Issue 1035

K-STATE Research and Extension

Extension Agronomy

eUpdate

01/16/2025

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. New Wheat Rx publication: Wheat's versatility in farming systems

A new publication in the Wheat Rx Series describes the versatility winter wheat brings to farming systems. The full publication is available online at https://bookstore.ksre.ksu.edu/item/wheats-versatility-in-farming-systems_MF3680.

Winter wheat in Kansas is well adapted to the weather and soils, fits well in crop rotations, and brings several benefits beyond the value of the grain. Nevertheless, wheat acres are declining in the state at an average of about 1.9% per year since 2005 (Figure 1). This decline is predominantly due to increases in acreage of summer crops that offer greater technological options for growers (for example, genetically modified traits and the availability of hybrids). Summer crops may be more profitable, in part, due to new markets such as biofuels and increased demand by other countries. Kansas producers may miss the cropping benefits that wheat brings.

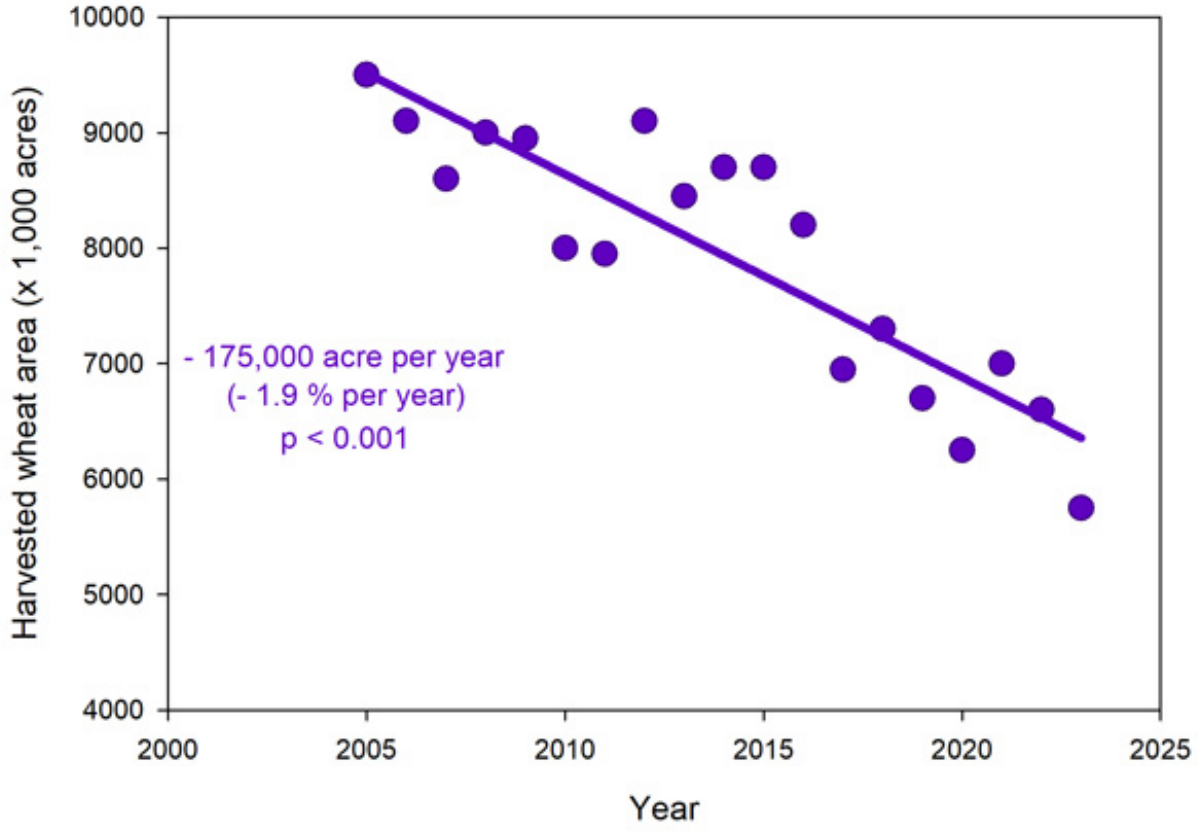

Figure 1. Kansas winter wheat harvested area from 2005 to 2023 as reported by the USDA National Agricultural Statistics Service.

