Issue 956

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eUpdate

05/18/2023

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. Pre-harvest weed control in wheat

This year's short, thin wheat crop is generating some discussion regarding what to do with weeds at this point in the growing season. Broadleaf weeds that grow rapidly at the end of the growing season present several potential concerns, such as harvest difficulties, dockage problems, weed seed production, soil water depletion, and potential interference in summer crops planted after wheat harvest. Unfortunately, once wheat has reached the boot stage, there are no herbicide options until wheat begins to dry down and herbicides can be applied as harvest aids. The decision to spend resources on a herbicide application that will not directly influence crop yield is a difficult decision to make; however, pre-harvest applications may be beneficial this year.

Herbicides labeled for use as harvest aids in wheat are listed in Table 1. There are differences in how quickly they act to control the weeds, the interval requirement between application and grain harvest, and the level or length of control achieved. All of them will require thorough spray coverage to be the most effective. Paraquat is sometimes mentioned as a possible herbicide for pre-harvest application but is **not** labeled for pre-harvest treatment in wheat**.** Application of paraquat to wheat is an illegal treatment and can result in quarantine and destruction of the harvested grain, along with severe fines.

Figure 1. Weeds in wheat near harvest time. Photo by Dallas Peterson, K-State Research and Extension.

Table 1. Herbicides for use a pre-harvest weed control options in wheat.

Herbicide and rate	Weeds controlled	Application timing	PHI* (days)	Comments
Metsulfuron (Ally, others) 0.1 oz	Some broadleaf weeds	Hard dough stage	10	• Use 0.25 to 0.5 % v/v nonionic surfactant) • Apply in combination with glyphosate or 2,4-D • Do not use on soils with a pH greater than 7.9 • 12- to 34-month rotation interval for soybeans • Kochia, pigweeds, and marestail may be resistant
2,4-D LVE 1 pt of 4lb/gal product or 2/3 pt 6 lb/gal product	Broadleaf weeds	Hard dough stage	14	Weak on kochia and wild buckwheat
Dicamba 0.5 pt	Broadleaf weeds	Hard dough stage and green color is gone from nodes	7	Do not use treated wheat for seed unless a germination test results in 95% or greater seed germination.
Glyphosate 1 qt of 3 lb ae/gal product, 22 fl oz of 4.5 lb ae/gal product	Grasses and broadleaf weeds	Hard dough stage (30% or less grain moisture)	7	• Consult label for recommended adjuvants • Not recommended for wheat harvested for use as seed • Kochia, pigweeds, and marestail may be resistant.
Carfentrazone (Aim EC, others) 1 to 2 fl oz	Pigweeds, kochia, lambsquarters, Russian thistle, wild buckwheat		7	• Use 1% v/v crop oil concentrate • Acts quickly, usually within 3 days • Regrowth of weeds may occur after 2-3 weeks or more, depending on the rate used.
Saflufenacil (Sharpen) 1 to 2 fl oz	Broadleaf weeds	Hard dough stage (30% or less grain moisture)	3	• Use 1% v/v methylated seed oil + 1 to 2% w/v AMS or 1.25-2.5% v/v UAN • 1-month rotation interval for soybean

*PHI = Pre-harvest interval, or days required between application and harvest.

For more detailed information, the "2023 Chemical Weed Control for Field Crops, Pastures, and Noncropland" guide is available online at https://www.bookstore.ksre.ksu.edu/pubs/CHEMWEEDGUIDE.pdf or check with your local K-State Research and Extension office for a paper copy.

The use of trade names is for clarity to readers and does not imply endorsement of a particular product, nor does exclusion imply non-approval. Always consult the herbicide label for the most current use requirements.

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2. Fusarium head blight outlook and fungicide recommendations

Wet weather has been creeping into northeast Kansas this week resulting in conditions favorable for Fusarium head blight (scab). In this article, we walk through some reminders for fungicide applications for each of these diseases.

The 48-hour forecast looks favorable for scab development in eastern parts of the state as well as isolated parts of north central and northwest Kansas according to wheatscab.psu.edu (Figure 1). The highest risk will be in fields of scab-susceptible varieties at the flowering growth stage during this wet weather. Fields with a previous history of scab or with corn residue and a yield potential above 40 bu/a should be prioritized for a fungicide application. For a reminder about the scab ratings for individual varieties, please refer to the Kansas Wheat Variety Guide: https://bookstore.ksre.ksu.edu/pubs/mf991.pdf.

