Issue 962

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eUpdate

06/22/2023

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. Fungicide considerations for corn diseases in 2023

We are entering the time window in Kansas where corn producers should be scouting fields and assessing the need for a foliar fungicide application. Several fields in eastern Kansas are approaching V14-VT (tassel) development stage.

Now is the time to be out scouting for the following fungal diseases of corn:

1. Southern rust (Figure 1, left)
2. Common Rust (Figure 1, right)
3. Gray leaf spot (Figure 2)
4. Tar Spot (Figure 3)

Figure 1. Typical symptoms of southern rust (left) and common rust (right). Photo courtesy of Rodrigo Borba Onofre, Department of Plant Pathology, K-State Research and Extension.

Southern rust scouting. Southern rust is typically first reported in Kansas in mid-July. Pustules will appear on the upper leaf surface (unlike common rust which can be found on either side of the leaf). Pustules will be scattered on the leaf surface and spores will appear orange and will rub off on fingers (and clothes!). Severe infections can be seen on the leaf sheaths.

Figure 2. Gray leaf spot lesions are rectangular in shape and delimited by leaf veins. Photo courtesy of Rodrigo Onofre, Department of Plant Pathology, K-State Research and Extension.

Gray leaf spot scouting. Begin scouting for gray leaf spot in corn about two weeks before expected tassel emergence. Gray leaf spot is characterized by rectangular lesions that are 1-2 inches in length and cover the entire area between the leaf veins. Early lesions are small, necrotic spots with yellow halos that gradually expand to full-sized lesions. Lesions are usually tan in color but may turn gray during foggy or rainy conditions. The key diagnostic feature is that the lesions are usually very rectangular in shape.

Figure 3. Tar spot of corn. Purple arrows are indicating a few of the tar spot lesions. Photo courtesy of Rodrigo Onofre, Department of Plant Pathology, K-State Research and Extension.

Tar spot was detected in Kansas during the 2022 corn season. To date, it has been reported in Atchison, Brown, Doniphan, Jackson, Jefferson, and Nemaha counties in Kansas. Tar spot lesions are black, raised, and have a round/elliptical shape (Figure 3). Irrigated corn may be at particularly high risk for yield or silage loss.

For confirmation of tar spot, please submit samples to the K-State Plant Pathology Diagnostic Clinic at https://www.plantpath.k-state.edu/extension/plant-disease-diagnostic-lab/

Factors that influence corn yield response to fungicide applications

Research clearly demonstrates that the single best time to apply a fungicide to corn for gray leaf spot control is from VT to R1. A single application at V6 – V8 will not hold up against late-season pressure. A VT to R1 application may also provide suppression of southern rust and tar spot. Some fungicides that are good to excellent for gray leaf spot are also very good for tar spot and southern rust control. Summaries of multi-year university research about fungicide efficacy can be found here:

https://cropprotectionnetwork.s3.amazonaws.com/CPN2011_FungicideEfficacyControlCornDiseases_04_2022-1650470887.pdf

Disease risk factors to consider when weighing the benefits of a fungicide application

Susceptibility level of corn hybrid. Seed companies typically provide information on the susceptibility of their hybrids to gray leaf spot and southern rust. In general, hybrids that are more susceptible to fungal foliar diseases will have a greater response to a foliar fungicide (if disease pressure is high enough).

Previous crop. Because gray leaf spot and tar spot survives in corn residue, the risk of disease increases when corn is planted back into a field that was in corn the previous year. Fields with a history of gray leaf spot and tar spot should be closely scouted. Southern rust, on the other hand, blows in from the south each year. It is important to watch regional updates about southern rust pressure in the state.

Weather. Rainy and/or humid weather generally is most favorable to gray leaf spot. In growing seasons when these conditions prevail, the risk for disease development increases. Southern rust is favored by warm days and nights (> 80 degrees) as well as high humidity. Tar spot is favored by mild temperature (60F to 73F), high relative humidity (>75%), and a prolonged leaf wetness period (>7h).

Field history. Some field locations may have a history of high foliar disease severity. Fields in river bottoms or low areas or surrounded by trees may be more prone to having gray leaf spot.

Current disease management guidelines suggest the following criteria for considering an application of foliar fungicide.

- **For susceptible hybrids** (those with the lowest rating within a company's lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50 percent of the plants examined.

- **For intermediate hybrids** (those with an average rating within a company's lineup): Fungicide applications should be considered if disease symptoms are present on the third leaf below the ear or higher on 50 percent of the plants examined if the field is in an area with a history of foliar disease problems, the previous crop was corn, there is 35 percent or more surface residue, and the weather is warm and humid.
- **For resistant hybrids** (those with the best rating within a company's lineup): Fungicide applications generally are not recommended.

According to the data from Illinois corn fungicide trials, if at least 5 percent of the ear leaf area is affected by disease at the end of the season, a foliar fungicide applied at VT and R1 would likely have been beneficial. Using the disease risk factors and scouting observations collected just before tassel emergence will help predict how severe disease pressure may be several weeks after the VT to R1 stages, and help decide whether to apply a foliar fungicide.
If no disease is present or pressure is low, I recommend holding off on the R1 application since efficacy will begin to wane in three to four weeks, just as late-season pressure may begin to develop. Data exists that would suggest that if disease pressure begins to develop later, an R2 application can be economical and will provide protection later into the grain fill period. This later application could also protect against any late-season southern rust pressure.

Distinguishing between gray leaf spot and bacterial streak

Bacterial streak, identified as a new corn disease in the U.S. in 2016, is now active in most of western Kansas. While yield loss potential for this disease remains unknown, we do know that it can be misidentified as gray leaf spot, resulting in unwarranted fungicide applications. Fungicides will not have any effect on bacterial streak. Keep in mind that gray leaf spot typically has very sharp edges defined by the leaf veins, whereas bacterial streak will have a wavy edge that can cross the leaf vein (Figure 4). Also, when backlit with light, gray leaf spot lesions will have an opaque appearance while bacterial streak lesions are more translucent (Figure 4).

