bloom. Photo by Walt Fick, K-State Research & Extension

Late-spring burning will keep smooth sumac shorter in stature, but generally increases stem density. The optimum time to spray smooth sumac is between the flower bud stage and early seed production (Figure 3). Smooth sumac is among the easiest woody plants to control with herbicides if applied at the proper time. Smooth sumac is controlled with 2-3 pint/acre 2,4-D with ground or aerial application.



Figure 3. Smooth sumac in early seed production stage. Photo by Walt Fick, K-State Research & Extension

Soil-applied materials such as Spike 20P (tebuthiuron) and Pronone Power Pellets (hexazinone) can provide control of roughleaf dogwood and smooth sumac. 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. Spike 20P can also be used to control buckbrush.

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

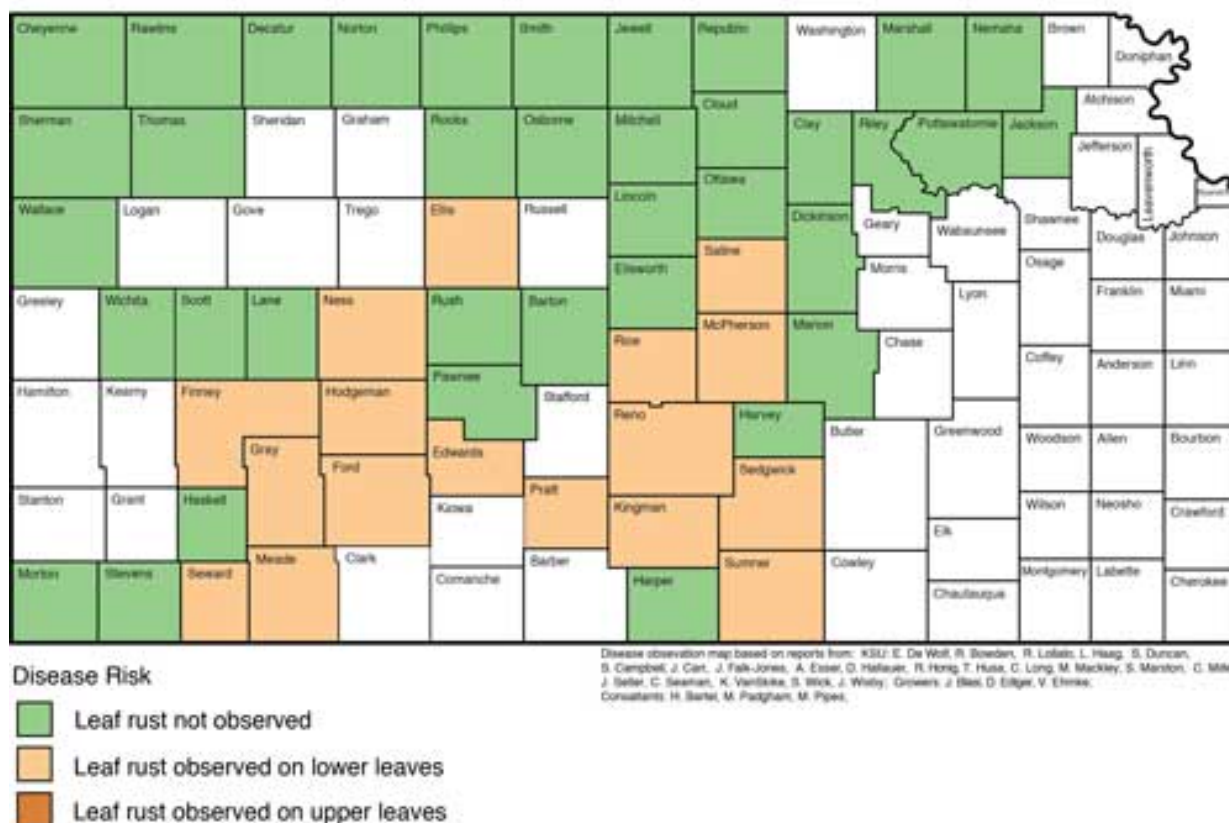
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6. Update on wheat leaf rust and stripe rust development - May 10, 2019

The wheat crop in central Kansas is now moving through the flag leaf emergence and flowering stages of growth. The crop is most advanced in the southeast and south central region where many fields are either flowering or already into the early stages of grain development. Wheat in the north central and northwestern regions generally ranges from late-jointing to flag leaf emergence. These growth stages are critical for many wheat diseases and management decisions.

