2024 DWFI Research Forum
Agenda

Wednesday, April 17

Nebraska Innovation Campus Conference Center, Lincoln

B Rooms, South Side

8:30 a.m.	Registration Opens. Poster Set-up. Refreshments available.
9:00 a.m.	Opening Remarks: DWFI Director of Research, Christopher M.U. Neale, Ph.D., P.E., including overview of program impacts to date
9:05 – 10:15 a.m.	Oral Presentations
10:15 – 10:30 a.m.	Poster Presentation – Flash Talks • Students give a brief introduction to their posters
10:30 – 11:00 a.m.	Poster Session and Networking Break
11:00 – 11:45 p.m.	Keynote Panel: • Ryan Chapman, Assistant Manager, Lower Platte North NRD • Timothy Mundorf, Nutrient Management Lead, Central Valley Ag Coop • Renata Rimšaitė, Ph.D., DWFI Senior Program Manager, Research Assistant Professor Moderated by: DWFI Director of Policy, Nick Brozović, Ph.D.
11:45 – 12:55 p.m.	Oral Presentations – *working lunch session*
12:55 – 1:00 p.m.	Closing Remarks: DWFI Director of Research, Christopher M.U. Neale, Ph.D., P.E.
2:30 – 3:30 p.m.	Reception – Hardin Hall Lobby
3:30 – 4:30 p.m.	Water Seminar – Hardin Hall Auditorium *Manure Management and Water Quality*, Amy Schmidt, Ph.D., P.E., UNL Biological Systems Engineering, Professor

9:05 – 10:15 p.m.   ORAL PRESENTATIONS

Advancing non-invasive, passive measurement of root zone soil water content at the subfield scale using gamma-ray spectroscopy, **Sophia Becker**, Graduate Research Assistant, Hydrological Sciences, UNL; Graduate Research Advisor: **Trenton Franz,** Associate Professor, UNL School of Natural Resources, for the project: *Investigating proximal gamma-ray sensor for soil moisture monitoring*

The relationship between irrigation usage and cover crop adoption: Evidence from a survey of rain-fed and irrigated crop producers **Kaouter Essakkat**, Graduate Research Assistant, Agricultural Economics, UNL; Graduate Research Advisor: **Karina Schoengold,** Associate Professor, UNL Agricultural Economics, for the project: *Assessing Producer Preferences for Conservation Program Participation and Ecosystem Service Provision*

Microbial Iron and Nitrate Reduction in Unsaturated Soils Following Rewetting **Taylor Rosso**, Graduate Research Assistant, Biological Sciences, UNL; Graduate Research Advisor: **Karrie Weber,** Associate Professor, UNL School of Biological Sciences and Department of Earth and Atmospheric Sciences, for the project: *Nitrate-stimulated uranium biogeochemical cycling in soils and sediments*

A Dynamic Model for the Ogallala Aquifer: Analyzing the Effectiveness of Different Groundwater Management Policies **Bruno Chaves Morone Pinto**, Graduate Research Assistant, Agricultural Economics, UNL; Graduate Research Advisor: **Lilyan Fulginiti,** Professor, UNL Agricultural Economics, for the project: *Optimal Groundwater Management Policies for the High Plains Aquifer: Taxes, Quotas and Water Markets*

Enhanced Efficiency Fertilizers Improve Groundwater Water Quality in the Bazile Groundwater Management Area of Nebraska **Arshdeep Singh**, Graduate Research Assistant, Agronomy, UNL; Graduate Research Advisor: **Javed Iqbal,** Assistant Professor, UNL Agronomy & Horticulture, for the project: *Optimizing Nitrogen and Water Inputs for Corn Based on Nitrate Leaching*

Evaluation of Effects of Enhanced Efficiency Fertilizers on Grain Yield and Nitrate Leaching in Furrow-Irrigated Corn Field **Deepak Ghimire**, Graduate Research Assistant, Agronomy, UNL; Graduate Research Advisor: **Bijesh Maharjan,** Assistant Professor & Extension Specialist, UNL Agronomy & Horticulture, for the project: *Optimizing Nitrogen Management in Furrow-Irrigated Corn Field to Increase Grain Yield and Ensure Groundwater Quality*

10:15 – 10:30 a.m.   POSTER PRESENTATION – FLASH TALKS

Challenges and Opportunities to Reduce Nitrate Consumption through Drinking Water in Nebraska **Ally Barry**, Research Assistant, DWFI; Research Advisor: **Renata Rimšaitė,** DWFI Senior Program Manager, Research Assistant Professor

Field experimental evidence for biochar surface functionalization with iron oxides and links to nitrate retention mechanisms **Brit Fossum**, Graduate Research Assistant, Agronomy, UNL; Graduate Research Advisor: **Michael Kaiser,** Assistant Professor, UNL Agronomy & Horticulture, for the project: *Sustainable soil management strategies to improve water retention and quality in agricultural systems*

GRIME-AI: Open-source Software for Ecohydrological Science using Ground-based Time-lapse Imagery
John Stranzl, Graduate Research Assistant, Natural Resources, School of Natural Resources, UNL; Graduate Research Advisor: **Troy Gilmore**, Associate Professor, UNL School of Natural Resources, for the project: *Advancing environmental sensing through fixed ground-based camera imagery*