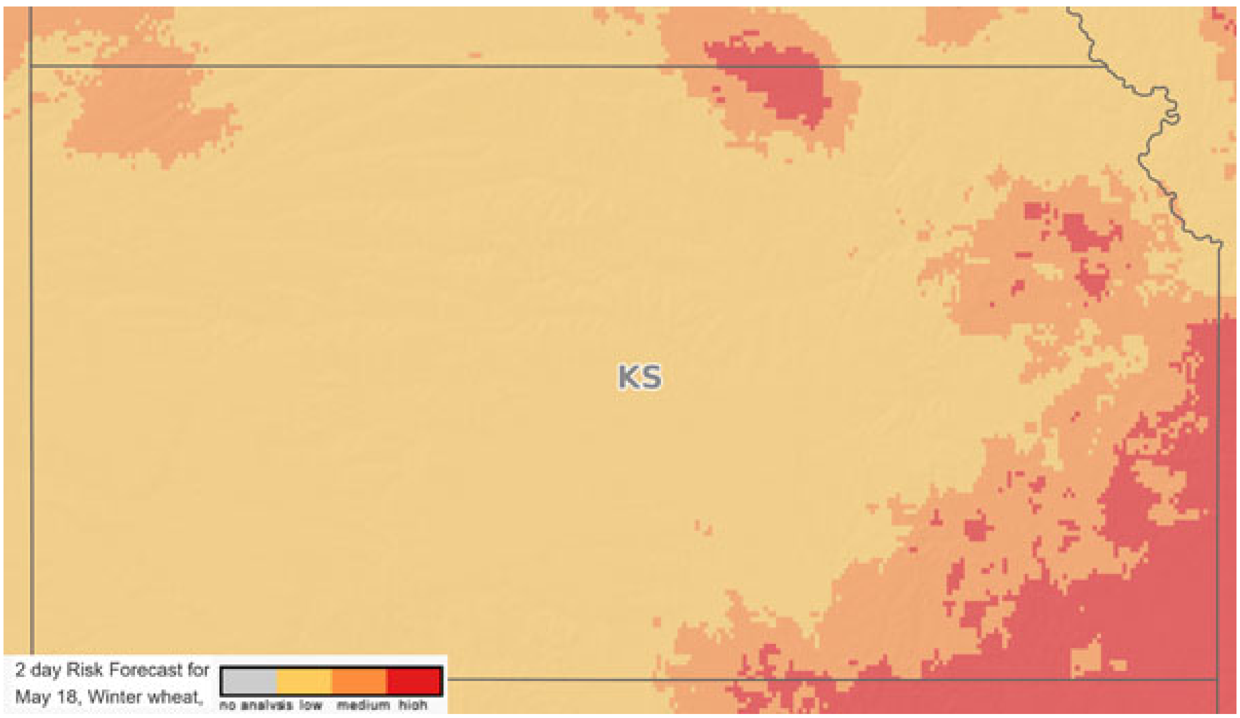

Figure 1. Fusarium head blight (scab) risk including forecasted weather for 48 hours after May 18, 2023. Red areas indicate regions with the most favorable forecasted weather, yellow indicates low risk. This model is calibrated for susceptible varieties of winter wheat. This interactive map can be accessed at www.wheatscab.psu.edu.

Scab infection occurs at flowering, but symptoms are often not visible for 14-21 days after infection (Figure 2). Because of this, we cannot scout for scab the way we would stripe rust or other foliar diseases. Fungicide decisions need to be made according to the weather-based risk and the field's yield potential. Not only can scab lower yield and test weights, it also produces a mycotoxin (vomitoxin, DON) that can lead to discounts or rejections at elevators.

Figure 2. Fusairum head blight (scab) infection often begins with bleaching of infected spikelets and will progress throughout the head. When humidity is high, orange fungal structures are visible on the outside of the spikelet. Grain from infected heads may appear lightweight, white, or pink. Photos by: K-State Research and Extension.

Reminders for scab fungicide applications

<u>Fungicide products</u>

Fungicides such as Prosaro, Sphearex, Prosaro Pro, Proline, or Miravis Ace are known to suppress scab (head blight). Specific fungicide performance for scab and other diseases can be found here: https://bookstore.ksre.ksu.edu/pubs/EP130.pdf. Other fungicides are not labeled or not recommended for scab control, particularly products containing strobilurin (FRAC group 11 – azoxystrobin, pyraclostrobin, etc.)

<u>Timing</u>

Fungicides are most effective against scab when applied at early flowering (Feekes 10.5.1) but can provide protection even when applied later in the flowering window. It is important to pay attention to pre-harvest intervals at this point of the season and follow guidelines provided on product labels. The products listed above either have a 30-day pre-harvest interval (cannot be applied within 30 days of harvest) or cannot be applied after Feekes 10.5.4 (end of flowering, watery ripe growth stage).

It is important to remember that early flag-leaf fungicide applications will have little to no effect on scab.

Rainfastness

With the current, wet weather, we are getting many questions about fungicide rainfastness. Rainfast time is defined as the period of time that needs to pass between the application of a fungicide and a rainfall event where the fungicide will not lose efficacy. This information is often not included on the product label or is ambiguous. Rainfast time will be variable with temperature and canopy moisture, but most products recommended for wheat in Kansas will be rainfast within two hours, and likely within one hour under most conditions. Rainfastness is improved when a product is applied with a non-ionic surfactant (NIS).

Residual life

The residual life of the fungicide application is influenced by the product used, environment, and rate of application. In general, products belonging to the triazole and strobilurin classes of fungicide will run out of gas (you may start to see symptoms) after 21 days (about 3 weeks). Small differences in residual life among products typically do not result in large differences in grain yield. Some newer products are promoted as having much longer residual lives, but we don't have university research that supports those claims.

A vast majority of the labeled fungicides for wheat in Kansas will not provide protection for new growth (only leaves present at the time of application are protected).

Seed treatments

Seed treatments do not have any influence on disease development during the growing season, as the fungicides in these seed treatments wear off within 30-45 days. Seed treatments can improve the emergence of seed from infected fields as this pathogen can cause seedling diseases when infected seed is planted back.

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3. Sorghum management considerations: Planting practices

There can be considerable environmental variation across the state during the growing season of grain sorghum, with a high probability of drought after flowering when moving toward the west. Tailoring the right management strategy to every site is critical to increase productivity and reduce the impact of abiotic stressors. The most critical planting practices affecting yields in sorghum are row spacing, row arrangement, seeding rate/plant population, planting date, and hybrid maturity.

Sorghum plants can compensate and adjust to diverse environmental conditions through modifications in the number of tillers, head size, and final seed weight. For sorghum, the final number of seeds per head is the plant component that varies the most; and thus has more room for adjustment than the other plant components (seed weight and number of tillers).

Seeding rates and plant populations

Sorghum population recommendations range from a desired stand of 23,000 to more than 100,000 plants per acre depending on average annual rainfall (Table 1).

Table 1. Grain sorghum recommended seeding rate, plant population and row spacing based on average annual rainfall. Source: https://www.bookstore.ksre.ksu.edu/pubs/MF3046.pdf

Avg. Annual Rainfall (inches)	Seeding rate (x 1,000 seeds/acre)*	Recommended Plant Population (x 1,000 plants/acre)	Within-row Seed Spacing (70% emergence)		
			10-inch rows	20-inch rows	30-inch rows
< 20	30-35	23-27	21-18	10-9	7-6
20 to 26	35-64	25-45	18-10	9-5	6-3
26 to 32	50-80	35-55	13-8	6-4	4-3
> 32	70-125	50-90	9-5	4-2	3-2
Irrigated	110-150	80-110	5-4	3-2	2-1

* Assuming 70% field emergence.

