



## Extension Agronomy

# eUpdate

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*08/14/2020*

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](mailto:kgehl@ksu.edu), or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 [dpeterso@ksu.edu](mailto:dpeterso@ksu.edu).

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<b>1. Planning your wheat fertility program: Start now by soil testing</b>	3
<b>2. Make an informed decision when selecting the best wheat variety</b>	6
<b>3. Updated 'Seed Treatment Fungicides for Wheat Disease Management 2020' now available</b>	10
<b>4. Managing low-quality wheat seed</b>	12
<b>5. 2020 Kansas Corn Yield Contest - Registration deadline August 31</b>	16
<b>6. K-State to host two virtual fall field days - August 26 &amp; 27</b>	19
<b>7. Kansas weed survey - Reminder to participate before August 31</b>	21
<b>8. Soil Health Partnership Field Day - August 18</b>	22

## 1. Planning your wheat fertility program: Start now by soil testing

Wheat planting is just a month or so away in parts of Kansas, so now is the time to get your soil sampling done to have good information on which to base your fertilizer inputs. This is particularly important since we continue to see very tight margins for wheat, and efficiency with focus on the most important variables in production will be critical.

### **Which nutrients should be tested?**

The most important tests and nutrients to focus on this year depends in part on where you are located, the choices you make when applying N, and your tillage system. The nutrients for which wheat is most likely to show responses statewide are nitrogen (N) and phosphorus (P). Wheat is the most P-responsive crop we grow in Kansas, and while P removal with wheat may be less than with corn or soybeans, the relative yield response is often the highest. Therefore, knowledge of P soil test levels and fertilizer needs will be valuable. In addition, low soil pH is becoming a problem, especially fields with a history of high rates of N application and relatively low cation exchange capacity.



In addition to the “Big 3” (pH, N, and P), potassium (K) deficiency in wheat can also be found in some areas of southeast and south central Kansas. Wheat is generally less prone to K deficiency than many of the rotation crops commonly grown, such as corn, soybeans or grain sorghum. Generally, the focus of a K fertilization program is with the rotation crops, and meeting the higher K needs of corn and soybeans minimizes the chance of a K deficiency in wheat.

### **The 0 to 6-inch soil sample**

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[www.agronomy.ksu.edu](http://www.agronomy.ksu.edu) | [www.facebook.com/KState.Agron](https://www.facebook.com/KState.Agron) | [www.twitter.com/KStateAgron](https://www.twitter.com/KStateAgron)

A standard 0 to 6-inch surface sample is normally used to test for pH and the non-mobile nutrients such as P and K. Phosphorus and K are buffered processes in our Kansas soils. This simply means that the soil contains significant quantities of these nutrients, and the soil tests we commonly use provide an index value of the amounts available to the plant, not a true quantitative measure of the amounts present. In the case of P, most Kansas soils require about 18 pounds of  $P_2O_5$  to increase 1 ppm in soil test P; for K is around 8 pounds  $K_2O$  to increase 1 ppm K soil test.

The buffering value for both P and K varies based on soil cation exchange capacity (CEC) and the soil test levels. On high CEC soils, especially those soils with high clay content, the buffering capacity goes up, so the soil test levels will change more slowly. However, on low CEC soils, the buffering capacity can be much lower, and soil test levels can change rapidly. The same situation occurs with soil test levels. On soils with low soil test P or K levels, it will require more P or K to raise the soil test than at high soil test levels.

In addition to requesting the standard soil tests of pH, P, and K from the 0 to 6-inch surface sample, producers might also want to monitor soil organic matter levels and micronutrients such as zinc (Zn). Zinc is not a nutrient commonly found deficient in wheat production. However, it is important for corn and grain sorghum. Thus including it in your sample package would be helpful for planning for these rotation crops.

Soil organic matter (SOM) is an important source of nutrients such as N and sulfur (S). When calculating the fertilizer needs for both these nutrients, SOM is taken into consideration. For wheat production, 10 pounds of available N and 2.5 pounds of S is credited for every 1% SOM in the soil.

### **The 0 to 24-inch soil sample**

In addition to pH, SOM, P, K, and Zn -- all of which are non-mobile in soils and accumulate in the surface -- the mobile nutrients N, S, and chloride can provide significant yield responses when deficient in soils. Since all three of these nutrients are mobile in soils and tend to accumulate in the subsoil, we strongly recommend the use of a 24-inch profile soil sample prior to growing wheat, corn, or grain sorghum.

**Nitrogen** is a nutrient likely to provide yield response statewide. One common misconception is that the accumulation of N in the soil profile only occurs in the drier, western half of the state. However, with our dry winters, N can accumulate in the soil statewide. Rainfall tends to peak in Kansas in June and July, with a rapid decrease in monthly precipitation in the fall. Rainfall totals are generally lowest in December and January. Wheat takes up the majority of its N prior to flowering. In southeast Kansas that is in April, and in north central Kansas it is in early May most years.

In many years, especially following dry summers, significant amounts of N can be present in soils at wheat planting. On the other hand, after good yields, the residual N levels may be lower than the commonly used "default" value, and N fertilizer rates would need to be adjusted accordingly.

