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Extension Agronomy

eUpdate

08/24/2018

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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eUpdate Table of Contents | 08/24/2018 | Issue 707

1. Estimating soybean yield potential

Many producers would like to estimate the yield potential of their soybeans well before reaching the end of the season. In contrast with corn, soybean can easily compensate for abiotic or biotic stresses. The final number of pods is not determined with finality until close to the end of the season (beginning of seed filling, R5 stage). In corn, the final kernel number is attained during the 2-week period after flowering. Thus, when estimating soybean yield potential, we have to keep in mind that the estimate could change depending on the growth stage at the time the estimate is made and weather conditions. For example, wet periods toward the end of the reproductive period can extend the seed-set period, promoting greater pod production and retention, with larger seed size and heavier seed weight.

From a physiological perspective, the main yield driving forces are: **1) plants per acre, 2) pods per area, 3) seeds per pod, and 4) seed size**. Estimating final yield in soybean before harvest can be a very tedious task, but a simplified method can be used for just a basic yield estimate.

When can I start making soybean yield estimates?

There is not a precise time, but as the crop approaches the end of the season (R6, full seed or R7, beginning of maturity) the yield estimate will be more accurate. Still, you can start making soybean yield estimates as soon as the end of the R4 stage, full pod (pods are 3/4 inch long on one of the top four nodes), or at the onset of the R5 stage, beginning seed (seeds are 1/8 inch long on one of the top four nodes). Keep in mind that yield prediction is less precise at those early stages.

Is plant variability within the field an issue in soybeans?

Variability between plants relative to the final number of pods and seed size needs to be considered when trying to get an estimation of soybean yields. In addition, variability between areas within the same field needs also to be properly accounted for (e.g. low vs. high areas in the field). Make yield estimations in different areas of the field, at least 6 to 12 different areas. It is important to properly recognize and identify the variation within the field, and then take enough samples from the different areas to fairly represent the entire field. Within each sample section, take consecutive plants within the row to have a good representation.

Conventional approach to estimating soybean yields

In the conventional approach, soybean yield estimates are based on the following components:

- Total number of pods per acre [number of plants per acre x pods per plant] (1)
- Total number of seeds per pod (2)
- Number of seeds per pound (3)
- Total pounds per bushel, or test weight, which for soybeans is 60 lbs/bu (4)

The final equation for the estimation of the potential soybean yield is:

[(1) x (2) / (3)] / (4) = Soybean yield in bushels/acre

Simplified approach to estimating soybean yields

The main difference between the "conventional" and "simplified" approaches is that the conventional approach uses the total number of plants per acre in its calculation; while in the simplified approach, a constant row length is utilized to represent 1/10,000th area of an acre (Figure 1).

For the simplified approach, sample 21 inches of row length in a single row if the soybean plants are spaced in 30-inch rows; in 2 rows if the row spacing is 15 inches; and in 4 rows if the row spacing is 7.5 inches.

Figure 1. In the "simplified" approach to estimating yields, sample 21 inches row length to equal 1/10,000th of an acre. The number of rows to sample will depend on the row spacing. With 30-inch row spacings, sample one row. With 15-inch row spacings, sample two rows. With 7.5-inch row spacings, sample four rows. Photo by Ignacio Ciampitti, K-State Research and Extension.

Repeat this procedure in different sections of the field to properly account for the natural field variability.

What are the driving forces of soybean yield?

1) Total number of pods per acre:

Count the total number of pods (Figure 2) within this constant row length. After counting all the plants within the 21-inch row sections that represent 1/10,000th of an acre, estimate a final pod number per acre. Use a similar procedure in different areas of the field to get a good overall estimate at the field scale. One good criterion is only to consider pod sizes that are larger than ¾ or 1 inch long. Smaller pods can be aborted from this time on in the growing season until harvest.

Figure 2. Total number of pods per plant (only consider the pod sizes larger than ¾ or 1 inch). Photo by Ignacio Ciampitti, K-State Research and Extension.

2) Total number of seeds per pod:

Soybean plants will have, on average, 2.5 seeds per pod (ranging from 1 to 4 seeds per pod), primarily regulated by the interaction between the environment and the genotypes (Figure 3). Under severe drought and heat stress, a pessimistic approach would be to consider an average of 1-1.5 seeds per pod. This value is just an approximation of the final number of seeds per pod, and can change from the time of estimation until the end of the growing season.