Despite rain delays in field scouting, this week brought more reports of leaf rust and stripe rust activity with both diseases reported in additional counties (Figure 1). The diseases are still primarily at low to moderate levels in the mid-canopy. However, there are a few reports of stripe rust moving to the upper leaves. These reports came from Reno and Pratt counties, where were among the first counties to report stripe rust activity this spring.

Distribution of Wheat Leaf Rust May 10, 2019



Distribution of Wheat Stripe Rust

May 10, 2019

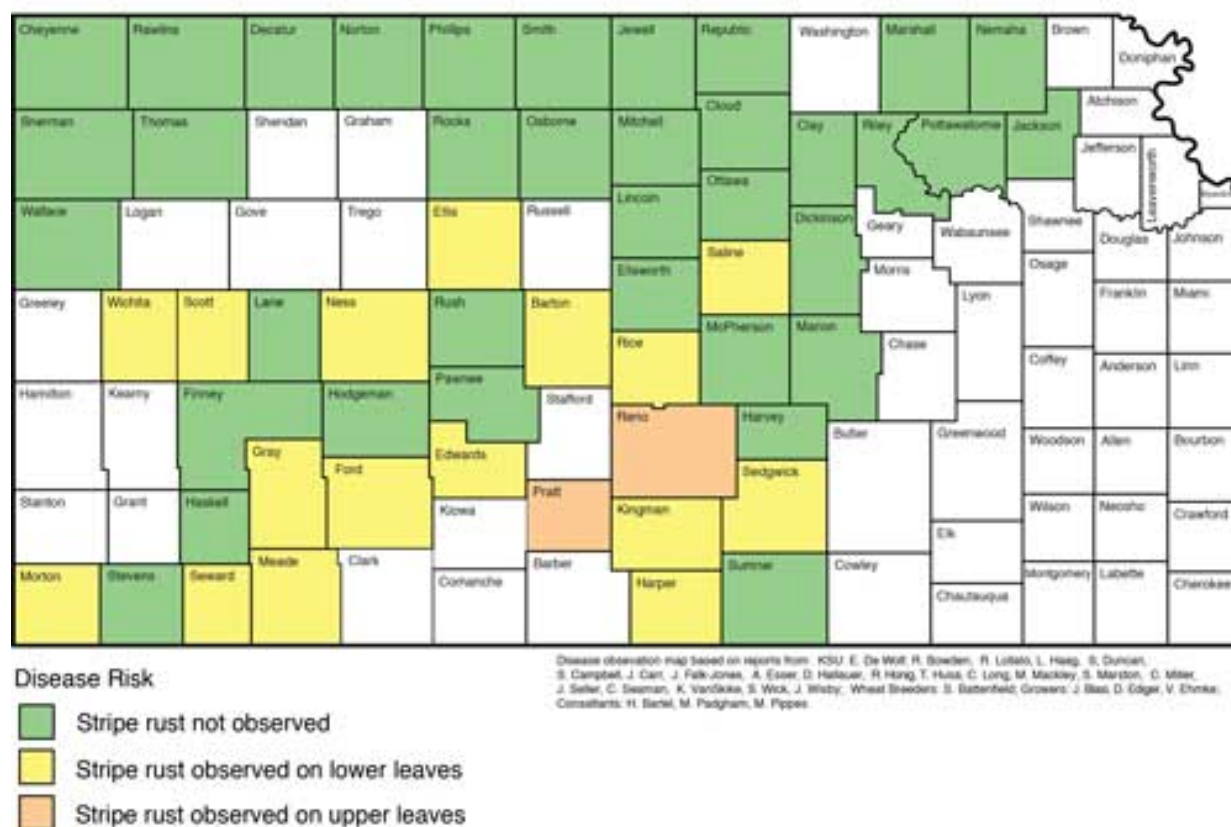


Figure 1. Summary of scouting reports for rust activity as of May 10, 2019. Maps created by Erick DeWolf, K-State Research and Extension.