**Sulfur** deficiency is increasing across the state in wheat production also. There are two primary causes: the reduction in sulfur deposition from the atmosphere seen over the past 2-3 decades, and the reduction in S content in many P fertilizers. While not as soluble as nitrate, S is also a relatively mobile nutrient which accumulates in the subsoil. The S profile soil test is a good way to determine S needs.

**Chloride** (Cl) is the third essential mobile element to be considered for wheat production with profile soil testing. Chloride deficiency is normally found in the eastern half of the state on soils that do not have a history of potash (KCl) application. In general, this includes many areas in eastern Kansas, north of the Kansas River, and the central corridor of wheat production. Chloride deficiency is associated with grass crops, wheat, corn, and grain sorghum, and is correlated with the plants ability to resist plant disease. Again, the profile soil test for chloride is well calibrated in Kansas and should be considered.

## **Summary**

In summary, wheat producers in Kansas should consider soil testing to help in making accurate fertilizer decisions. Accurate decisions are especially important during years with low grain prices and tight budgets. Furthermore, after variable conditions and yield levels across the state, fertilizer needs may require adjustments based on soil test. Wheat producers specifically, should use surface 0-6 inch samples to determine the need for lime on low pH soils, P, K, Zn, and soil organic matter. They also should be using 24-inch profile soil tests for N, S, and Cl. Now is the time to get those samples taken, to ensure there will be enough time to consider those test results when planning your fall fertilizer programs.

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## 2. Make an informed decision when selecting the best wheat variety

In recent years, wheat producers are faced with an increasing number of varieties from which to choose. Producers can use different tools and publications to study each variety's strengths and weaknesses, selecting varieties that best match their needs.



**Figure 1. Producers in Kansas have many wheat varieties to evaluate. Photo by Romulo Lollato, K-State Research and Extension.**

### **Making a better decision: Steps to select a wheat variety**

The following information provides a step-by-step guideline, as well as relevant resources, to help producers make a better decision when selecting one or a few varieties to plant in their operation.

#### **1. Select several varieties that are adapted to your region of the state.**

Regardless whether you intend to plant one variety or several on your farm, it is important to start out with a list of several good candidate varieties. The final product of interest is grain yield and therefore, it is crucial to select varieties that have shown consistent performance and excellent yield record in the region. Varieties that worked well for you and your neighbors in the past should be

considered, but also make sure and check yield results from nearby K-State (and other universities') variety performance tests and demonstration plots. It is important to take into consideration the conditions experienced during the year in question, and always look for trial results from past years as well, due to the high year-to-year variability in weather conditions in Kansas. Beyond looking at results from more than a single year, checking for variety performance in several nearby locations is also a good practice.

A few great resources to consult are:

- a. [K-State variety performance test](#): Start searching by year, narrow down your search by region and finally by site. Choose the site(s) nearest to you and look for varieties that are consistently toward the top. Repeat the procedure for different years to check the consistency of the variety performance. Click the link above to access the K-State variety performance test results.
- b. [OSU variety performance tests](#): If you are in southern Kansas or in Oklahoma, this is also an excellent resource. Click "Variety Testing" in the link above and then "Grain Yield" to have access to similar information to the one offered by K-State, but for variety performance tests from Oklahoma. Follow the steps described above. Click the link above to access the OSU variety performance test results.
- c. [Colorado Wheat Variety Database](#): This database encompasses replicated trial results from Colorado, Kansas, Oklahoma, and several other public state trials, so producers throughout the Plains can benefit. It is an excellent, easy-to-use resource that allows you to dig into data from single location, multiple locations, multiple years, and also allows for head-to-head variety comparisons. We suggest that users start by looking at "Single Location Trial Data", selecting the location nearest to you, and repeating this step for several years of data for that location. Check for varieties that tend to be consistently toward the top. Afterwards, look at "Multiple Location Trial Data," which will allow you to look at yields spanning a wider geographical region instead of a single location for one, two, three, or four years combined. Depending on region and number of years selected, you might be looking at more than 15 replicated trials combined. Thus, if a given variety remains a top yielding variety across all these replicated trials, it is a pretty good argument that you should at least look at that variety's characteristics and consider it in your farming operation. Finally, after selecting a few potential candidates based on their performance, we suggest that users click on "Head-to-head comparisons", so they can test whether those candidates performed statistically different over a wide range of environments. Click the link above to access the Colorado database.

## **2. Narrow down the number of varieties in your list to a few good candidates.**

After selecting several varieties that have shown good adaptability and stability in your region, the list needs to be narrowed down to the number of varieties you intend to plant. Ideally, at least two or three varieties (or a blend of two or three varieties) should be planted to spread the risk on your acres. Select varieties that are adapted and resistant/tolerant to the major concerns in your region, but that have contrasting characteristics such as different maturities or disease resistance characteristics. This will help buffer the risk of a single event compromising production of the whole operation and can help spreading out harvest dates so not all varieties are ready at the same time. Some factors to consider include:

- a. Production system: For producers who graze their wheat before taking it for grain (dual-

purpose producers), selecting a variety with good forage yield, medium to late first hollow stem, Hessian fly, barley yellow dwarf, and wheat streak mosaic resistance; and good recovery from grazing is very important. Another consideration is whether the crop will be irrigated or dryland. Wheat varieties differ in their straw strength. There are a few varieties that should be restricted to dryland use, due to their below-average straw strength. A history of feral rye in the field would suggest the need for a Clearfield or Co-AXium variety and this plays an important role in variety selection. Double-cropping wheat following soybeans in central Kansas, or following corn in western Kansas, may require varieties with excellent tillering potential to compensate for the delayed development due to late planting. No-till producers in western Kansas might be looking for tall varieties with good straw production potential to help improve water retention in the soil for the subsequent crop, so this could also play a role in selecting a variety.

b. Tolerance to abiotic factors: Depending on the region of the state where your farm is located, it will be subjected to different abiotic stresses. Acid soils are a major concern in south central, central, and north central Kansas, and varieties that have good low soil pH tolerance are warranted. Meanwhile, drought is a dominant factor in western Kansas, and varieties with better drought tolerance should be favored there. Varieties differ in their tolerance to abiotic stresses, and selecting a variety with better tolerance to the major limiting factor in your operation will allow the variety's potential to be more easily achieved.

c. Disease resistance: Variety selection can help reduce the risk to many of the most common and damaging diseases in Kansas. Selecting varieties with good stripe rust and leaf rust resistances can reduce the risk of severe disease problems and the need for foliar fungicide in the spring. However, due to a potential race change for both stripe and leaf rusts in 2019, producers are encouraged to scout their fields even if the selected varieties were rated as resistant in the past. Producers who are willing to spray a foliar fungicide have more variety options to choose from than those who are not. Some varieties have many very good characteristics and yield potential, but lack resistance to some major fungal diseases and thus require a fungicide to maintain their productivity. For example, Everest has many good characteristics, such as intermediate head scab resistance, some of the best barley yellow dwarf resistance available, and acid soil and Hessian fly tolerance; however, it is very susceptible to stripe rust. If a producer is willing to spray a foliar fungicide, Everest is still an acceptable option for central and eastern Kansas. This is also true for varieties such as Avery, Byrd, WB Grainfield, etc. Diseases such as leaf or stripe rust can be controlled with a foliar fungicide and producers have the option to budget for it in their operation. Meanwhile, other diseases require more of a systems management approach and cannot be controlled after they are established. These include viral diseases such as wheat streak mosaic and barley yellow dwarf, and can also include a fungal disease such as Fusarium head blight, which is not always successfully controlled with fungicide applications due to timing and coverage limitations. If these diseases are common concerns in your region, evaluate each variety's ratings against these constraints and selecting the ones that provide better levels of resistance.

d. Maturity: Selecting several varieties with differing maturities is a great tool to spread risk as well as to optimize harvest timing. You don't want to have too many acres ready for harvest at once and then have to wait for harvest for lack of combine capacity. Early-maturing varieties will most likely have a yield advantage over later-maturing varieties in years such as 2012 and 2018 when the grain filling period turns hot and dry. Also, from a historical perspective, early-maturing varieties have been more successful in the southern portion of the state, especially south central Kansas, due to the typical hot weather pattern toward the end of the growing season. On the other hand, medium-late maturing varieties will benefit



from growing seasons with an extended grain-filling period, such as 2015, 2016, 2017, and 2019. It is important to keep in mind that recent years favored later-maturing varieties throughout the state. If we only look at the most recent years it will be tempting to plant later-maturing varieties, even in south central Kansas. However, nothing guarantees that the next growing season will be similar. At sowing time, we don't know how the weather will turn out during grain fill. Therefore, spreading the risk in your operation by selecting varieties with differing maturities is always a good idea. In other words, you can plant a medium or medium-late maturing variety in south central Kansas, but keep it to a fraction of your acres.

## Resources

A few great resources to help you walk through each variety's characteristics as far as maturity, disease ratings, drought and soil pH tolerance, date of first hollow stem, and other agronomic characteristics are:

- [a. K-State Wheat Variety Disease and Insect Ratings 2020:](#) This comprehensive guide to wheat varieties will allow you to compare different varieties in their agronomic and disease resistance characteristics in detail. Many varieties are individually described, others are shown in a table format which allows for easy and fast comparison. It is available online at the link above or in your county Extension office in Kansas.
- [b. Wheat Varieties for Kansas and the Great Plains by Layton Ehmke:](#) This private-sector book is also an excellent, comprehensive source of information regarding different varieties and their characteristics. It provides detailed ranking of varieties by traits of interest, making it easy to use. It also has a good summary of several variety performance tests in the Great Plains. While not available online, producers can purchase it in the link above if interested.
- [c. K-State Wheat Variety Date of First Hollow Stem, Fall Forage Yield, and Grain Yield for 2019-2020:](#) This new K-State publication compare several varieties in their fall forage production, date of first hollow stem, and grain yield under dual-purpose versus grain-only management in south central Kansas. It is a good resource for producers who graze their wheat before taking it for yield. It is available online at the link above or in your county Extension office in Kansas.
- [d. OSU Fall forage production and First Hollow Stem Date for Wheat Varieties during the 2019-2020 crop year:](#) similarly to the publication above, this OSU publication compares varieties' forage yield and date of first hollow stem for north central and central Oklahoma. Available online at the link above or in your county Extension office in Oklahoma.