Because of sorghum's ability to respond to the environment, final stands can vary at least 25 percent from the values listed above, depending on expected growing conditions, without significantly affecting yields. Lower seeding rates minimize the risk of crop failure in dry environments. Sorghum can compensate for good growing conditions by adding tillers and adjusting head size, but yields can be reduced in a dry year if populations are too high. For a high-yielding environment (>150 bu/acre), under narrow rows, high plant populations can be a critical factor in improving sorghum yields.

Higher seeding rates also should be used when planting late. Increase rates by 15-20 percent if planting in late June or later. Late planting will restrict the amount of time that sorghum plants will have in the season for producing productive tillers, thus decreasing the plant's ability to compensate for inadequate stands.

Recent research in Kansas has confirmed these long-term recommendations. In these studies, sorghum yields were maximized at 25,000 plants per acre (optimum between 20,000 to 30,000 plants per acre) in western Kansas at 17 inches annual precipitation; 40,000 in central Kansas at 30 inches annual precipitation; and 50,000 in eastern Kansas at 32 inches annual precipitation. For western Kansas, final stands of about 20,000 to 30,000 plants per acre can attain yields of 60 to 80 bushels per acre or more. For central and eastern Kansas, final stands of 50,000 to 70,000 plants per acre can maximize yields, with the final objective of having an average of 1 to 1.5 heads per plant.

Having more than the recommended number of plants per acre results in fewer fertile and productive tillers and thinner stems, reducing yield in drier environments and increasing susceptibility to drought. On the other side, thin stands can compensate for better-than-expected growing conditions somewhat by producing more and/or larger heads. However, under high-yielding environments, a higher final plant population will be needed to increase yields as much as possible (Table 1).

Planting date

A summary of research data performed in the last several years has confirmed that the optimum planting date for maximizing yields will be around early June (Figure 1). Still, the decision on the optimum planting date should be timed so plants have the best chance of avoiding hot, dry weather at the flowering stage, but can still have sufficient time to mature before the first frost.

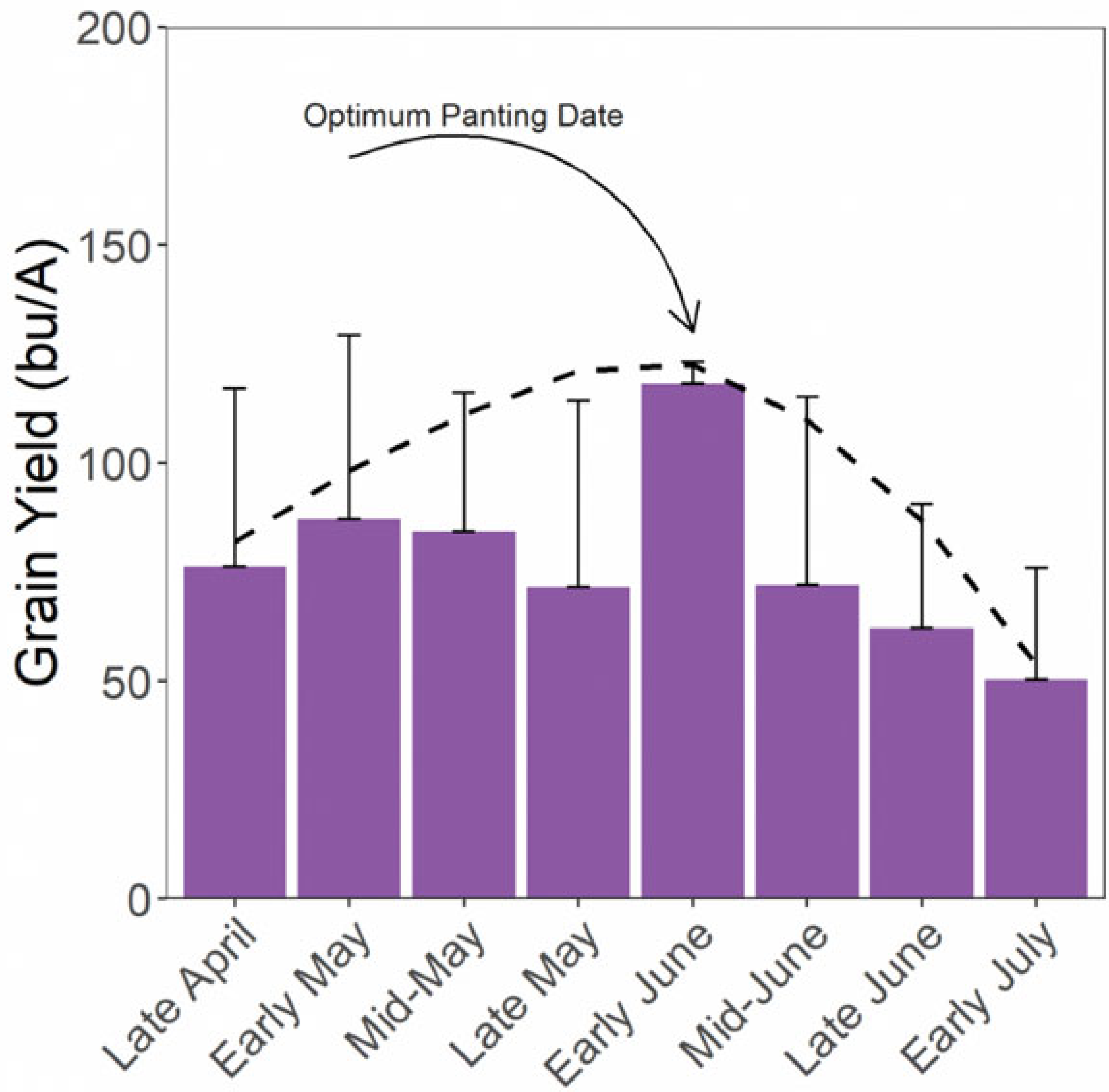

Figure 1. Planting date effect on final sorghum yields (Tribune/ Hutchinson/ Manhattan, Vanderlip; Scandia 1994-96, Gordon; St. John 1993-95, Martin and Vanderlip; Columbus 2000/03, Kelley). From Sorghum: State of the Art and Future Perspectives**, Agronomy Monographs 58, chapter "Genotype × Environment × Management Interactions: US Sorghum Cropping Systems" doi:10.2134/agronmonogr58.2014.0067, Ciampitti and Prasad (Eds).**

The planting date has some effect on seeding rates. Sorghum will tiller more readily in cool temperatures and less under warm conditions. As a result, later plantings in warmer weather should be on the high side of the recommended range of seeding rates for each environment since there will be less tillering. The potential for greater tillering with earlier planting dates makes sorghum yields more stable when planted in May and early June compared to planting in late June or July.

