ARKANSAS CORN & GRAIN SORGHUM PROMOTION BOARD MEETING
Zoom Option

Minutes

July 8, 2025
9:00 a.m.

Members Present In-Person:	Patrick "Matt" Smith, Matt Gammill, Tommy Young, Jason Felton, Kenny Falwell, William "Perry" Galloway
Members Present via Zoom:	None
Members Absent:	Trent Dabbs

FIELD RESEARCH PRESENTATIONS
The day started with field research presentations from the University of Arkansas Division of Agriculture (UADA) investigators at the Northeast Rice and Research Extension Center in Harrisburg, AR. UADA investigators gave presentations on current ongoing research occurring at the extension center.

WELCOME AND INTRODUCTIONS
After a quick tour of the new extension center facility, Chairman Falwell welcomed all members and guests, with members introducing themselves. With six members present in-person, a quorum was established and confirmed.

2024 COMPLETED RESEARCH PRESENTATIONS
Research presentations from UADA investigators resumed inside the extension center's meeting room.

Dr. Nathan Slaton from UADA introduced Dr. Trent Roberts to present on comparing the effects of nitrogen sources and application strategies on corn performance. **ATTACHMENT 1**

Members asked questions about the timing of nitrogen applications, asking when too late is considered too late. Dr. Roberts answered it may be too late by R2, prompting some discussion.

The next completed research project presentation from Ali Ubeyitogullari covered the development of a green integrated approach to enhance the utilization of grain sorghum in foods, highlighting potential applications in food processing. **ATTACHMENT 2**

Members joked about not being offered a sorghum cookie, and the researcher took the moment to tell the members that since they are being developed under a research laboratory and not in a food laboratory, that they are not permitted to try the sorghum cookie quite yet.

The next completed research project presentation from Dr. Terry Spurlock was presented to the board regarding the determining value of starter fertilizer with in-furrow fungicide on corn. **ATTACHMENT 3**

Dr. Spurlock emphasized that his research did not find any significant benefits in utilizing the in-furrow fungicide on southern corn rust, noting that southern corn rust is not a disease listed on the product's label.

Chairman Falwell remarked that this was good data to have, prompting some discussion.

The next completed research project presentation from Dr. Aurelie Poncet was presented to the board regarding a web tool for mid-season nitrogen fertilizer needs from aerial imagery. She emphasized the potential for using remote sensing to monitor and assess crop health.

Dr. Poncet demonstrated the developed online technology, uploading aerial images into the web tool, and provided a step-by-step demonstration while explaining functionalities and limitations of the system. Members asked if there were best practices for taking the aerial images, and Dr. Poncet indicated that her recommendation would be to fly at 400 feet. Discussion ensued.

2025 COMPLETED RESEARCH PRESENTATIONS

The next completed research project presentation from Dr. Brian Deaton was presented to the board regarding the economic analysis of corn and grain sorghum production and marketing practices. **ATTACHMENT 4**

Dr. Deaton presented the 2024 economic results from the verification program, highlighting the average yields, revenues, and costs for different trait and irrigation systems. He indicated that the results showed that stacked fields outperformed conventional fields, and center pivot irrigation generally produced higher yields than furrow irrigation.

Dr. Deaton emphasized the need for standardized data collection and the importance of verifying extension recommendations, prompting some discussion.

Chairman Falwell asked Deaton if his economic values came from owned or private land, and Deaton answered that they did not make that distinction in their research.

Meeting paused for lunch break at 11:30 am. Meeting resumed at 12:10 pm.

The next completed research project presentation from Dr. Trent Roberts was presented to the board regarding the fine-tuning of potassium recommendations and investigating intensive tissue analysis for sustainable corn production. **ATTACHMENT 5**

Dr. Roberts reviewed the potassium research findings, including new critical concentrations for irrigated corn production and the development of a potassium rate calculator.

The next completed project presentation from Julie Robinson was presented to the board regarding the Arkansas Future Ag Leaders Tour. Robinson informed the board that they had to unfortunately cancel the tour this year due to lack of attendees. Robinson also told the board that she envisions working with colleges here in the state to drive more participation, also adding that the tour might look a little different this year.

Member Young asked how Robinson will go about asking people to join the tour. She answered that she intends to reach out to college professors who can then share the information with their students.

The next completed research project presentation from Dr. Glenn Studebaker was presented to the board regarding developing effective insect pest management strategies for Arkansas corn and grain sorghum. **ATTACHMENT 6**

Studebaker explained the methods of his research on grain storage protection, highlighting treatment longevity, natural infestation simulations, and toxicity levels. Several products were tested, with organic phosphates showing surprising residual effectiveness—up to two years—while others like silicon dioxide offered shorter control periods.

Members asked several questions, prompting some discussion.

The next completed project presentation from Dr. Mike Daniels was presented to the board regarding updates on the Arkansas Discovery Farms project, which focuses on water quality, soil health, climate research, profitability, and sustainability for supply chains. **ATTACHMENT 7**

The next completed project presentation from Dr. Travis Faske was presented to the board in video presentation format, titled “Evaluate management options for corn nematodes in Arkansas.” This video is part of the official meeting record and is available upon request in accordance with the Arkansas Freedom of Information Act. Due to file size and format, the video is unable to be posted here. To request a copy, contact the Arkansas Department of Agriculture at info@agriculture.arkansas.gov. **ATTACHMENT 8**

The next completed project presentation from Dr. Lawson Connor was presented to the board regarding performance crop insurance as a risk management tool for corn and grain sorghum producers in Arkansas. **ATTACHMENT 9**

Dr. Connor suggested further investigation into sub-county factors and potential adjustments to insurance rates. Member Young added his experience with a deputy from the federal government about the disparities in crop insurance costs between Arkansas and other Midwest states, emphasizing the need for reform to allow more flexible coverage options, prompting some discussion.

This concluded the research and promotion presentations from completed and ongoing projects.

PREVIOUS MEETING MINUTES
The previous meeting minutes were presented to the board for review.

Chairman Falwell requested that all board members begin receiving the meeting minute drafts via email.

Motion to approve the previous meeting minutes from March 28th, 2025. Moved by Tommy Young; seconded by Jason Felton. Motion carried.

FINANCIAL REPORT
Chairman Falwell introduced Inoussa Zaki from the AR Department of Agriculture to present the board's financial report. **ATTACHMENT 10**

Zaki reviewed the financials for the period ending June 30th, 2025, reporting a total gross collection value of $1,010,873 for corn and $17,315 for grain sorghum.

Zaki noted that the board finished the fiscal year with a good reserve fund balance of $1,792,074, reporting a total net transfer to the board of $1,008,079.

Zaki reported the board to have a reserve of $1,563,500 to fund future projects, further adding that the board was in great financial condition going into the beginning of the new fiscal year.

Motion to approve the board's latest financial report. Moved by Jason Felton; seconded by Tommy Young. Motion carried.

ELECTION OF OFFICERS
Chairman Falwell proceeded into the board's election of officers, prompting discussion regarding previous election practices. Chairman Falwell asked if there were any nominations.

Motion to adopt an officer progression system in which the Secretary advances to Vice Chair, and the Vice Chair advances to Chair, only requiring a Secretary nomination each year. Moved by Tommy Young; seconded by Jason Felton. Motion carried.

Motion to nominate Trent Dabbs as Chair, Matt Gammill as Vice Chair, and Patrick "Matt" Smith as Secretary. Moved by Jason Felton; seconded by Tommy Young. Motion carried.

New officers are as follows:
Chair: Trent Dabbs
Vice Chair: Matt Gammill
Secretary: Patrick "Matt" Smith

STATE FFA OFFICERS REPORT

Officers from the state's FFA provided a report to the board regarding their sponsored trip to the National Corn Growers Association (NCGA) in Denver, CO. The FFA officers reported on the importance of their trip and highlights of representing Arkansas on a national conference stage.

They remarked on the experience to grow their knowledge and connect with industry. One of the officers mentioned that this was their first "big trip" and how impactful the entire experience was for his future career in agriculture.

Member Felton remarked on how pleased he was to hear their report, noting how amazing it is to have younger generations interested in building and maintaining the next generation of agriculture, prompting some discussion.