On-farm versatility

Because winter wheat is planted in the fall, it goes through many months of vegetative growth before the start of reproductive development. Grain yield is less sensitive to suboptimal management during this early vegetative growth. This creates opportunities for increased flexibility, enabling farmers to implement both tactical (in-season) and strategic (long-term planning) management practices that are unique to systems where winter wheat plays an integral role.

Wide optimum sowing window. Winter wheat, especially in warm regions like south central Kansas and into Oklahoma, has a wide optimum sowing window. Planting dates spanning 50 to 66 days allow the crop to reach near-optimum yields (Figure 2). This happens because typical fall weather is fairly warm, allowing the crop to tiller well and have a low penalty in yield potential (up to 1 bushel per acre per day when sowing past late October), even if planted at a later date. This wide window allows farmers to wait for rain when needed or to finish other important farm operations, such as harvesting a summer crop, before winter wheat planting. This window is narrower in northern and colder regions such as north central and northwest Kansas and into Colorado, where the onset of colder fall temperatures is earlier, and the penalty to yield potential is as steep as 2.8 bushels per acre per day when sowing after early October.

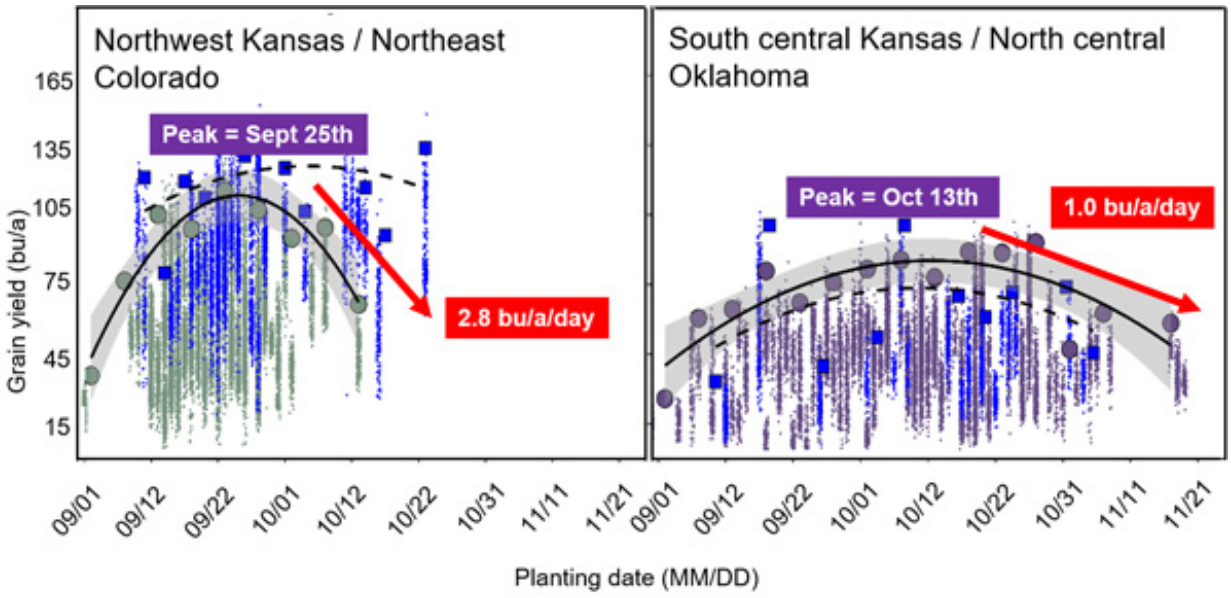

Figure 2. Winter wheat grain yield as a function of sowing date for northwest Kansas/northeast Colorado (left panel) and south central Kansas/north central Oklahoma (right panel). The planting date resulting in peak grain yield is shown in the purple rectangle, and the decline in yield potential (bushels per acre per day) is indicated with a red arrow and rectangle. Analysis performed with variety performance data and adapted from Munaro et al., 2020.

Flexibility in wheat class and sowing time. In northwest Kansas, farmers may grow either spring or winter bread wheat varieties, increasing flexibility for crop adaptation to environmental conditions. This can be valuable, for example, if a dry fall precludes growers from planting the winter wheat crop, or if the economics of growing spring wheat are better that year. Likewise, in southeast Kansas, farmers have the option to grow either hard or soft red winter wheat varieties, providing flexibility for adaptation to market conditions (for example, if soft wheat prices and grain prospects are more attractive than hard wheat).