Planting depth

Seed placement is also a critical factor when planting sorghum. The optimum seed placement for sorghum is about 1-2 inches deep. Shallower or deeper planting depths can affect the time between planting and emergence, affecting early-season plant uniformity.

Row spacing

The other factor that can influence yield is row spacing. A response to narrow row spacing is expected under superior growing environments when water is a non-limiting factor. Narrow rows increase early light interception, provide faster canopy closure, reduce evaporation losses, can improve suppression of late-emerging weeds, and maximize yields.

The comparison between wide (30-inch) vs. narrow (15-inch) row spacing shows an overall yield benefit of 4 bushels per acre with narrow rows. In addition, narrow rows out-yielded wide rows in 71 percent of all observations evaluated (Figure 2).

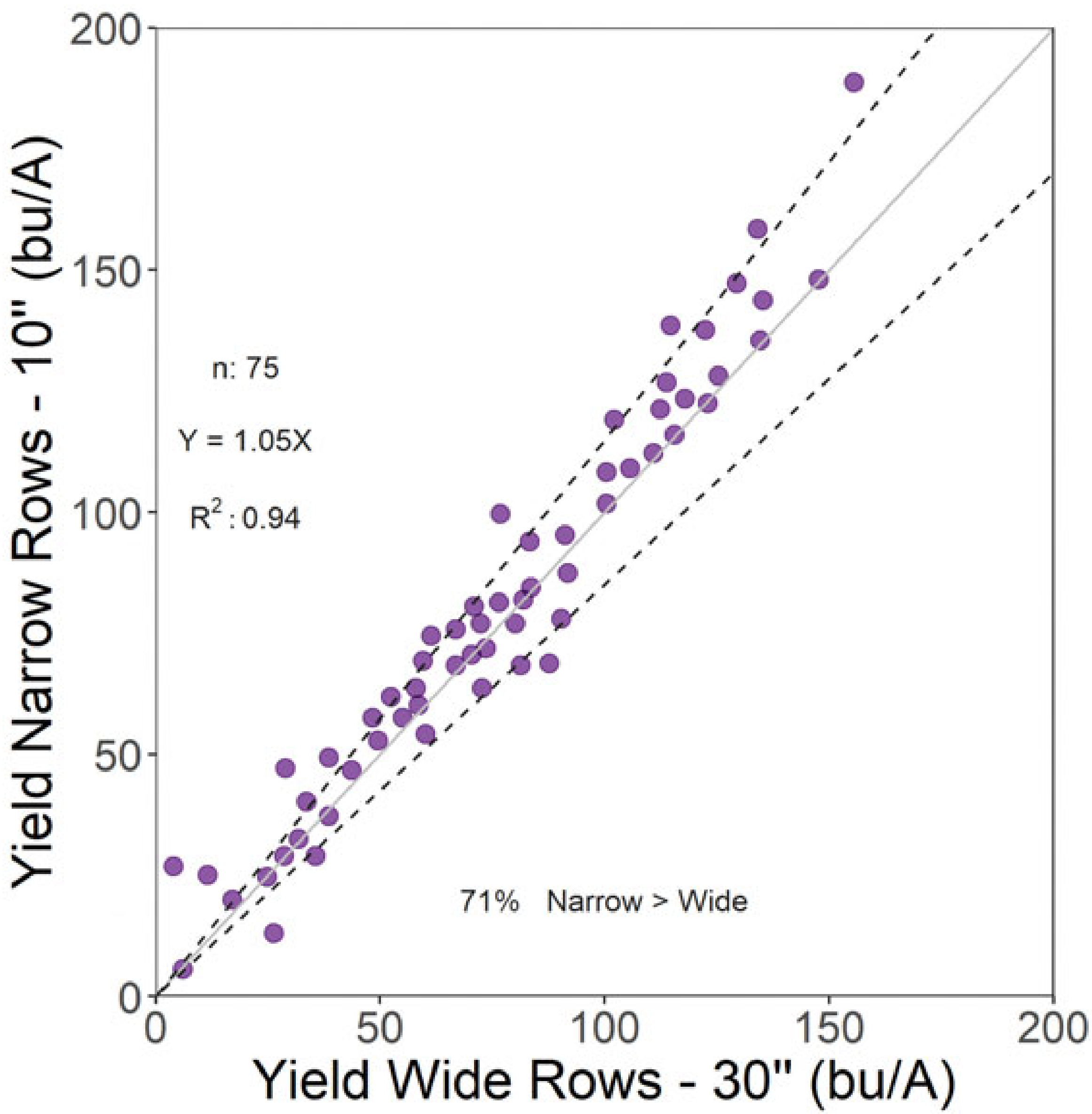

Figure 2. Yield in narrow rows versus yield in wide rows. From a total number of 75 observations, 71% had a greater yield in narrow as compared to wide row spacing. Partial data presented From Sorghum: State of the Art and Future Perspectives**, Agronomy Monographs 58, chapter "Genotype × Environment × Management Interactions: US Sorghum Cropping Systems" doi:10.2134/agronmonogr58.2014.0067, Ciampitti and Prasad (Eds).**

A more consistent response to narrow rows was documented when yields were above 70 bushels per acre, with a greater chance of having higher yields when using narrow rows, but the response is not always consistent. Under low-yielding environments, conventional (30-inch) wide row spacing is the best alternative.

Should populations be adjusted with narrow rows?

Research results indicate that the population producing the greatest yield doesn't change with different row spacing, but the magnitude of response to population potentially can be greater with narrower row spacing in high-yielding environments.

Should row spacing be adjusted for planting dates?