COMMUNICATIONS GROUP REPORT

Chairman Falwell then introduced Carson Horn with the Communications Group to provide their report to the board. **ATTACHMENT 11**

Horn reported on the board's website traffic and other marketing performance metrics. The board then requested to go through the board's website with the Communications Group.

Member Young provided the Communications Group and the Department with action-items regarding websites, contact information, and minutes, prompting some discussion.

Horn addressed social media marketing strategies to drive the board's website performance, but the board decided to only continue funding website maintenance at the current $8,000 annual rate.

Chairman Falwell then noted that he would like a photographer available for headshots at each in-person meeting.

Motion to continue funding the Communications Group for $8,000 per year for website maintenance. Moved by Member Young; seconded by Patrick "Matt" Smith. Motion carried.

OTHER BUSINESS

Chairman Falwell briefly addressed a policy on remote attendance for the board to consider implementing, triggered by recent changes in Arkansas FOIA laws. **ATTACHMENT 12**

Corey Seats, Plant Industries Director for the Department, also provided a synopsis of the remote attendance policy for the board to consider.

Motion to accept the policy on remote attendance for meetings. Moved by Patrick "Matt" Smith; seconded by Tommy Young. Motion carried.

Chairman Falwell and Member Young launched into a discussion regarding the board's travel to national boards and subsequent reimbursement from the state, prompting discussion.

Zaki said he would check with DF&A on additional options or remedies for a reimbursement situation. Administrator Amy Lyman also mentioned the Department was working on protocols for these situations to better assist members.

Chairman Falwell opened a discussion with Dr. Nathan Slaton (UADA) regarding unspent funds previously appropriated to the UADA for project funding.

Dr. Slaton reported that UADA recently discovered carryover research funds totaling just over half a million dollars, spanning approximately five years.

He noted that the funds have been credited to the upcoming 2025-2026 funding cycle, and that UADA plans to continue this practice at the end of each cycle moving forward.

Member Young asked Dr. Slaton if UADA would be willing to provide a financial update on carryover accounts at each summer meeting. Discussion followed.

Motion to return interest money back to the Corn & Grain Sorghum Promo Board, moved by Tommy Young; seconded by Jason Felton. Motion carried.

Before adjournment, Member Young expressed sincere thanks in recognition of former Board Administrator Scott Bray's service to the AR Corn Board.

Motion to formally honor and appreciate former Administrator Scott Bray for his time, service and dedication to the AR Corn & Grain Sorghum Board, moved by Tommy Young; seconded by Patrick "Matt" Smith. Motion carried.

ADJOURNMENT
Meeting adjourned at 3:40 pm.

Kenny Falwell

Kenny Falwell, Chairman

ATTACHMENT 1

Arkansas Corn & Grain Sorghum Board

Comparing the Effects of Nitrogen Sources and Application Strategies on Corn Performance

Trenton Roberts, Gerson Drescher, and Jason Kelley

Objectives:

1. Compare the nitrogen uptake and corn grain yield of treatments including;
   a. Nitrogen rate (a range of sidedress and pretassel rates)
   b. Nitrogen sources (granular urea vs. urea, ammonium nitrate solution)
   c. Application techniques (broadcast, surface band [Y-drop] and subsoil injection [knifing])
2. Quantify the potential nitrogen losses, primarily ammonia volatilization loss, from treatments in Objective 1 to develop best management practices for these sources and application techniques in Arkansas.
3. Calibrate in-season nitrogen fertilizer rates with leaf tissue nitrogen concentrations and extend this knowledge to an aerial/remote sensing platform.

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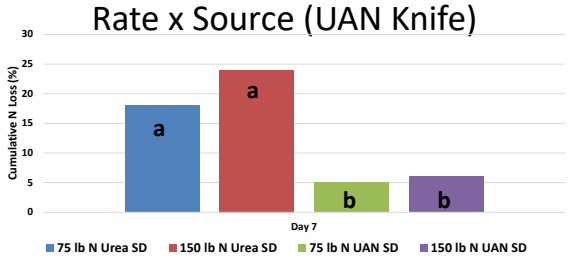
1

Ammonia Volatilization Losses: Rate x Source (UAN Knife)



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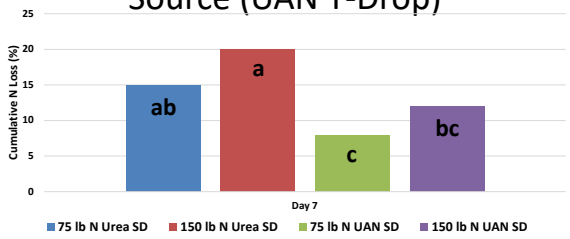
2

Ammonia Volatilization Losses: Rate x Source (UAN Y-Drop)



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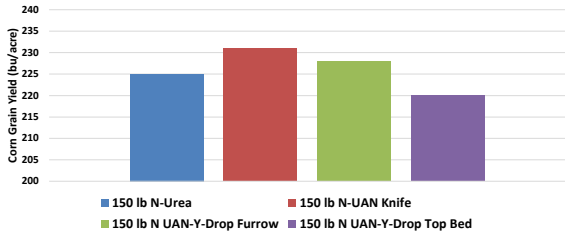
3

Corn Grain Yield: Rate x Source



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4

Table 1. Corn Response to in-season nitrogen (N) applications based on leaf tissue N concentrations at various growth stages.

Corn Leaf Tissue N	Yield Increase From In-season N at Specified Growth Stage	Application Rate Needed to Maximize Yield
(%)	----------bu./ac----------	----------lb N/ac----------
	V10 Growth Stage	
2.0–2.5	100	120
2.5–3.0	45	120
3.0–3.5	14	60
>3.5	0	-
	V13 Growth Stage	
2.0–2.5	80	120
2.5–3.0	25	60
3.0–3.5	0	-
>3.5	0	-
	VT Growth Stage	
2.0–2.5	100	150
2.5–3.0	15	45
3.0–3.5	0	-
>3.5	0	-

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5

Questions?

Arkansas Corn & Grain Sorghum Board

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ATTACHMENT 2

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Investigator: Ali Ubeyitogullari

Status: Completed in 2024

Objectives:

- Extract high-value natural health-promoting micronutrients (i.e., phenolic compounds, tocopherols, phytosterols) from sorghum bran - ***value added products + increased health benefits***.
- Enhance oxidative stability, sensory properties, and nutritional value of sorghum flour - ***create new markets + enhanced nutritional quality***.
- Produce sorghum protein micro- and nanoparticles with improved functionality and digestibility - ***improved functionality + nutrition***.

1

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Grain Sorghum

- Inexpensive to grow & drought-tolerant crop.

Great Potential for Food Applications

- Gluten-free
- Exceptional health benefits:
  - Anticancer
  - Antioxidant
  - Anti-inflammatory
  - Anti-diabetes

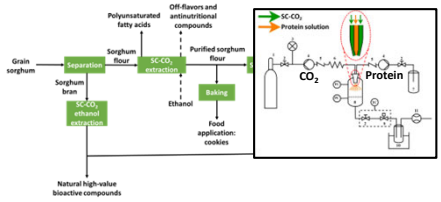
Problems

- Low bioavailability of bioactive compounds
- Undesired flavor
- Presence of antinutritional factors
- Poor digestibility of sorghum proteins

The full potential of grain sorghum is underestimated.

2

Developing a green integrated approach to enhance the utilization of grain sorghum in foods



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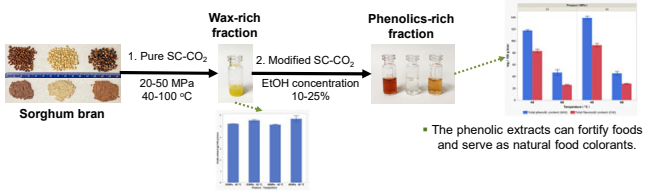
Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Key findings:

Supercritical carbon dioxide ($SC\text{-}CO_2$) extraction



- The phenolic extracts can fortify foods and serve as natural food colorants.

