



Testing Ag Performance Solutions

Advancements in Water and Nutrient Management:
Research Insights from the TAPS Program



Testing Ag Performance Solutions (TAPS) is a farmer-driven competition where producers manage plots as their own—choosing irrigation, nitrogen, seeding, and technology. Since 2017, TAPS has expanded to seven states, engaging 300+ producers each year and reaching thousands more through field days and conferences. With 85% of participants adopting new practices, TAPS is shaping the future of water and nutrient management.

Beyond competition, TAPS generates research-quality data for scientists and industry to evaluate technologies, refine strategies, and study farmer decision-making in real-world conditions. Together, farmer insight and research innovation are building a more sustainable agriculture.

Testing Ag Performance Solutions: Multistate Interest and Networking Meeting

-  Sunday, November 9th
-  3 - 5 PM
-  Location TBD

Description: The TAPS Multistate Meeting will showcase programming and research from participating states, outline the goals of the national network, and invite discussion on opportunities for collaboration.

Organizers/Moderators:

Renee Tuttle, Kelsey Stremel, Daran Rudnick, Kansas State University

Oral Session (195)

Advancements in Water and Nutrient Management: Insights from the TAPS Program

-  Tuesday, November 11th
-  8:40 AM - 12 PM
-  Location TBD

Description: TAPS engages producers in real-world farm management competitions to improve water, nitrogen, and efficiency under climate and aquifer pressures. This session highlights insights from TAPS projects across seven states, showcasing the power of producer-driven research and extension.

Organizers/Moderators:

Renee Tuttle, Kansas State University
Kelsey Stremel, Kansas State University

Poster Session (330)

Testing Ag Performance Solutions: Research Innovation

-  Tuesday, November 11th
-  4 - 6 PM
-  Exhibit Hall AB

Description: TAPS programs at seven universities engage producers in real-world farm management decisions to measure profitability, efficiency, and sustainability. This session showcases the collective impact of these programs, highlighting the power of national collaboration to advance water and nutrient management.

Organizers/Moderators:

Brenda Ortiz, Auburn University
Mala Ganiger, North Dakota State University



Schedule & Speakers

Oral Session (195)

Advancements in Water and Nutrient Management: Insights from the TAPS Program

8:40 AM – Introductory Remarks and Research Update from the Kansas TAPS Program *Renee Tuttle, Kelsey Stremel, and Daran Rudnick, Kansas State University*

8:45 AM – Active Learning about Irrigation Strategies for Soybeans in the Mid-Atlantic through Deployment of Farmer Competition – UMD-TAPS *Nicole M. Fiorellino, University of Maryland; Shannon P. Dill, University of Maryland Extension; Kelly A. Hamby, University of Maryland*

9:00 AM – Predicting Corn Yield Using Integrated Nitrogen, Irrigation, and Vegetation Indices *Amy Kremen and Wubengeda Yilma, Colorado State University*

9:15 AM – Leveraging Data from Extension Programs to Address Research Questions - Opportunities and Challenges *Josefina Lacasa and Daran Rudnick, Kansas State University*

9:30 AM – Addressing Groundwater Nitrate Contamination in Nebraska with UNL-TAPS Competition *Abia Katimbo, University of Nebraska-Lincoln; Daran Rudnick, Kansas State University; Christopher A. Proctor, University of Nebraska-Lincoln; Hope Njuki Nakabuye, Texas A&M University; Chuck Burr, University of Nebraska-Lincoln; Sahila Beegum, Nebraska Water Center; Chittaranjan Ray, University of Nebraska*

9:45 AM – Promoting Sustainable Water and Nutrient Management in Cotton through the STEP Program *Hardeep Singh, University of Florida*

10:00 AM – Predicting Corn Yield Using Random Forest Modeling of Producer-Driven Input Decisions *Vinicius Velho, Victor de Sousa Ferreira, Maria Luiza Ferreira Caetano, Victoria Ferreira Quaratino, and Christopher Proctor, University of Nebraska-Lincoln*

10:15 AM – Break

10:30 AM – Assessing the Impact of Agronomic Practices on Corn Yield, Profitability, and Efficiency - Insights from Florida Stakeholder Engagement *Vivek Sharma, Kevin Athearn, and Shiva Bhambota, University of Florida*

10:45 AM – Model-Based Irrigation Scheduling for Sustainable Nebraska Corn *Maria Luiza Ferreira Caetano, Victor de Sousa Ferreira, Vinicius Velho, Renato Dall Agnol, Luis Filipe Caixeta Bitencourt, Victoria Ferreira Quaratino, Christopher A. Proctor, University of Nebraska-Lincoln*

11:00 AM – Evaluating the Impact of Integrated Nitrogen and Irrigation Management on Corn Yield and Profitability *Amy Kremen and Wubengeda Yilma, Colorado State University*

11:15 AM – Research Updates from the Oklahoma TAPS Program *Sumit Sharma, Jason G. Warren, D. Brian Arnall, Oklahoma State University*