There are also indications that genetic resistance of some important wheat varieties is not as effective this season. Preliminary reports indicate the SY Monument, Larry, LCS Chrome and AG Icon varieties are all showing signs of greater susceptibility this year. WB Grainfield, which had an intermediate reaction to stripe rust last year, also appears to be developing more disease than expected this year.

The weather was very conducive for the development of stripe rust and leaf rust over the past two weeks. Many regions of the state have experienced frequent rainfall and extended periods of high relative humidity that favor disease development. In fact, many areas of Kansas have experienced more than 100 hours of rust-favorable weather during the first ten days of May (Figure 2).

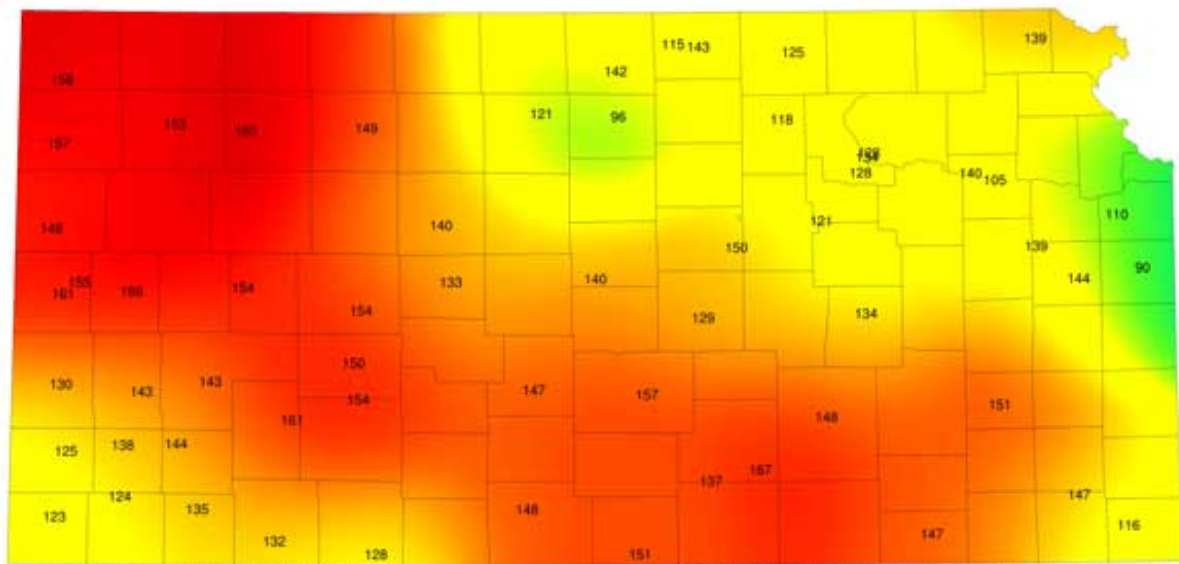


Figure 2. Duration of weather conditions favorable for the development of rust diseases in wheat. This map shows the number of hours that RH was greater than 85%.

Given these developments, it is important that growers continue to scout fields for signs of disease. Fields with stripe rust or leaf rust established on the upper leaves during the heading or flowering stages of growth are at a high risk for yield loss. Fields with low levels of disease in the mid- or lower canopy are at a moderate risk.

K-State Research and Extension has multiple publications to help growers identify disease, evaluate the need for fungicides, and select the appropriate fungicide products.

“Identifying Rust Diseases of Wheat”:

<https://www.bookstore.ksre.ksu.edu/pubs/MF2919.pdf>

“Evaluating the Need for Foliar Fungicides in Wheat”:

<https://www.bookstore.ksre.ksu.edu/pubs/MF3057.pdf>

“Foliar Fungicide Efficacy for Wheat Disease Management”:

<https://www.bookstore.ksre.ksu.edu/pubs/EP130.pdf>

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7. Risk of Fusarium head blight in wheat increasing in south central Kansas

Wheat in southeastern and south central Kansas is at or approaching the heading, flowering, and early stages of kernel development. These growth stages are very vulnerable to Fusarium head blight (head scab). Given the recent rainfall and associated periods of high relative humidity, there is concern that some fields are at a high risk for severe disease this year.