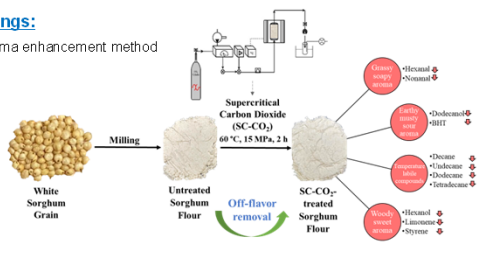
Tuhanioglu, A. & Ubeyitogullari, A. (2022). *ACS Food Science & Technology*, 2, 1879-1887.

4

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Key findings:

A novel aroma enhancement method



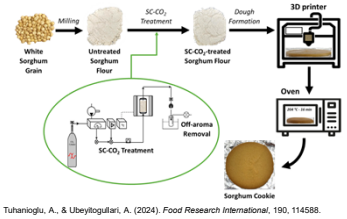
Tuhanioglu, A., Lafontaine, S., & Ubeyitogullari, A. 2023. *Future Foods*. 8:100253.

5

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Key findings:

Sorghum cookies with enhanced aroma



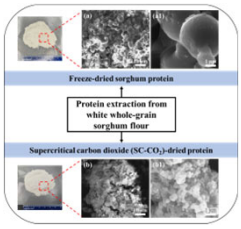
Tuhanioglu, A., & Ubeyitogullari, A. (2024). *Food Research International*, 190, 114588.

6

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Key findings:

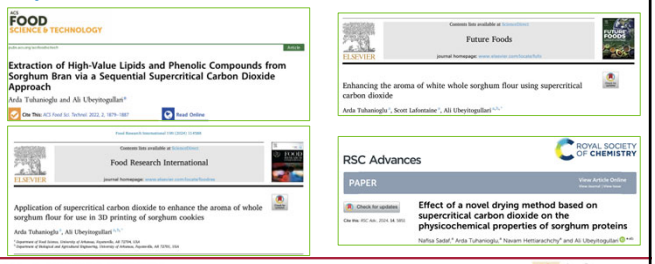
Enhanced digestibility of sorghum proteins



Sadaf, N., Tuhanioglu, A., Hettiarachchy, N., & Ubeyitogullari, A. (2024). RSC Advances, 14(9), 5851-5862.

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Project outcomes: Publications



Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Project outcomes: Arkansas Corn and Grain Sorghum Research Studies 2021, 2022, and 2023

MISCELLANEOUS

Extraction of High-Value Lipids and Phenolic Compounds from Sorghum Bran via a Sequential Supercritical Carbon Dioxide Approach

A. Tuhanioglu[1] and A. Ubeyitogullari[1,2]

MISCELLANEOUS

Enhancing the Flavor of White Whole Sorghum Flour Using Supercritical Carbon Dioxide

A. Tuhanioglu[1] and A. Ubeyitogullari[1,2]

MISCELLANEOUS

Application of Supercritical Carbon Dioxide to Enhance the Aroma of Whole Sorghum Flour for Use in Sorghum Cookies

A. Tuhanioglu[1] and A. Ubeyitogullari[1,2]

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Project outcomes: Presentations

1. Tuhaniogulu, A. & **Ubeyitogullari, A.** (2024). Enhancing the aroma of whole sorghum flour using supercritical carbon dioxide: Application of the treated flour in 3D printing of sorghum cookies. Institute of Food Technologists (IFT) FIRST Annual Meeting & Food Expo, July 14-17, Chicago, IL, USA.
2. Sadaf, N., Tuhanioglu, A. & **Ubeyitogullari, A.** (2024). Effect of a novel drying method based on supercritical carbon dioxide on the physicochemical properties of sorghum proteins. The American Oil Chemists' Society (AOCS) Annual Meeting & Expo, April 28-May 1, Montreal, Quebec, Canada.
3. Tuhaniogulu, A. & **Ubeyitogullari, A.** (2023). Enhancing the flavor of white whole sorghum flour using supercritical carbon dioxide. Institute of Food Technologists (IFT) FIRST Annual Meeting & Food Expo, July 16-19, Chicago, IL, USA.
4. Tuhanioglu, A. & **Ubeyitogullari, A.** (2023). Enhancing the flavor of white whole sorghum flour using supercritical carbon dioxide. The Society of Flavor Chemists Annual Meeting and Awards, May 11, Newark, NJ, USA.
5. Tuhanioglu, A. & **Ubeyitogullari, A.** (2023). A green integrated approach to extract high-value wax and bioactive compounds from sorghum bran via supercritical carbon dioxide. The American Oil Chemists' Society (AOCS) Annual Meeting & Expo, April 30-May 3, Denver, CO, USA.
6. Tuhanioglu, A. & **Ubeyitogullari, A.** (2022). A green integrated approach to extract high-value wax and bioactive compounds from sorghum bran via supercritical carbon dioxide. Institute of Food Technologists (IFT) FIRST Annual Meeting & Food Expo, July 10-13, Chicago, IL, USA.
7. Tuhanioglu, A. & **Ubeyitogullari, A.** (2022). A green integrated approach to extract high-value wax and bioactive compounds from sorghum bran via supercritical carbon dioxide. Ozark IFT Section meeting, April 19, Fayetteville, AR, USA.

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Project outcomes: Awards and Additional Funding

- The Ph.D. student who worked on this project won multiple awards!
  - Won first place in the IFT Sustainable Food Systems Division Oral Competition.
  - Selected to receive the 2023 American Oil Chemists' Society (AOCS) Honored Student Award (one of the most prestigious student awards by AOCS).
  - Won 1st place in the AOCS General Group Category Oral Competition, May 2023.
  - Won the 2023 Jogue, Inc. Scholarship ($2,000) by the Society of Flavor Chemists (SFC), May 2023.
  - Won 1st place in the Processing Division Poster Competition at the American Oil Chemists' Society (AOCS) Annual Meeting and Expo, May 2024.
- This project was used to leverage additional funds for sorghum research, leading to other research collaborations with Battelle and United Sorghum Checkoff Program.
  - United Sorghum Checkoff Program ($141,000)
  - United Sorghum Checkoff Program and Batelle ($25,000)

Developing a green integrated approach to enhance the utilization of grain sorghum in foods

Project outcomes:

- Maximize the value of grain sorghum.
- Produce health-promoting new ingredients.
- Contribute to Arkansas's economy by creating new markets for grain sorghum:
  - (1) Natural high-value micronutrients,
  - (2) Gluten-free ingredients, and
  - (3) Alternative plant proteins.


Thank you for your support!
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Arkansas

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ATTACHMENT 3

Determining the value added of starter fertilizer with in-furrow fungicide on corn

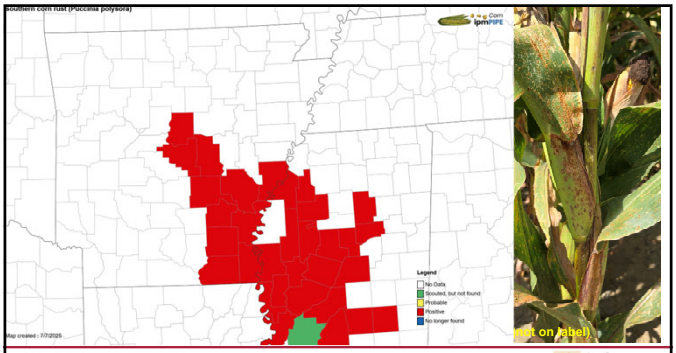
Investigators : Terry Spurlock, Jason Kelley, Jason Davis

Status: Funded 2021 - 2023
Annual Budget: $26,000

Objectives:

1. **Establish on-farm trials to determine the value of in-furrow fungicide on disease and yield.**
2. **Establish field trials at Rohwer Station where the value of starter plus in-furrow and 2x2 fungicide application.**
3. **Establish a field trial at the Lon Mann Cotton Research Station near Marianna to evaluate the impact of starter fertilizer, and starter fertilizer plus in-furrow fungicide at a recommended planting date and planting rate.**