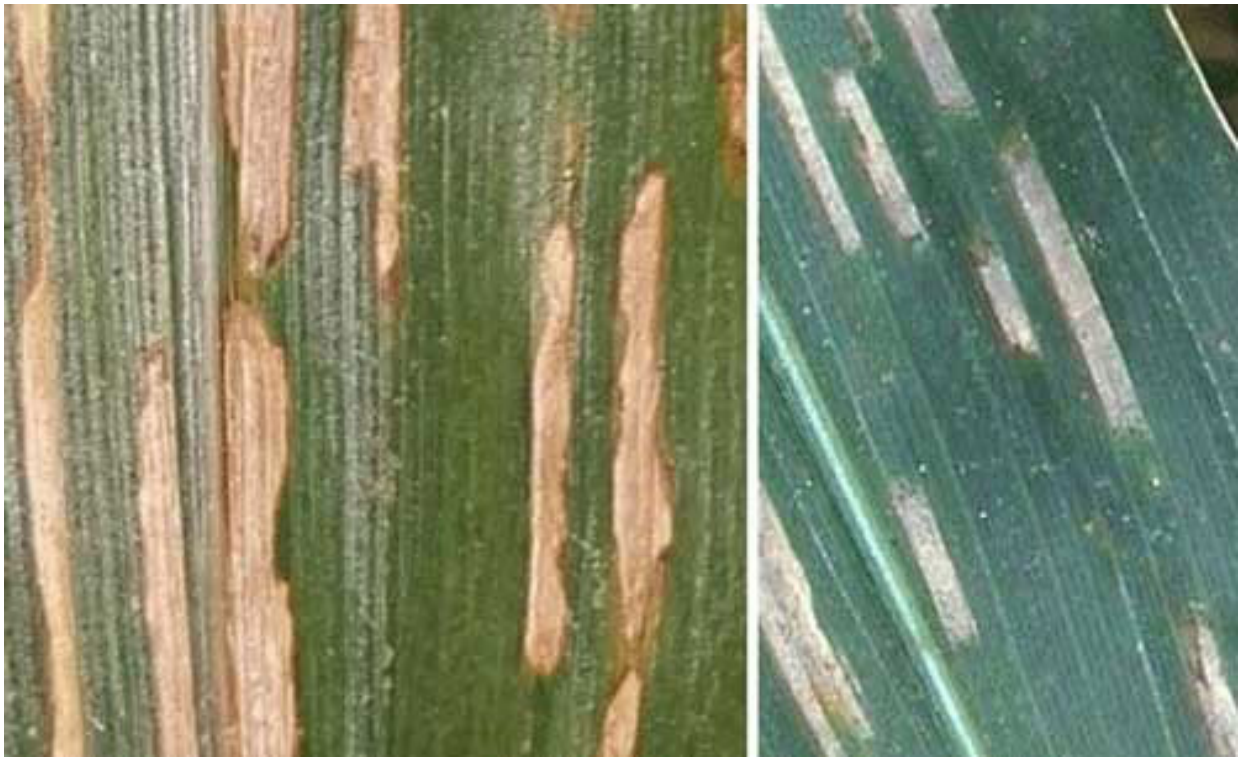


Figure 4. Comparison of sharp-edged gray leaf spot lesions (right) with wavy-edged bacterial streak lesions (left). Photo courtesy of the University of Nebraska.

Rodrigo Onofre, Row Crop Plant Pathology Specialist
onofre@ksu.edu

2. Annual Forage Insurance: New Policy Options and 2022 Performance

What is Annual Forage Insurance?

Annual Forage (AF) insurance is a rainfall index product for annual crops produced for forage.[1] AF insures against reduced forage yield due to less precipitation than normal. When rainfall falls below a set amount, a payout or indemnity is made. Precipitation (rainfall) is measured locally, in an approximately 14x16 mile area called a "grid". A producer selects the months (intervals), weight (importance) of months, and % precipitation (coverage level) they want to insure for.

The deadline to purchase AF for any annual forage crop produced over the next calendar year is July 15.

A producer must make three major choices:

1. *Coverage level of 70-90%:* The coverage level determines the level of local rainfall necessary to trigger a payout. The higher the coverage level, the higher the premium, and the higher the likelihood and size of a payout. The Federal government provides a premium subsidy or shares in the cost of AF premium.

2. *Productivity factor of 60-150%:* The productivity factor scales AF premiums and potential indemnities down or up. For example, the highest productivity factor has the highest premium but also the highest potential payout when rainfall is lower than normal.

3. *Growing season and intervals:* Producers must select what months to use AF. These months, or intervals, must correspond to the producer-selected 'growing season', or the period in which the forage crop is grown.

How did Annual Forage change this year?

The USDA Risk Management Agency (RMA) recently announced several changes to AF, that were designed to increase flexibility for producers. A major change is that AF includes more growing seasons; previously only 4 growing seasons were offered. Now there are 12 growing seasons, that cover the entire year. Each growing season is 7 months long.

- The first growing season for crop year 2024 begins in September 2023 and ends in March 2024. The earliest planting date is July 16, 2023 and the final planting date is August 31, 2023. Acreage reporting is due on September 5, 2023.
- Growing seasons 5 and 6 (the growing seasons beginning in February and March) are **not** allowed in Kansas; any forage crops planted in January or February would be reported in growing season 7.
- The final (12th) growing season for crop year 2024 begins in August 2024 and ends in February 2025. The earliest planting date is July 1, 2024, and the final planting date is July 31, 2024. Acreage reporting is due on August 5, 2024.

The other major change is that a producer is **not** required to insure all eligible acres. Other changes are discussed here
https://www.rma.usda.gov/en/News-Room/Press/Press-Releases/2023-News/USDA-Announces-

Modifications-to-the-Annual-Forage-and-Rainfall-Index-Program.

How does selection of growing seasons and intervals work?

The forage crop must be planted between early and final planting dates, similar to other crop insurance policies. The early and final planting dates are unique to each growing season, with the early planting typically 1.5 months before the beginning month of the growing season and late planting right before the beginning month of the growing season.

Next, 3 2-month intervals within the growing season must be selected and assigned weights (for example, 30%, 30%, and 40%). No single month can be insured twice (overlap) within a growing season and no interval can have a weight higher than 40%. One exception is that 50% weights are allowed for intervals in growing seasons 10, 11, and 12, which begin in June, July, and August, respectively.

Other key decisions, including grid selection, can be discussed with an insurance agent or by visiting the AF decision support tool at http://af.agforceusa.com/ri.