Figure 3. The number of seeds per pod will vary somewhat, depending on the growing environment and genotype. Photo by Ignacio Ciampitti, K-State Research and Extension.

3) Seed size:

Seed size can range from 2,500 (normal to large seed weight) to 3,500 (small seed size) seeds per pound. This season, conditions are mostly favorable in Kansas for promoting large seed sizes. In more stressful years, such as 2012 and 2011, seed size is normally smaller, meaning a larger number for the seeds per pound (e.g. 3,500 seeds per pound). In the simplified estimation approach published by Dr. Casteel, you do not need to actually measure the number of seeds per pound in order to estimate yields, as is done in the conventional approach. Instead, a seed size conversion factor is used. If the conditions are favorable and large seed size is expected, the conversion is 15 units; while if abiotic or biotic stresses are present during the seed-filling period, a seed size factor of 21 units is used. Further details related to the seed size factor can be found in the link to the Purdue University extension article listed at the end of this article.

Example of the simplified approach for estimating soybean yields:

Say that we have 120,000 plants/acre in a 30-inch row. Then, we should have around 12 plants in 21 inches of row. In those 12 plants, we have measured on average 22 pods per plant, with a total number of 264 pods (22 x 12).

If we assume a "normal" growing season condition, then the final seeds per pod will be around 2.5, and for the seed size factor, we can assume large seeds, and will use a conversion factor of 15 units.

Equation for a "Favorable" Season:

264 pods x 2.5 seeds per pod / 15 = 44 bushels per acre

For a "droughty" (late reproductive, from R2 to R6 stages) growing season, the final seed number and size will be dramatically affected. Thus, even if the pod number is the same as in a normal season, the yield calculation could be:

Equation for a "Drought" Season:

264 pods x 1.5 seeds per pod / 21 = 19 bushels per acre

Basically, this “simplified approach” relates the total number of pods in a “known” unit area (easily extrapolated to the acre unit), and is affected by the total number of seeds in the pod. This is adjusted by the estimated seed weight, which is affected by two main components: duration of seed fill and rate of dry mass allocation to the seeds.

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2. Recommendations for fall planting of alfalfa

Alfalfa, often considered the "Queen of Forages", produces high yields that are highly digestible and high in protein. Alfalfa is a very important leguminous crop for dairy and other livestock operations in Kansas. Late summer and early fall are often the best times to plant alfalfa in Kansas due to less weed pressure than spring planting.

Figure 1. Alfalfa seedlings. Photo by Doohong Min, K-State Research and Extension.

While much of the state was dry this summer, recent rainfall statewide has helped replenish soil moisture levels and there may be enough moisture to achieve good stand establishment in many fields. Available moisture at planting is crucial for alfalfa establishment, but too much moisture can increase seedling disease incidence and reduce alfalfa nodulation and nitrogen fixation.

If soil moisture is available, growers in northwest Kansas can plant as early as mid-August. Those in southeast Kansas can plant in mid- to late-September. In other parts of Kansas, the optimal planting time is late August or early September. Producers just need to plant early enough to have three to five trifoliate leaves before the first frost.

Alfalfa is a three- to five-year, or longer, investment and therefore it is crucial to ensure proper establishment. Some producers shy away from alfalfa because of its high establishment cost and risk of stand failure. In the end, however, it is relatively inexpensive, if amortized over the life of the crop.

Under proper management and favorable weather conditions, dryland alfalfa can produce 3 to 6 dry matter tons of forage per acre per year. Irrigated fields can produce 6 to 8 dry matter tons per acre per year or more.

When planting alfalfa, producers should keep the following in mind:

Soil test and correct soil acidity. Alfalfa grows best in well-drained soils with a pH of 6.5 to 7.5, and does not tolerate low soil pH. If the soil is acidic, add lime to raise soil pH to 6.8 before planting. Ensuring appropriate soil pH levels prior to planting is essential, especially as lime is relatively immobile in the soil profile and the field will not be worked for the next 3-5 years.

Soil test and meet fertilization needs. Apply the needed phosphorus (P) and potassium (K) amounts according to soil test recommendations. Phosphorus fertilizer will be required if soil test P levels are below 25 ppm, and potassium fertilizer will be required if soil K levels are below 120 ppm. Even soils that test higher than these thresholds may need additional fertilizer. Small amounts of nitrogen fertilizer (15 to 20 lb/acre) as a starter at planting are beneficial for alfalfa establishment.