1



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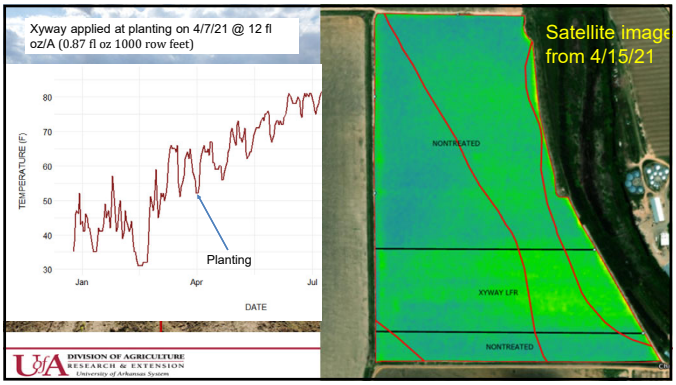


3

Xyway Demo, Grady

Stand estimates
- Xyway - 29,000 plants/A
- Nontreated 34,000 plants/A

Southern rust
- Xyway - 6.5
- Nontreated - 7.2

- Yield
  - Xyway – 190 bu/A
  - Nontreated block – 226 bu/A
- 2022 – Section 2(ee) recommendation to allow 2x0, 2x2 placement at least 0.5 inch away from seed, avoiding direct contact with seed

4

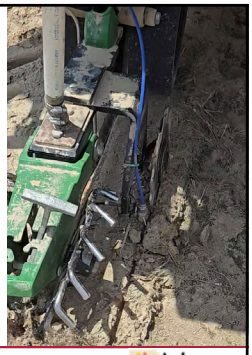
Cotton Research Station - Marianna

- Treatments in 2021 - 2023
  - (Agroliquid Pro-germinator 9-24-3) at 5 gallons/A
  - In-furrow fertilizer 5GPA + Xyway @ 12 fl oz/ac
  - In-furrow fertilizer 5GPA + Quadris @ 13.8 fl oz/ac
  - Veltyma @ 7 fl oz/ac (R3)
  - Trivapro @ 13.7 fl oz/ac (R3
- 2021
  - Reduction in vigor from Xyway in-furrow
  - Quadris, Veltyma, and Trivapro significantly less southern rust
  - No differences in yield
- 2022
  - No differences in stands, vigor, or yields
  - Less southern rust in Trivapro and Veltyma treatments
- 2023
  - No differences in stand, vigor or yields

5

Rohwer Research Station

- 2021
  - Three trials were planted and lost to flooding
  - Early and late planted in-furrow fertilizer + fungicide combinations and foliar fungicides
- 2022
  - Added Yetter rig to row units for 2x2 applications
  - Low foliar disease pressure
  - No differences in stand, vigor, or yields
- 2023
  - Two trials (early- and late-planted), 2x2 applications
  - Very hot and dry
  - Low foliar disease pressure
  - No differences in stand, vigor or yields



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ATTACHMENT 4

Economic Analysis of the 2024 Corn and Grain Sorghum Research Verification Program

- 8 total participating corn fields
  - Trait Systems
    - 1 conventional
    - 7 stacked (herbicide + *Bt*)
  - Irrigation Systems
    - 1 center pivot
    - 7 furrow
- $4.32/bu. 2024 crop average price for corn
  - $1.30/bu. decrease from 2023

Arkansas Corn & Grain Sorghum Board

1

Overall Comparisons

- CGSRVP Yield: 213.25 bu./ac
  - 4.58 bu./ac more than in 2023
  - 26 bu./ac above AR state average
- Revenue: $920.18/ac
  - $252.53/ac decrease vs. 2023
- Variable Costs: $653.03
  - $0.05 increase vs. 2023
- Fixed Costs: $121.78/ac
  - $27.89 increase vs. 2023
- Total Costs: $775.09
  - $27.94 increase vs. 2023
- Return to Land and Management: $145.09/ac
  - $280.48/ac decrease vs. 2023

Arkansas Corn & Grain Sorghum Board

2

Economic Results by Trait System

Trait System	Conventional	Stacked	All Fields
# Fields	1	7	8
Yield (bu./ac)	173.00	219.00	213.25
Revenue ($/ac)	746.50	944.99	920.18
Variable Costs ($/ac)	629.87	656.65	653.30
Fixed Costs ($/ac)	89.44	126.40	121.78
Total Costs ($/ac)	719.31	783.05	775.09
Returns to Land and Management ($/ac)	**27.19**	**161.93**	**145.09**

Arkansas Corn & Grain Sorghum Board

3

Economic Results by Irrigation System

Irrigation System	Furrow	Center Pivot	All Fields
# Fields	7	1	8
Yield (bu./ac)	212.57	218.00	213.25
Revenue ($/ac)	917.25	940.67	920.18
Variable Costs ($/ac)	641.40	736.66	653.30
Fixed Costs ($/ac)	123.30	111.13	121.78
Total Costs ($/ac)	764.70	847.79	775.09
Returns to Land and Management ($/ac)	**152.55**	**92.88**	**145.09**

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ATTACHMENT 5

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Fine-tuning Potassium Recommendations and Investigating Intensive Tissue Analysis for Sustainable Corn Production

Trenton Roberts, Gerson Drescher, and Jason Kelley

Objectives:

1. **Establish field experiments to evaluate corn yield response to varying rates of potassium fertilizer.**
   - Correlate leaf tissue potassium concentration to corn grain yield.
   - Measure potassium removal in the grain.
   - Fine-tune existing potassium rate recommendations for corn.
   - Develop post-season tissue-K test to assess K adequacy during the season, similar to corn stalk nitrate test.
2. **Assess corn response to in-season potassium applications to maximize yield or salvage yield potential.**
3. **Determine the utility of intensive in-season tissue sampling and monitoring as a tool for high-yielding corn production systems.**

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1

Experimental approach

Single site-year trials

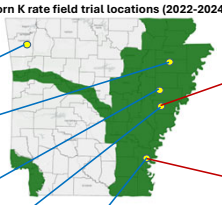
Fayetteville (SAREC)
Optimum - 163 mg K kg^{-1} (May 30)
Optimum - 146 mg K kg^{-1} (Apr. 24)
Optimum - 139 mg K kg^{-1} (May 15)

Jonesboro (NERREC)
Low - 69 mg K kg^{-1} (Apr. 17)
Very Low - 54 mg K kg^{-1} (May 16)

Pine Tree (PTRS)
Very Low - 56 mg K kg^{-1} (May 13)
Very Low - 39 mg K kg^{-1} (Apr. 18)
Low - 65 mg K kg^{-1} (May 4)
Low - 74 mg K kg^{-1} (May 1)
Low - 73 mg K kg^{-1} (Apr. 24)

Marianna (LMCRS)
Medium - 107 mg K kg^{-1} (May 12)

Corn K rate field trial locations (2022-2024)



Rohwer (RRS)
Optimum - 132 mg K kg^{-1} (Apr. 23)

Long-term trials

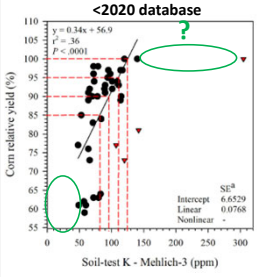
Marianna (LMCRS)
2 Long-term trials (est. 2017)
Conventional & Cover Crop
47-211 mg K kg^{-1}
(May 4)

Rohwer (RRS)
2 Long-term trials (est. 2017)
Conventional & Cover Crop
49-236 mg K kg^{-1}
(May 8)

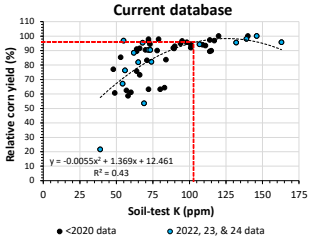
2

Improving corn K correlation and calibration database

<2020 database



Current database



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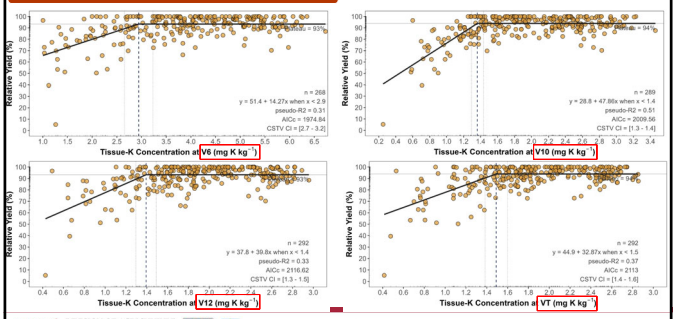
Critical tissue-K concentrations for corn



Drescher et al. unpublished

4

Critical tissue-K concentrations for corn

- Tissue-K analysis is a good predictor of corn yield and can be used to diagnose if additional K is needed to maximize grain yield.
- Calibrated data from Arkansas shows lower critical tissue-K concentrations to maximize corn yield than textbook references!