There is a national effort to predict the outbreaks of Fusarium head blight. These predictive models can help growers evaluate how favorable conditions are for the development of disease. In a general sense, these models are looking for weather patterns that known to favor the reproduction and infection processes of the Fusarium fungus. Many of the most severe disease outbreaks were preceded by a period of high relative humidity in the weeks leading up to flowering growth stages. The risk of severe Fusarium head blight has increased significantly this past week and much of eastern and south central Kansas is now at a moderate or high risk of disease (Figure 1). Wheat in other areas of the state is not at the critical growth stages yet; therefore, the risk of disease is lower than the current map indicates.

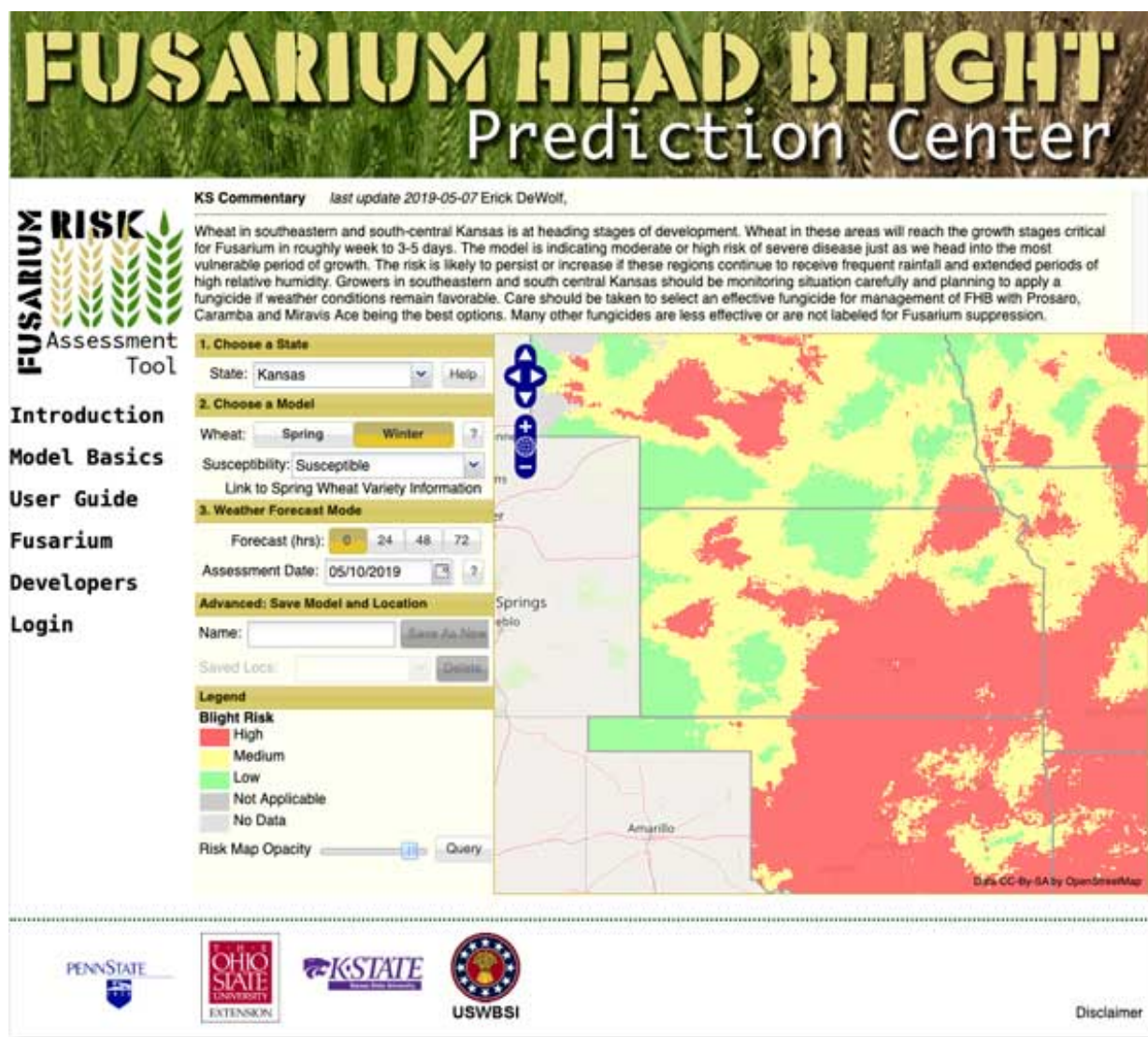


Figure 1. Risk of Fusarium head blight in Kansas on May 10, 2019. The latest risk maps can be found at: <http://www.wheatcab.psu.edu>.

Growers concerned about head blight should consider applying a fungicide after their fields have fully headed or are in the early stages of grain fill. The most effective fungicide applications for Fusarium suppression are made just as the crop begins to flower or during the early stages of kernel development. Product choice is also important for Fusarium management with the Prosaro, Caramba and Miravis Ace being the best available options. Many other fungicide products are not labeled for Fusarium management.

More information about fungicide options can be found in the publication, "Foliar Fungicide Efficacy for Wheat Disease Management" at <https://www.bookstore.ksre.ksu.edu/pubs/EP130.pdf>.

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8. K-State wheat plot tours for May 13-17, 2019

The week of May 13-17 features several wheat plot tours in Kansas. Producers wanting 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. 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 13-17, the plot tour locations include:

Monday, 5/13/2019, 7:30 am

