Issue 895

K-STATE Research and Extension

Extension Agronomy

eUpdate

03/03/2022

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. Spring 2022 Wildfire Outlook for Kansas - Be prepared!

Spring is a time where prescribed burning is common in Kansas. It is also peak wildfire season across the state. This article will look at pre-existing conditions, the forecast, and give thoughts on fire season potential. Unfortunately, conditions favor an active spring for wildfires. This article will provide some proactive measures to be sure you are prepared.

A companion article in this eUpdate issue will discuss ways to have a safe and successful prescribed burn. If you are planning any burns this spring, be sure to read both articles.

Timely moisture

Before looking at this year's concerns - we have to assess the grass crop across the state. Grasses need ideal conditions to grow well. That means they need conditions that aren't overly wet or dry, with efficient solar insulation combined with timely precipitation.

Last growing season, many areas of the state flirted with drought. This resulted in timely precipitation across much of Kansas. Mid-summer drought defined where longer periods of dry conditions persisted and grasses potentially progressed slower.

Through a combination of tools and ground truthing, we estimate that the fuel loading is above normal in the northeast and areas just outside of the northwest (Figure 1). Other areas, especially along the Oklahoma border, central Kansas, and in the northwest saw less grass growth due to persistent dry conditions. That doesn't mean there is less likelihood of a fire, just that the overall loading from last year is less than what one would expect for the area.

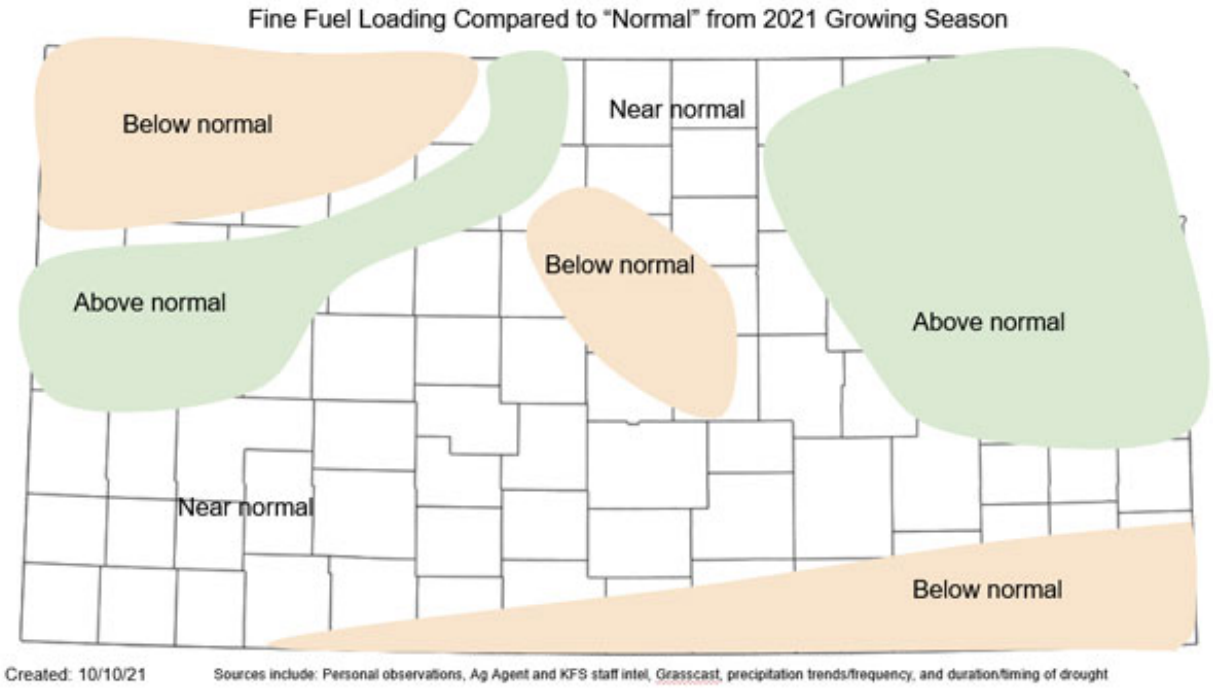

Figure 1. Estimated fuel loading compared to normal across Kansas. Source: Kansas Forest

Service and Kansas Weather Data Library.