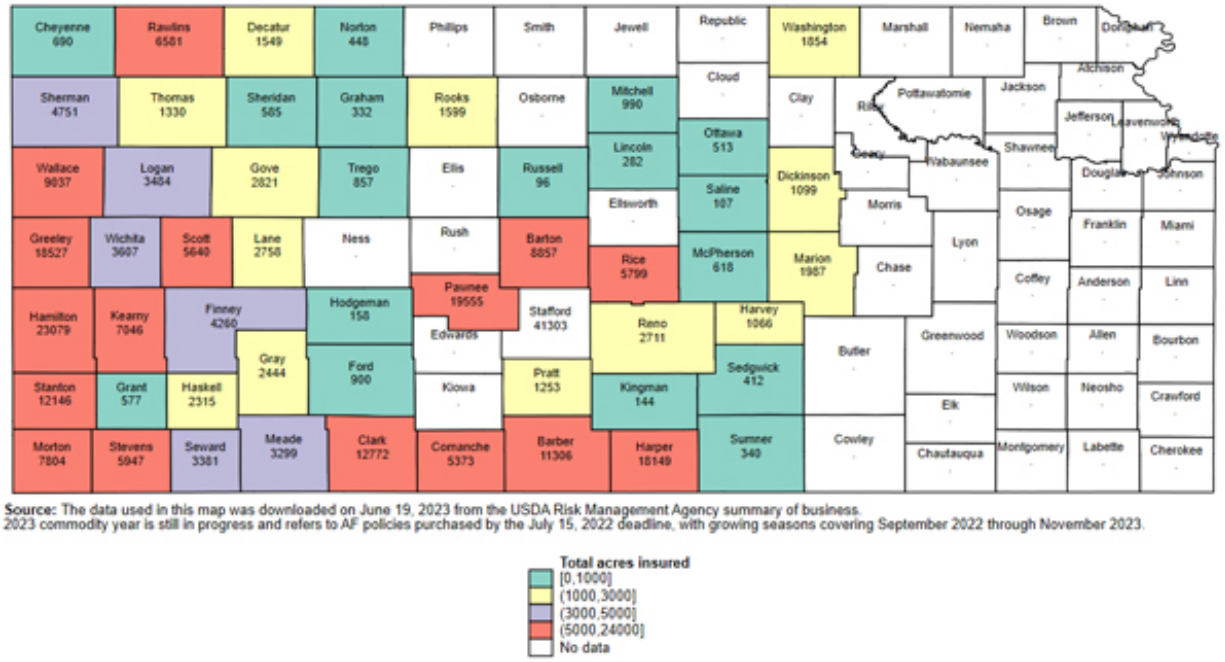
Example:

A producer planted forage sorghum in June 2022 in Hodgeman County (grid 22021) during Growing Season 11. The producer wanted to ensure good growth early in the growing season and harvest in October, so selected Jul-Aug at **50%** and Sept-Oct at **50%** (50% interval weights are allowed *only* during growing seasons 10, 11, and 12). They selected a coverage level of **90%** and a productivity factor of **100%**. The producer paid a premium of **$22** per acre and received an indemnity of **$92** per acre, for substantially lower-than-average rainfall during both intervals.

This example was estimated using the AF Decision Support Tool at http://af.agforceusa.com/ri and is for demonstration purposes only. The example uses current policy choices applied to 2022. Some insurance agents have their own decision support software; only an insurance agent can provide official premium estimates.

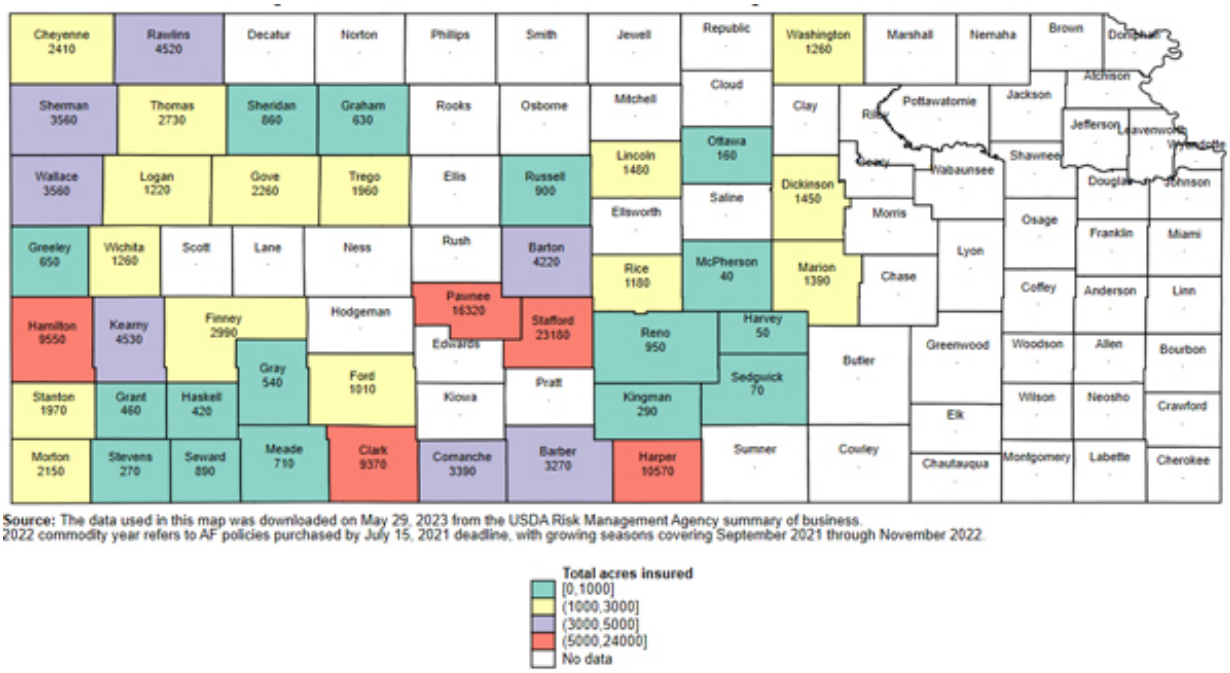
Where is Annual Forage Insurance used in Kansas?