The planting date seems to have an interaction with row spacing. Over three years at the North Central Experiment Field, there was essentially no difference in yield between 15- and 30-inch rows for late-May plantings, but there was a 10-bushel yield advantage for 15-inch rows for late-June plantings. A similar response was observed in Manhattan in 2009 row spacing had no effect on yields for the May planting, but with the June planting 10-inch rows had an 11-bushel/acre yield advantage over 30-inch rows. In all cases, yields were less with the June planting, but the June plantings at Belleville and Manhattan still averaged more than 115 bushels/acre.

Hybrid selection

The selection of sorghum hybrids should be based not only on maturity, but also on other traits such as resistance to pests, stalk strength, head exertion, seeding vigor, and overall performance. The selection of a sorghum hybrid based on its maturity should be strictly related to the planting date, the expected duration of the growing season, and the probability the hybrid will mature before the first freeze event. Shorter-season hybrids might be a better fit for late planting dates (mid-June to July depending on the regions); a longer-season hybrid is recommended when planting time is early and the growing season is maximized. The goal is to plant a hybrid maturity at each particular site/environment (weather and soil type) so the plants can bloom in favorable conditions and have adequate grain fill duration before the first fall freeze occurs.

Summary

- Determine your desired population based on average rainfall and expected growing conditions. There is no need to go overboard.
- Make sure you plant enough seed for your desired plant population. About 65-70 percent field germination is a good general rule to use.
- Think about using narrower row spacing to close the canopy sooner and potentially capture greater yields in yield environments of 70 bushels per acre or more.

- Planting date and hybrid selection are tied together and are related to the expected conditions during the late summer. Think about this before deciding your planting time and selecting a hybrid.

Suggested resources for grain sorghum cropping systems from K-State Research and Extension

"Kansas Sorghum Management 2022" MF3046
https://bookstore.ksre.ksu.edu/pubs/MF3046.pdf

"Narrow-row Grain Sorghum Production in Kansas" MF2388
https://bookstore.ksre.ksu.edu/pubs/MF2388.pdf

"2022 Kansas Performance Tests with Grain Sorghum Hybrids" SRP1168
https://bookstore.ksre.ksu.edu/pubs/SRP1175.pdf

"Sorghum Growth and Development" poster (updated in 2023)
https://bookstore.ksre.ksu.edu/pubs/MF3234.pdf

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4. 2023 Wheat Plot Tours - May 18 through June 8

The Department of Agronomy and K-State Research and Extension is hosting several winter wheat variety plot tours in different regions of the state. Make plans to attend a plot tour near you to see and learn about the newest available and upcoming wheat varieties, their agronomics, and their disease reactions. A list of plot tour dates, time, and directions was published in a previous eUpdate. This article contains the upcoming plot tours for May 18 through June 8. Plots highlighted in red are still tentative. This list will be continuously updated in the coming weeks.

Romulo Lollato, Extension Wheat Specialist
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Date	Time	County	Location	Directions	Agent/Contact
5/18	5:00 PM	Sumner	Conway Springs	Plot directions: 1/4 mile east of Tom Pauly Seeds (922 140th Ave N) on SE corner of intersection. Meal to follow the plot at the headquarters.	Randy Hein
5/19	9:00 AM	McPherson	Marquette	Patrick Plot- north side of Highway #4 in Marquette Rd at 10:00am	Shad Marston
5/19	12:00 PM	McPherson	Moundridge	Lunch sponsored by MKC held at noon at the Black Kettle Park in Moundridge. Galle Plot at 1:00 pm just west of the corner of 23rd and Cheyenne.	Shad Marston
5/19	3:30 PM	McPherson	Inman	Schroeder Farm test plot between 5th and 4th Ave on Cheyenne Road.	Shad Marston
5/23	8:00 AM	Labette	Parsons	Southeast Extension-Research Center - Parsons	James Coover
5/23	8:15 AM	Sedgwick	Andale	1/2 mile south of intersection 247th St W & 21st St N	Jeff Seiler
5/23	10:30 AM	Sedgwick	Clearwater	South of Clearwater 1 mile west of 151st St W on 119th St S.	Jeff Seiler
5/23	5:00 PM	Sumner	Belle Plaine	Program to follow meal. Meal location—1459 E. 60th Avenue North Southeast of Belle Plaine. Plot location— 1/2 mile east from meal.	Randy Hein
5/24	12:00 PM	Harvey	Newton	Lunch at Camp Hawk. From camp hawk the plot is 1.5 miles west on SW 36th St. It is at the corner of s west rd. and SW 36th street.	Ryan Flaming
5/24	5:00 PM	Sumner	Caldwell	Program to follow meal. Meal Location—South side of highway from plot. Plot Location — From Caldwell, 1 1/2 miles East of Railroad Tracks, on	Randy Hein