A very dry winter

Kansas fire season peaks in March and April. This is the period when warmer temperatures begin to rebound northward into the region with dormant grasses across the landscape. In addition, frontal passages and strong storm systems with associated winds can move fire quickly.

These conditions are exacerbated by prolonged dry conditions this year. The November 2021 through February 2022 period was the fourth driest on record in the last 128 years. The third driest was 2017, the year that featured the Starbuck and numerous other large fires in Kansas. Abnormally dry conditions or drought now cover the entire state. Long term dryness allows fires to move more efficiently through timbered areas, typically good places to stop wildfires. In addition, fire tends to burn more aggressively with increased "spotting" or embers falling ahead of it. Fires are typically much harder to suppress as a result and can grow more quickly.

Despite some recent moisture in the east, all of Kansas has observed below-normal precipitation (Figure 2) and fire potential is significantly increased. This is a very disturbing situation going into our peak fire season.

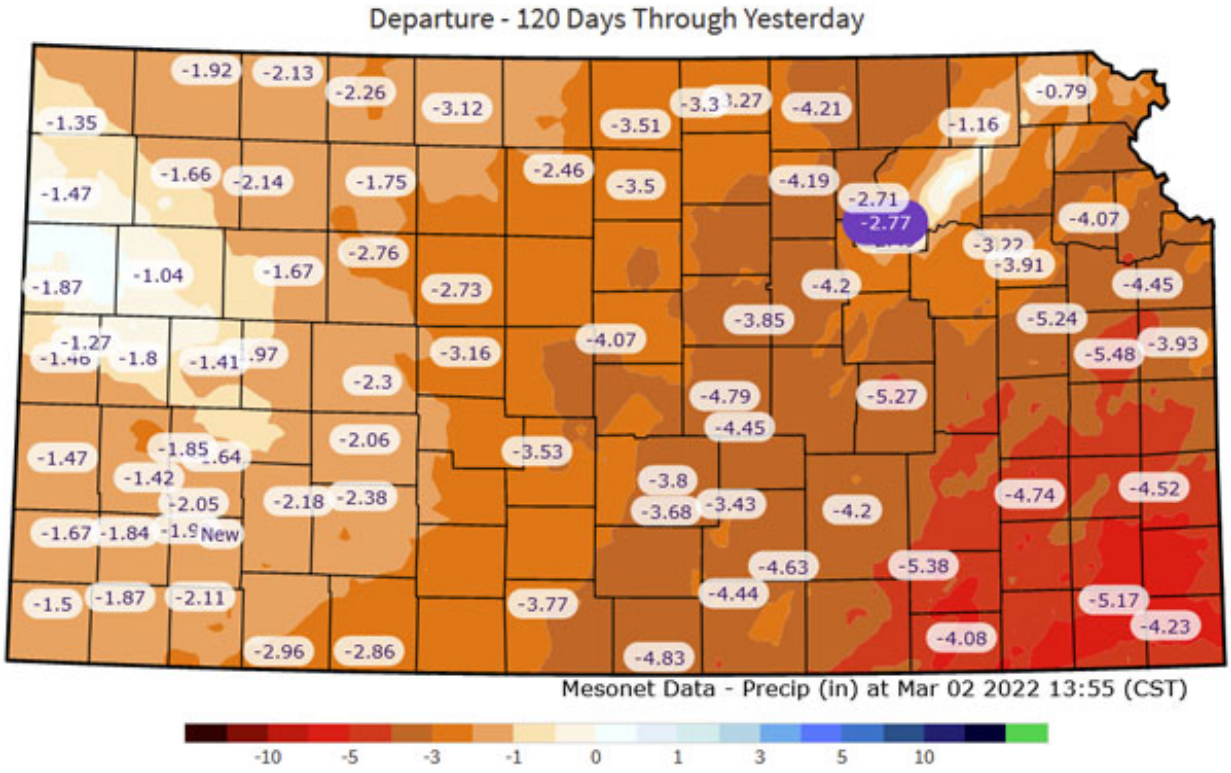

Figure 2. The 120-day departure from normal (October 28, 2021 - March 2, 2022) at Kansas Mesonet (mesonet.ksu.edu/precip/daily) stations with gridded background data from the National Weather Service (weather.gov/water).