Arkansas (2022-2024 data)

Growth Stage	Critical tissue-K & CI (%)
V6 whole plant	2.9 (2.7–3.2)
V10 leaf	1.4 (1.3–1.4)
V12 leaf	1.4 (1.3–1.5)
VT earleaf	1.5 (1.4–1.6)

Southern Cooperative Series Bulletin (Southern Cooperative Series, 2000)

Growth Stage	Critical tissue-K (%)
Seedling (< 4 inches in height), whole plant	3.0–4.0
Early Growth (> 4 inches in height to tasseling), leaf	2.0–3.0
Tasseling / Bloom, earleaf	1.8–3.0

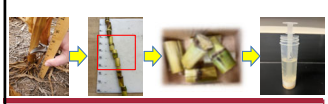
Next step: validate critical tissue-K concentrations and improve database.

Drescher et al. unpublished

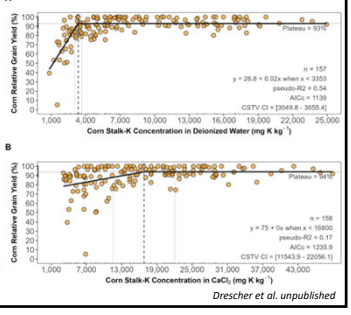
5

End-of-season corn stalk-K analysis

- Previous research has identified end of season stalk nitrate analysis as a viable tool to diagnose effective nitrogen management in corn in Midwest (Blackmer & Mallarino, 1996; Ketterings et al. 2017) and Arkansas (Greub et al., 2018). However, to date no research was done for K…
- Our results show that like nitrate, stalk-K analysis is effective to diagnose the adequacy of K fertilization in corn!!!



Relationship between relative corn grain yield and stalk-K concentration at maturity using deionized water (A) and $CaCl_2$ (B) as extractants.



Drescher et al. unpublished

6


Thank you!
Questions?
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ATTACHMENT 6

Assessing Susceptibility of Insect Pests of Corn in Storage to Selected Insecticides

- **Glenn Studebaker, Ben Thrash, Nick Bateman, N. Joshi**

- **Status: Final**
- **Budget Request: $40,891**
- **Objectives:**
  1. **Efficacy studies will be conducted to determine both the effectiveness and longevity of control of recommended insecticide treatments.**
  1. **To determine relative susceptibility of stored grain insect pests to various insecticides and other chemicals. These bioassays will evaluate sensitivity of flour beetles and other stored pests to new chemicals as outlined under Obj. 1.**

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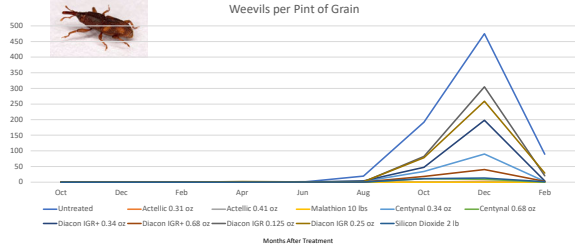
Rice Weevil Infestation Levels in Infested Corn Barrel Study



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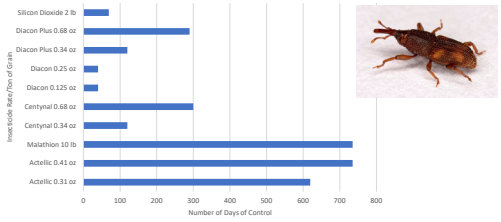
Length of Control for Stored Grain Insecticides Against Rice Weevil



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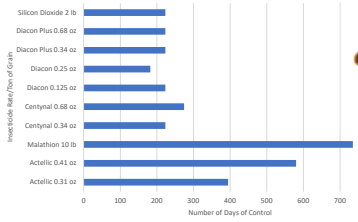
Length of Control for Stored Grain Insecticides Against Saw-toothed Grain Beetle



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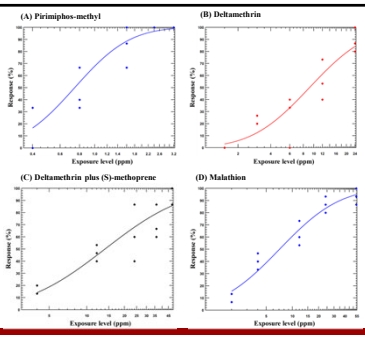
Toxicity Response of Rice Weevil



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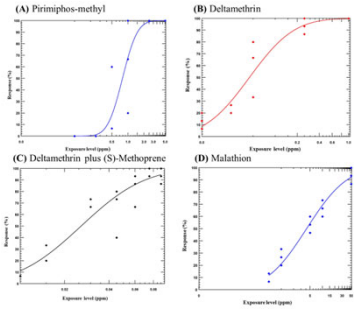
Toxicity Response of Red Flour Beetle



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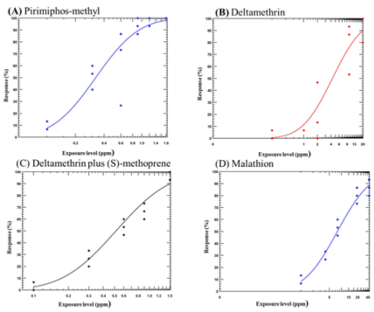
Toxicity Response of Confused Flour Beetle



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Assessing Susceptibility of Insect Pests of Corn in Storage to Selected Insecticides

- Actellic, Malathion show the longest residual control - 24 months
- Centynal – low rate 4 months, high rate 12 months
- Diacon IGR alone - 2 months
- Diacon IGR Plus – low rate 4 months, high rate 11 months
- Silicone Dioxide – 4 months

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Publications Resulting From Study

- Two refereed publications
  - Toxicity of Four Insecticides to Two Closely Related Stored Grain Pests: The Red Flour Beetle, *Tribolium castaneum*, and the Confused Flour Beetle, *Tribolium confusum*. In Toxicology Reports
  - Toxicity Assessment of Four Commonly Used Insecticides to the Corn-Infesting Rice Weevil *Sitophilus oryzae*. In Journal of Entomological Science.
- Extension publications
  - A performance rating chart showing the expected length of residual activity added to the Stored Grain section of MP 144 Insecticide Recommendations for Arkansas.
  - Fact Sheet – Managing Insects in Stored Grains. Currently being drafted.

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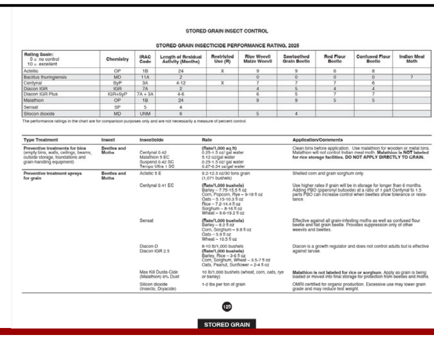
Added Performance Rating to Stored Grain Section of MP 144



STORED GRAIN INSECT CONTROL

STORED GRAIN INSECTICIDE PERFORMANCE RATING, 2025

Rating Scale: 0 = no control 10 = excellent	Chemistry	IRAC Code	Length of Residual Activity (Months)	Restricted Use (R)	Rice Weevil Maize Weevil	Sawtoothed Grain Beetle	Red Flour Beetle	Confused Flour Beetle	Indian Meal Moth
Actellic	OP	1B	24	X	9	9	6	8	
Bacillus thuringiensis	MD	11A	2		0	0	0	0	7
Centynal	SyP	3A	4-12	X	7	7	7	6	
Diacon IGR	IGR	7A	2		4	5	4	4	
Diacon IGR Plus	IGR+SyP	7A + 3A	4-6		6	5	7	7	
Malathion	OP	1B	24		9	9	5	5	
Sensat	SP	5	4						
Silocon dioxide	MD	UNM	6		5	4			

The performance ratings in the chart are for comparison purposes only and are not necessarily a measure of percent control.