Nitrogen fertilization timing. Recent research has shown that winter wheat can fully recover from early-season nitrogen (N) deficiency as long as the N is in the root zone and available to the crop near jointing (Figure 3). Some of the N-deficient wheat crops outyielded their counterparts receiving preplant N, suggesting a benefit from delaying N applications versus applying it preplant or early fall.

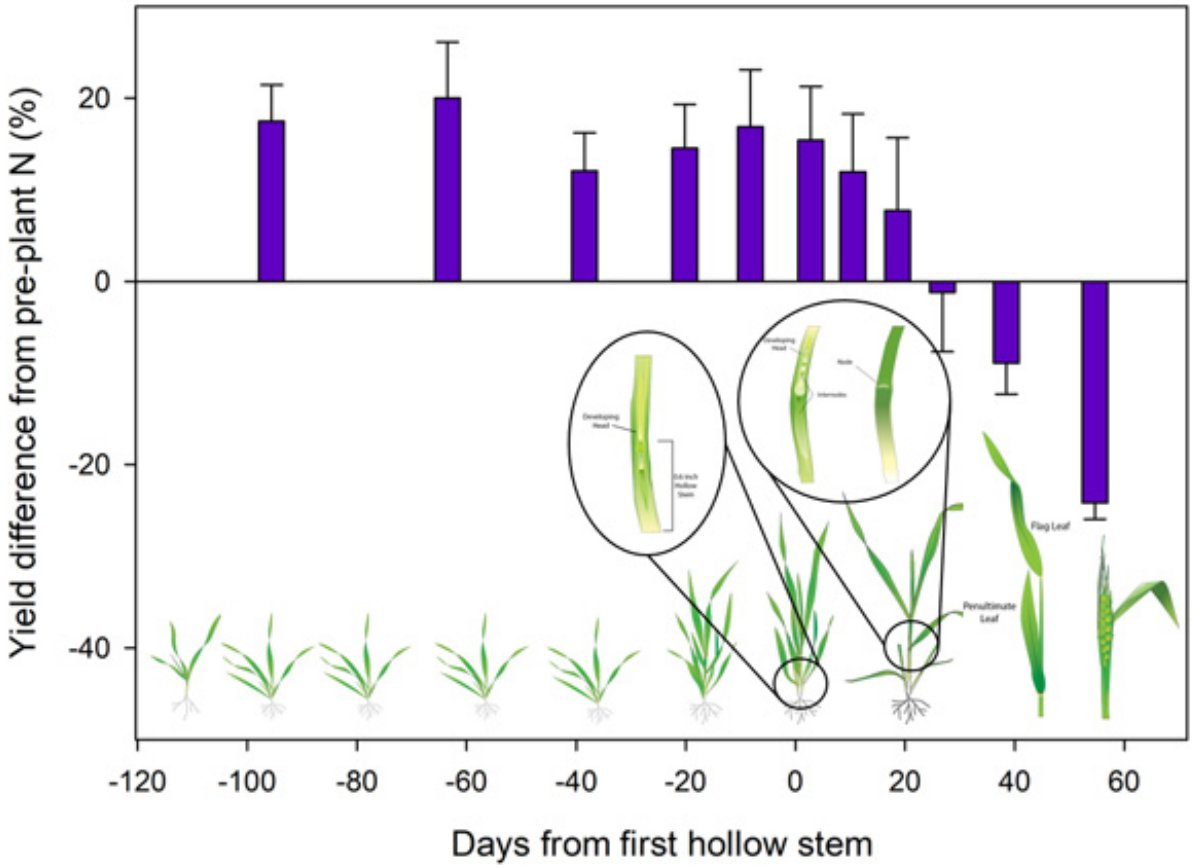

Figure 3. Difference (%) in winter wheat grain yield in recovery applications (after N deficiency was diagnosed) versus preplant N application as function of time in the growing season (days from first hollow stem, with zero indicating date when crop reached first hollow stem). Inset figures demonstrate the approximate growth stage of the crop. Data adapted from Souza et al. (2022) and Simão et al. (2024).

This research, originally conducted in Oklahoma (Souza et al., 2022), suggested that even after N deficiency was visually diagnosed, the crop that received a recovery N application outyielded the crop receiving preplant N when this application occurred from about 120 days before, to about 20 days after, occurrence of the first hollow stem. Nitrogen deficiency in later stages, from second node to about heading stages (or 20 to 60 days after first hollow stem), resulted in large yield losses and underperformed the crop that received preplant N.