The forecast

Recall back to 2017, when Kansas was similarly dry over the winter. La Niña also dominated the winter, then transitioned to neutral in the spring. This year, we are also in La Niña with similarly forecasted conditions.

Winter conditions over the last few months followed a textbook La Niña pattern. Wet conditions persisted in the Ohio Valley with warmer/drier conditions across the southern Plains westward into the southwestern US. The active Ohio Valley pattern typically begins to shift westward with time as La Niña diminishes in spring. The frequency in storm systems will often increase in the Central Plains but unfortunately shunt beneficial precipitation east into Missouri. Therefore, western Kansas is usually favored with drier-than-normal conditions. To make matters worse, these storms are often accompanied with strong winds. These are ideal conditions to grow large fires in Kansas.

March is beginning on a very, very warm and dry note. This has only increased fire concerns across the region. In addition, an active first weekend will provide critical-to-extreme conditions conducive to fire. The second week of March appears to be much cooler and quiet, albeit still mostly dry. Forecast models agree that a return to warm, dry, and windy conditions will occur after mid-month. In addition, it is likely this volatile pattern will continue into May. As a result, the National Interagency Fire Center Predictive Services is predicting an increased potential for large fire occurrences (Figure 3) for all of Kansas for March and April (far southwest Kansas in May too, not pictured).