In 2023 (commodity year)[2], over 281,000 acres were covered by AF. In 2022 (commodity year), over 135,000 acres were covered by AF, down from over 160,000 acres in 2021 (commodity year). Figures 1 and 2 show that AF is used in many western and south-central Kansas counties, but not in the eastern third of the state. The total value of production insured (insurance liabilities or guarantee) was about $52 million in 2023 and $26 million in both 2021 and 2022. Annual forage insurance has only been used in Kansas since 2014.



Source: The data used in this map was downloaded on June 19, 2023 from the USDA Risk Management Agency summary of business.
2023 commodity year is still in progress and refers to AF policies purchased by the July 15, 2022 deadline, with growing seasons covering September 2022 through November 2023.

Figure 1. Total acres enrolled in Annual Forage insurance in 2023. Source: AgManager.info



Source: The data used in this map was downloaded on May 29, 2023 from the USDA Risk Management Agency summary of business.
2022 commodity year refers to AF policies purchased by July 15, 2021 deadline, with growing seasons covering September 2021 through November 2022.

Figure 2. Total acres enrolled in Annual Forage insurance in 2022. Source: AgManager.info

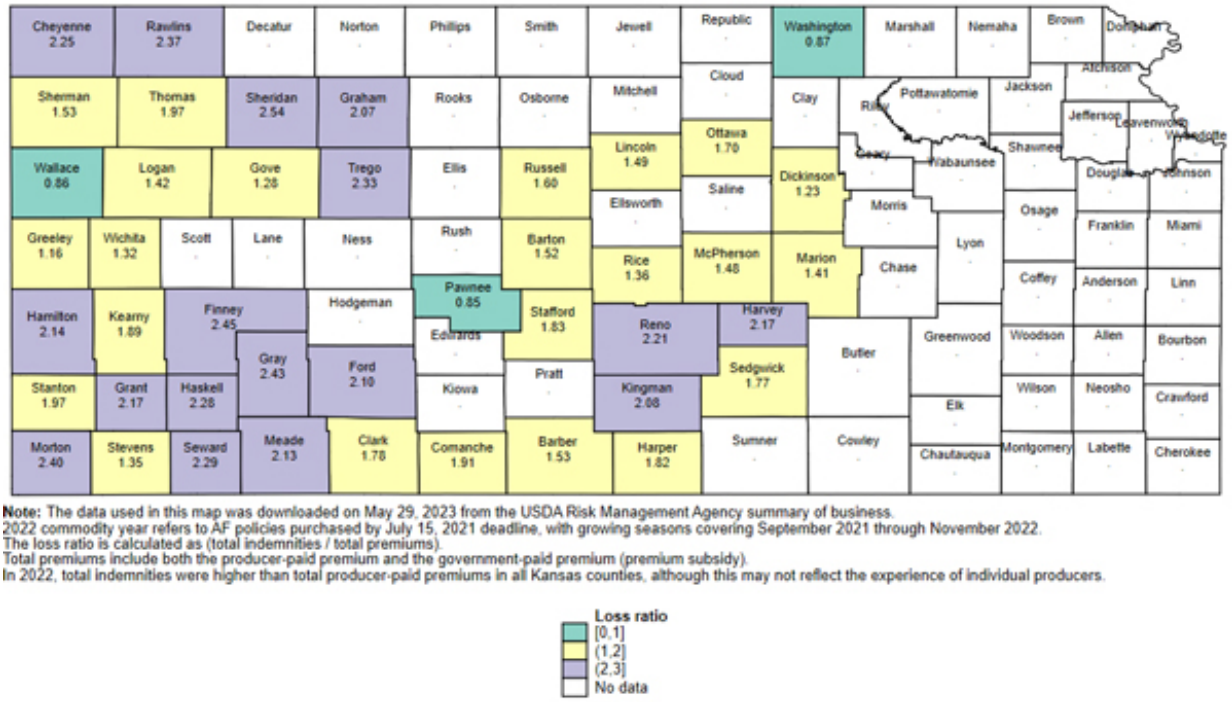
Does it pay?

Annual Forage insurance pays out indemnities when the level of rainfall relative to the historic average within the producer's grid is lower than the (producer-selected) coverage level. For example, if rainfall is 80% of the historic level and the producer selects an 85% coverage level, there would be

indemnity. However, a 75% coverage level would not receive an indemnity.

In 2022 (commodity year), over *$10 million in indemnities*, averaging about $77 per insured acre, were paid out to Kansas producers using AF. Kansas producers paid about *$2.84 million in premiums*. 2022 county-level loss ratios, or the ratio of total indemnities to total premiums, are displayed in Figure 3. While loss ratios are affected by producer-selected coverage ratios and intervals, as well as other factors, high loss ratios in 2022 reflect the then-emerging and widespread drought.

Commodity year 2023 has not yet been completed for AF; payments to date have totaled over $19 million, in comparison to about $6.1 million in producer-paid premiums. Given the ongoing drought, loss ratios will likely be at least as high as commodity year 2022.



Note: The data used in this map was downloaded on May 29, 2023 from the USDA Risk Management Agency summary of business.
2022 commodity year refers to AF policies purchased by July 15, 2021 deadline, with growing seasons covering September 2021 through November 2022.
The loss ratio is calculated as (total indemnities / total premiums).
Total premiums include both the producer-paid premium and the government-paid premium (premium subsidy).
In 2022, total indemnities were higher than total producer-paid premiums in all Kansas counties, although this may not reflect the experience of individual producers.

Figure 3. Annual Forage Insurance 2022 loss ratios. Source: AgManager.info

What are some advantages and disadvantages of using Annual Forage insurance?

The primary disadvantage of AF is that it doesn't insure your farm or fields, it covers low moisture in your area or grid. Before using AF, a producer needs to understand this risk: they might receive a payment when they have sufficient moisture or not get a payment when they experience low rainfall. Further, it could be extremely dry for a two-month insurance period (interval), resulting in low forage yield, yet a large rainfall event on the last day of the period could make the period ineligible for a payment.

An advantage of AF is that payments are calculated automatically based on actual precipitation and made relatively quickly. Unlike grain crops that typically have scale tickets, forage may be harvested

and used by the grower themselves without yield documentation or the forage might be grazed. Further, a producer can select what months they want coverage in and how much coverage they want. While some learning is required with any insurance product and AF requires an initial time investment, it is a relatively simple insurance product. This is especially likely after the first year or two of participation; a good relationship with your insurance agent makes a big difference.