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### 3. Updated 'Seed Treatment Fungicides for Wheat Disease Management 2020' now available

Seed treatments are an important part of wheat production in Kansas. An updated version of the K-State publication MF2955, *Seed Treatment Fungicides for Wheat Disease Management 2020* is now available at: <http://www.ksre.ksu.edu/bookstore/pubs/MF2955.pdf>

This updated publication provides information about setting seed treatment priorities; considerations for seed treatment success; a key to common seed treatment active ingredients; and a list of some of the more common seed treatments labeled for use in Kansas.

Most fungicide seed treatments provide protection against several seedborne diseases (common bunt, loose smut, flag smut) as well as seedling diseases which may result in poor emergence or damping off. Additionally, if seed is saved from fields with Fusarium head blight, fungicide seed treatments should be a priority.

#### **Additional benefits of seed treatments:**

##### **Fungicide seed treatments help keep seed-borne diseases such as smuts and bunts in check.**

Loose smut control requires a systemic fungicide like tebuconazole or difenoconazole. Common bunt, sometimes called, “stinking smut”, can be controlled very effectively with most commercial treatments. Some regions of the state have struggled with these diseases in recent years. If you are planning to keep seed that is known to have or been exposed to common bunt, it is critical to use a fungicide seed treatment to avoid problems in the future.

**Seed production fields are a top priority for fungicide seed treatments.** These fields have a high value and investments in seed treatments here help prevent the introduction and development of seed borne diseases on your farm. Due to the high value of the seed produced, even small yield increases can justify the use of seed treatments.

**Seed treatments can aid stand establishment when planting wheat after soybean harvest,** even on seed that has high test weight and good germination. Planting wheat late into cool, wet soils often delays emergence, and reduces the tillering capacity of wheat seedlings. This reduced tillering capacity diminishes the plants ability to compensate for stand loss and maintain yield potential.

**Some fungicide seed treatments also suppress the fall development of foliar diseases.** For example, treatments containing tebuconazole and difenoconazole provide some protection against fall infections of powdery mildew, leaf rust, and Stagonospora nodorum leaf blotch. It is important to note that most seed treatment fungicides will provide a maximum of 30 days of control. A seed treatment will not prevent the disease from becoming reestablished in the spring, and foliar fungicide applications may still be required to protect the yield potential of the crop.

#### **Things to remember**

As with most things in agriculture, producers must balance the possible benefits against the cost. Some growers also prefer not to risk having leftover treated seed to deal with at the end of planting. However, this issue can be avoided by using hopper box treatments or other on-farm application equipment in some cases. If seed is treated on-farm, pay close attention to thorough coverage of the seed. Incomplete coverage can reduce the efficacy for the seed treatment.

There are many different seed treatments available for wheat. Although most seed treatment ingredients are fungicides, some will also contain insecticides. Each ingredient targets slightly different spectrum of disease causing fungi or insect pests. Therefore, many commercial formulations include combinations of ingredients that provide a broader spectrum of protection.

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#### 4. Managing low-quality wheat seed

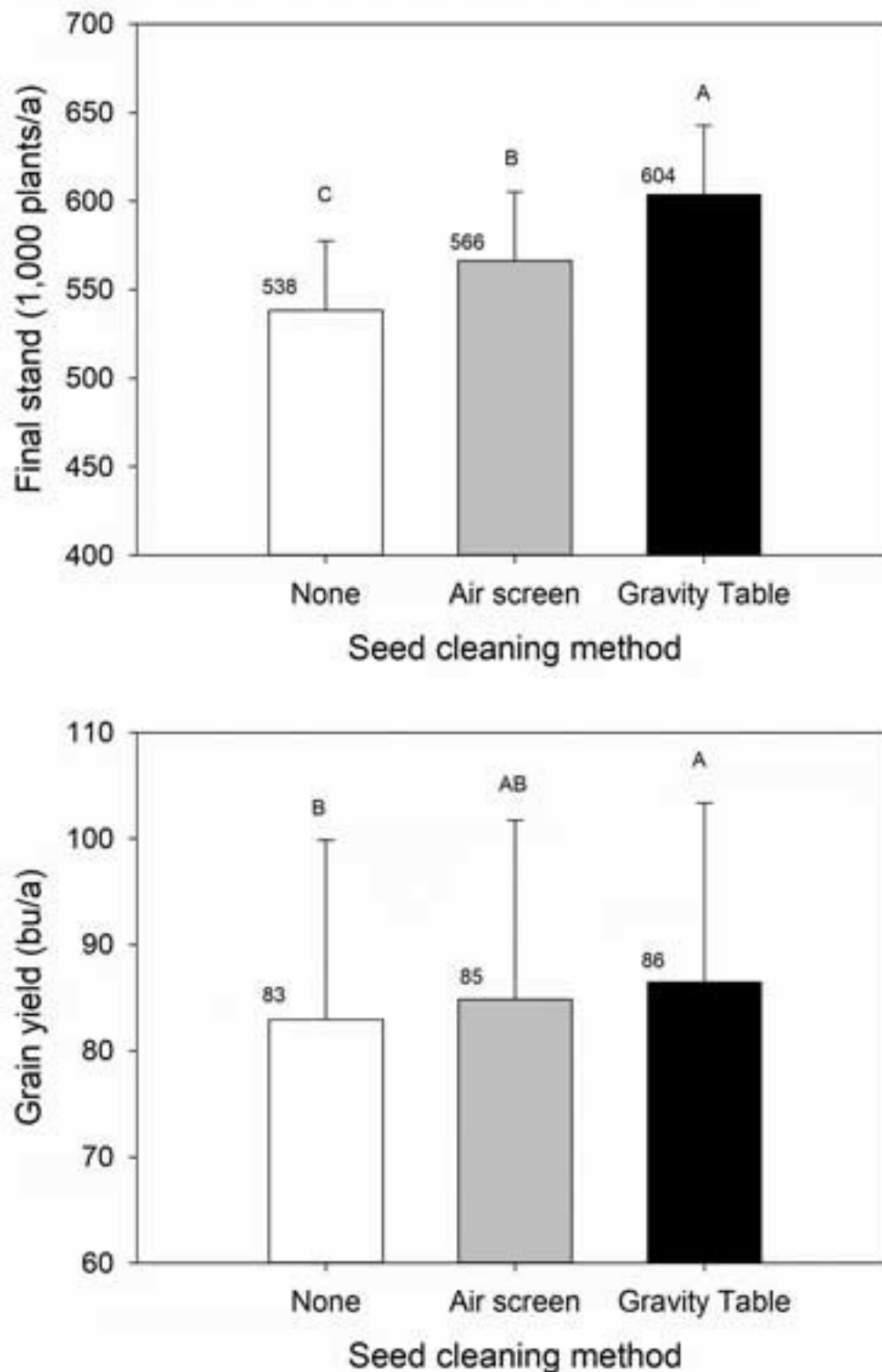
Although not very widespread, parts of eastern and south central Kansas were affected by Fusarium head blight (head scab) during the 2019-20 season, which can affect the quality of the seed for the next growing season. A direct consequence of head blight is a decrease in test weight (which is a measure of kernels' volume weight or bulk density), as well as decrease in percent germination due to chalky, infected wheat kernels (Figure 1).