Plant certified inoculated seed. Ensuring the correct *Rhizobium* inoculation is crucial for alfalfa seedlings to fix available soil nitrogen to meet the needs of growing alfalfa for optimum production.

Plant in firm, moist soil. A firm seedbed ensures good seed-soil contact; therefore, use a press wheel with the drill to firm the soil over the planted seed. No-till planting in small-grains stubble will usually provide a good seedbed.

Do not plant too deeply. Plant one-fourth to one-half inch deep on medium- and fine-textured soils and three-fourths inch deep on sandy soils. Do not plant deeper than 10 times the seed diameter.

Use the right seeding rate. Plant 8 to12 pounds of seed per acre on dryland in western Kansas, 12 to15 pounds per acre on irrigated medium- to fine-textured soils, 15 to 20 pounds per acre on irrigated sandy soils, and 12 to 15 pounds per acre on dryland in central and eastern Kansas.

Check for herbicide carryover that could damage the new alfalfa crop – especially when planting alfalfa no-till into corn or grain sorghum stubble. In areas where row crops were drought-stressed and removed for silage, that sets up a great seedbed for alfalfa, but may still bring a risk of herbicide damage.

Choose pest-resistant varieties. Resistance to phytophthora root rot, bacterial wilt, fusarium wilt, verticillium wilt, anthracnose, the pea aphid, and the spotted alfalfa aphid is essential. Some varieties are resistant to even more diseases and insects.

Purchase alfalfa varieties with a fall dormancy rating ranging from 4 - 6 for Kansas. Fall dormancy relates to how soon an alfalfa variety will stop growing in the fall and how early it will begin growing in the spring or late winter. Simply put, it would be better not buy a variety with fall dormancy of 9-10, which can be more suitable for California and regions where alfalfa can keep growing year-round under irrigation.

Figure 2. Early bloom alfalfa. Photo by Doohong Min, K-State Research and Extension.

Find more information about growing alfalfa in Kansas in the *Alfalfa Production Handbook*. This publication is available on the web at: www.ksre.ksu.edu/bookstore/pubs/c683.pdf

Also see *Alfalfa Growth and Development*, available on the web at: https://www.bookstore.ksre.ksu.edu/pubs/MF3348.pdf

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3. Sudden Death Syndrome in soybeans - 2018 update

"My first observation of sudden death syndrome (SDS) this year occurred on August 14 as I drove to the Rossville Experiment Station Field Day" – Dr. Doug Jardine, K-State Plant Pathologist.

Talking with farmers at that meeting verified that SDS is active in the Kansas River Valley. Since that night, areas of the state that have been historical hotspots for the disease have received from 3 to 8+ inches of rain. Wet soils typically trigger SDS development, so we can expect to see more in the next few weeks.

SDS is a disease caused by the soilborne fungus *Fusarium virguliforme*. This fungus prefers wet conditions and thus is usually most severe in irrigated fields or dryland fields that receive significant amounts of rain during the early- to mid-reproductive stages. SDS tends to be most severe on well-managed soybeans with a high yield potential. It also tends to be more prevalent in fields that are:

- Infested with soybean cyst nematode
- Planted early when soils are cool and wet
- Compacted

Historical yield losses from this disease are generally in the range of 1 to 25 percent.

Disease symptoms

Symptoms of SDS are easily recognizable. SDS begins as small, bright, pale green to yellow circular spots on the leaves during late vegetative or early reproductive growth stages. As the disease progresses, the tissue in these spots starts to die and enlarges to form brown streaks between the veins. Symptoms are more pronounced on top leaves. As the disease further develops, the leaflets drop off but the petioles remain attached.

Figure 1. Scattered yellow spots on some of the greener leaves in the lower right in this photo are the early leaf symptoms of SDS. The leaves in the center foreground have more advanced symptoms of SDS. Photo by Stu Duncan, K-State Research and Extension.

Figure 2. A soybean plant with leaf petals dropped but petioles remaining attached.

Flowers and pods may abort or not fill. Another key symptom of SDS is substantial amounts of root decay and discoloration of roots and crown.