Response of variably irrigated maize hybrids to water availability   **Thais Murias Jardim**, Graduate Research Assistant, Biological Systems Engineering, UNL; Graduate Research Advisor: **Saleh Taghvaelan,** Associate Professor, UNL Biological Systems Engineering, for the project: *Improving water and nutrient management under center pivot irrigation in south-central Nebraska*

Assessment of Nitrate Leaching Risks in East Central Nebraska Through Comprehensive Soil Analysis
Muili Lawal, Graduate Research Assistant, Biological Systems Engineering, UNL; Graduate Research Advisor: **Aaron Mittelstet,** Assistant Professor, UNL Biological Systems Engineering, for the project: *Vadose Zone Nitrate Accumulation Lower Loup Natural Resources District Area 30, Relation to Manure Application, Fertilizer Management and Groundwater Nitrate Concentrations*

Effect of heat stress on arsenic accumulation during vegetative stage in rice **Shohei Oguro**, Graduate Research Assistant, Agronomy, UNL; Graduate Research Advisor: **Harkamal Walia,** Assistant Professor, UNL Agronomy & Horticulture, for the project: *Physiological and molecular analysis of combined heat and drought-stress traits in wheat*

Measuring Seasonal Fluctuations in Nebraska's Groundwater Levels with a Relative Gravimeter
Kaitlin Steinauer, Graduate Research Assistant, Geology, UNL; Graduate Research Advisor: **Irina Filina,** Assistant Professor, UNL Earth and Atmospheric Sciences, for the project: *Gravity and seismic measurements over Nebraska aquifers to detect seasonal changes in water level*

Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Nebraska Drinking Water   **Sarah Tucker**, Graduate Research Assistant, Toxicology, Environmental Health & Occupational Health, UNMC; Graduate Research Advisor: **Kristina Kintziger,** Professor of Health & Environment, UNMC Environmental, Agricultural & Occupational Health, for the project: *Detection of Poly- and Perfluoroalkyl Substances in Nebraska Drinking Water and Exposure Assessment in Adult Rural and Service Member Populations*

Defluorination of PFOA/PFOS using a denitrifying anaerobic methane oxidation (DAMO) enrichment culture   Qu Wen, Graduate Research Assistant, Civil and Environmental Engineering, UNL; **Xu Li**, Professor, UNL Civil and Environmental Engineering, Associate Chair for Graduate Programs

Unveiling Soil Mapping through 3D Hyperspectral Imaging and Visualization   **Hongfeng Yu,** Associate Professor, UNL School of Computing, for the project: *Revealing Dynamic Spatial Patterns of Groundwater Quality Modeling*

10:30 – 11:00 a.m.   POSTER SESSION AND NETWORKING BREAK

11:45 – 12:55 p.m.   ORAL PRESENTATIONS

Adverse birth outcomes associated with maternal exposure to agrichemicals and their mixtures in personal drinking water. A Nebraska (USA) case-control pilot study **Augustine Kena Adjei,** Graduate Research Assistant, Statistics, UNL; Graduate Research Advisors: **Martha Rhoades**, Research Manager, Xenobiotics Laboratory, UNL School of Natural Resources, for the project: *DWFI Continued Support of Birth Outcomes and Water (BOW) Study*, in collaboration with **Kent Eskridge**, Professor, UNL Statistics and **Troy Gilmore**, Associate Professor, UNL School of Natural Resources

Watershed Monitoring of Shell Creek for Antibiotics and Antibiotic-Resistant Bacteria, **Moriah Brown**, Graduate Research Assistant, Environmental Engineering, UNL; Graduate Research Advisor: **Shannon Bartelt-Hunt,** Professor and Department Chair, UNL Civil and Environmental Engineering, for the project: *Connecting AntiMicrobial Resistance, Agricultural Decisions, and Environmental Systems: A tool for mitigating AMR and assessing risk to human health in agro-ecosystems*

Platte Basin Timelapse Internship Program **Ethan Freese**, Producer, UNL School of Natural Resources, for the Platte Basin Timelapse Project

Remotely Sensed Early Warning of Algal Blooms in an Eastern Nebraska Reservoir: A comparison of Temporal and Spatial Indicators **Mercy Kipenda**, Graduate Research Assistant, Natural Resource Sciences, School of Natural Resources, UNL; Graduate Research Advisor: **Dan Uden**, Assistant Professor, UNL School of Natural Resources and Agronomy & Horticulture, for the project: *Remotely sensed early warning of toxic algal blooms in Nebraska lakes*

Drought's Impact on Cattle Stocking Density and Land Use **Shara Akat**, Graduate Research Assistant, Agricultural Economics, UNL; Graduate Research Advisor: **Taro Mieno,** Professor, UNL Agricultural Economics, for the project: *Drought Impacts on Cattle Stocking Density and Land Use*

Public Health/Hubbard Fellowship: ***Analyzing Flood Risk Across U.S. Counties: A Comprehensive Mapping Study*** **Shivendra Srivastava,** Graduate Research Assistant, Water Resources Engineering, UNL; Graduate Research Advisor: **Tirthankar Roy**, Assistant Professor, UNL Civil and Environmental Engineering, for the project: *A comprehensive framework to assess flood risk within the context of public health*