Type Treatment	Insect	Insecticide	Rate	Application/Comments
Preventive treatments for bins (empty bins, walls, ceilings, beams, outside storage, foundations and grain-handling equipment)	**Beetles and Moths**	Centynal 0.42 Malathion 5 EC Suspend 0.42 SC Tempo Ultra 1 SC	**(Rate/1,000 sq ft)** 0.25-1.5 oz/ gal water 5.12 oz/gal water 0.25-1.5 oz/ gal water 0.27-0.54 oz/gal water	Clean bins before application. Use malathion for wooden or metal bins. Malathion will not control Indian meal moth. **Malathion is NOT labeled for rice storage facilities. DO NOT APPLY DIRECTLY TO GRAIN.**
Preventive treatment sprays for grain	**Beetles and Moths**	Actellic 5 E	9.2-12.3 oz/30 tons grain (1,071 bushels)	Shelled corn and grain sorghum only.
		Centynal 0.41 EC	**(Rate/1,000 bushels)** Barley – 7.75-15.5 fl oz Corn, Popcorn, Rye – 9-18 fl oz Oats – 5.15-10.3 fl oz Rice – 7.2-14.4 fl oz Sorghum – 8-16 fl oz Wheat – 9.6-19.2 fl oz	Use higher rates if grain will be in storage for longer than 6 months. Adding PBO (piperonyl butoxide) at a ratio of 1 part Centynal to 1.5 parts PBO can increase control when beetles show tolerance or resistance.
		Sensat	**(Rate/1,000 bushels)** Barley – 8.2 fl oz Corn, Sorghum – 9.8 fl oz Oats – 5.9 fl oz Wheat – 10.5 fl oz	Effective against all grain-infesting moths as well as confused flour beetle and flat grain beetle. Provides suppression only of other weevils and beetles.
		Diacon-D Diacon IGR 2.5	8-10 lb/1,000 bushels **(Rate/1,000 bushels)** Barley, Rice – 3-6 fl oz Corn, Sorghum, Wheat – 3.5-7 fl oz Oats, Peanut, Sunflower – 2-4 fl oz	Diacon is a growth regulator and does not control adults but is effective against larvae.
		Max Kill Dusta-Cide (Malathion) 6% Dust	10 lb/1,000 bushels (wheat, corn, oats, rye or barley)	**Malathion is not labeled for rice or sorghum.** Apply as grain is being loaded or moved into final storage for protection from beetles and moths.
		Silicon dioxide (Insecto, Dryacide)	1-2 lbs per ton of grain	OMRI certified for organic production. Excessive use may lower grain grade and may reduce test weight.

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STORED GRAIN

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10

Future Needs

- Toxicity response for other pests
  - Indian meal moth
  - Saw-toothed grain beetle
  - Larger grain borer
  - Lesser grain borer
- New control options
  - OP's (Actellic, Malathion) may not be available in the future
  - Resistance

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ATTACHMENT 7

1

Thank You Corn and Grain Sorghum Board

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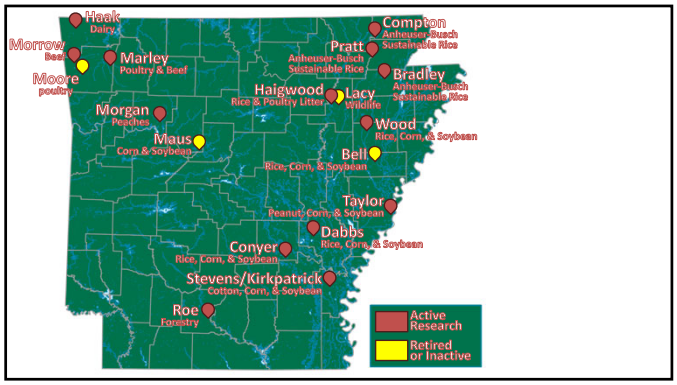
2



3

Conservation Issues

- Groundwater Withdrawal > Recharge
- Soil Erosion / Soil Quality / Soil Health
- Water Quality –Nutrients in Gulf of Mexico
- Climate Change Resiliency
- Profitability
- Sustainability Documentation for Supply Chain

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Things We Monitor

Farmers encouraged us to take a more holistic point-of-view

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- Hydrologic Inputs – Irrigation and Precipitation
- Runoff Volume
- N, P and Suspended Solids in Runoff
- Field to Market Fieldprint Sustainability Metrics
- Soil Health – Selected indicators
- Climate Change

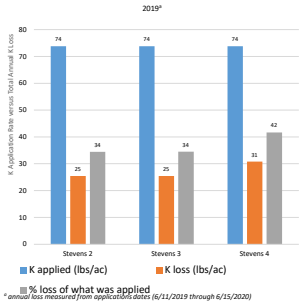
5

Concentration of Nutrients in Runoff from Corn

Corn	Total Nitrogen	Phosphorus	SRP	Potassium
Mean (ppm)	3.8	0.9	0.3	7.4
Std Deviation	10.2	1.4	0.4	6.2
Count of samples	341	343	342	125

6

K loss in runoff from Cotton



- Average loss from 10 site years = 29 lbs/A/year
- Average loss of 46% of what was applied as fertilizer
- Loss equates to $15 per acre
- Loss equivalent to K uptake of 2 bale cotton

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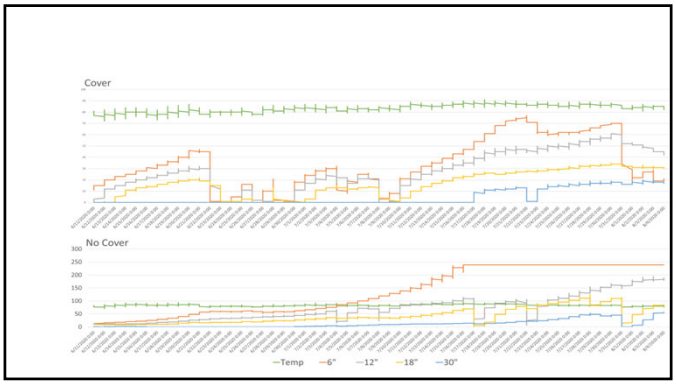

8

Conclusions

- Total Annual N and P losses are relatively small compared to nutrients applied; losses can be dominated by large runoff events
- Economically significant amounts of K are being lost in runoff especially in events where runoff is generated by precipitation
- K Losses can occur year around for reason not fully understood
- No-K application caused severe yield loss in 2023 without major changes in K loss by runoff

9

Conclusions

- Soil Hydrology is an important factor in managing nutrients as in this study as much as 45% of rainfall is loss to runoff
- Altering soil hydrology is much tougher and much slower process than changing the 4 r's
- Cereal rye cover crop is allowing cotton roots to use water down to 18 inches and may help reduce runoff

10

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ATTACHMENT 9

Performance of Crop Insurance as a Risk Management Tool for Corn and Grain Sorghum Producers in Arkansas

- **Investigators**

  Lawson Connor
- **Status: Final Report**
- **Objectives:**
  1. **Determine patterns of crop insurance demand in the state.**
  2. **Determine how insurance demand patterns affect rating at the county/state levels.**
  3. **Determine whether sub-state level aggregations are being used by the RMA for prevented planting and determine how such aggregations may change rates on more productive lands.**

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1

What we Know

- Prevented Planting significant for the state
- Rainfall patterns drive prevent plant claims
- Likely to increase in importance going forward

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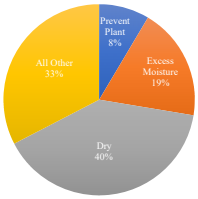
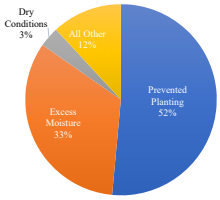
Prevented Planting is the Primary Cause of Loss in the Mid-South



Corn and Soybean Causes of Loss in the Midwest



Corn and Soybean Causes of Loss in the Mid-South.