				Highway 81, North side of the road	
5/24	6:30 PM	Riley	Manhattan	SAVE Farm (9680 N. 52nd Street, Manhattan, KS 66503)	Greg McClure
5/25	9:30 AM	Ellis	Hays	Wheat Rx Field day at the K-State's Agricultural Research Center (1232 240th Ave, Hays, KS 67601). RSVP Required.	Romulo Lollato
5/25	3:00 PM	Walnut Creek	Rush Co (LaCrosse)	Corner of County Road 40 and Avenue N (From LaCrosse – 11 miles west and 2 miles south)	Lacey Noterman
5/25	6:00 PM	Walnut Creek	Lane (Dighton)	7 miles west from Dighton to Eagle Road. 2 miles south to west road 130 the 200 yards west toward Ehmke farmstead, east of the scales. On the south side of the road.	Lacey Noterman
5/25	CANCELED	Ellsworth	Lorraine	CANCELED (crop termination)	Craig Dinkel
5/25	CANCELED	Russell	Russell	CANCELED (crop termination)	Craig Dinkel
5/26	8:30 AM	Saline	Solomon	Ryan family farm: 3 miles west of Solomon on Old Hwy 40 and 2.5 miles S on Gypsum Valley Road	Jay Wisbey
5/26	11:00 AM	Saline	Mentor	Isaacson Family Farm, West of Mentor on Old 81 Highway	Jay Wisbey
5/26	3:00 PM	Cloud	Minneapolis	Tim and Ryan Myers, 1.5 Miles West of K-106 Highway on Justice Road	Jay Wisbey
5/31	12:30 AM	Post Rock District	Lebanon	Highway 281, 1 mile S of Lebanon, East side of highway	Sandra Wick
5/31	12:00 PM	Post Rock District	Jewell	Off of Hwy 14 north of Jewell, then west on K Road for 2 1/2 miles on the south side of the road.	Sandra Wick
5/31	CANCELED	Post Rock District	Beloit	CANCELED	Sandra Wick
6/1	8:00 AM	Republic	Belleville	2 miles west of Belleville on Hwy 36 at K-State North Central Experiment Field	Luke Byers
6/1	10:00 AM	Republic	Belleville	Polansky Seed East Location (1.5 mi. E of Belleville on Hwy. 36)	Luke Byers
6/1	6:00 PM	Ellis	Hays	Golf Course Rd. & 180th Ave. at intersection go 1.5 miles S. on 180th Rd	Stacy Campbell
6/1	6:00 PM	Phillips	Phillipsburg	North of Phillipsburg in the corner of Hwy 183 ad E Osage Road.	Cody Miller
6/2	8:00 AM	Republic	Belleville	2023 In-Depth Wheat Diagnostic School (CEU/CCA credits, full day program). Registration required. 2 miles west of Belleville on Hwy 36 at K-State North Central Experiment Field.	Romulo Lollato
6/8	5:00 PM	Washington	Palmer	Ohlde Seed Farms (3 mi. E of Palmer on 4th Rd)	Luke Byers

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5. 2022 Kansas Corn Yield Contest - High yield management

The Kansas Corn Growers Association, with K-State Research and Extension, conducts an annual yield contest open to all active members of the association. This contest:

- recognizes Kansas farmers achieving high corn yields,
- shares crop management and efficiency data among Kansas growers, and
- provides on-farm sustainability and profitability insights. This document summarizes the 82 entries from 2022 (Figure 1).

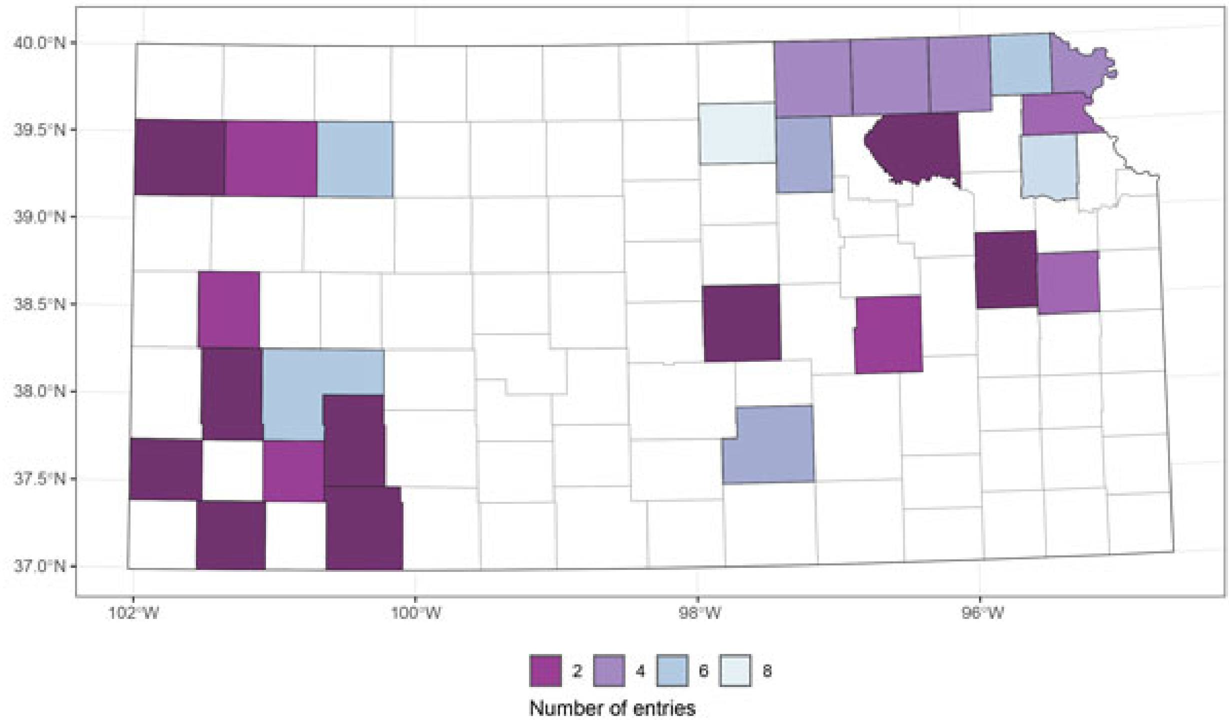

Figure 1. 2022 contest field locations, 82 total entries (irrigated=46; non-irrigated=36). Map from KSRE publication MF3463.

Summary of results

Yield

- Grain yields for irrigated entries averaged 278 bushels per acre, ranging from 217 to 324 bushels per acre. Non-irrigated entries averaged 236 bushels per acre, ranging from 163 to 309 bushels per acre.
- Grain yields for high-yielding environments averaged 293 bushels per acre, ranging from 276 to 324 bushels per acre. Intermediate-yielding environments averaged 255 bushels per acre, ranging from 225 to 275 bushels per acre. Lastly, low-yielding environments averaged 197 bushels per acre, ranging from 163 to 224 bushels per acre.

Crop Management

- Planting dates before April 20 presented significantly lower yields compared to later dates. Related to this, 58% of the low-yielding entries were planted before April 20.
- Plant populations ranged from 23,000 to 38,000 plants per acre. Yield increases were significantly tied to greater plant populations, showing an increase of 10.5 bushels per acre for every 1,000 plants per acre until a plant population level of around 32,500 plants per acre.
- Relative to nutrient management, corn yield increased by 0.4 bushels per acre for every pound of nitrogen (N) added. No clear trends were found for the application of phosphorus (P) or potash (K). A higher percentage of K fertilization was observed in the low-yielding entries.
- Irrigation significantly explained yield variations. Three-fourths of the irrigation observations were concentrated in the high-yielding entries.
- Strip-tillage was the most common tillage practice (66%) among the high-yielding group. Conservation tillage (strip and minimum) and no-till were common across all entries. Conventional tillage represented only 7 to 12% of the entries.
- Seed treatment did not result in a yield increase.
- The row spacing ranged from 15 to 39 inches. 84% of the entries were planted in 30-inch rows.