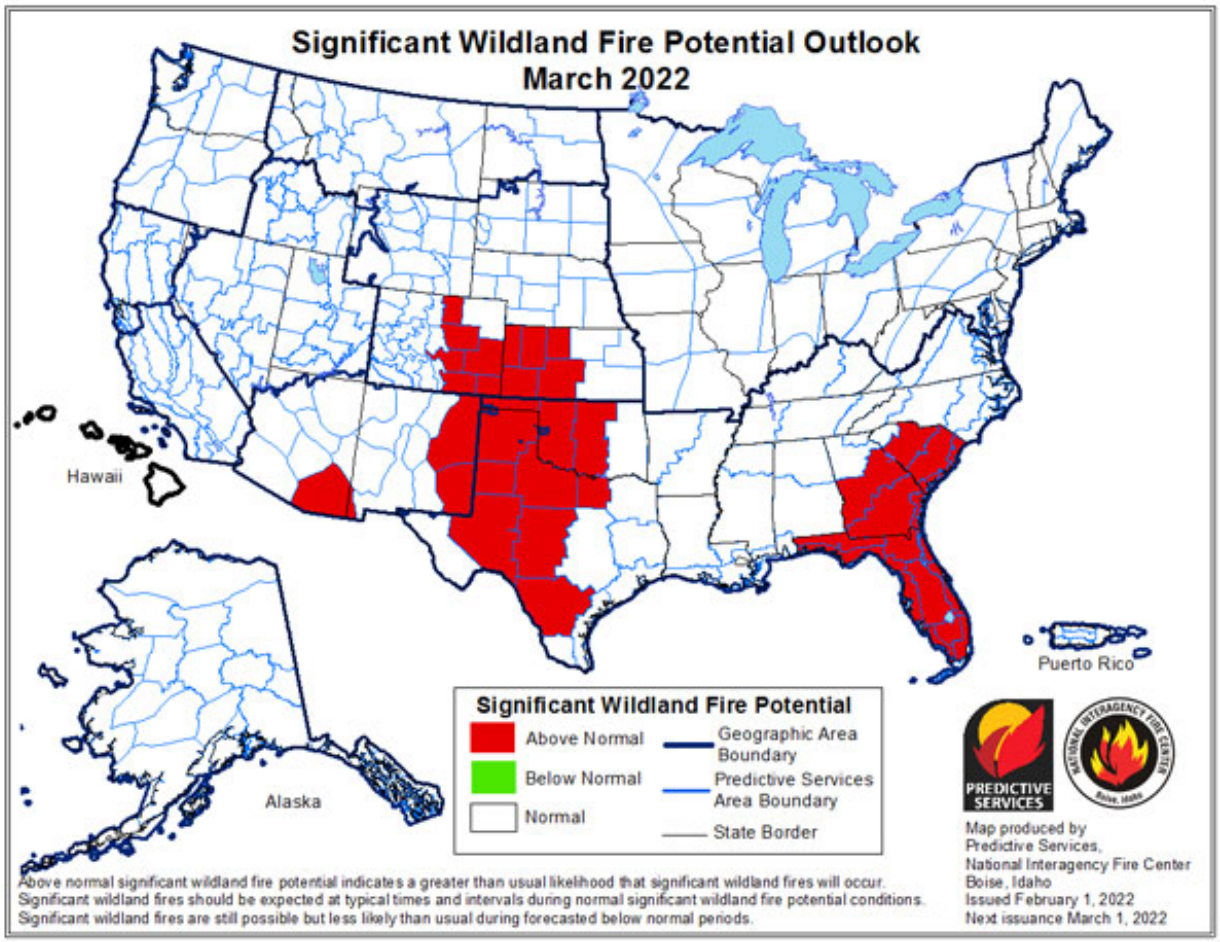

Figure 3. Significant wildland fire potential outlook from National Interagency Fire Center Predictive Services (https://www.predictiveservices.nifc.gov/outlooks**).**

Planning ahead is key

This fire season can seem quite daunting. Fire behavior thus far in 2022 has been described as "unlike anything they have seen before" under mild conditions. We are urging everyone to be prepared! Here are a few hints at being proactive and prepared before a fire ever starts.

- Have a plan: where do you go, what is your communication plan to notify friends/family.
- Have a go bag: prepare any medication, extra clothes, chargers and valuables into a quick take package should you be evacuated (works good for taking shelter in a storm too).
- Prepare your home in advance: remove leaves from gutters, remove flammable items in close proximity, make sure windows/screens/doors seal properly (more information on FireWise: https://tinyurl.com/42tpc68k).
- Mow fire breaks in areas of tall grass.

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2. Tips for having a safe and successful prescribed burn this spring

The prescribed burning season in Kansas has started. The outlook for potential wildland fire in Kansas is above normal for parts of Kansas (see companion article). This article will discuss ways to have a safe and successful prescribed burn when much of the state in a heightened state for wildfires. In addition, there are some online tools and resources that will be useful when planning a prescribed burn.

Weather forecasts and smoke model

Weather forecasts can be obtained from the NWS offices in Topeka, Wichita, Dodge City, Goodland, Hastings, NE, Kansas City/Pleasant Hill MO, and Springfield, MO. Online, simply type weather.gov/ and the name of your NWS office.

Weather conditions for conducting a safe prescribed burn are:

- wind speeds 5-15 mph,
- 40-70% relative humidity, and
- air temperatures of 50-80^{o}F.

The amount of cloud cover and mixing height will influence smoke dispersal. Check under the hourly forecast to see what is expected. That hourly forecast is also helpful to see when wind shifts might occur.

A smoke model located at ksfire.org predicts the direction smoke from a fire will travel based on current weather conditions, location, date, amount of fuel, and size of area to be burned. Another site providing useful information relative to conducting a prescribed burn is the Kansas Mesonet. You can see current humidity and wind directly at mesonet.ksu.edu/fire/rh at 70+ locations across the state.