The relative lack of yield sensitivity to N-deficient conditions during the vegetative and early reproductive stages provides flexibility regarding the timing of N fertilization. Growers can wait to plan this activity according to weather conditions to try to maximize nitrogen uptake by the crop. Winter wheat can handle early N deficiency and recover well. Remote sensing technologies that assess crop status in early spring have great potential for N management by using tailored N rate recommendations.

Dual-purpose capability. Wheat's resilience to early-growth stress makes it suitable for dual-purpose production, serving both as high-quality forage for animal production during the fall and winter, and as a grain crop afterward. Wheat provides nutritious forage with high protein content

and digestibility, allowing for livestock gains when other forages are not widely available. Wheat also supports substantial livestock stocking rates, enabling significant daily weight gains (see more details in Lollato et al., 2017). This flexibility is a significant advantage for farmers in Kansas and the southern Great Plains, since it also brings market flexibility. Dual-purpose farmers may decide to completely graze out the wheat crop should market conditions be favorable for cattle as opposed to wheat. This decision can be aided via partial budgets of expected grain and beef production and prices.

Soil cover with residue. The amount and quality of the residue produced by wheat and left in the field after harvest are unique and can improve chemical and physical soil characteristics. A high density of stems per unit area ensures a protective layer against soil erosion, and a high carbon-to-nitrogen ratio increases the life span of the wheat residue. Maintenance of the wheat residue on the soil surface can reduce evaporative water losses, and reduce soil temperatures due to shading. Wheat residue attenuates the emergence and development of weeds due to a physical barrier, and chemical mechanisms such as the release of allelopathic compounds. Finally, standing wheat stubble can capture and retain snowfall, increasing soil water content for subsequent crops.

Added revenue from wheat residue. Some growers may choose to bale wheat residue for hay to use as animal feed or to sell for added revenue. Baling wheat residue is more common in wetter states where the water conservation of wheat residue is less beneficial than in drier regions, such as Kansas. Wheat residue can cool the soil and delay the planting and emergence of summer crops.

Double-cropping opportunities. Winter wheat allows for intensification of cropping systems in regions such as Kansas, where the harvest of a summer crop can be followed immediately by the sowing of winter wheat or vice-versa. Intensification of cropping systems allows more cash crops to be grown within the same time period.

References: See the online publication for the complete list of cited material.

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2. Stress management and mental health tools for Kansas farmers

Farming is one of the most demanding and unpredictable professions, often marked by long hours, physical labor, and the constant pressures of weather, market fluctuations, and rising production costs. For many in agriculture, these challenges lead to significant stress that, when left unaddressed, can negatively impact mental and physical health. Seeking help is crucial to breaking the stigma, fostering resilience, and ensuring farmers have the tools and support to weather their unique challenges and maintain their overall health and well-being.

Stress and mental health issues often manifest as physical symptoms like heart problems, sleep issues, or weakened immunity. Sustained higher levels of stress can lead to depression, anxiety, fatigue, and other triggers that cause a greater propensity for attempting suicide. In Kansas, approximately one person dies by suicide every 16 hours. Suicide is the 9th leading cause of death in our state, and in 2020, 556 people died by suicide. More people in the state of Kansas died by suicide than alcohol-related car accidents in 2020.?The suicide rate in Kansas increased by 44 percent between 2011 and 2021.

Suicide can impact individuals, families, and communities. Everyone can help prevent suicide if they are willing to take action and ask the right questions, persuade individuals to seek help and treatment and refer them to the most appropriate resources. Suicide is preventable.?

Asking a friend or loved one about suicide will NOT put the thought into their mind or increase their risk of dying by suicide. **If you or someone you know has mentioned or is experiencing suicidal thoughts or behaviors and needs assistance, please call or text the National Suicide Helpline at 988.?**The National Suicide helpline is available 24 hours a day, seven days a week. Support services are confidential and free of charge. This helpline is now a streamlined version of the suicide hotline and involves the ability to call and talk with someone or text the number and use the text version if you do not want to talk.