Figure 3. Root rot occurs on plants infected with the SDS pathogen. This symptom distinguishes SDS from brown stem rot and stem canker. Left image by Jim Shroyer, K-State Research and Extension; right image courtesy of Iowa State University.

Diseased plants are easily pulled out of the ground because the taproots and lateral roots have deteriorated. Symptoms present on both the leaves and roots are diagnostic for SDS. Positive diagnosis of the inner tap root is key to disease identification. Other problems such as triazole fungicide "burn," and the diseases stem canker and brown rot, can give similar foliar symptoms.

Potential yield losses and management considerations

Soybean yield losses from SDS depend on both the variety and stage of crop development when the symptoms first appear. Appearance of the disorder at early pod fill is more damaging than its appearance at a later stage of plant development. Yield reduction is the result of reduced photosynthetic area, defoliation, flower and pod abortion, and reduced seed size.

Effective management of SDS requires an integrated approach. Management starts with the planting of SDS resistant varieties. Most varieties are susceptible to some degree and very few have excellent resistance. The most susceptible varieties yield 40 to 50 percent less than the resistant varieties at locations where SDS is present and yield levels are in the range of 60+ bushels per acre.

Figure 4. The variety on the right in a recent K-State performance test was susceptible to SDS. The foliage was completely dead by early pod fill. Photo by Bill Schapaugh, K-State Research and Extension.

Seed companies have SDS ratings for most of their varieties and there is typically a wide variation in ratings. There is little or no correlation between the maturity group of a variety and its SDS resistance rating.

The presence of SDS is strongly correlated with the presence of soybean cyst nematode (SCN). Therefore, where SDS is present, soil samples should be taken to determine the level of SCN present and it will need to be managed along with the SDS. However, producers cannot manage SDS simply by selecting varieties that have SCN resistance. Some varieties with good resistance to SCN are highly susceptible to SDS and some varieties that are susceptible to SCN are quite resistant to SDS. Ideally, producers should select varieties that are resistant to both SDS and multiple races of SCN.

In addition to resistant varieties, a second line of defense is the use of the planting time seed treatment ILeVO, which contains the active ingredient fluopyram. This product has performed well in several K-State research trials. Other seed treatments that have been evaluated were not as effective as ILeVO. The cost of ILeVO has come down since it was first introduced, but it is still costly insurance in fields not known to have SDS in them and we recommend its use only in fields with a history of the disease.

Cultural management practices that can reduce the risk of SDS infection include:

- planting SDS infested fields last when soil temperatures are warmer
- avoiding planting into overly wet soils
- reducing compaction problems within a field

Producers who have fields with compaction problems should make every effort to correct that problem before planting soybeans next season.

Crop rotation has a limited effect on SDS since the fungus has been shown to invade corn debris and survive saprophytically in the absence of a soybean crop.

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4. Starter fertilizers for wheat

Wheat is considered a highly responsive crop to starter fertilizers, particularly phosphorus (P) and nitrogen (N). Application of P as starter fertilizer can be an effective method for part or all the P needs. Wheat plants typically show a significant increase in fall tillers and better root development with the use of starter fertilizer (phosphorus and nitrogen). Winterkill can also be reduced with the use of starter fertilizers, particularly in low P testing soils.

Phosphorus fertilizer application can be done through the drill with the seed. This would be either in addition to, or instead of, any preplant P applications depending on soil test and recommended application rate. The use of dry fertilizer sources with air seeders can be a very popular and practical option, however, other P sources (including liquid) are agronomically equivalent and decisions should be based on cost and adaptability for each operation.

When applying fertilizer with the seed, rates should be limited to avoid potential toxicity to the seedling. When placing starter fertilizer in direct contact with wheat seed, producers should use the following guidelines in Table 1.

Table 1. Suggested maximum rates of fertilizer to apply directly with the wheat seed

	Pounds N + K_2O (No urea containing fertilizers)	
Row Spacing (inches)	Medium to Fine Textured Soils	Sandy or Dry Soils
15	16	11
10	24	17
6-8	30	21

Air seeders that place the starter fertilizer and seed in a band an inch or two wide, rather than a narrow seed slot, provide some margin of safety because the concentration of the fertilizer and seed is lower in these diffuse bands. In this scenario, adding a little extra N fertilizer to the starter is less likely to injure the seed - but it is still a risk.