What else should be considered?

- The sign-up deadline is **July 15**, with premium billing a year later, around August. Annual forage can be purchased from a local crop or livestock insurance agent: https://www.rma.usda.gov/informationtools/agentlocator
- Premiums vary based on location, growing season, coverage leverage, and productivity factor; a producer could pay from $3-50 per acre. The average producer-paid premium per acre in 2022 was about $21 per acre. Higher premiums reflect a higher likelihood and value of a payout.
- Acreage reporting is an important deadline—if the acreage isn't used for annual forage or if other conditions are not met, then the policy may not "attach": no payouts are made, and the producer doesn't pay a premium. A producer using AF should discuss and stay in touch with their insurance agent about acreage reporting deadlines.
- There is a "dual use option" for small grains used for *both* grazing and grain production, see the RMA or Texas A&M fact sheets for more information. This option is available for growing seasons 1-3 only and the county base value is decreased to 40% of the full county base value. This lowers the insurance guarantee, or both the premium and potential payouts. The dual option would be used when the crop is grazed out in the winter and harvested in the summer; the producer would also purchase a separate multi-peril crop insurance policy (i.e. a revenue protection (RP) policy for wheat).
- Indemnities are based on changes from normal or average precipitation. If certain months are typically dry, they would have to be *even drier* for an indemnity to be triggered.
- A producer may want to look at historic grid precipitation indices and compare them to their individual precipitation and forage yield and quality experience. Annual Forage uses the same grids as PRF; historical grid indices are available at https://prodwebnlb.rma.usda.gov/apps/prf# on the 'Historical Indices' tab.
- The productivity factor can be used to adjust the county base value, or a county-level estimate of the average local value of annual forage production, upwards or downwards. Producers who have higher-value crops or want more protection can select a higher productivity factor and vice versa for a lower productivity factor. The value of indemnities is based on the county base value and productivity factor, in addition to the level of actual rainfall relative to the coverage level.

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For more information about this publication and others, visit AgManager.info

Jenny Ifft, Agricultural Policy Extension Specialist
jifft@ksu.edu

John Holman, Cropping Systems Agronomist – Garden City
jholman@ksu.edu

Sylvanus Gaku, Doctoral Student – Agricultural Economics

[1] This includes annual crops used for grazing, haying, grazing/haying, grain/grazing, green chop, grazing/green chop, or silage.

[2] 2023 commodity year is still in progress and refers to AF policies purchased by the July 15, 2022 deadline, with growing seasons covering September 2022 through November 2023.

3. Unmanned Aerial Vehicle Pesticide Applications - What You Need to Know

There is a good deal of interest in using drones, also called unmanned aerial vehicles (UAVs) for the application of pesticides. In this context, a drone is a small, remotely controlled fixed-wing or rotary-wing aircraft. A drone application might be appealing to individuals wanting to spray where it is not practical or desirable to use a traditional spray, or perhaps, for spot spraying. However, applications are limited by the size of the payload the drone is able to carry, and compliance and logistics for such applications can be challenging. Downdraft can affect the deposition of the product and cause off-target movement or volatilization. If you are an applicator considering using a drone for applications, here is some basic information regarding licenses that you need to know before applying any pesticides.

Remote Pilot Certification/FAA Requirements

First, any individual who will be operating a drone for pesticide applications shall have a current Remote Pilot Certification under Title 14 of the Code of Regulations (14 CFR) 107 and meet all Federal Aviation Administration (FAA) requirements. This can be achieved by taking a Commercial Remote Pilot Training course or simply taking the exam at an approved testing center. The fee to schedule an examination is usually around $175. Drones shall be operated under the applicable FAA requirements and the necessary exemptions must be obtained according to the weight of the drone being flown. A Commercial Agricultural Aircraft Operator Certificate shall be obtained if the drone does not meet the requirements for exemption.

UAV (Drone) Registration

The applicator needs to provide the Kansas Department of Agriculture with the make, model, serial number (if applicable), and any other requested information related to the drone and submit a completed and signed application to apply pesticide products. Documentation is needed to confirm that each drone is properly registered with the FAA (FAA registration certificate) and that the individual flying it has the proper certification (copy of remote pilot license). The business making the applications also has to prove they have the proper certification (exemption/rulemaking documentation, a Commercial Agricultural Aircraft Certificate) or has obtained the necessary exemptions to KDA.

Allowed Application Categories

Commercial pesticide applications via drones or unmanned aerial vehicles are only permitted in the following categories.

- **Category 1**: **Agricultural Pest Control**
  - 1A: Agricultural Plant Pest Control
  - 1B: Agricultural Animal Pest Control
  - 1C: Wildlife Damage Control
  - 1D: Stump Treatment
- **Category 2**: **Forest Pest Control**
- **Category 3**: **Ornamental and Turf Pest Control**

    - 3A: Ornamental Pest Control
    - 3B: Turf Pest Control
- **Category 5**: **Aquatic Pest Control**
- **Category 6**: **Right-of-Way Pest Control**

The individual who is operating the drone during the pesticide application must be a certified applicator in the category that applies to the application. The business needs to comply with all existing requirements for obtaining a pesticide business license.

Pesticide Label Requirements

Finally, commercial pesticide applications via drone or unmanned aerial vehicle need to comply with the label requirements of each pesticide product being applied. **Remember the label is the law!** Unfortunately, there is little clear guidance on pesticide labels that pertains to drone applications. One thing to note is that if the label prohibits aerial application then the product cannot be applied by a drone. If an aerial application is permitted, the application rate and other parameters need to be in compliance with the label. Also, it is important to note, manufacturers and users are adopting commercial nozzles meant for self-propelled sprayers, which can be a concern for product deposition and coverage.

Frannie Miller, Pesticide Safety and IPM Coordinator
fmiller@ksu.edu

Sarah Lancaster, Extension Weed Science Specialist
slancaster@ksu.edu

Ajay Sharda, Extension Biological and Agricultural Engineer
asharda@ksu.edu

4. K-State Industrial Hemp Dual-Purpose Variety Trials

Hemp is a broad term used to describe the many varieties of *Cannabis sativa* L. that produce less than 0.3% tetrahydrocannabinol (THC). The crop is globally significant and has recently been approved in the United States.