Helpful Resources

- **K-State Research and Extension** has a Stress and Resiliency team that provides educational information about stress, stress management, and resiliency, or one's ability to adapt positively to difficult experiences. Areas of focus include all types of stress and general mental health information because stress impacts all of us, regardless of demographics. The Stress and Resiliency team is trained in several programs: Mental Health First Aid, Michigan State Farm Stress Training, and QPR (Question, Persuade, Refer).

https://www.ksre.k-state.edu/program-areas/health-and-wellness/stress-management/

KSRE Stress and Resiliency Team:

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- **Kansas Agricultural Mediation Services (KAMS)** is a state agricultural mediation program that helps farmers and ranchers explore options through mediation and other financial and legal concerns. They will gather your information and can connect you with financial advisors, legal advice, and lawyers. They can also put you in contact with mental health facilities closer to your location. They can be reached at 800-321-3276.

  https://www.ksre.k-state.edu/kams/

- **Kansas Ag Stress** is a website with many resources compiled that can help care for and assist Kansas farmers and ranchers in their well-being. You will find help with stress management, financial and legal challenges, and many other needs.

  https://www.kansasagstress.org/

KANSAS
AG STRESS
RESOURCES

Because your own health is important and should not be overlooked.



SYMPTOMS & SIGNS OF DEPRESSION

How do I know if my loved one is experiencing stress, anxiety, or depression? Common symptoms may include:

- *Feelings of being overwhelmed, sadness, powerlessness, and/or hopelessness*
- *Strong feelings of worthlessness or guilt*
- *Loss of interest in daily activities and drop in functioning*
- *Increase or decrease in appetite*
- *Difficulty sleeping or a desire to sleep more than normal*
- *Irritability or quick to anger*
- *Illogical thinking*
- *Nervousness*
- *Loss of energy*
- *Trouble focusing, making decisions, or remembering things*

Agriculture specific signs of stress:

- *Change in routines*
- *Decreased interest in regular activities*
- *Decline in the care of farm or domestic animals*
- *Increase in illness*
- *Increase in farm accidents*
- *Decline in appearance of farm*
- *Signs of stress in children*

* If symptoms are increasing in severity to the point where it is interfering with your loved one's home life, relationships, or their ability to get work done at school or at work, they have reached a point in which professional help would be beneficial.

Resources:
American Psychological Association www.apa.org/helpcenter
University of Maine Cooperative Extension www.extension.umaine.edu/publications/4805e/

KansasAgStress.org

Kansas State University Department of Agronomy
2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506
www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron

3. Winter agronomy series features alternative crops for southwest and south central Kansas

K-State Research and Extension is hosting a series of winter schools in southwest and south central Kansas focusing on three alternative crops – winter canola, camelina, and cowpea. Program topics will address production considerations and marketing opportunities for these crops. Speakers include Logan Simon and Mike Stamm from K-State and Jeff Frazier from Scoular.

Locations and times:

January 28 – 6:00 PM

Grant County Civic Center – Lawson Room
1000 W Patterson Ave
Ulysses, KS 67880

January 29 – 12:00 PM

Gray County Extension Office – 4-H Building
17002 W Hwy 50
Cimarron, KS 67835

January 30 – 12:00 PM

Stafford County Extension Office
210 E 3rd St.
St. John, KS 67576

LOCATIONS AND TIMES:

- **January 28, 6:00 PM - Grant County Civic Center**
  - Lawson Room, 1000 W Patterson Ave, Ulysses, KS 67880
- **January 29, 12:00PM - Gray County Extension Office**
  - 4-H Building, 17002 W. Hwy 50, Cimarron, KS 67835
- **January 30, 12:00PM - Stafford Co. Extension Office**
  - 210 E 3rd St., St. John, KS 67576

PROGRAM TOPICS:

- *Canola* and *camelina* production considerations
- Marketing opportunities for *canola* and *camelina*
- *Cowpea* (black-eyed pea) production considerations

K-STATE Research and Extension

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4. Great Plains Cotton Conference set for February 7 in Wichita

Cotton acres continue rising in southern portions of the Sunflower State. In 2020, southern Kansas farmers planted 195,000 acres of cotton that produced 300,000 480-lb bales of cotton lint and 99,000 tons of cottonseed with a combined economic value of $97,164,000!

The 6th Annual Great Plains Cotton Conference is scheduled for February 7 at the Sedgewick County Extension Center, 7001 W 21st St, Wichita, KS 67205. The Kansas Cotton Association, Cotton Incorporated, and Kansas State University are sponsors for the event.

Presentations will be focused on all things cotton, including irrigation scheduling, nutrient management, policy updates, cotton classing, pest management, economics and market outlooks, and cotton industry updates related to Kansas and the Great Plains. Nationally recognized speakers from Kansas, Texas, Tennessee, and North Carolina will be presenting with an additional panel discussion on See-n-Spray technologies in the late afternoon.