**Figure 1. Chalky wheat kernels (tombstones) resulting from severe infection of Fusarium head blight. Photo by Erick DeWolf, K-State Research and Extension.**

While many of the severely diseased kernels are removed by the combine during harvest, the presence of head scab can result in high cleanout percentages during the process of seed cleaning, and producers who stored grain on-farm and are planning to simply plant seed straight out of the bin must be cautious. One important consideration is that seed wheat should have a test weight above 57 pounds per bushel for adequate germination under a wide variety of conditions, which can be achieved through appropriate seed cleaning. In cases in which head scab was present, or other diseases such as common bunt or loose smut, producers should also consider a fungicide seed treatment. If seed infested with the Fusarium pathogen is left untreated, it may result in infection of wheat seedlings after planting leading to damping off. Seed saved back from fields with issues of common bunt or loose smut, may result in even higher levels of those diseases in 2021 if a fungicide seed treatment is not used. Those fungal pathogens will infect plants from seed, although symptoms won't be present until heading (in the case of loose smut) or grain fill (in the case of common bunt).

K-State research conducted in seven locations during 2018-19 showed that improving seed quality through different seed cleaning methods leads to better stand establishment and grain yield, even in a season when *Fusarium* was minimal (Figure 2). Therefore, the benefits of seed cleaning are potentially larger in years where disease was moderate.



**Figure 2. Effects of seed cleaning method on wheat stand establishment (upper panel) and**



**grain yield (lower panel). Data summarizes a study conducted in seven locations (Ashland Bottoms, Belleville, Colby, Hutchinson, Leoti, Manhattan, and Mitchell) during the 2018-19 growing season. Graphs by Romulo Lollato, K-State Research and Extension.**

Producers will want to take certain steps when sowing the next wheat crop to help increase the chances of getting a good stand. Low-test-weight seed usually germinates well, but seedlings tend to have lower vigor than seedlings from seed with higher test weights. Therefore, producers should take special care to try to get a good, uniform stand.

**Drill speed.** Using a drill speed of 5 mph or less will help ensure that the seed is placed down in the seed slot, and that the seed slice is closed and firmed properly, making for good seed-soil contact. Getting good seed-soil contact will help the seedlings develop a good primary and secondary root system. Also, when drill speeds are too fast, the openers tend to “ride up” at times, resulting in a planting depth that is shallower than intended.

**Seeding depth.** All wheat should be planted at the proper depth for best stands. But it is especially important that low-test-weight seed is not planted too deeply, since this seed has low emergence vigor to start the growing season. It is equally important not to plant too shallowly. Shallow-planted wheat often has more difficulty establishing a good root system in the fall than wheat planted at the proper depth, and this can be an even greater problem when using low-test-weight seed. Plant low-test-weight seed 1 to no more than 1.5 inches deep.

**Seeding rates.** Usually, the lower the test weight, the more seeds there are per pound. Producers who use a seeding rate based on pounds per acre should not adjust their seeding rate when planting low-test-weight seed. They will end up planting more seeds per acre, but emergence is often somewhat lower with low-test-weight seed, so the stand should come out about normal. If the cause of low test weight includes fungal diseases such as *Fusarium* head scab, which decrease wheat germination rate, an increase in seeding rate may ensure a good and uniform stand.