What about blending dry 18-46-0 (DAP) or 11-52-0 (MAP) directly with the seed in the hopper? Will the N in these products hurt the seed? The N in these fertilizer products is in the ammonium-N form, not the urea-N form, and is much less likely to injure the wheat seed, even though it is in direct seed contact. As for rates, guidelines provided in the table above should be used. If DAP or MAP is mixed with the seed, the mixture can safely be left in the seed hopper overnight without injuring the seed or gumming up the works.

Although the response of wheat to these starter fertilizer products is primarily from the P, the small amount of N that is present in DAP, MAP, or 10-34-0 may also be important in some cases. If no preplant N was applied, and the soil has little or no carryover N from the previous crop, then the N from these fertilizer products could benefit the wheat, in addition to the P.

Dual-placement of N and P (anhydrous ammonia or UAN plus 10-34-0 applied in the same band below the soil surface) is a fertilizer application method usually used in preplant applications. Ammonium-N has long been known to increase P uptake by crops, and dual-placement can be very effective. Sometimes, producers will use this method at planting time, trying to position the band to the side of each row of wheat seed. Use caution, however.

If adequate separation of fertilizer and seed is accomplished, this is a good method of application that fits into many farmers' overall no-till system. If adequate separation of the ammonia/UAN and seed is not accomplished, wheat germination/stand establishment can be affected.

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5. Tips on scouting for Dectes stem borer in soybeans

The adult Dectes stem borer (*Dectes texanus* LeConte), is a gray, long horned beetle that lays eggs in a soybean plant. The larvae hatch and tunnel into the soybean stem where the petiole of the leaf attaches, then proceed to tunnel down the stem. This tunneling usually goes through the pith to the base of the plant where the larva girdle the inside of the stem. This girdling weakens the stem, making the plant very susceptible to lodging, which may result in harvest losses. Scouting for the incidence of Dectes while the soybeans are still green can assist in helping avoid more loss of yield at harvest. Harvesting soybeans as early as possible can help reduce yield losses. More infested plants lodge the longer they remain in the field where they are exposed to wind that can break the girdled stem.

The first step in scouting for Dectes infested plants is to look for a single trifoliate in a plant that is dead (Figure 1). It is much easier to find the dead trifoliates if the rest of the leaves are green and have not started to yellow with natural senescence. Breaking off the dead petiole will expose the hole tunneled into the stem. Splitting the stem at this node will show the browning of the pith caused by the Dectes larva as it tunnels (Figure 2). Continuing to split the stem down the plant will expose the larva that caused the damage (Figure 3). Fields with higher incidence of infested plants can be targeted for earlier harvest to help reduce yield losses due to these lodged plants.

Figure 1. Signs of dead trifoliates in soybeans infested with Dectes stem borers. Photo by Eric Adee, K-State Research and Extension.

Figure 2. Browning of the pith caused by Dectes stem borer in a soybean stem. Photo by Eric Adee, K-State Research and Extension.

Figure 3. Dectes stem borer larva in a soybean plant. Photo by Eric Adee, K-State Research and Extension.

For more information on the Dectes stem borer, please read the KSRE publication MF 2581, "Dectes Stem Borer: Kansas Crop Pests", at https://www.bookstore.ksre.ksu.edu/pubs/MF2581.pdf

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6. Effect of cool temperatures (mild stress) on summer row crops

During the week of August 17-23, temperatures below 60 degrees F were recorded in several parts of Kansas, but specifically in the central and western regions (Figure 1). These temperatures could have a potential impact on summer row crops.