Registration opens at 7:30 AM, with morning sessions beginning at 8:15 AM and lunch at 12:00 PM, sponsored by Phytogen. Afternoon sessions begin at 1:15 PM and will wrap up at 4:00 PM.

CCA CEUs for Kansas have been requested.

Tentative Agenda and Topics

7:30 Registration and visit sponsors' booths

8:15 Welcome to the Great Plains Cotton Conference – Gary Feist - Kansas Cotton Association, Shelley Heinrich - Cotton Board, and Gaylon Morgan – Cotton Incorporated

8:30 Policy Updates in Cotton and Cotton Trust Protocol – Tas Smith, NCC

9:20 Harvesting Practices to Maximize the Value of Cotton - John Wanjura, USDA-ARS, Lubbock, TX

9:50 Agronomic Management of Cotton - Logan Simon, KSU

10:20 Break

10:35 Insect Scouting and Management Options – Anthony Zukoff, KSU

11:05 Harvest-aid Decisions and Applications to Optimize Yield and Quality – Jenny Dudak, OSU

11:55 Lunch sponsored by Phytogen, and visit sponsors' booths

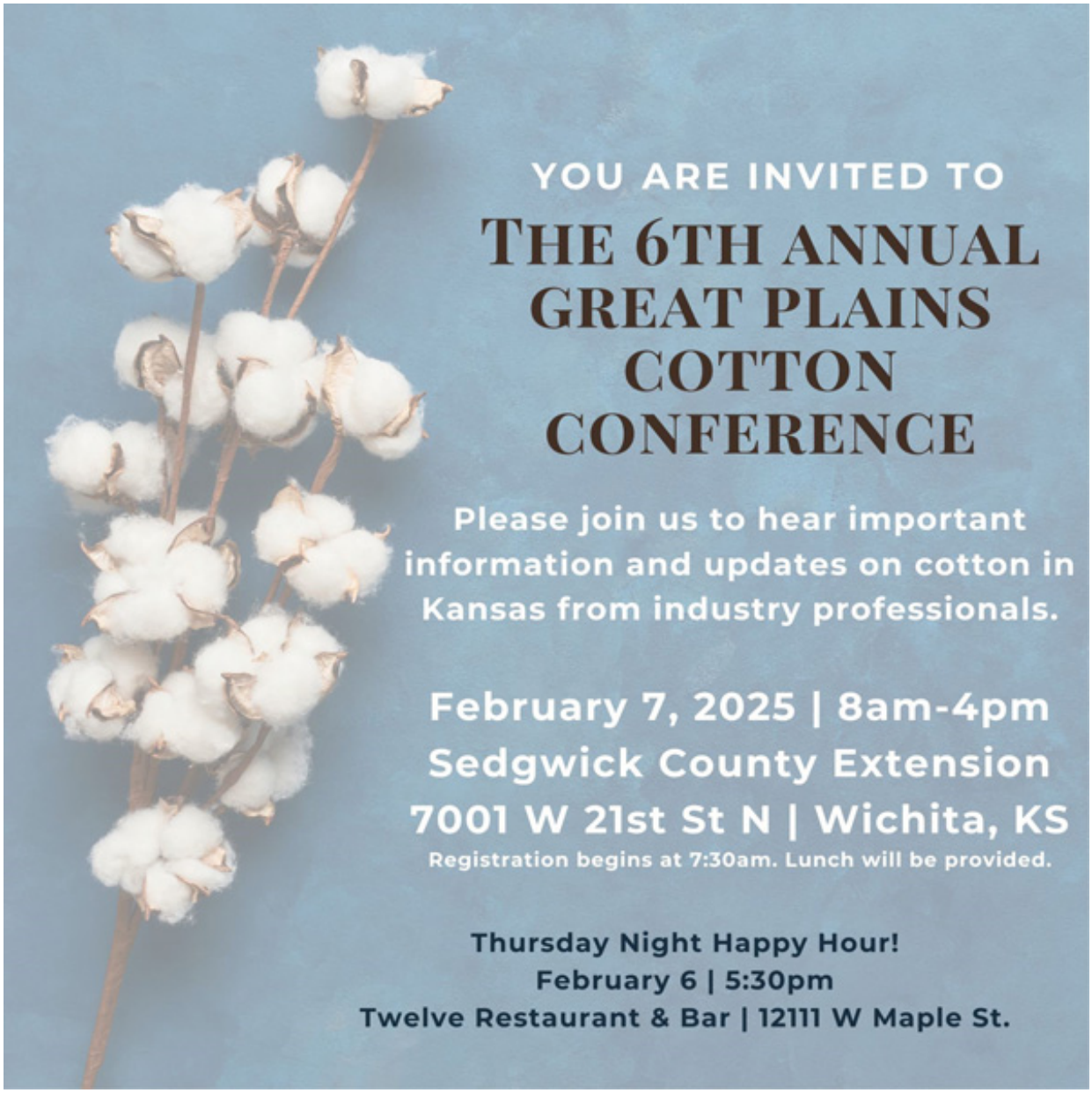
1:15 Weed Management and Herbicide Resistance Update - Sarah Lancaster – KSU