There are many uses for industrial hemp, and the market for industrial hemp is rapidly growing as more states are legalizing its production. Industrial hemp is marketed for oil, grain, and fiber (Figure 1). Varieties have been selected for improved fiber and grain production that can service these markets. However, little research-based information is available regarding the adaptability or production of these varieties in Kansas. Local testing is particularly important for a short-day crop like hemp because varieties adapted to higher latitudes will likely flower much earlier at lower latitudes and may not have time to generate sufficient growth to support maximum yields. Since 2019 commercially available industrial hemp varieties have been evaluated at two locations in Kansas, K-State's John C. Pair Horticultural Center near Wichita and the Ashland Bottoms Research Farm near Manhattan.

Figure 1. Two dual-purpose hemp varieties. The variety on the left is more suited for fiber production and the variety on the right is suited for grain production. Photo by Kraig Roozeboom, K-State Research and Extension.

Procedures for these trials, including site characteristics, planting, fertilization, harvest, and variety source and seed characteristics for the trials at both locations are discussed in the following KSRE publications.

2019 K-State Industrial Hemp Dual-Purpose & Fiber Trial: https://www.northwest.k-state.edu/agronomy/documents/industrial_hemp/PairCenter2019IndustrialHempReport.pdf

2020 K-State Industrial Hemp Dual-Purpose & Fiber Trial: https://newprairiepress.org/kaesrr/vol7/iss9/3/

2021 Kansas State University Industrial Hemp Dual-Purpose Variety and Planting Date Trials: https://newprairiepress.org/kaesrr/vol9/iss3/2/

2022 Kansas State University Industrial Hemp Dual-Purpose Variety Trials: https://newprairiepress.org/kaesrr/vol9/iss3/5/

Summary of Results

Wichita Trials

Yield results are available for three of the four years hemp varieties were tested near Wichita (Table 1). Data were collected from all tested varieties in 2019 and 2020, but the entire test was abandoned in 2021 because of variable stands that resulted from heavy rainfall after all three planting attempts. Due to excessive disease pressure (damping off), only four varieties were determined to have plant populations sufficient to be harvested in 2022. The varieties Altair, Henola, Joey, Vega, and X-59 had grain yields in the top group in the one year they were tested at this location. NWG-452, and NWG-2730 had superior stover yields that same year. Helena was in the top group for stover yield in 2019 and 2020 and for grain yield in 2019. In 2022, Orion had the best stand (see full report), but plant height, grain yield, stem weight, and total plant biomass did not differ statistically among the four varieties.

Table 1. Stover[†] and grain yields for industrial hemp varieties were evaluated at Wichita, KS in 2019, 2020, and 2022.

	2019				2020				2022	
Variety	**Stover**		**Grain**		**Stover**		**Grain**		**Stover**	**Grain**
	pounds/acre									
Altair	-		-		3115	cd[‡]	**1776**	abcd	-	-
Anka	-		-		3568	bc	1369	cdef	-	-
Bialobrezkie	-		-		2483	de	1290	def	-	-
CFX-1	347	e	831	c	731	hi	1584	cde	-	-
CRS-1	620	de	1212	bc	1420	gh	**1991**	abc	-	-
Fedora 17	1135	c	1191	bc	2562	de	1696	bcde	-	-
Felina 32	1991	b	1576	b	2846	cde	1296	def	-	-
Futura	-		-		-		-		2677	757
Helena	**2680**	a	**2123**	a	**4800**	a	1411	cdef	-	-
Henola	-		-		2409	de	**2288**	ab	-	-

Hlesia	819	cde	798	c	2316	e	1276	def	-	-
Hliana	-		-		1191	gh	901	f	-	-
Hlukhovskii 51	975	cd	805	c	2922	cde	1250	def	-	-
Joey	-		-		881	ghi	**1765**	abcd	-	-
Katani	-		-		439	i	1549	cde	-	-
NWG-452	-		-		**4244**	ab	1209	def	-	-
NWG-2463	-		-		-		-		2306	857
NWG-2730	-		-		**4529**	a	1672	bcde	5057	1737
Rigel	-		-		2246	ef	1503	cdef	-	-
Tygra	907	cd	974	c	-		-		-	-
Orion	-		-		-		-		3439	875
USO 31	1089	cd	1202	bc	1545	fg	1070	ef	-	-
Vega	-		-		2268	ef	**2000**	abc	-	-
X-59	-		-		1008	ghi	**2380**	a	-	-

† Stover yield was determined by subtracting grain yield from total biomass yield and included flower parts and small stems.

‡ Values within a column followed by the same letter are not different at α = 0.05. Values in bold are not significantly different from the maximum value within a column.

Manhattan Trials

Yield results from only three of four years are also available for tests in Manhattan (Table 2). The 2019 trial flooded out after both planting attempts. Varieties in the top yield group for either stover or grain, but with only one year of testing included CFX-2, CRS-1, Enecterol, Futura, Rigel, and Orion 33. Varieties in the top yield group in two years for grain included CFX-1, Henola, NWG-2463, and X-59. No variety tested in multiple years was in the top yield group for stover for more than one year.

Table 2. Stover/stalk† and grain yields for industrial hemp varieties evaluated at Manhattan, KS in 2020 to 2022.

	2020				2021				2022			
Variety	**Stover**		**Grain**		**Stover**		**Grain**		**Stalks**		**Grain**	
	pounds/acre											
Altair	**3866**	ab‡	**1576**	abc	2673	efg	1082	cdef	-		-	
Anka	3204	b	1082	ef	3239	bcde	949	defg	-		-	
Bialobrzeskie	**3931**	ab	1020	ef	3387	bcd	1084	cdef	956	e	88	f
Canda	1824	e	1008	ef	-	-	-	-	-	-	-	
CFX-1	1673	e	**1394**	abcd	1618	h	**1436**	ab	-	-	-	
CFX-2	-	-	-		1427	h	**1287**	abc	-	-	-	
CRS-1	2154	de	**1537**	abc	-	-	-		-	-	-	
Enecterol	-	-	-	-	-	-	-		**2382**	ab	**324**	abc
Fedora 17	-	-	-	-	-	-	-		1225	de	157	cdef
Felina 32	-	-	-	-	-	-	-		1657	cd	127	def
Ferimon 12	-	-	-	-	-	-	-		1129	de	95	ef
Futura 83	-	-	-	-	-	-	-		**2555**	a	272	bcd