11:30 AM – How Do Irrigation and Nitrogen Timing Strategies Drive Success in the TAPS Program *Hope Njuki Nakabuye, Texas A&M University; Daran Rudnick, Kansas State University; Tsz Him Lo, Mississippi State University; Christopher A. Proctor, Abia Katimbo, and Chuck Burr, University of Nebraska-Lincoln*

11:45 AM – Subsurface Drip Irrigation Dripline Strategies to Enhance Corn Yield in USA *Unius Arinaitwe, South Dakota State University; Wade Thomason, Julie Shortridge, and William Hunt Frame Jr., Virginia Tech*

12:00 PM – Adjourn

Poster Session (330)

Testing Ag Performance Solutions: Research Innovation

Exploring the Impact of Nitrogen Source and Timing on Corn Production through the Alabama TAPS

Project Emmanuel Abban-Baidoo¹, Brenda V. Ortiz¹, Eros Francisco¹, Adam Rabinowitz², Sthefani Goncalves de Oliveira², Wendiam Sawadgo², Andrew Spark³ and Bram Parbi⁴, (1)Auburn University (2)Agricultural Economics and Rural Sociology, Auburn University (3)E. V. Smith Research Center - Farm Services Unit., Auburn University (4) Auburn University

Timing Is Everything: Synchronizing in-Season Irrigation Pulses and Split Nitrogen Applications to Enhance Maize Yield and Resource-Use Efficiency in Western Kansas **Kabateraine Tumwesige** and Daran Rudnick, Department of Biological and Agricultural Engineering, Kansas State University

An Interactive Dashboard for Multi-Source Data Visualization and Farm Input Resource Management: An Extension Tool to Understand, Optimize, and Conserve Water and Nitrogen Use for Enhanced Yield

Rayhaan Kabenge, Daran Rudnick, and Kabateraine Tumwesige, Biological and Agricultural Engineering, Kansas State University, Manhattan, KS

Leveraging TAPS to Quantify N and Irrigation Impacts on Soil Nitrate **Victoria Ferreira Quaratino¹**, Victor de Sousa Ferreira², Chris Proctor³, Chuck Burr⁴, Daran Rudnick⁵, Abia Katimbo⁶, Vinicius Velho⁷, Renato Dall Agno⁷, Luis Filipe Caixeta Bitencourt⁷, James Anderson⁸ and Maria Luiza Ferreira Caetano⁹, (1)University of Nebraska - North Platte (2)University of Nebraska - Lincoln (3)Agronomy and Horticulture, University of Nebraska- Lincoln (4)Agronomy, University of Nebraska, North Platte (5)Department of Biological and Agricultural Engineering, Kansas State University (6)University of Nebraska - North Platte (7)University of Nebraska - Lincoln (8)University of Nebraska - North Platte (9)Agronomy, University of Nebraska-Lincoln

Soil-Profile Water Dynamics Under Producer-Driven Irrigation Strategies: A Two-Year Neutron-Probe Study in the UNL-TAPS Program

Renato Dall Agno¹, Vinicius Velho¹, Victor de Sousa Ferreira², Luis Filipe Caixeta Bitencourt¹, James Anderson³, Maria Luiza Ferreira Caetano⁴, Victoria Ferreira Quaratino⁵ and Christopher A Proctor⁶, (1)University of Nebraska - Lincoln (2)University of Nebraska-Lincoln (3)University of Nebraska - North Platte (4)Agronomy, University of Nebraska-Lincoln (5)University of Nebraska - North Platte (6)Agronomy and Horticulture, University of Nebraska - Lincoln

Producer-Driven Nitrogen, Irrigation, and Population Decisions in Nebraska Corn: A Two-Year TAPS Study Design

Luis Filipe Caixeta Bitencourt¹, Victor de Sousa Ferreira², Renato Dall Agno¹, Vinicius Velho¹, James Anderson³, Maria Luiza Ferreira Caetano⁴, Victoria Ferreira Quaratino⁵ and Chris Proctor⁶, (1)University of Nebraska - Lincoln (2)University of Nebraska-Lincoln (3)University of Nebraska - North Platte (4)Agronomy, University of Nebraska-Lincoln, (5)University of Nebraska - North Platte (6)Agronomy and Horticulture, University of Nebraska- Lincoln

Drone-Based NDVI As a Diagnostic Tool for in-Season Nitrogen Management in TAP's Program of Western Nebraska Corn Research

James Anderson¹, Christopher A Proctor², Victor de Sousa Ferreira³, Vinicius Velho⁴, Renato Dall Agno⁴, Luis Filipe Caixeta Bitencourt⁴, Victoria Ferreira Quaratino⁵ and Maria Luiza Ferreira Caetano⁶, (1)University of Nebraska - North Platte (2)Agronomy and Horticulture, University of Nebraska - Lincoln (3)University of Nebraska-Lincoln (4)University of Nebraska - Lincoln (5)University of Nebraska - North Platte (6)Agronomy, University of Nebraska-Lincoln

For more details about sessions, visit www.sciencesocieties.org/canvas.

TAPS Contact Information:

 www.tapsnetwork.org

 Renee Tuttle

 rstuttle@ksu.edu

 620-805-9045