2023 DWFI Research Forum

Agenda

Thursday, April 13

Wick Alumni Center, 1520 R St., Lincoln

1:00 p.m.	Registration Opens. Poster Set-up. Refreshments available.
1:30 p.m.	Opening Remarks: DWFI Director of Research, Christopher M.U. Neale, Ph.D., P.E., including overview of program impacts to date
1:35 – 2:10 p.m.	Keynote: Lucy Hancock, Trainer & Facilitator, *Civity* Moderated by: DWFI Senior Program Manager, Renata Rimsaite, Ph.D.
2:10 – 2:45 p.m.	Oral Presentations
2:45 – 3:00 p.m.	Poster Presentation – Flash Talks • Students give a brief introduction to their posters
3:00 – 3:30 p.m.	Poster Session and Networking Break
3:30 – 4:25 p.m.	Oral Presentations
4:25 – 4:30 p.m.	Closing Remarks: DWFI Director of Research, Christopher M.U. Neale, Ph.D., P.E.
4:30 – 6:00 p.m.	Networking Reception at the Wick Alumni Center: Remarks from DWFI Executive Director, Peter G. McCornick, Ph.D., P.E., D.WRE

2:15 – 2:45 p.m. ORAL PRESENTATIONS

Nitrogen application decision-making using the multispectral sensor with UAV **Jiaming Duan,** Graduate Research Assistant, Biological Systems Engineering, UNL; Graduate Research Advisor: **Daran Rudnick**, Assistant Professor, and **Derek Heeren**, Associate Professor, UNL Biological Systems Engineering, (co-major advisors) for the project: *Development of Research and Demonstration Sites in the BGMA for Groundwater Nitrate Reduction*

Nitrate Leaching Potential Under Continuous Corn and Alfalfa-Based Cropping System in 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*

Fate of microplastics from land applied biosolids Graduate Research Advisor: **Shannon Bartelt-Hunt,** Professor and Dept. Chair, UNL Civil and Environmental Engineering, for the project: *The fate of microplastics in terrestrial systems: understudied sources and citizen science;* **Nasrin Naderi Beni**, Graduate Research Assistant, Civil Engineering, specialization in Environmental Engineering, UNL

Public Health/Hubbard Fellowship: ***Application of Machine Learning in Monitoring and Assessing Drought Impacts in the U.S.*** **Beichen Zhang**, Graduate Research Assistant, Natural Resource Sciences/Climate Assessment and Impacts, UNL; Graduate Research Advisor: **Tsegaye Tadesse,** Research Professor, UNL School of Natural Resources and National Drought Mitigation Center, for the project: *Investigating Complex Drought Impacts on Society and Public Health using Machine Learning* Student

Public Health/Hubbard Fellowship: ***Flood Risk Assessment in Nebraska using Hazard, Exposure, Vulnerability, and Response as Drivers*** **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*

2:45 – 3:00 p.m. POSTER PRESENTATION – FLASH TALKS

Exploring the Multifactorial Nature of Birth Defects in the Birth Outcomes and Water Pilot Study: The Impacts of Agrichemical Exposure, Maternal Age and Lifestyle **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

Water Quality Monitoring at the Kearney Outdoor Learning Area **Jamila Bajelan**, Graduate Research Assistant, Public Communication, UNK; Graduate Research Advisor: **Mary Harner,** Research Professor, UNK Communication and Biology, for the project: *Connecting students to natural history and water resource science*

Theoretical vs experimental relationship between K-40 counts and gravimetric water content at a well instrumented agricultural research station in Nebraska, USA **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*

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*

Comparison of 3D Hydrofacies Models for Improved Groundwater Flow Model Parameterizations: A Glacial Aquifer Case Study **Nafyad Kawo**, Graduate Research Assistant, Natural Resource Sciences, School of Natural Resources, Specialization: Hydrological Sciences, UNL; Graduate Research Advisor: **Jesse Korus**, Assistant Professor, UNL School of Natural Resources, for the project: *Integrating Hydrologic Modeling and Geophysical Characterization to Improve Water Management Tools*

Comparison of remotely sensed datasets and metrics for detection of harmful algal bloom in Nebraska, U.S.A. lakes **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*

Multi-Model Assessment of Nitrate Leaching from Manure and Commercial Fertilizer Application in East Central Nebraska **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*

Investigating Drinking Water Quality and Shared Zoonotic Pathogens in Rural Communities in Rwanda **Ben Ndayambaje**, Graduate Research Assistant, Natural Resource Sciences, School of Natural Resources, UNL; Graduate Research Advisor: **Elizabeth Van Wormer**, Associate Professor, UNL School of Natural Resources, for the project: *Linking child stunting, microbiome, livestock health and water quality: a One Health study in Rwanda*

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

Nitrate Controlled Metal Reduction in Unsaturated Soils **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*

Evaluation of geospatial data for livestock operation location and estimation of manure nutrient utilization capacity in five Nebraska counties **Maria Oviedo Ventura,** Graduate Research Assistant, Biological Systems Engineering, UNL; Graduate Research Advisor: **Amy Schmidt,** Associate Professor, UNL Biological Systems Engineering, for the project: *Integrated Crop Nutrient Management (ICNM) to Support Crop-Human-Environment Well-Being*

Producing Caproate from Cattle Manure Wastewater using Co-Fermentation with Corn Silage **Qu Wen**, Graduate Research Assistant, Civil and Environmental Engineering, UNL; **Xu Li**, Professor, UNL Civil and Environmental Engineering, Associate Chair for Graduate Programs

3:00 – 3:30 p.m. POSTER SESSION AND NETWORKING BREAK

3:30 – 4:25 p.m. ORAL PRESENTATIONS

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

Nutrient limitation in chemically diverse Sandhill lakes **Daniel Gschwentner**, Graduate Research Assistant, Natural Resource Sciences with specialization in Applied Ecology, School of Natural Resources, UNL; Graduate Research Advisor: **Jessica Corman**, Assistant Professor, UNL Agronomy & Horticulture, for the project: *Looking to the past to understand the future of freshwater in the Sandhills*

Tracking of the Tethered Aircraft Unmanned System to Derive Atmospheric Wind and Gaseous Carbon Transport **Daniel Rico,** Graduate Research Assistant, Computer Science and Engineering with a specialization in Computer Engineering, UNL; Graduate Research Advisor: **Carrick Detweiler**, Professor, UNL Computer Science and Engineering, and **Francisco Munoz-Arriola**, Associate Professor, UNL Biological Systems Engineering, for the project: *Expansion of Long-term Persistent Monitoring Applications of Tethered UASs*

Irrigation-as-a-service for smallholder farmers **Ishani Lal**, Graduate Research Assistant, Agricultural Economics, UNL; Graduate Research Advisor: **Nick Brozovic,** Professor, UNL Agricultural Economics and Director of Policy, Daugherty Water for Food Global Institute at the University of Nebraska

How much are farmers willing to pay for ecosystem services that promote soil health? **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*

The value of circularity for a corn-based ethanol biorefinery **Heydi Calderon**, Graduate Research Assistant, Biological Systems Engineering, UNL; Graduate Research Advisor: **Deepak Keshwani,** Associate Professor, UNL Biological Systems Engineering, for the project: *An integrated framework to account for temporal, spatial, and climate variability in the Corn-Water-Ethanol-Beef (CWEB) nexus system*