Grandi	-	-	-		1380	h	1132	cde	-	-	-	
H-51	-	-	-		3244	bcde	881	efg	-	-	-	
Henola	**3447**	ab	**1638**	ab	2868	cdef	**1523**	a	965	e	**399**	ab
Hlesia	**4042**	a	1355	bcde	2342	fg	942	efg	-		-	
Hliana	3114	bc	967	fg	2092	gh	1095	cdef	-		-	
Hlukhovskii 51	**3447**	ab	1008	ef	-		-		-		-	
Joey	1751	e	1249	cdef	-		-		-		-	
Katani	1939	e	**1506**	abc	-		-		-		-	
Lara	-		-		**3480**	abc	669	g	1200	de	205	cdef
NWG-452	2502	cde	453	h	2986	bcdef	788	fg	-		-	
NWG-2463	-		-		3190	bcde	**1256**	abc	1493	cde	**469**	a
NWG-2730	2645	cd	714	gh	**4081**	a	769	g	1964	bc	**466**	a
NWG-4000	-		-		2718	defg	1085	cdef	-		-	
NWG-4113	-		-		**3647**	ab	833	fg	-		-	
Rigel	**3520**	ab	1387	bcd	-		-		-		-	
Orion 33	-		-		-		-		**1983**	abc	269	bcde
USO 31	-		-		-		-		1004	e	72	f
Vega	3171	bc	**1747**	a	2476	fg	1232	bcd	-		-	
X-59	2137	de	**1576**	abc	1558	h	**1462**	ab	235	f	289	bcd

[†] In 2020 and 2021 stover yield was determined by subtracting grain yield from total biomass yield and included flower parts and small stems; in 2022 stalk yield was determined directly by weighing stalks after threshing.

[‡] Values within a column followed by the same letter are not different at $\alpha = 0.05$. Values in bold are not significantly different from the maximum value within a column.

Summary

Hemp varieties clearly differed in their ability to produce stover or stems (important for the fiber market) and grain. Fiber yields ranged from 235 to 4800 pounds/acre and grain yields from 72 to 2380 pounds/acre, depending on location, year, and variety. The small grain yield in Manhattan in 2022

could be partially explained by the lack of precipitation in much of July and August (aside from a large rainfall event in late July) and by machine threshing in 2022 that likely removed lightweight seed more aggressively than the hand threshing conducted in previous years. Other factors that may have resulted in reduced grain yield in 2022 were significant bird feeding and seed shattering before harvest.

These yield results and the additional information provided in the yearly reports mentioned above provide a starting point for selecting varieties that might have a place in Kansas for fiber and/or grain production.

Kraig Roozeboom, Cropping Systems
kraig@ksu.edu

Jason Griffen, Director and Extension Specialist – John C. Pair Horticultural Center
jgriffen@ksu.edu

5. Kansas Corn Yield Contest: Early deadline June 30

The Kansas Corn Yield Contest is sponsored by Kansas Corn and K-State Research and Extension. The Kansas Corn Yield Contest allows Kansas farmers to compete for cash prizes and recognition and see how their yields stack up against other growers in their area. The Kansas Corn Yield Contest has joined with the National Corn Yield Contest (NCYC). Kansas growers who enter the NCYC are automatically entered in the Kansas Corn Yield Contest.

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.

All corn farmers are eligible to enter the contest but must be members of KCGA/NCGA. Your KCGA membership also includes membership in NCGA. Join here.

New for 2023 – NCYC Nitrogen Management Class

A Corn Yield Contest Nitrogen Management pilot class will be open to the first 100 entries from the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, Ohio, and Wisconsin. Farmers in the pilot class will limit total nitrogen applications from non-field sources to 180 lbs. of actual nitrogen applied. The three highest-yielding entries in the class will be declared preliminary winners and confirmed as class winners after an NCGA verification of actual nitrogen applied. Learn More here:
https://ncga.com/get-involved/national-corn-yield-contest/profile/nitrogen-management-class

NCYC/KCYC Entry and Deadline Information:

- **Early entry: May 1 – June 30**, $75 per online entry plus a one-time affiliated State/NCGA membership fee (if applicable)
- **Final entry: July 1 – Aug. 16**, $110 per online entry plus one-time affiliated State/NCGA membership fee (if applicable)
- Harvest entry: Aug. 17 – Nov. 30, 2023
- NCGA National Corn Yield Contest Winners will be announced on Dec. 13, 2023
- Kansas Corn Yield Contest Winners will be announced by Dec. 22, 2023.

Many seed companies will cover the cost of entry and membership. Details for 2023 can be found at https://www.ncga.com/get-involved/national-corn-yield-contest/profile/voucher-program

For more information, contact Kylie Massengale, at 785-249-8723 or kmassengale@ksgrains.com.

Ignacio Ciampitti, Farming Systems Specialist
ciampitti@ksu.edu

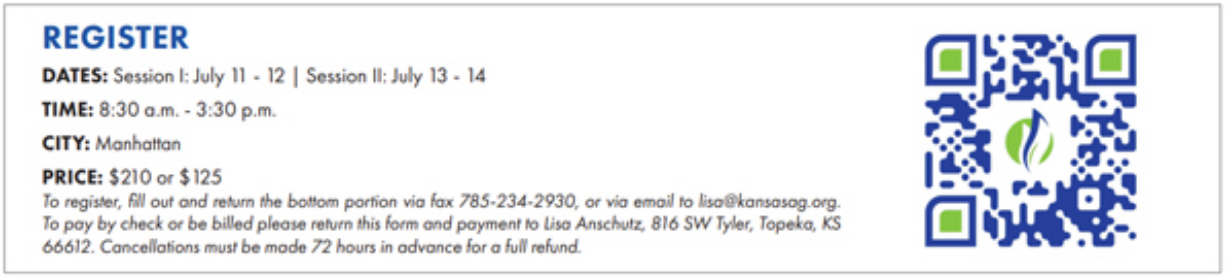
6. Registration is open for the 2023 K-State/KARA Summer Field School

Kansas State University and the Kansas Agribusiness Retailers Association (KARA) will be hosting two, 2-day field schools on July 11-12 and July 13-14 at the K-State Agronomy North Farm (2200 Kimball Ave) located just north of the football stadium. This year's program will focus on soybean production and fertility. In addition, there will be comprehensive hands-on training in herbicide symptomology and deposition, weed identification, summer annual forages, soil and water management, crop diseases, and insects.