Location: Kinsley, Edwards Co.

Contact: Marty Gleason, mgleason@ksu.edu

Directions: Breakfast at Edwards Co Fair Bldg (1305 S Niles) followed by plots at Ardell Road, junction of O Road and 50th Ave. (2.5 miles South of Highway 50)

Monday, 5/13/2019, 6:00 pm

Location: Larned, Pawnee Co.

Contact: Kyle Grant, kkgrant@ksu.edu

Directions: 5 miles north of Larned on Toles Road, ½ west and 1 and ½ north on the east side of the road NW 28-20-16

Tuesday, 5/14/2019, 8:00 am

Location: Minneola, Clark Co.

Contact: Brice Gibson, begibson@ksu.edu

Directions: Intersection of CR A and CR 7. 2 mi north of Minneola, on Hwy 283, turn east, drive 1 mi on CR A to CR 7 and turn south, drive 1/4 mi. Breakfast will be served at the Methodist Church, 231 Main St, following the tour.

Tuesday, 5/14/2019, 12:00 pm

Location: Ashland, Clark Co.

Contact: Brice Gibson, begibson@ksu.edu

Directions: 2mi. West of Int. of River Rd and CR Z. South on River Rd 5 miles and turn on CR Z and turn west and drive 2 miles on CR Z. Lunch will be served at the Clark County Fairgrounds, 1200 S Kentucky, following the tour.

Wednesday, 5/15/2019, 10:30 am

Location: Comanche/Kiowa Co.

Contact: Aaron Sawyers/Wade Reh, asawyers@ksu.edu and wreh@ksu.edu

Directions: It will be in Kiowa County just east of the 21st Avenue and X Street intersection. To find the plot, go west of Highway 183 on the Comanche/Kiowa (Y St.) County Line Road for 3 miles then 1 mile north on 21st Avenue.

Wednesday, 5/15/2019, 6:30 pm

Location: Dodge City, Ford Co.

Kansas State University Department of Agronomy

2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506

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Contact: Andrea Burns, aburns@ksu.edu
Directions: Hwy 50 Bypass and 116 Road

Thursday, 5/16/2019, 10:00 am

Location: Partridge, Reno Co.

Contact: Daryl Strouts, dstrouts@ksu.edu

Directions: SCK Red Field - From Partridge, head 1.5 miles west of Partridge on Trail West Road. Then go 1/2 mile south on S High Point Road. Plot will be on the east side of the road.