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3

Land Quality Effects on Crop Insurance Choices

	Insured Acres	Premium Rate	Indemnity Rate	Coverage Level Choice
Land Quality	-0.509***	0.113**	0.046	-0.042
	(0.182)	(0.043)	(0.096)	(0.034)
Effective Planting Window	0.012	0.004	-0.005	0.003
	(0.013)	(0.003)	(0.007)	(0.002)
% Prevent Plant Acres	0.309***	0.095***	0.498***	0.082***
	(0.089)	(0.021)	(0.047)	(0.017)
Excess Moisture	0.000	0.000	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Planted Acres	-0.000	-0.000***	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.218	-0.005	0.240	0.618***
	(0.303)	(0.071)	(0.159)	(0.057)
Observations	244	244	244	244

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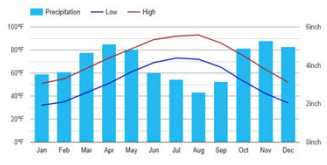
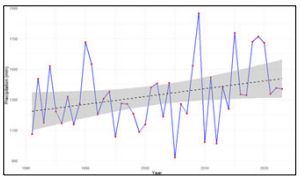
Annual Rainfall Patterns in Arkansas

Annual Average Rainfall: Little Rock, AR



Source: US Climate Data

Annual Rainfall Trends: Arkansas



Source: Data retrieved from PRISM, University of Oregon

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Prevented Planting

- Statute for prevented planting to be included with crop insurance policies (1994 farm bill)
- Prevented planting explains variation in rates across counties in Arkansas
- May not explain the level of rates in the state relative to other states
- Other factors:
  - Baseline risk
  - Adverse selection
  - Land quality variation within counties

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What we Don't Know

- Differences in risk at the sub county level
- How adverse selection drives rates
- Whether use or overuse of poor-quality land affects high quality land in a county
- What explains odd relationship between land quality and premium rates

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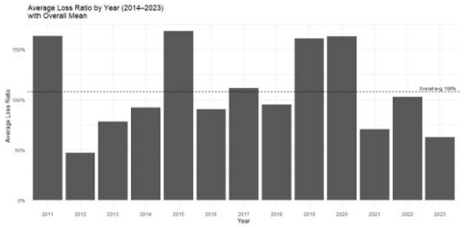
10-Year Loss Ratio for the State



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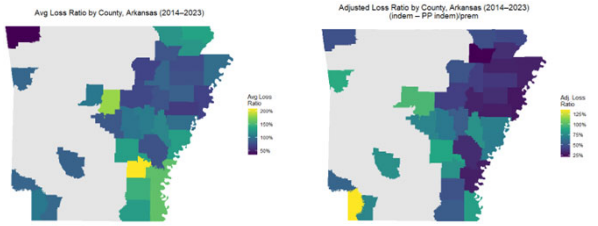
Loss Ratio Variation Across the State



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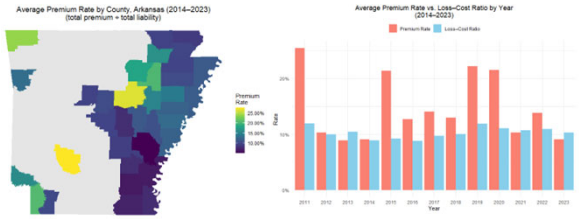
Loss cost ratios have reflected premium rates in recent years



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Conclusions

- Premium rates appear adequate at the state level
- Prevented planting is an important protection and will continue to be going forward
- Sub county factors more challenging to isolate
  - Adverse selection
  - Land quality and flood prone areas
  - Land retirement for less productive land
- Sub county anomalies that may explain higher rates on higher quality land

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Thank You

Question?

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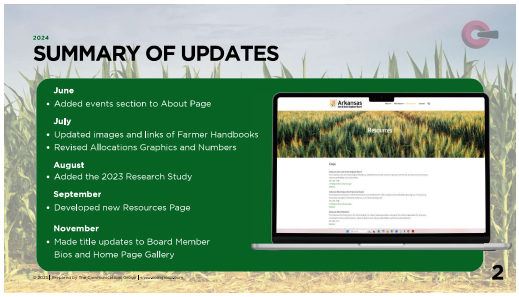
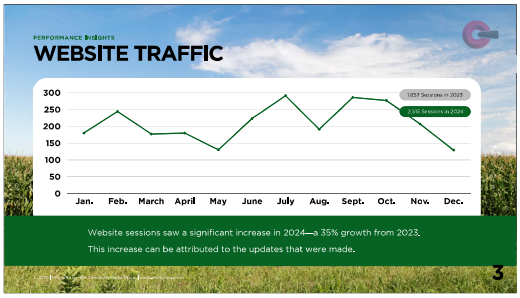
ATTACHMENT 10

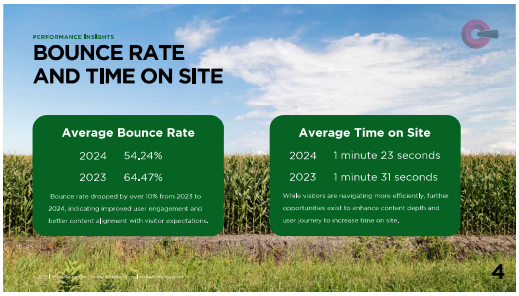
Corn and Grain Sorghum Board Financials
Total Annual Collections

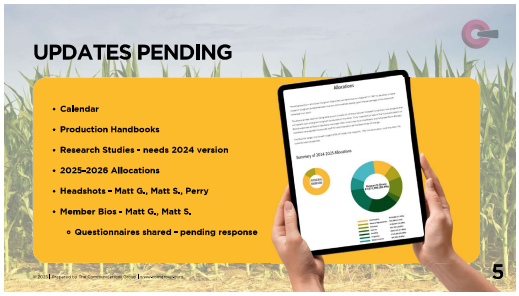
	June 2019	June 2020	June 2021	June 2022	June 2023	June 2024	June 2025	Forecast 2025
Beginning Fund Balance	**$ 611,975**	**$ 540,103**	**$ 787,097**	**$ 1,386,425**	**$ 2,156,313**	**$ 2,483,014**	**$ 1,792,074**	**$ 1,792,074**
Revenue								
Gross Collections	$ 1,068,141	$ 1,155,588	$ 1,257,966	$ 1,516,473	$ 1,050,172	$ 1,295,693	$ 1,028,188	$ 1,070,077
Corn	$ 1,060,950	$ 1,141,977	$ 1,244,519	$ 1,450,919	$ 1,044,635	$ 1,288,120	$ 1,010,873	$ 1,063,230
Grain Sorghum	$ 7,191	$ 13,611	$ 13,447	$ 65,554	$ 5,538	$ 7,574	$ 17,315	$ 6,847
Rev. & Treas. Dept. 3%	$ 34,181	$ 36,979	$ 40,255	$ 48,527	$ 33,606	$ 40,521	$ 31,009	$ 33,172
Other Income	$ 1,770	$ 2,642	$ -	$ 5,538	$ -	$ 22,843	$ 10,900	$ -
Transfers to CGSPB (Net)	**$ 1,035,730**	**$ 1,121,251**	**$ 1,217,711**	**$ 1,473,485**	**$ 1,016,567**	**$ 1,278,016**	**$ 1,008,079**	**$ 1,036,905**
Total Revenue	**$ 1,647,706**	**$ 1,661,355**	**$ 2,004,807**	**$ 2,859,909**	**$ 3,172,880**	**$ 3,761,030**	**$ 2,800,153**	**$ 2,828,979**
Expenses								
Payments to Research	$ 943,000	$ 764,633	$ 482,275	$ 492,117	$ 965,315	$ 1,292,298		
Payments to Research					$ 492,117	$ 10,000	$ 541,484	$ 541,484
Payments to Research					$ 351,470	$ 600,000	$ 403,801	$ 421,996
U S Grains Council								
Membership	$ 58,000	$ 63,800	$ 66,352	$ 67,679	$ 68,525	$ -	$ 71,266	$ 142,532
Export Exchange-Medallion Sponsorship			$ 12,000			$ -	$ 7,274	$ 15,000
U.S. Grains Meeting					$ 1,169			
National Corn Growers Association								
Membership	$ 11,500	$ 11,500	$ 12,000	$ 22,000	$ 28,000	$ 28,000		$ 56,500
Promotion			$ 10,000					
Commodity Classic	$ 8,306	$ 4,506			$ 2,438			$ 8,000
Arkansas Farm Bureau Foundation								
County Meetings			$ 3,228	$ 10,000				$ 5,001
Ag in the Classroom	$ 60,000			$ 10,000	$ 10,000	$ 9,000	$ 15,000	$ 10,000
Producer Conference								$ 5,001
Other Promotion	$ 22,250	$ 23,000	$ 30,000	$ 94,000	$ 271,500		$ 20,161	$ 4,500
Total Promotion	**$ 160,056**	**$ 102,806**	**$ 133,580**	**$ 203,679**	**$ 381,632**	**$ 37,000**	**$ 113,701**	**$ 246,534**
Board Travel Lodging	$ 1,677	$ 3,348	$ 528	$ 6,301	$ 4,133	$ 6,718	$ 9,480.60	$ 7,001
Board Travel Meals	$ 1,858	$ 1,971			$ 1,771	$ 3,995	$ 2,089.28	$ 10,001
Board Travel Other						$ 5,438	$ 9,723.71	$ 6,500
Board Travel Mileage						$ 811	$ 2,030.08	
Office Supplies						$ 45		
Postage						$ -		
Admin Expenses						$ 4,423	$ 32.59	
Board Exp.	**$ 3,535**	**$ 5,318**	**$ 528**	**$ 6,301**	**$ 5,904**	**$ 21,430**	**$ 23,356**	**$ 23,502**
Website	$ 1,011	$ 1,500	$ 2,000	$ 1,500	$ 9,000	$ 8,229	$ 8,000	$ 17,000
Total Board Exp.	**$ 4,547**	**$ 6,818**	**$ 2,528**	**$ 7,801**	**$ 14,904**	**$ 29,659**	**$ 31,356**	**$ 40,502**
Total Expenditures	**$ 1,107,602**	**$ 874,258**	**$ 618,383**	**$ 703,597**	**$ 2,205,438**	**$ 1,968,956**	**$ 1,090,342**	**$ 1,250,516**
Outstanding Commitment							$ 146,294	$ 156,294
Ending Fund Balance	**$ 540,103**	**$ 787,097**	**$ 1,386,425**	**$ 2,156,313**	**$ 967,442**	**$ 1,792,074**	**$ 1,563,516**	**$ 1,422,169**