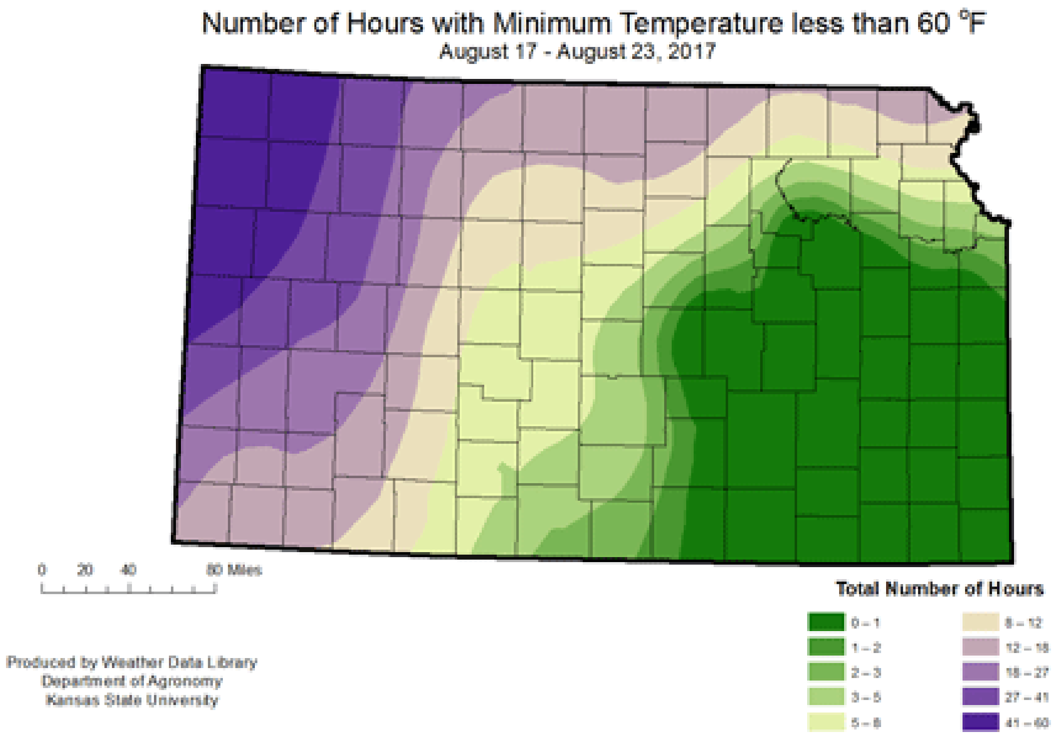

Figure 1. Number of hours with minimum temperature below 60 degrees F. Weather Data Library, Department of Agronomy, Kansas State University.

At this point in the growing season, low temperatures could present a bigger problem for sorghum and soybeans than for corn. Corn is transitioning out of the reproductive stages and getting close to harvest in many areas; thus, lower temperatures will have little to no effect on the crop. For corn, low temperatures are a problem when at or below 32 degrees F. Temperatures below 32 degrees F can produce equivalent or greater damage even when the exposure time is relatively short. The likelihood of experiencing at or below freezing temperatures at this time of the season is very small.

Similarly, for soybeans, temperatures below 32 degrees can interrupt grain filling and impact yield, meaning lower test weight and seed quality. Necrosis of the leaf canopy is a visible symptom of freeze damage in soybeans.

However, for sorghum, temperatures below 50 degrees F (Figure 2) can potentially have an effect if the plant is at half-bloom, causing delaying on plant growth and potential yield reduction. A previous study has reported a high sensitivity of sorghum to low temperatures during flowering time (Maulana and Tesso, 2013), using 55 degrees F as the lowest night temperature.