Key Points

- The entries presented, on average, 5% less yield than the 2021 entries.
- Planting after April 20, with plant populations near 30,000 plants per acre and fertilizer nitrogen rates of about 250 pounds per acre maximized yields.
- Irrigation to supplement rainfalls (at least 5 inches) was fundamental to achieving higher yields.
- The results are linked to the climatic conditions of the 2022 growing season, which was characterized by limited water.
- Planting date, plant population, N and K fertilization, irrigation, and tillage practice were the most significant factors explaining yield levels.

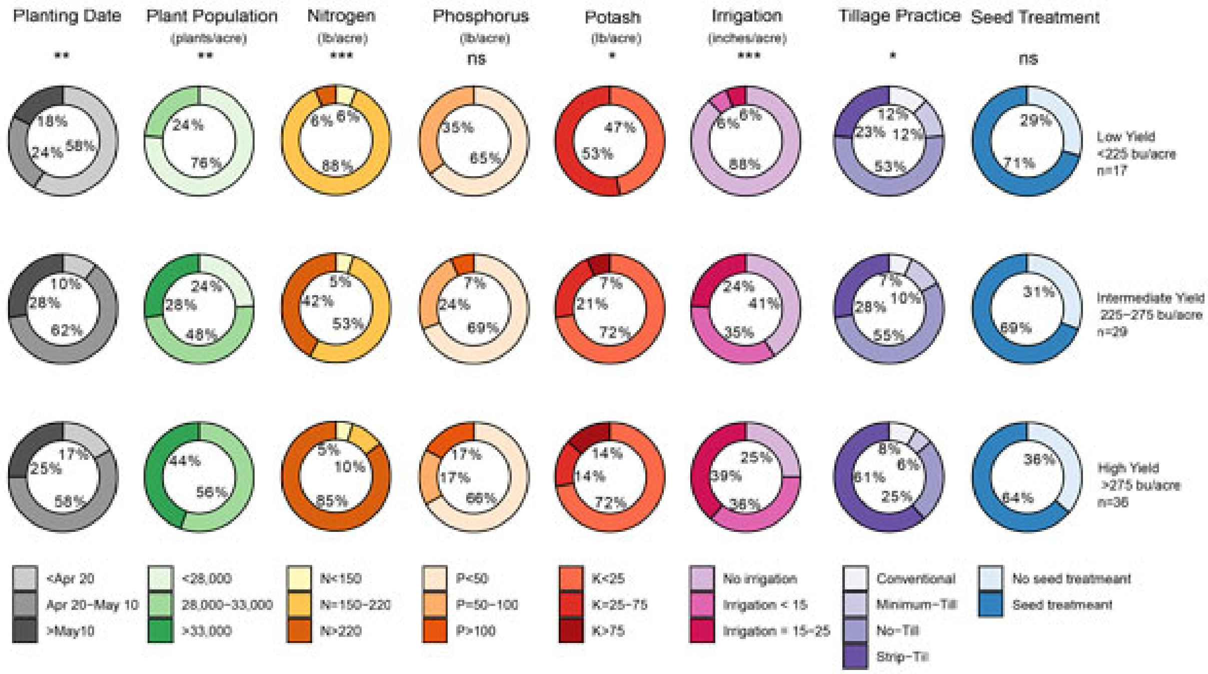

Figure 2. Data summary for the crop (irrigation and yield environment) and pest and nutrient (yield environment) management of contest entries. Significant differences are indicated with symbols: ***p<0.001; **p<0.01; *p<0.05, ns means not significant at p<0.05.

This information is also presented in the KSRE publication *MF3463 Kansas Corn Yield Contest, High-Yield Management* at https://bookstore.ksre.ksu.edu/pubs/MF3463.pdf

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6. Insect activity in alfalfa - May 17, 2023

Problems with alfalfa weevils, coupled with the earlier dry conditions, have been really severe this year. Alfalfa weevils are a severe pest before the first cutting every year. However, their feeding damage, coupled with the dry conditions, has really impacted the alfalfa this year. Fortunately, most of the weevil population is pupating and/or has reached the adult stage (Figure 1).

