

**University of Nebraska
Institute of Agriculture and Natural Resources**

Research, Extension and Education Centers

July 2021



WATER LAW 101

Extension Educator Gary Stone teamed up with Dr. David Aiken, professor of Agriculture Economics, to develop the tutorial Water Law. This 6 part series looks into understanding the terminology as well as the legal aspects of water which is important for any Nebraskan. The series of articles covers basic water law in the United States, predominately in the western part of the country and how it affects this finite resource. READ the [Water Law](#) series articles.

Gary Stone, PHREEC, is a certified professional agronomist and certified crop advisor. He serves as a Nebraska Extension Educator in efficient water irrigation water management, limited irrigation cropping systems and community and environmental issues.

David Aiken is a professor in Agricultural Economics with a focus on water law and policy, energy law, environmental law and global warming,



Chancellor Green Visits out state

The first week of July, Chancellor Green made visits to several University facilities off campus including NCTA, WCREEC, Cedar Point Biological Station and PREEC. He had the opportunity to catch up on research and extension activities as well as visit with specialists, students and staff.



COVER CROPS

There are many benefits to utilizing cover crops, such as improved soil health and reduced erosion. It's the details of how and what to do that can present challenges. The focus of the February 2021 statewide conference was to provide information to growers who are in a corn/soybean rotation and to assist them in understanding the value of cover crops.

Educators as well as producers shared information on the critical role cover crops play in soil and water management, including soil health and enhancing water and nutrient use efficiency. The sessions were followed by a Speaker Panel answering questions from the virtual attendees. Recordings of the speakers presentations can be found at [Cover Crop and Soil Health](#).



Archived Newsletters and Print Versions can be found at

[REEC News and Media](#)



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DID YOU KNOW?



Eastern Nebraska Research, Extension and Education Center

- Consists of 16,620 acres of land
- Oversees 3 Lab Facilities
- [Barta Brothers Ranch](#)
- [Haskell Ag Lab](#)
- [South Central Ag Lab](#)

Graduate Students - Biological Engineering, Agronomy & Horticulture, Entomology and Animal Science



West Central Research, Extension and Education Center

- Consists of 16,408 acres of land
- Oversees 3 Lab Facilities
- [Gudmundsen Sandhills Laboratory](#)
- [Water Research Lab](#)
- [Henry J. Stumpf International Wheat Center](#)

Graduate Students—Biological Engineering, Agronomy & Horticulture, Entomology and Animal Science



Panhandle Research, Extension and Education Center

- Consists of 3,624 acres of land.
- Oversees 3 Lab Facilities
- [High Plains Ag Lab](#)
- [Panhandle Research Feedlot](#)
- [Sioux County Experimental Range](#)

Graduate Students—Biological Engineering, Agronomy & Horticulture, Entomology and Animal Science

FIELD DAYS/OPEN HOUSE/CLINICS DATES

- [Managing Cattle for Profit in 2021](#) scheduled through July
- [Nutrient Stewardship Field Day](#) - July 15, 2021
- [Farm & Ranch Transition Workshop](#)—PHREEC July 22
- [SCAL Field Day](#) - July 28, 2021
- [Forage Field Day](#) Haskell Lab—August 5, 2021
- [Nebraska Grazing Conference](#)—August 9-11, 2021
- [Soybean Management Field Days](#) - August 10-13, 2021
- [PARTT](#), Panhandle Ag Res & Tech Tour, August 19
- [Cow Symposium](#) Albion—August 24, 2021
- [Corn Production Clinic](#) - August 25, 2021
- [GSL Open House](#) - August 25, 2021
- [Soybean Production Clinic](#) - August 26, 2021
- [Water & Crops Field Day](#) - August 26, 2021
- [Husker Harvest Days](#) - September 14-16
- [NS&GP Goat AI Clinic](#) North Platte—September 18-19