Agendas for both sessions are included at the end of this article.

The complete program and registration link can be found at https://www.ksagretailers.org/events-training/ksu-field-days/. The program costs $210 for the 2-day program or $125 for 1 day. The registration fee includes lunch (both days are included for the 2-day program rate) and the opportunity to earn multiple CCA and 1A credits (final number is pending).

Lodging information and other program details can be found at the above link or using the QR code in the graphic below.



Please note: KSRE agents should register via the registration link that will be distributed over the Ag Agent email listserv in the near future.

Peter Tomlinson, Environmental Quality Specialist
ptomlin@ksu.edu

Kansas State University/KARA Summer Field School (Session 1)
North Agronomy Farm, Manhattan, July 11-12, 2023

K-STATE Research and Extension

	Tuesday 7/11/2023		
8:00 AM	Registration – **North Agronomy Farm**		
8:30 AM	Welcome, Instructions		
	Group A	**Group B**	**Group C**
8:45 AM	**Herbicide Symptomology** (Lancaster)	**Weed ID** (Dille & Veenstra)	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)
9:35 AM	**Herbicide Deposition** (Lancaster)	**Weed ID** (Dille & Veenstra)	**Soybean production issues** (Ciampitti, Correndo, Caredo)
10:25 AM	**Break**		
10:40 AM	**Weed ID** (Dille & Veenstra)	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)	**Crop Insect Pests** (Whitworth)
11:30 AM	**Weed ID** (Dille & Veenstra)	**Soybean production issues** (Ciampitti, Correndo, Caredo)	**Crop Diseases** (Onofre)
12:20 PM	**Lunch – North Agronomy Farm**		
1:10 PM	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)	**Crop Insect Pests** (Whitworth)	**Weed ID** (Dille & Veenstra)
2:00 PM	**Soybean production issues** (Ciampitti, Correndo, Caredo)	**Crop Diseases** (Onofre)	**Weed ID** (Dille & Veenstra)
2:50 PM	**Adjourn**		
	Wednesday 7/12/2023		
7:00 AM	Registration – **North Agronomy Farm**		
	Group A	**Group B**	**Group C**
7:30 AM	**Soybean Fertility** (Ruiz Diaz)	**Herbicide Symptomology** (Lancaster)	**Soil Management** (Presley)
8:20 AM	**Summer Annual Forages** (Roozeboom & Detter)	**Herbicide Deposition** (Lancaster)	**Water Quality** (Tomlinson)
9:10 AM	**Break**		
9:25 AM	**Soil Management** (Presley)	**Soybean Fertility** (Ruiz Diaz)	**Herbicide Symptomology** (Lancaster)
10:15 AM	**Water Quality** (Tomlinson)	**Summer Annual Forages** (Roozeboom & Detter)	**Herbicide Deposition** (Lancaster)
11:05 AM	**Lunch – North Agronomy Farm**		
11:55 AM	**Crop Insect Pests** (Whitworth)	**Soil Management** (Presley)	**Soybean Fertility** (Ruiz Diaz)
12:45 PM	**Crop Diseases** (Onofre)	**Water Quality** (Tomlinson)	**Summer Annual Forages** (Roozeboom & Detter)
1:35 PM	**Break**		
1:50 PM	**Core Hour**		
2:40 PM	**Adjourn**		

Kansas State University/KARA Summer Field School (Session 2)
North Agronomy Farm, Manhattan, July 13-14, 2023

K-STATE Research and Extension

	Thursday 7/13/2023		
8:00 AM	Registration – **North Agronomy Farm**		
8:30 AM	Welcome, Instructions		
	Group A	**Group B**	**Group C**
8:45 AM	**Soybean Fertility** (Ruiz Diaz)	**Herbicide Symptomology** (Lancaster)	**Soil Management** (Presley)
9:35 AM	**Summer Annual Forages** (Roozeboom & Detter)	**Herbicide Deposition** (Lancaster)	**Water Quality** (Tomlinson)
10:25 AM	**Break**		
10:40 AM	**Soil Management** (Presley)	**Soybean Fertility** (Ruiz Diaz)	**Herbicide Symptomology** (Lancaster)
11:30 AM	**Water Quality** (Tomlinson)	**Summer Annual Forages** (Roozeboom & Detter)	**Herbicide Deposition** (Lancaster)
12:20 PM	**Lunch – North Agronomy Farm**		
1:10 PM	**Crop Insect Pests** (Whitworth)	**Soil Management** (Presley)	**Soybean Fertility** (Ruiz Diaz)
2:00 PM	**Crop Diseases** (Onofre)	**Water Quality** (Tomlinson)	**Summer Annual Forages** (Roozeboom & Detter)
2:50 PM	**Adjourn**		
	Friday 7/14/2023		
7:00 AM	Registration – **North Agronomy Farm**		
	Group A	**Group B**	**Group C**
7:30 AM	**Herbicide Symptomology** (Lancaster)	**Weed ID** (Dille & Veenstra)	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)
8:20 AM	**Herbicide Deposition** (Lancaster)	**Weed ID** (Dille & Veenstra)	**Soybean production issues** (Ciampitti, Correndo, Caredo)
9:10 AM	**Break**		
9:25 AM	**Weed ID** (Dille & Veenstra)	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)	**Crop Insect Pests** (Whitworth)
10:15 AM	**Weed ID** (Dille & Veenstra)	**Soybean production issues** (Ciampitti, Correndo, Caredo)	**Crop Diseases** (Onofre)
11:05 AM	**Lunch – North Agronomy Farm**		
11:55 AM	**Soybean Growth & Development** (Ciampitti, Correndo, Carcedo)	**Crop Insect Pests** (Whitworth)	**Weed ID** (Dille & Veenstra)
12:45 PM	**Soybean production issues** (Ciampitti, Correndo, Caredo)	**Crop Diseases** (Onofre)	**Weed ID** (Dille & Veenstra)
1:35 PM	**Break**		
1:50 PM	**Core Hour**		
2:40 PM	**Adjourn**		