2:05 Cotton Marketing Opportunities and Risks - Bailey Thomen – Cotton Risk Management Consultant, StoneX Financial Inc.

3:00 Panel Discussion – Cotton Marketing 2025

- Ellen Batchelder – Cargill
- Jeremy Gifford & Aubry Heinrich - PCCA

3:50 Audience feedback and conclude



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5. Save the Date for a Wheat Rx seminar on February 12 in Salina

A prescription for producing high-yielding and high-quality wheat is just what the doctor ordered for Kansas wheat producers. Kansas Wheat Rx combines suggested management practices for the economical and sustainable production of high-quality winter wheat in Kansas.

Mark the calendar now for an upcoming seminar on February 12 at the Great Plains Corporate Office in Salina, KS. Speakers will discuss variety selection, weed control, disease management, soil fertility, and more. Attendees will also learn more about Great Plains Ag and tour its Salina facility, and about a new project between K-State and the Kansas Wheat Commission to help growers benefit from ongoing government and private conservation programs.

This program is part of Wheat Rx, a partnership between Kansas Wheat and K-State Research and Extension, to disseminate the latest research recommendations for high-yielding and high-quality wheat to Kansas wheat farmers. This effort includes a series of extension publications at kswheat.com/wheatrx and educational outreach like the upcoming seminars.

More information about this event, including registration details, will be provided soon!

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6. Cover Your Acres Winter Conference, January 21-22 in Oberlin

K-State Research and Extension will host the 22nd annual Cover Your Acres Winter Conference for crop producers and consultants on January 21 and 22. The conference will take place in the traditional in-person format at the Gateway Civic Center in Oberlin, KS.

Cover Your Acres is a producer-driven meeting focused on new ideas and research-based updates in crop production in northwest Kansas and the Central High Plains region.

The conference, which typically draws more than 400 attendees from Kansas and other states, highlights the latest technology, methods, and conservation practices to improve crop production in the region. This year's conference will feature university specialists and industry representatives discussing what's driving profitability in northwest Kansas farms.

Session topics and speakers

- **Determining equitable lease arrangements** – Mark Wood and Glenn Conover
- **Dryland rotation agronomics and economics** – Lucas Haag
- **Make your plan: Weed Management 2025** – Jeanne Falk Jones
- **The best bets to place your fertilizer dollars**– Dorivar Ruiz Diaz
- **Improving dryland cropland with manure** – Dave Poss
- **Ogallala Aquifer – Facts, folklore, and what is Q-stable** – Brownie Wilson
- **Evolution of wheat viruses/End user-focused wheat production** – Allan Fritz
- **Machinery economics – When to keep, when to trade** – Brady Brewer
- **Forage production management and economics** – John Holman

The same programs will be offered on both days of the conference. Participants attending both days will find catching most or all programs easier. On Tuesday evening, the sessions are followed by a social where attendees can visit with industry representatives and conference speakers while enjoying hor d'oeurves.

Online registration is open. After January 15 and for walk-ins, the cost is $80 per day. The conference fee includes lunch, morning and afternoon refreshments and educational materials. The program will offer several continuing education unit (CEU) credits for Certified Crop Advisors and 1A for Commercial Applicators credit.

Major sponsors for the conference include AKRS Equipment, Hoxie Implement Co., SurePoint Ag Systems, Lang Diesel, and 4G Farm and Sales.

To view the conference details, lodging accommodations, and online registration, visit www.northwest.ksu.edu/coveryouracres. For questions, call 785-462-6281.

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