TAPS Hosts Summer Event Field Day, WCREC

The Testing Ag Performance Solutions ([TAPS](#)) program hosted a summer event on June 24, at WCREC in North Platte, NE. Attendees were given a chance to examine and discuss problematic plots with educators, specialists and peers, as well as company representatives. After crop diagnoses, the attendees competed in the agronomic Olympics where they competed against each other in siphon tube setting, identifying various insects and weeds, NDVI estimation, sorghum seeding rate estimation and a marketing and yield estimation quiz. There was time to visit with representatives from AquaSpy, CropX, Sentek, Trellis, Phytech and Grain-IQ. Participants had the opportunity to tour their TAPS competition plots and ask questions they may have at this point in the contest and production season. The day ended with six teams competing in a 4-man, 9-hole best ball scramble.

To learn more about the TAPS program, the participants and reports go to [UNL TAPS](#) The 2020 TAPS Competition Report can be found at [TAPS REPORT](#)

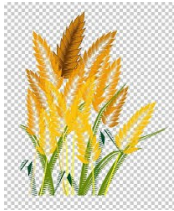
REEC STATEWIDE STRATEGIC PLAN

A Look at Statewide Strategic Directions:

Each month we will describe one of the Statewide Strategic Directions. This month we will look at Water.



2. Innovative cropping systems to improve soil health, conservation, sustainability and profitability.



The Goals:

- 1) Develop innovative cropping systems research that is organized in a structure to be repeated across the five agroecozones of Nebraska to address erratic precipitation and extreme temperatures.
- 2) Engage producers in making decisions to avoid the development of pesticide resistant species.
- 3) Explore the development of alternative crops and varietal development.

The Intended Outcomes:

- 1) Nebraskans will gain awareness of and implement new strategies to improve farm sustainability.
- 2) Specialists and educators will engage producers through on farm research to enhance decision making skills.
- 3) Producers will make decisions that reduce the development of pesticide resistant species

The first annual Nebraska 4Rs Nutrient Stewardship Field Day was held at the Eastern Nebraska Research and Extension Center in Ithaca. The 4Rs is a nutrient management and water stewardship approach which emphasizes fertilizer use with the right source, right rate, right time and right placement of fertilizers. This science-based approach focuses on the best nutrient management practices and sustainable crop production with increasing crop yield and farmer’s profit while protecting the environment.

Key advantages of following 4Rs Nutrient Management Stewardship include:

- An efficient and effective soil fertility program for optimizing the crop nutrient requirements.
- Reducing the cost of fertilizer input while ensuring crop nutrient needs.
- Increasing synchrony of soil nutrients availability and crop growth and development.
- Reducing the potential for nutrient loss to surface water, groundwater and air.
- Enabling efficient use of water with the combined interaction of nutrients availability, crop growth and water use.
- Improving soil organic matter and soil health benefits with more crop biomass production.
- Increasing nutrient use efficiency by minimizing nutrient losses.



STUDENT PROFILE:

With advancements in digital agriculture and precision management, unmanned aircraft systems (UAS) have become an area of great interest. Applying pesticides with a

UAS will allow for spot spraying applications and a reduced amount of pesticides applied. The advantage of using a UAS is that applications can be made when conditions are not fit for a ground application or are not accessible by manned aircraft. This allows for the opportunity to control pests and invasive species in hard-to-reach areas. The objective of this project is to optimize UAS pesticide applications and provide data to ensure that effective spot and broadcast spray applications are made.

Through this research we have been able to identify solutions to common issues that occur with UAS pesticide applications. This includes nozzle selection, effective swath width, application parameters such as flight height/speed, and the efficacy of different pesticides at low carrier volumes. The combination of these application parameters should be fully understood in order to make effective pesticide applications with a UAS. Other areas of interest include different UAS designs, for instance nozzle placement and the size of the UAS. These parameters will also impact the application effectiveness of a UAS application. The further integration of technology and automated processes in agriculture will require more information on how application techniques, such as a UAS, can be incorporated in an effective and efficient manner to control pests and invasive species in hard to access areas.

[Trenton Houston](#) is a graduate student in Agronomy & Horticulture at WCREEC.