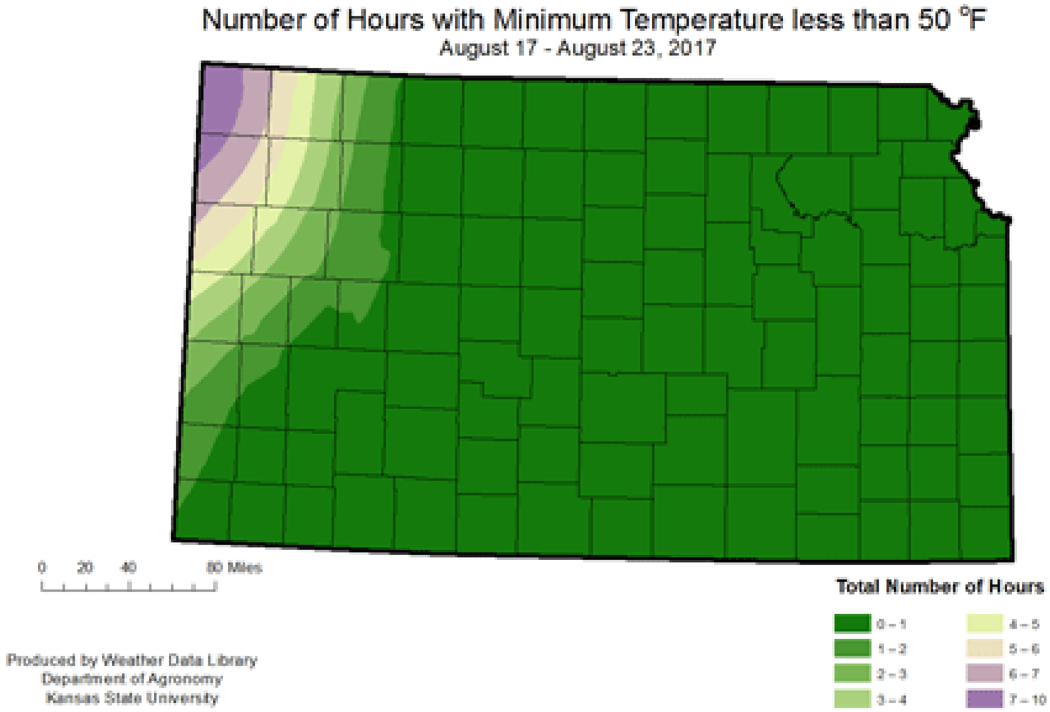

Figure 2. Number of hours with minimum temperature below 50 degrees F. Weather Data Library, Department of Agronomy, Kansas State University.

There is a lack of sufficient data on the effects of cool temperatures (mild stress) on sorghum at flowering. One of the reasons for this lack of information is the infrequency of such events. For example, in the last 10 years, these low temperatures have occurred in 3 years for Belleville, 2 years for Manhattan, and 6 years for Colby. The higher incidence shown for Colby illustrates the difference of northwest Kansas relative to central (Belleville) and eastern Kansas (Manhattan).

Temperatures below 40 degrees F will inhibit growth. A freeze will kill sorghum if the stalks are frozen, impairing the flow of assimilates and nutrients to the grain. A freeze at the hard-dough stage (before grain matures) will produce lower weight and chaffy seeds. The likelihood of sorghum maturing before a freeze is related to the following factors (as affected by weather and hybrid) such as planting date, plant growth rate, and date of half-bloom.

As weather changes develop in the coming weeks, stay tuned for more information about potential freeze injury on sorghum in future eUpdate issues.

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7. 2018 Kansas Corn Yield Contest - Registration deadline is August 30

Kansas Corn, in conjunction with K-State Research and Extension, will conduct a 2018 Kansas Corn Yield Contest. All Kansas corn producers are eligible to enter the contest, but they must be active members of the Kansas Corn Growers Association.

The contest is free of charge to members of the Kansas Corn Growers Association. **Pre-registration must be complete by August 30, 2018 or prior to harvest**. Farmers that register once can enter up to three fields per registrant/member.

All farmers entering the contest and completing the harvest form will receive a shirt from Kansas Corn. Contest winners will be recognized at the Kansas Corn Symposium in late January 2019.

All entries must be postmarked by December 1, 2018. The contest is divided into “dryland” and “irrigated” categories in all 9 Kansas Crop Reporting Districts plus a 10th district in NNE Kansas (Figure 1).