**Seed treatments.** Fungicide seed treatments may improve germination or seedling vigor of low-test-weight seed, and protect against certain diseases. Many fungicides also contain insecticides, which may reduce fall aphid levels, reducing risk of barley yellow dwarf. See the accompanying article in this issue of the eUpdate for more information.

**Seed cleaning.** Producers should make every effort to have their seed cleaned as thoroughly as possible to remove scabby kernels and shriveled seed. This may help increase the test weight and improve emergence and seedling vigor (Figure 2). Adjusting the settings during seed cleaning to blow lighter seed away can add 1 to 2 pounds to the seed lot's test weight by removing the small kernels. However, if the majority of the kernels are lighter and shriveled, the potential of gaining much test weight is limited, or the cleanout percentage is high.

**Germination testing.** Whether head scab is an issue or not, in order to ensure the crop gets off to a good start, it would be desirable to have the seed germination evaluated by a seed-testing lab, as other factors such as bin heating, insects or other improper storage conditions can also lead to reduced seed quality. The turnaround time for this type of testing is generally 7 to 14 days once the seed-testing lab receives the sample. The variation in the turnaround time depends on the need for pre-chilling treatment prior to the germination test. The need for pre-chilling typically ends around Labor

Day weekend. The cost of testing at the Kansas Crop Improvement Association (KCIA) is \$19.00 for the standard warm germination test. Growers or others can contact KCIA by phone at 785 532-6118, or by email at [kscrop@kansas.net](mailto:kscrop@kansas.net).

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## 5. 2020 Kansas Corn Yield Contest - Registration deadline August 31

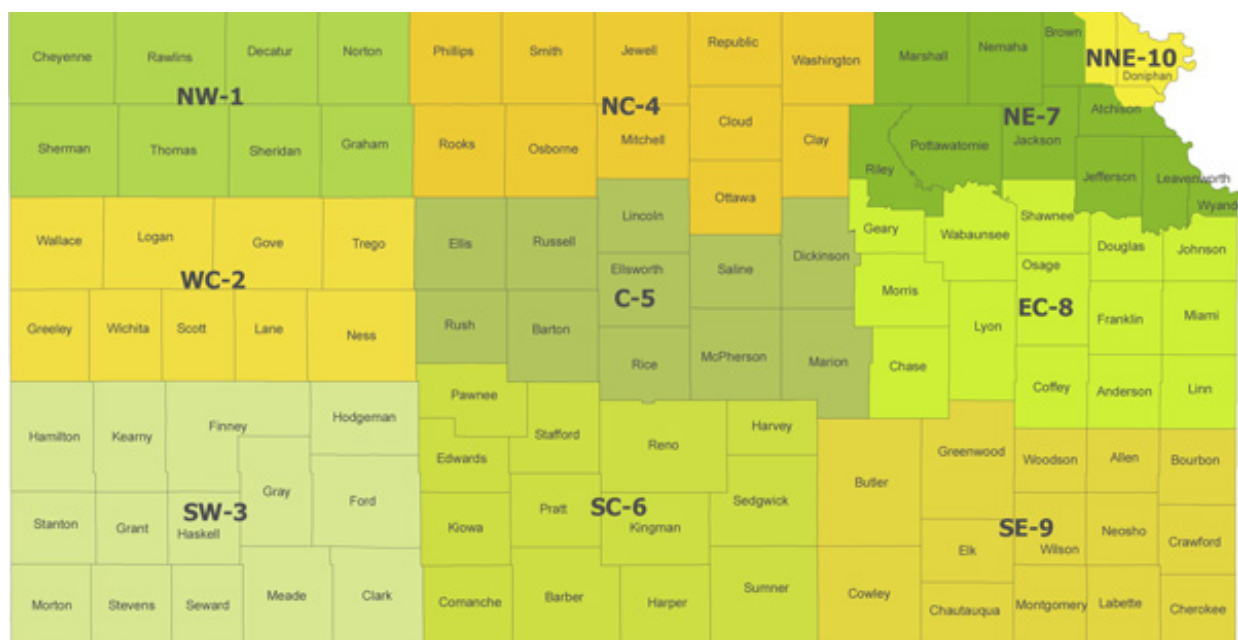


With harvest coming up soon, corn producers in the state are encouraged to keep in mind the Kansas Corn Yield Contest before they fire up the combines this year.

Kansas Corn, in conjunction with K-State Research and Extension, will conduct a 2020 Kansas Corn Yield Contest. All Kansas corn producers are eligible to enter the free contest, but they must be active members of the Kansas Corn Growers Association.