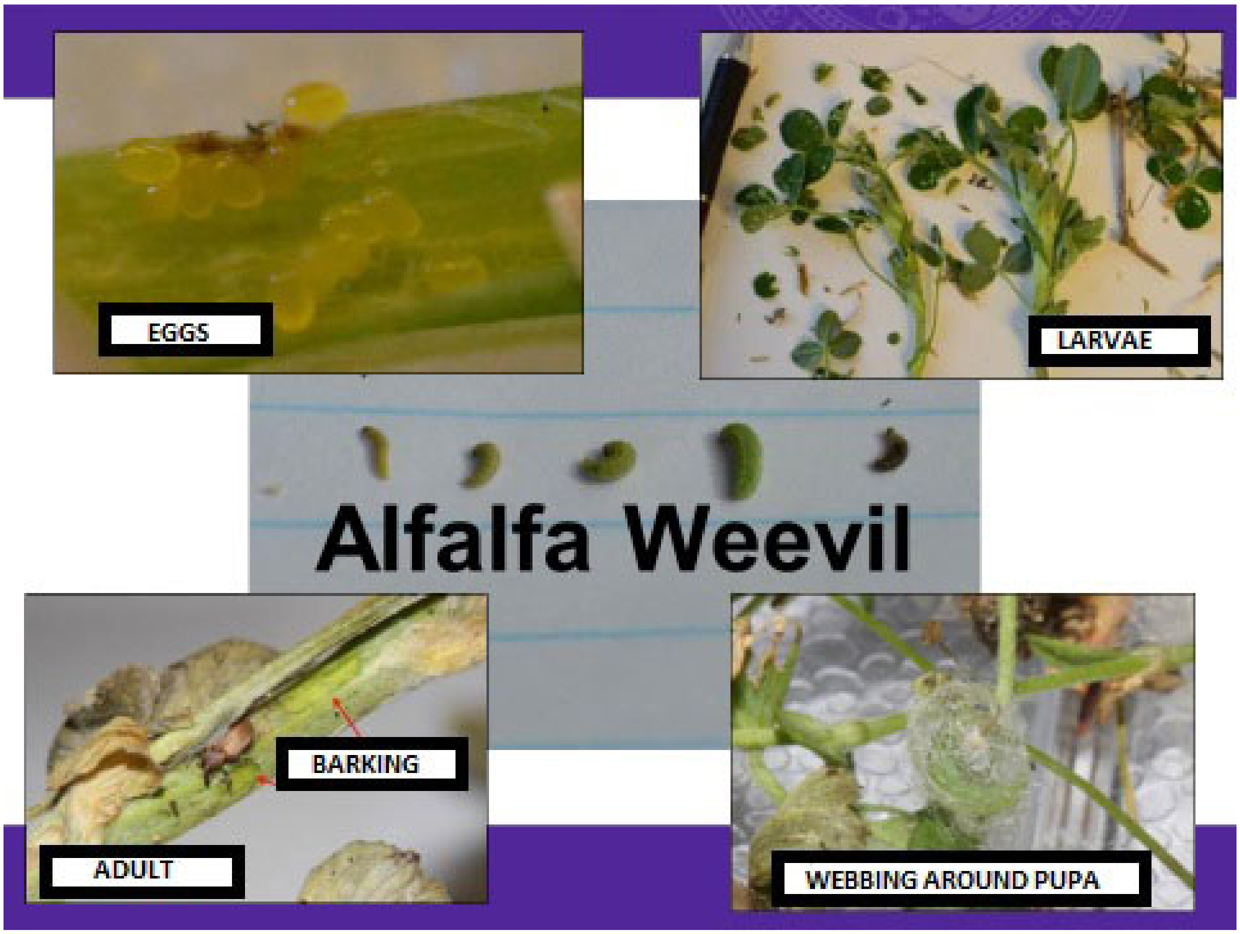

Figure 1. Alfalfa weevil life cycle. Photos by Jeff Whitworth, K-State Research and Extension.

There is some concern about the number of adults remaining in the fields, but adults do not feed as voraciously as larvae and they will be exiting alfalfa fields at the 1^{st} cutting. They cause some concern as they feed a little on stems, called "barking", and a little windowpaning /pinholing in leaves (Figure 2), which causes very little yield loss. Also, Figure 3 shows the kind of damage alfalfa weevils can do if not treated. Figure 4 shows the difference between using 8 gallons of carrier (water)/acre vs. 15 gallons/acre. However, either scenario is better than using nothing at all.

Figure 2. Alfalfa weevil windowpaning/pinholing. Photo by Jeff Whitworth, K-State Research and Extension.

Figure 3. Treated vs. untreated research plots. Photo by Jeff Whitworth, K-State Research and

Extension.

Figure 4. The same plot as shown in Figure 3 but the left side had 8 gal/acre carrier applied and the right side had 15 gal/acre carrier applied. Photo by Jeff Whitworth, K-State Research and Extension.

There are also some pea aphids in most alfalfa fields but also a relatively healthy population of lady beetles and other beneficials which should control the aphids.

More information on alfalfa insect management is available in this publication: https://bookstore.ksre.ksu.edu/pubs/MF809.pdf

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7. Wheat Disease Field Day in Manhattan - June 5, 2023

The Department of Plant Pathology and K-State Research and Extension will be hosting a wheat disease field day on Monday, June 5 at the Rocky Ford Plant Pathology Farm just north of Manhattan (1700 Barnes Rd., Manhattan).

This will be a great opportunity to see several wheat diseases in the field and to learn about the latest K-State wheat disease management and breeding advances.

Topics that will be covered include:

- Wheat disease management research updates
- Breeding efforts for Fusarium head blight, stem rust, barley yellow dwarf virus, and tan spot
- Pre-breeding efforts using WGRC collection of wheat wild relatives
- Predictive models for forecasting wheat diseases
- Wheat disease diagnostics and updates from the K-State Disease Diagnostic Lab

Registration will begin at 8:00 am and the program will begin at 8:30 am. Lunch will be served at noon.

There is no cost to attend this field day. Registration is requested for meal planning purposes. Please use this link for registration: https://shorturl.at/goKT1. You can also contact Amy Geyer at ageyer@ksu.edu or 785-532-6176.

K-State Plant Pathology

Wheat Disease Field Day

Monday, June 5th 2023
8:00 AM – 1:00 PM
K-State Rocky Ford Plant Pathology Research Farm

Address: 1700 Barnes Road,
Manhattan, KS 66502
*South side of the road

Registration 8:00-8:30
Lunch 12:00 – 1:00 pm

Speaker lineup:


Kelsey Onofre
Wheat Extension Pathologist


Jessica Rupp
Applied Wheat Pathologist


Erick De Wolf
Wheat Pathologist


Eduard Akhunov
Wheat Geneticist


Allan Fritz
Wheat Breeder


Robert Bowden
USDA Plant Pathologist


Mary Guttieri
USDA Research Geneticist


Chandler Day
Diagnostician

Topics:

Come visit the K-State Plant Pathology Farm and hear about the latest updates in wheat disease management and breeding for disease resistance from K-State, with topics including:

- Wheat disease management research updates
- Breeding efforts for Fusarium head blight, stem rust, barley yellow dwarf virus, and tan spot
- Pre-breeding efforts using WGRC collection of wheat wild relatives
- Predictive models for forecasting wheat diseases
- Wheat disease diagnostics and updates from the diagnostic lab

Registration not required, but requested to ensure we have enough food for lunch. To register scan the QR code or fill out this survey: https://shorturl.at/goKT1. You can also email (ageyer@ksu.edu) or call (785-532-6176) Amy Geyer.

Register:

KANSAS STATE
UNIVERSITY
Department of Plant Pathology