If you plan on prescribed burning this year in particular, here are a few things to be mindful of:

- Fires will burn more aggressively, be unpredictable, and hard to contain - especially during periods of light wind.
- If prescribed burning, we recommend cutting larger fuel breaks in advance and expect less effective timber control lines.
- Fire response and prescribed burning this spring will require more people/equipment due to conditions.
- Know the forecast 2-3 days in advance and prepare accordingly.
- **Make sure prescribed fires are completely extinguished.**
- Consider waiting until green-up is more established.

Know the prescribed burn regulations

If you are planning to burn this spring, be sure to know your local regulations. Kansas regulations require the person conducting the burn to:

1. notify the local fire authority,

2. not create a traffic safety hazard,
3. not create an airport safety hazard, and
4. insure that the burning is supervised until the fire is extinguished.

Your county may require a burn permit. Always check with local authorities to ensure burning is allowed before staring a prescribed burn.

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3. Marestail in soybeans: Strategies for the best control

Controlling marestail in soybeans continues to be a big challenge for Kansas no-till producers. Application timing and weed size are critical factors for successful control of this weed that germinates in the fall or early spring. Research has shown that up to 80% of marestail can die over the winter as a result of cold temperatures and/or lack of adequate moisture. In addition, a well-established cover crop in the fall can further reduce marestail establishment and survival and often is quite effective for marestail control. However, marestail that does survive is often robust and can be difficult to control with herbicides, especially later in the spring. Herbicide options are also limited by widespread resistance to glyphosate and/or ALS-inhibiting (group 2) herbicides in marestail.

Figure 1. Glyphosate-resistant marestail in soybeans. Photo by Dallas Peterson, K-State Research and Extension.

Early spring options

Recent observations suggest marestail in Kansas will bolt (Figure 2, right) in April throughout most of the state, so timing control before the end of March is recommended. In the early spring, using a Group 4 (growth regulator) herbicide such as 2,4-D and/or dicamba is an inexpensive and effective option to control rosette marestail (Figure 2, left). Dicamba provides better marestail control than 2,4-D and will also provide some residual control, especially at higher use rates. Haluxifen (Elevore) is a newer group 4 herbicide that can provide similar marestail control to dicamba. In addition to targeting smaller weeds, application of group 4 herbicides in March also generally allows adequate time ahead of planting soybeans to meet required pre-plant intervals.

Using herbicides with longer residual helps control weeds that germinate between treatment and soybean planting. Products that include chlorimuron (Classic, Canopy), cloransulam (FirstRate), flumioxazin (Valor, others), saflufenacil (Sharpen, Optill, Verdict), or metribuzin, can help provide residual control against several broadleaf species, including marestail. However, it is very important to consult and follow the herbicide label guidelines for the required pre-plant intervals prior to planting soybeans as well as the proper rate for your soil.

Figure 2. Marestail in the rosette growth stage (left photo) versus bolted (right photo). Photos by Dallas Peterson, K-State Research and Extension.

Pre-plant options

As soybean planting nears, existing marestail plants can become difficult to control because plants will have bolted and be considerably larger. Herbicides to apply as a burndown prior to planting include tank mixes of glyphosate with 2,4-D, and the residual products listed above.

Be very careful to follow label directions regarding plant-back restriction when applying group 4 herbicides ahead of soybean, which can range from 0 to 30 days depending on the herbicide rate and formulation, as well as soybean variety, precipitation, and geography.

One additional herbicide to consider as a rescue burndown application to control bolting marestail prior to soybean planting is glufosinate (Liberty and others). Although, it would be better to control marestail at an earlier stage of growth, glufosinate has been one of the most effective herbicides to control bolting marestail. Glufosinate also has broad spectrum non-selective activity on other broadleaf and grass species if treated at a young growth stage. Glufosinate is primarily a contact herbicide, so a spray volume of 15 gallons per acre or greater generally provides the most consistent weed control. Glufosinate tends to work best under higher humidity and warm, sunny conditions at application.

Post-emergence options

Controlling marestail in the growing soybean crop can be the biggest challenge for producers, especially in soybeans without herbicide-resistant traits or in glyphosate-resistant soybeans (if marestail is glyphosate-resistant). The most successful treatments for large marestail in Roundup

Ready soybeans have been tank-mixes of glyphosate with herbicides containing chlorimuron or cloransulam. However, marestail may also be ALS-resistant, and thus not controlled by those herbicides either.