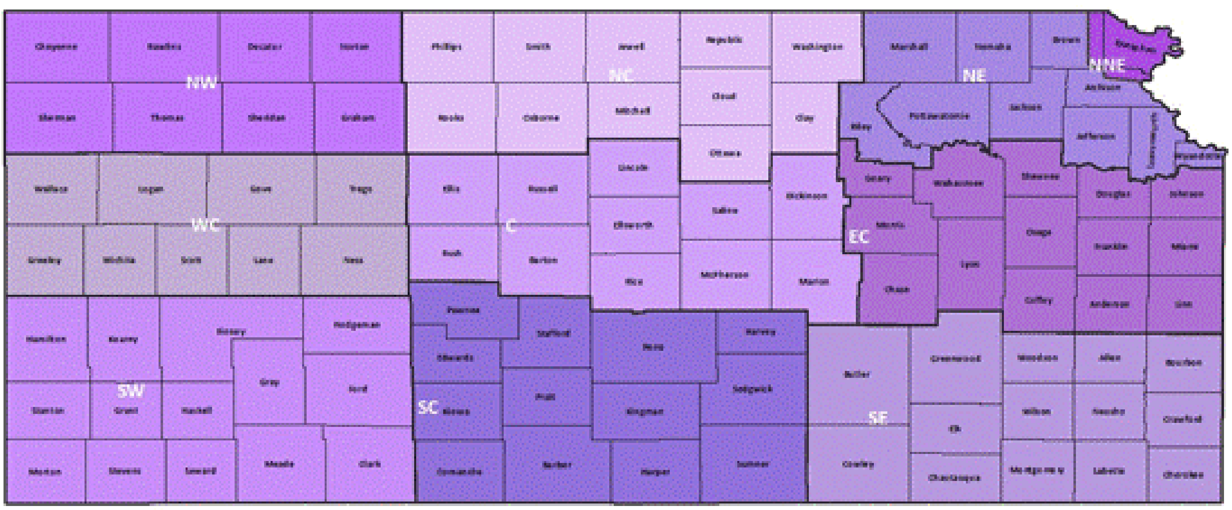

Figure 1. Dryland and irrigated contest districts. Note: NNE includes only those fields north and/or east of KS Hwy 73 in Brown, Doniphan, and Atchison counties.

All contest rules can be found online at https://kscorn.com/yield/

Send entry forms to:

Kansas Corn Yield Contest
Kansas Corn Growers Association
1310A Westloop Pl #285

Manhattan, KS 66502

The entry form can be downloaded using the following link:
https://kscorn.com/wp-content/uploads/2018/06/Kansas-Corn-Yield-Contest-Harvest-Entry-Form.pdf

For any questions concerning the contest, please contact the individuals listed below.

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KANSAS
CORN
Yield Contest
THINK YOU'VE GOT WHAT IT TAKES TO COMPETE WITH GROWERS IN YOUR DISTRICT AND ACROSS THE STATE?
REGISTER YOUR FARM BY AUGUST 30
AT KSCORN.COM/YIELD

8. Pre-plant wheat schools to be held across Kansas

A series of pre-plant wheat schools will be held in various locations across Kansas in the coming weeks. Particular topics and speakers will vary by location but may include production practices, yield results and variety selection, disease management and seed treatments, fertility, and weed control. For more details on a particular school, contact the local extension agent host.

Monday, August 27th:

- 8:30 am, Thomas Co. (Colby). Contact: Madison Mackley (mmackley@ksu.edu)
- Evening (TBD), Wichita Co. (Leoti). Contact: Allen Baker (abaker@ksu.edu)

Tuesday, August 28th:

- 8:30 am, Walnut Creek District (Ness City). Contact: Chris Long (clong@ksu.edu)
- 7:00 pm, Twin Creeks District (Lenora). Contact: Keith VanSkike (kvan@ksu.edu)

Wednesday, August 29th:

- 9:00 am, Post Rock District. (Downs). Contact: Sandra Wick (swick@ksu.edu)
- 2:30 pm, Post Rock District. (Jewell). Contact: Sandra Wick (swick@ksu.edu)

Thursday, August 30th:

- 9:00 am, Phillips-Rooks District (Stockton). Contact: Cody Miller (codym@ksu.edu)
- 2:30 pm, Cottonwood District (Great Bend). Contact: Stacy Campbell (scampbel@ksu.edu)

9. Winter Canola Pre-plant School, August 28 in Wichita

Winter canola yields in Kansas were down in 2018 yet better than expected in some areas. On August 28, producers can learn more about how canola performed in 2018 and what it takes to raise a successful crop.

A winter canola preplant school will be held in Wichita at the Sedgwick County Extension Education Center, 7001 W. 21st Street N., beginning at 10:00 a.m. The event is free but those interested in attending should RSVP by calling 316-660-0143 or jfees@ksu.edu by Friday, August 24 so that an accurate count can be made for lunch.

Ongoing research has shown ways in which producers can be more cost efficient in canola production. K-State has been working diligently to better understand seeding rate and row spacing questions. In addition, varieties continue to change rapidly and we are excited about some of the newest commercial varieties available to growers.

There have been some ups and downs in the industry recently, but through these experiences we have come to understand a great deal about why we still need canola in our rotations.

Topics for discussion at the preplant school include what to do -- and what not to do -- in canola production, seeding rates and row spacing, variety and hybrid performance, winter survival, and economics. Information on marketing the crop will also be available.

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