Thursday, 5/16/2019, 10:30 am

Location: Isabel, Barber/Pratt Co.

Contact: Justin Goodno, jgoodno@ksu.edu

Directions: Junction of K-42 and Main St

Thursday, 5/16/2019, 5:30 pm

Location: Kingman

Contact: Kallie Turner, kalliet@ksu.edu

Directions: 7681 SW 80th Avenue. Head West on US-400/ US-54 for 9.4 miles. Turn left onto SW 90 Ave., continue for 8 miles. Turn left onto SW 80th St., continue 1.4 miles. Wheat Plot will be on the right.

Friday, 5/17/2019, 9:00 am

Location: Marquette, McPherson Co.

Contact: Shad Marston, smarston@ksu.edu

Directions: Patrick Plot- Marquette on Highway 4

Friday, 5/17/2019, 12:00 pm

Location: Mound Ridge, McPherson Co.

Contact: Shad Marston, smarston@ksu.edu

Directions: Noon Lunch- Black Kettle Park. 1:00 pm - Galle Plot- Cherokee Rd & 22nd Ave (2 miles North of Moundridge 1/4 mile East)

Friday, 5/17/2019, 4:00 pm

Location: Inman, McPherson Co.

Contact: Shad Marston, smarston@ksu.edu

Directions: Schroeder Plot- 4th Ave and Cheyenne Rd (4 miles West of Inman and 1 mile North)

The eUpdate will highlight upcoming tours each week. Stay tuned!

Romulo Lollato, Extension Wheat Specialist
lolato@ksu.edu

Erick DeWolf, Extension Wheat Pathologist

dewolf1@ksu.edu

9. Ag-Climate Update for April 2019

Editor's note: To allow our readers to best view the new format of the Ag-Climate Update, the eUpdate will only feature a short summary each month. The entire 2-page Ag-Climate Update will be posted with much better resolution on the Kansas Climate webpage at <http://climate.k-state.edu/ag/updates/>. Previous Ag-Climate updates will also be accessible from this same link.

As a reminder, each update includes a brief summary of that month, agronomic impacts, relevant maps and graphs, 1-month temperature and precipitation outlooks, monthly extremes, and notable highlights. The Ag-Climate Update is a joint effort between our climate and extension specialists.

April 2019 – A short break in the moisture

April brought a break to the colder-than-normal trend that dominated the winter. Vegetation had been slow to emerge from dormancy, but the moderately warm weather has been beneficial for the fall-planted crops such as wheat and canola. The warmer conditions have resulted in rapid development in wheat, but the crop is still about 2 weeks behind its normal stage. Development shows substantial differences based on sowing dates.

View the entire April Ag-Climate Summary at <http://climate.k-state.edu/ag/updates/>

10. Three winter canola 2019 field days scheduled for late May

The latest research, variety, and production information on winter canola will be featured at K-State Research and Extension (KSRE) field days on May 20, 24, and 29.

The field days are excellent opportunities to see winter canola variety trials and producer fields. New and experimental varieties will be on display and a discussion will be held on the current growing season. With harvest season approaching, harvest management options will also be discussed. Producers will have opportunities to get their questions answered about making winter canola a viable rotation option in Kansas.

According to K-State canola breeder, Mike Stamm, the production year has been another interesting one, starting with moist conditions for planting last fall and fluctuating temperatures over the winter. The crop is poised for a good harvest, and the aim is to reassure producers that there are many benefits to growing canola in rotation.

The schedules and locations for the field days include:

Monday, May 20 - Kingman County starting at 10:00 a.m.

The program will be held at the canola variety trials south of Norwich. From the KS-2 and SE 160th Street intersection, drive ½ mile east. The plots are on the south side of the road. See the National Winter Canola Variety Trial (NWCVT), learn about new winter canola varieties on the market, and hear how local producers are using canola in rotation. Refreshments will be provided.

Friday, May 24 - Reno County starting at 10:00 a.m.