If Roundup Ready 2 Xtend or XtendFlex soybeans are planted, Xtendimax and Engenia should be some of the most effective herbicides for post-emergence control of marestail in soybeans. Remember that Xtendimax and Engenia can only be applied to Xtend soybeans. Similarly, Enlist One or Enlist Duo will be effective control options in Enlist E3 soybeans. One final post-emergence option to consider is glufosinate. Glufosinate resistance is in Liberty Link, Enlist E3, and XtendFlex varieties.

For more detailed information, see the "2022 Chemical Weed Control for Field Crops, Pastures, and Noncropland" guide available online at https://bookstore.ksre.ksu.edu/pubs/SRP1169.pdf or check with your local K-State Research and Extension office for a paper copy.

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4. Certified Crop Advisor exam review course is now available in a self-paced online format

In a collaborative effort from several faculty from K-State Research and Extension, individuals preparing for the certified crop advisor exam now have access to an online training course. This course is divided into multiple modules and includes several practice quizzes comprised of randomly selected questions from a pool of more than 500.

Course modules are divided based on the certified crop advisor objectives and include more than 11 hours of recorded presentations. Each presentation was developed and delivered by faculty from Kansas State University. The Certified Crop Advisor Exam Review course is a self-paced program that remains available for 10 months (304 days) from the date of enrollment. The cost for the entire course is $210.

The course is offered through K-State's Global Campus. To enroll, use this link: https://bit.ly/CCAexamprep or scan the QR code below with your smart phone.

For more information, please contact:

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5. 2021 Kansas Performance Tests with Grain Sorghum Hybrids report now available

The *2021 Kansas Performance Tests with Grain Sorghum Hybrids* report is now online. In this report, you will find a recap of the 2021 grain sorghum crop, with a detailed discussion summarizing the statewide growing conditions, diseases, and insects. More importantly, the results of the 2021 grain sorghum performance tests are also shown.

Grain sorghum performance tests, conducted annually by the Kansas Agricultural Experiment Station, provide farmers, extension workers, and seed industry personnel with unbiased agronomic information on many of the grain sorghum hybrids marketed in Kansas. Because entry selection and location are voluntary, not all hybrids grown in the state are included in tests, and the same group of hybrids is not grown at all test locations.

The online version of the 2021 Kansas grain sorghum performance tests can be found at: https://bookstore.ksre.ksu.edu/pubs/SRP1168.pdf.

Test results also can be found at: http://www.agronomy.k-state.edu/services/crop-performance-tests/grain-sorghum