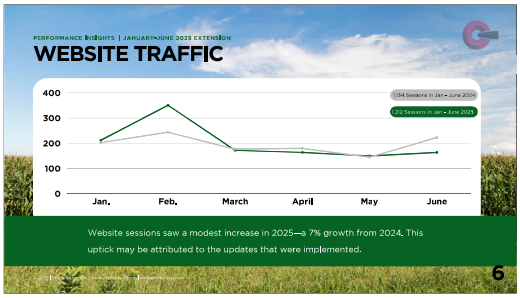
ATTACHMENT 11











ARKANSAS CORN AND GRAIN SORGHUM BOARD

Situation Overview

The members of the Arkansas Corn and Grain Sorghum Board requested a tiered strategy for enhancing their current investment in public relations and digital promotion.

Current Challenge:
The Arkansas Corn & Sorghum Board's website is a valuable resource for farmers and stakeholders, offering relevant content and industry updates. While it provides useful information, traffic remains low, limiting its overall performance.

Why this matters:
Enhancing visibility, a social media integration, and proactive traffic strategies will help maximize visibility and engagement, ensuring the site reaches its full potential while continuing to serve its audience effectively.

2

TIER 1 - CURRENT INVESTMENT LEVEL OF $8,000 ANNUALLY

Website

- Annual Hosting Fees - $2,000 per year
- Website Management, Optimizations & Analytics - $500 per month

Benefits

- **Continuous Updates:** We conduct monthly maintenance to keep your website current, secure, and compliant with the latest web technologies and standards.
- **Informed Decisions:** By regularly analyzing data, we can make strategic adjustments that enhance performance and outcomes.

Edits Pending Direction

- Calendar
- Production Handbooks
- Research Studies - needs 2024 version
- Allocations will need updated in July
- Matt Smith - Bio
- Matt Gammill - Bio

3

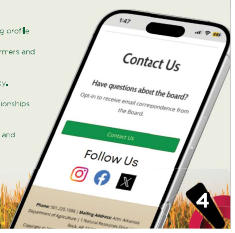
TIER 2 - INVESTMENT LEVEL OVER $19,999 THRESHOLD

Website + Organic Social Media

Organic Social Media Campaign

- **Account Setup and Optimization**
  - Creation and optimization of at least 2 major platforms, including profile and account set up.
  - Integration of accounts with the website to make it easier for farmers and stakeholders to find resources.
- **Content Strategy & Creation**
  - Posting 2-3 times per week to maintain engagement and visibility.
- **Engagement and Community Management**
  - Responding to comments, messages, and inquiries to build relationships and encourage interaction.
- **Analytics and Monthly Reporting**
  - Monthly analytics to track audience growth, engagement levels, and website traffic from social media.

One-Time Setup Investment: $1,000
Monthly Investment: $2,000



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TIER 2 - INVESTMENT LEVEL OVER $19,999 THRESHOLD

Organic Social Media - Why?

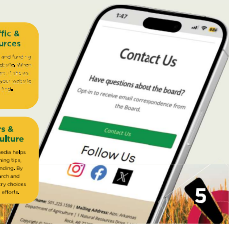
In today's digital landscape, social media isn't just a platform for sharing content—it's a powerful tool for:

Strengthening Industry Presence
Social media helps you connect directly with farmers, industry partners, and others involved in agriculture. By sharing updates, research, and success stories, the board can strengthen its reputation as a trusted resource in Arkansas farming.

Driving Website Traffic & Promoting Key Resources
Social media shares helpful information and funding options, bringing more people to the website. When more people interact on social platforms, search engines find the information on your website is important, making it easier to find.

Establishing the Board's Credibility & Authority
Social media boosts the board's credibility by sharing research, market updates, and stories of successful farmers. It helps the board be seen as a trusted source, educating people and showing its leadership in promoting new ideas and sustainability.

Supporting Farmers & Advocating for Agriculture
Having a strong presence on social media helps farmers keep up with the latest farming tips, changes in rules, and ways to get funding. By sharing practical examples of research and resources, the board can guide industry choices and highlight the importance of its efforts.



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IN REVIEW- INVESTMENT LEVEL OVER $19,999 THRESHOLD

Budget - Tier 2

	Service	Investment
	Website Hosting Fees	$2,000
	Website Management	$6,000
	Organic Social Media Account Setup	$1,000
	• Facebook, Instagram, X (choose 2)	incl.
Digital	Organic Social Media Management	$2,000 per month
	• Content Strategy & Creation	incl.
	• Engagement & Community Management	incl.
	• Analytics & Monthly Reporting	incl.
	Total	**$33,000**
	Estimated Monthly Investment	**$2,750**

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COMMUNICATIONS GROUP
Marketing | Public Relations

201 E Marsham St., Suite 300
Little Rock, Arkansas 72201

PRINCIPALS
Dan Cowling III, Dane Cowling,
Lisa Van Hook

ATTACHMENT 12

Arkansas Corn and Grain Sorghum Promotion Board
Policy on Remote Attendance to Meetings

It is the policy of the Arkansas Corn and Grain Sorghum Promotion Board (board) that members are permitted to attend meetings of the board remotely as provided by Act 505 of 2025, effective on August 5, 2025, and codified as Arkansas Code Annotated § 25-19-106(e). For a member of the board who attends a meeting remotely to be counted for a quorum or to vote, the board shall:

1. At the beginning of the meeting, verify the identity of the member attending remotely;
2. Allow other members and members of the public, whether physically present at the meeting or attending the meeting remotely, at all times to:
    a. Hear the member attending remotely;
    b. Observe or otherwise understand a vote of the member attending remotely; and
    c. Know the identity of the member attending remotely when that Member is speaking or voting; and
3. Allow a member attending remotely to hear the other members in attendance at the meeting and any public comment.

Any member who attends a board meeting remotely, as provided by this policy, shall not receive mileage or per diem for attending the meeting.