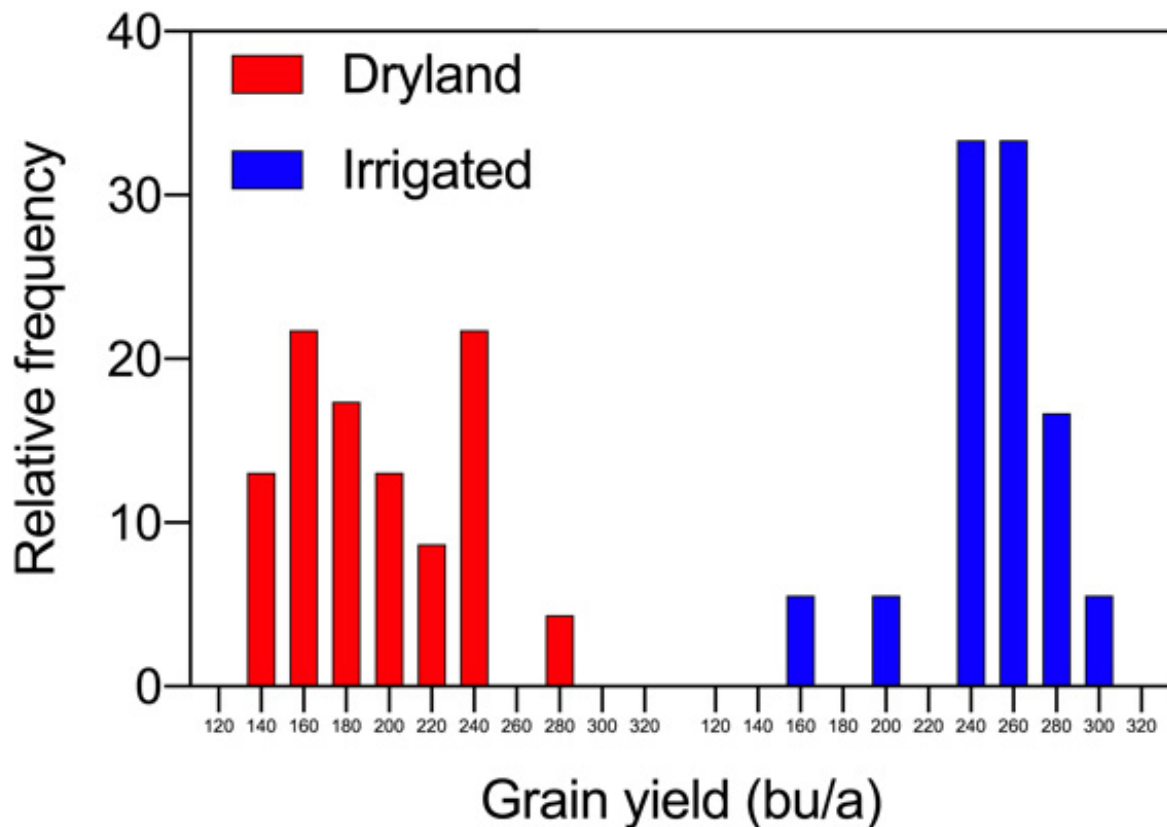
The contest is a fun way for producers to showcase their high yielding and high quality corn with other growers in the state, and provide motivation to producers to increase yields. The contest also serves as a vehicle to improve farming operations and increase awareness of best management practices (BMPs) to improve and sustain corn yields.

In addition to grower recognition, cash awards will be awarded at the district and state levels. The districts align with crop reporting districts, plus a NNE district was created to include Doniphan and parts of Brown and Atchison (Figure 1). In addition, one statewide dryland winner and one statewide irrigated winner will be announced. Entries for 2019 contest are presented in Figure 2. District winners will receive \$300 and a plaque. Second place entries will receive a \$200 prize and third place will receive a \$100 prize. The highest yielding dryland and irrigated entries statewide will receive an additional \$500 prize. All farmers entering the contest and completing the harvest form will receive a shirt from Kansas Corn, if they have not earned one already through the Corn Challenge. Contest winners will be recognized at the Kansas Corn Symposium in January 2021.



**Figure 1. Dryland and irrigated contest districts. Note: NNE includes only those fields north and/or east of KS Hwy 73 in Brown, Doniphan, and Atchison counties.**

The contest is free of charge to members of the Kansas Corn Growers Association. Registration must be completed online by **August 31, 2020**. If harvest occurs before the August 31 deadline, the registration must be received two weeks prior to harvest. Exceptions can be made for late harvest, but must be requested ahead of time. All harvest entry forms must be **received online by December 1, 2020**. Entries submitted to the National Corn Yield Contest qualify to enter the state contest, but entries must be made to both contests.



**Figure 2. Kansas contest winner entries to the Kansas Corn Contest from 2019. Relative frequency referred to number of entries in the contest along the y-axis and yield values along the x-axis are in bushels per acre (red bars for dryland and blue bars for irrigated). Graph produced by Ignacio Ciampitti, K-State Research and Extension.**

Results from the 2019 Kansas Corn Yield Contest can be reviewed at:  
<https://bookstore.ksre.ksu.edu/pubs/MF3463.pdf> ("Kansas Corn Yield Contest, High Yield Management")

For complete contest rules, forms, and to register, visit [kscorn.com/yield](https://kscorn.com/yield).

For more information, call Kansas Corn at 785-410-5009 or email [yield@ksgrains.com](mailto:yield@ksgrains.com)

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## 6. K-State to host two virtual fall field days - August 26 & 27

K-State Research and Extension is hosting two fall field days using a virtual format. The field days are free and open to the public. The first event, conducted by the Hays Research Center, will be on August 26 from noon to 1:30 p.m. The second field day will be hosted by the Southwest Research Center in Garden City, on August 27 from noon to 1:30 p.m. A list of topics and speakers for each day is outlined below. Participants are welcome to register for either or both events.