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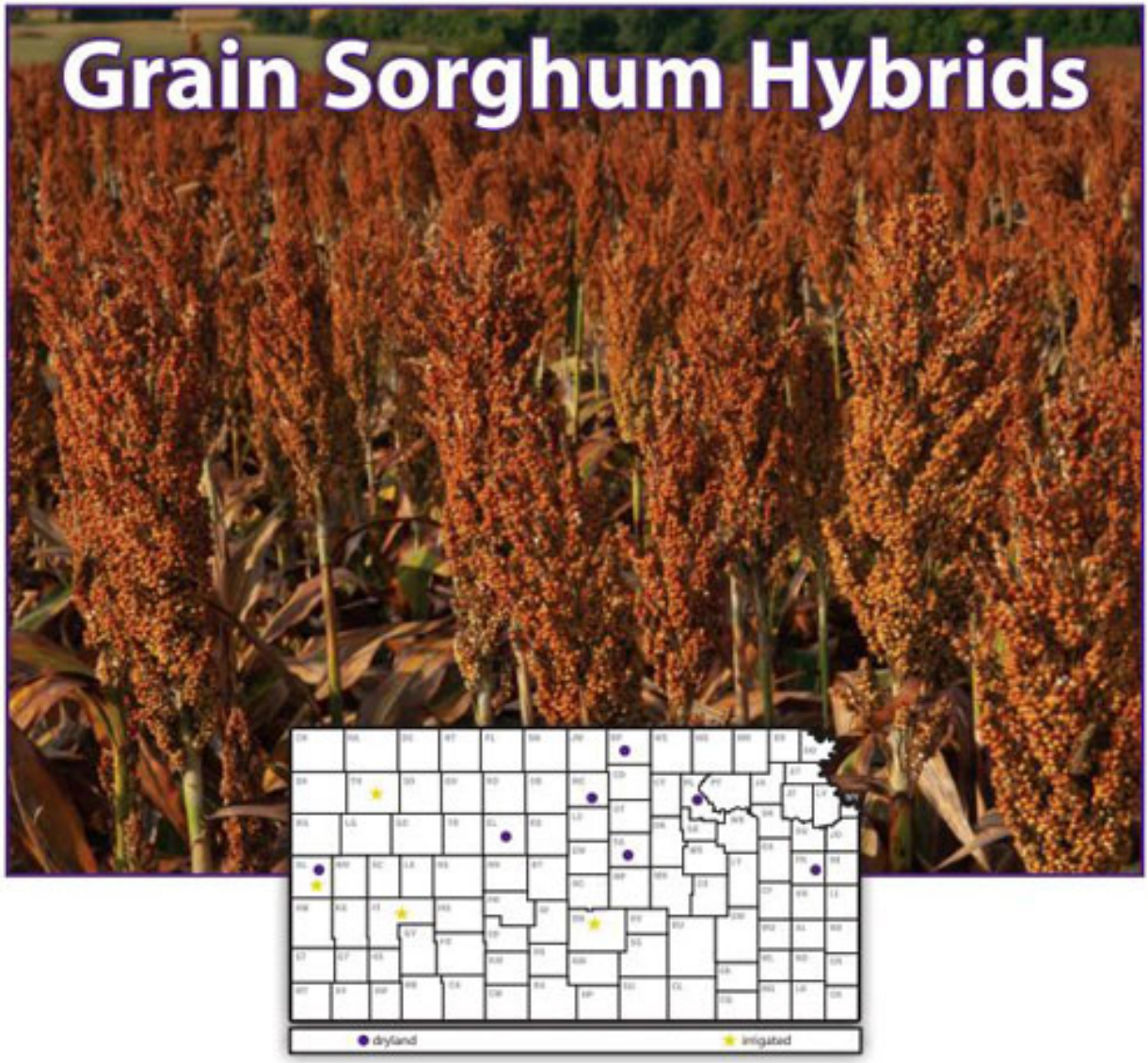
2021 Kansas Performance Tests with

Grain Sorghum Hybrids



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6. K-State to host 'mini-conference' on agricultural ramifications of Ukraine/Russia conflict

Kansas State University's Department of Agricultural Economics will host a Risk and Profit mini-conference online Mar. 7-11 to discuss the agricultural impacts of the Ukraine-Russia conflict and what it means for U.S. producers.

All sessions will be available via Zoom from 12 noon to 1:30 p.m. (CST) each day, with recordings available afterwards.

There is no fee to participate, but online registration is required. You can register at https://agmanager.info/events/risk-and-profit-online-mini-conference-ukraine-russia-conflict-agricultural-ramifications. More information is also available at AgManager.info.

Organizers of the mini-conference said faculty in K-State's Department of Agricultural Economics will address the effects on the macro-economy, agricultural trade, energy and fertilizer markets, as well as grain and livestock markets.

The schedule and topics for each session of the mini-conference includes:

- **Monday, Mar. 7:** Understanding Macroeconomic Effects by Brian Briggeman; and Production and Trade Effects by Allen Featherstone.
- **Wednesday, Mar. 9:** Implications for Energy Markets (speaker to be determined); and Effects on Fertilizer Inputs by Gregg Ibendahl.
- **Friday, Mar. 11:** Grain Market Impacts by Dan O'Brien; and Livestock Market Impacts by Glynn Tonsor.