The program begins at the South Central Kansas Experiment Field, 10620 South Dean Road, Hutchinson. The NWCVT and K-State variety trials will be on display. Learn about new winter canola varieties on the market. Attendees will hear about a new canola establishment study in cooperation with industry. Refreshments will be provided.

Wednesday, May 29 - Gray County starting at 10:00 a.m.

The program will be held at a canola field located 2 miles east of Montezuma at the intersection of US-56 and 15 Road. Hear how a local producer is incorporating canola into rotation, learn about new canola varieties, and assess the prospects for canola production in southwest Kansas. Lunch will be sponsored by Helena.

For more information, contact Mike Stamm at 785-532-3871 or mjstamm@ksu.edu.

11. Kansas Composting Operators' School, June 11-12 in Manhattan

The Kansas Composting Operators' School provides hands-on training in municipal, agricultural, and commercial large-scale composting for operators and managers of compost facilities who want to gain knowledge and experience in composting. The school will take place on June 11-12 at Pottorf Hall on the Riley County Fairgrounds, 1710 Avery Ave, Manhattan, 66503.

The program includes classroom and laboratory instruction along with field activities. Field activities will include a demonstration of composting equipment such as a turner, and collection of compost samples for testing for maturity as well as chemical and physical properties.

Instructors for this year will be DeAnn Presley, K-State Agronomy Department and Emery Wiens, Kansas Department of Health and Environment.

Training topics will include:

- Composting science and methods
- Compost biology
- Compost feedstocks
- Food waste composting
- Determining compost mixes
- Permit and legal requirements
- Site design and maintenance
- Compost equipment
- Windrow construction and aeration
- Compost moisture
- Field and laboratory monitoring
- Learn to measure moisture, temperature, pH, soluble salts, maturity, and interpreting lab data
- Compost quality and use
- Methods of composting: static vs. active

Registration is due by **June 3** and class size is limited to 20 people. The registration fee (\$195) will include lunches, breaks, and training materials. Participants are responsible for travel and lodging. Payment (payable to KSU Agronomy) must accompany registration. Mail payment and the registration portion on the flyer included below to: Extension Agronomy, 2014 Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506. Online registration is available for credit card payment (additional fees apply): <http://www.agronomy.k-state.edu/extension/soil-management/>.

DeAnn Presley, Soil Management Specialist
deann@ksu.edu

Kansas Composting Operators' School



June 11-12, 2019

Pottorf Hall, Riley County Fairgrounds
1710 Avery Ave, Manhattan, KS 66503



The Kansas Composting Operators' School provides hands-on training in municipal, agricultural, and commercial large-scale composting for operators and managers of compost facilities who want to gain knowledge and experience in composting.

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Training Topics

- ✓ Composting science and methods
- ✓ Compost biology
- ✓ Compost feedstocks
- ✓ Food waste composting
- ✓ Determining compost mixes
- ✓ Permit and legal requirements
- ✓ Site design and maintenance
- ✓ Compost equipment
- ✓ Windrow construction and aeration
- ✓ Compost moisture
- ✓ Field and laboratory monitoring:
- ✓ Learn to measure moisture, temperature, pH, soluble salts, maturity, interpreting laboratory data
- ✓ Compost quality and use
- ✓ Methods of composting: static versus active



Instructors

DeAnn Presley
KSU Agronomy Department
Email: deann@ksu.edu

Emery Wiens
Kansas Department of Health & Environment
Email: emery.wiens@ks.gov

REGISTRATION: Kansas Composting Operators' School

Name _____ Company or Employer _____

Address _____ City _____ State _____ ZIP _____

Phone _____ E-Mail _____

Company/Agency: _____

Please mention any mobility issues or dietary preferences here: _____

Fee: \$195 – Includes lunches, breaks, and training materials. Participants are responsible for travel and lodging. Payment (payable to KSU Agronomy) must accompany registration. Mail to: Extension Agronomy, 2014 Throckmorton Plant Sciences Center, Kansas State University, Manhattan, KS 66506. Online registration available for those who want to pay with a credit card (additional fees apply), <http://www.agronomy.k-state.edu/extension/soil-management/>. Registration due by June 3, 2019. Class size is limited to 20 people.