### **Hay Research Center Virtual Fall Field Day – August 26**

- “New Herbicide-Tolerant Crop Traits and Weed Control Strategies in Western Kansas” – Vipin Kumar
- “The Role of Temperature in Insect Population Dynamics” – J.P. Michaud
- “Dual Use of Cover Crops for Soil Health and Forage in Dryland Systems” – Augustine Obour
- “Sorghum Hybrids for Early and Normal Planting” – Ramasamy Perumal

### **Southwest Research Center Virtual Fall Field Day – August 27**

- “Alfalfa and Corn Insect Management Strategies Update” – Sarah Zukoff
- “A Decade of Dryland Cover Crop Research in Western KS” – John Holman
- “Expanding Cotton Recommendations” – Jonathan Aguilar
- “Bee Diversity in Edge Habitat of Active Croplands in Western Kansas” – Anthony Zukoff

Please register online at <https://kstate.ag/ksre-field-day>

# K-STATE

## Research and Extension

**FREE  
EVENT**

**Register  
Here**



### HAYS RESEARCH AG. CENTER VIRTUAL FALL FIELD DAY

**AUGUST 26  
2020  
NOON TO  
1:30PM**

#### Topics

*"New Herbicide-Tolerant Crop Traits  
and Weed Control Strategies in Western  
Kansas" Vipin Kumar*

*"The Role of Temperature in Insect  
Population Dynamics" J.P. Michaud*

*"Dual Use of Cover Crops for Soil Health  
and Forage in Dryland Systems" Augustine  
Obour*

*"Sorghum Hybrids for Early and Normal  
Planting" Ramasamy Perumal*

### SOUTHWEST RESEARCH & CENTER VIRTUAL FALL FIELD DAY

**AUGUST 27  
2020  
NOON TO  
1:30PM**

#### Topics

*"Alfalfa and Corn Insect Management  
Strategies Update" Sarah Zukoff*

*"A Decade of Dryland Cover Crop Research in  
Western KS" John Holman*

*"Expanding Cotton Recommendations"  
Jonathan Aguilar*

*"Bee Diversity in Edge Habitat of Active  
Croplands in Western Kansas" Anthony Zukoff*

<https://kstate.ag/ksre-field-day>

Kansas State University Department of Agronomy

2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506

[www.agronomy.ksu.edu](http://www.agronomy.ksu.edu) | [www.facebook.com/KState.Agron](https://www.facebook.com/KState.Agron) | [www.twitter.com/KStateAgron](https://www.twitter.com/KStateAgron)

## 7. Kansas weed survey - Reminder to participate before August 31

Herbicide-resistant weeds are threatening the profitability and long-term sustainability of Kansas cropping systems. To help develop innovative, cost-effective, and integrated weed management practices for controlling herbicide-resistant weeds and to further improve the outreach programs for various regions of the state, the Weed Science group at the K-State Ag Research Center in Hays seeks input from Kansas producers and ag professionals (crop consultants, county agents, certified crop advisors). We invite you to please complete a brief survey related to weed management practices and herbicide-resistant weed problems.

The survey will take 5-8 minutes and can be completed using the given link or by scanning the QR code on your smart phone. The survey will close at the end of August.

If you have further questions on the survey, please contact Dr. Vipin Kumar, Weed Management Specialist at [vkumar@ksu.edu](mailto:vkumar@ksu.edu).

Survey Link: [Kansas Weeds Survey](#)

QR Code:



## 8. Soil Health Partnership Field Day - August 18

The Soil Health Partnership Field Day will be held on August 18 at Guetterman Brothers Family Farms, 14633 W. 239<sup>th</sup> St., Spring Hill, KS. Two sessions will be offered: a morning session beginning at 8 a.m. and an evening session beginning at 5:30 p.m.

Topic areas that will be featured include:

- Soil Health Partnership Cover Crop report
- On-farm soil health data
- Nutrient management for healthy soils
- Cover crop garden and root structure demonstration

**Attendees must register online to attend in order to comply with local health directives for COVID-19.** Registration will allow for adequate planning to ensure proper spacing, supplies, and meal counts. To register, visit [ksu.edu/fieldday](https://ksu.edu/fieldday). Event organizers will supply masks and hand sanitizer at each event.



# SOIL HEALTH

FIELD DAY - SUMMER TOUR 2020

SOIL HEALTH PARTNERSHIP COVER CROP REPORT  
ON-FARM SOIL HEALTH DATA  
NUTRIENT MANAGEMENT FOR HEALTHY SOILS  
COVER CROP GARDEN AND ROOT STRUCTURE DEMO

8/18/2020

GUETTERMAN BROTHERS FAMILY FARMS

14633 WEST 239TH STREET, SPRING HILL, KS 66083

## SESSIONS

MORNING | EVENING

8:00 AM | 5:30 PM

REGISTER AT [KSCORN.COM/FIELDDAY](https://www.kscorn.com/fieldday)

\*Must register online to attend

**KANSAS STATE**  
UNIVERSITY  
Department of Agronomy



**KANSAS**  
**CORN**  
GROWERS ASSOCIATION



\*\*Morning session | coffee and donuts - Evening session | dinner \*\*\* Masks and hand sanitizer will be provided

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