Rich Llewelyn, an extension assistant who is helping to organize the series, said there is uncertainty about how the Russian advance into Ukraine will affect markets. "The impact and implications of the Russian invasion of Ukraine are widespread and potentially long-lasting," he said. "K-State faculty will help to bring some needed understanding and clarification to the full ramifications of what is happening, could happen, and how it will affect U.S. agriculture."

Organizers said given the two countries' importance to export markets, and the relationship between energy and agricultural prices, the conflict will impact agriculture and food supplies across the globe.

7. Farmer input requested about the myFields online pest management tool

myFields is an online tool that provides crop producers with pest management information, such as pest diagnostics, pesticide application information, and real-time notification of pest issues. By creating an account on myFields, users can curate the information that is relevant to them based on their location and which kinds of crops they grow.

As a member of the agricultural community, we ask that you participate in our survey and provide input on how to improve the user experience of myFields. Participation is voluntary, and the survey can be completed in approximately 5 minutes. Responses from this survey will impact development decisions for myFields, including potential features and other updates to the website. The deadline to participate in this survey is April 1, 2022. Simply click the link below to access the survey.

https://kstate.qualtrics.com/jfe/form/SV_4SgDlxJrhTIvQaO

We thank you for your time, and we hope that you will complete this survey.

Max Dunlap, myFields Team
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8. Soil Health Field Day - March 28, 2022

The Kansas Soil Health Partnership is hosting a soil health field day on March 28, 2022 at Guetterman Brothers Family Farms, 9970 W. 215th Street, Bucyrus, KS 66013. A map link to the location is available at: https://goo.gl/maps/UrULttyJtuQXF8ak8. The event will start 9:00 am and conclude at 2:00 pm.

Agenda

9:00 - Welcome (Dr. Chuck Rice and Guetterman Brothers Family Farms)

9:10 - Research Update and Soil Health (Carlos Pires and Dr. Chuck Rice - Kansas State University)

9:40 - Sustainability (Dr. Alex Rosa and Dr. Brian Olson - Bayer Crop Science)

9:50 - Crop Intensification (KSCROPS/Ciampitti Lab - Kansas State University)

10:20 - Fertility Management (Dr. Dorivar Ruiz Diaz - Kansas State University)

10:50 - Making a change in the way we farm (Rick Clark - Indiana Farmer)

11:50 - Lunch

12:00 - Lunch + Farmers Panel

1:15 - Visit cover crop research plots and soil pit

Please register online at www.kscorn.com/soilhealth . Registration will allow for adequate planning to ensure adequate supplies and meal counts.

Soil Microbial Agroecology Lab, Kansas State University | Kansas State University Department of Agronomy | North Central SARE Sustainable Agriculture Research & Education | Guetterman Brothers Family Farms | Bayer | Kansas Soil Health Alliance | Kansas Corn Growers Association

9. K-State CropTalk webinar series extended until March 14

In 2021, a new series of hour-long webinars was launched with great success. For 2022, the K-State CropTalk webinar series is back and will be focused on agronomic topics targeted for northwest and north central Kansas. Topics range from soil fertility, weed management, cover crops, and weather resources. Continuing education credits have been applied for and will vary based on the subject area of each webinar.

Each webinar will begin at 12:00 pm (CST) and last until 1:00 pm. Upon registration, participants will receive an email with instructions to attend via Zoom or YouTube. These webinars are open to all and there is no cost.

Visit the K-State Northwest Research and Extension Center's website to register: https://www.northwest.k-state.edu/events/**.**

Please contact any local KSRE extension office in north central or northwest Kansas for any questions.

UPDATED: List of the remaining webinars, with dates, topics, and speakers is detailed below.

March 7 – **Climate Update and Kansas Mesonet**
Chip Redmond, K-State Assistant Climatologist and Kansas Mesonet Coordinator

March 14 – **2022 Grain Market Outlook and Strategies**
Dan O'Brien, Northwest Area Agricultural Economist