

From the Director's Desk ...

Spring semester at Mississippi State University ended with graduations on April 29 and April 30. We are proud of our graduates who will be entering the workforce fully prepared to handle research.

In this issue, MWRRI features one of our USGS 104b-funded researchers. Gurpreet Kaur, Assistant Research Professor, is stationed at the water center located in Stoneville, MS. Her expertise and scope of research are quite extensive and an asset to the Institute.

MWRRI is growing! Two new employees, both with previous experience in other MSU departments, have moved into positions with the Institute. Keri Lewis will be managing various research projects and disseminating information through appropriate channels. Dave Spencer, a doctoral candidate who conducted research at DREC in Stoneville, MS joins the Institute as an assistant professor. He will teach irrigation management courses in Plant & Soil Sciences and conduct grant-related research.

This will be the last issue of our e-newsletter written by Jessie Schmidt, coordinator with the Institute since 2007. Jessie is retiring June 30 after being associated with MWRRI for 14 years and at MSU for 23 years. We wish her well in retirement.

All of us at MWRRI hope you and your family enjoy time outdoors as warmer weather arrives.

Jason

Jason Krutz, Ph.D.



From the desk of Dr. Barrett ...

The days are getting longer, and the nights are getting shorter. Springtime is rolling on and summer will be here before we know it. The university students have graduated and are headed to places beyond our MSU campus for either greener pastures and/or commencing life as productive and educated members of society. As faculty, we see the pages of the calendar roll and a new crop of students move on.

The Institute is in full motion and we are growing physically and programmatically. Several of our programs are in the waning months as we complete the work and prepare for final reports. This time of year also ushers in new requests for proposals and applications. We are vigilant to only pursue the projects and programs that we truly feel benefit Mississippi and Mississippi State University and that we have the expertise and power to achieve. Please be on the lookout in the coming months for our announcements of funded projects and opportunities at the Institute. We always want our Mississippi stakeholders to be aware of our progress and direction, and we value your input.



From all of us here at MWRRI, if we can ever be a resource for assistance or information, please do not hesitate to reach out. We are here for the water needs of Mississippi.

Sincerely,

A handwritten signature in blue ink that reads "Jason R. Barrett". The signature is fluid and cursive.

Assistant Professor Dave Spencer Mississippi State University

Dave received his B.S. in Civil Engineering from Mississippi State University, after which he worked at a private engineering firm in Memphis for a couple of years. A desire to continue learning and focus on his primary interest of water quantity and quality brought him back to MSU for graduate school. He is now a full-time assistant professor and Extension irrigation and water quality specialist. "I'm excited to serve the agricultural community in Mississippi by finding and promoting economical ways to improve the resilience and productivity of our row-crop systems."

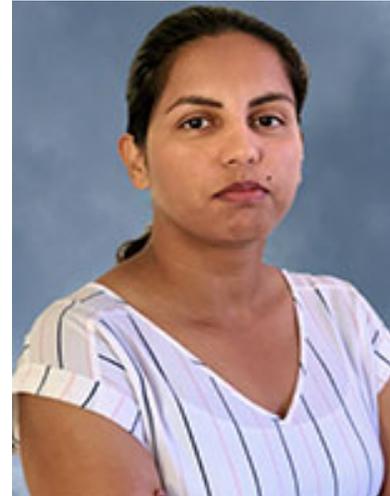


Project Manager Keri Lewis Mississippi State University

Keri Lewis joined the MWRRI on May 3, 2021 as a project manager. An employee at MSU since 2009, she most recently worked for the Extension Service as the media relations manager in the Office of Agricultural Communications. She specializes in executive communication, strategic planning, and project management.



Gurpreet Kaur
Assistant Research Professor
Plant & Soil Sciences
Delta Research & Extension Center
Mississippi State University
Stoneville, MS



Tell us a bit about your background and education

I am an Assistant Professor at the National Center for Alluvial Aquifer Research (NCAAR), Delta Research and Extension Center (DREC), Stoneville MS. I have lived in the Mississippi Delta since 2017. I am originally from Punjab, India.

I completed my undergraduate degree in 2011 in Agriculture (Honors) with a major in soil sciences from Punjab Agricultural University, Ludhiana, India. I came to the U.S. in 2011 to pursue my master's degree. My master's degree (2011-2013) is in Agronomy from the University of Wyoming in Laramie. I worked on water use and water productivity of dryland winter wheat under different cropping practices including conventional till, no-till, and reduced input or organic production system. I also utilized the crop modeling approach using the CERES-Wheat (Crop Estimation through Resource and Environment Synthesis) model of Decision Support System for Agrotechnology Transfer (DSSAT) to determine the sustainability of conventional and no-till practices and to analyze the long-term benefits of no-till systems.

I moved to the University of Missouri, Columbia in 2013 to work on a doctoral degree in Natural Resources (Emphasis: Soil, Environmental, and Atmospheric Sciences) and graduated in 2016. My dissertation work focused on the use of enhanced efficiency nitrogen (N) fertilizer sources to enhance tolerance and recovery of corn hybrids under excessive soil moisture.

I also worked as a postdoctoral research associate at the Mississippi State University's Delta Research and Extension Center, Stoneville, MS from 2017 to 2019. I worked on a multi-state project studying the effects of the introduction of feed grains in the soybean crop production systems in the mid-South United States. This study was conducted at multiple locations in 5 states (MO, AR, MS, TX, LA) and involves a multidisciplinary team including weed scientists, soil fertility specialists, agronomists, agricultural economists, and pathologists. We assessed the sustainability of multiple crop rotations including corn, sorghum, wheat, and soybeans under



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both irrigated and dryland conditions as well as the residue management effects within these rotations on crop yields, soil properties, and nematode populations.

What is your current position?

I am an agronomist at the National Center for Alluvial Aquifer Research Center (NCAAR). National Center for Alluvial Aquifer Research Center is a joint unit between USDA-ARS and Mississippi State University. Being part of NCAAR, I have the opportunity to work on issues related to water resources with many scientists including economists, engineers, extension specialists, physiologists, soil scientists, and hydrologists.

My research focus is on evaluating and developing best management practices for agricultural production in the MS Delta region that save irrigation water and increase water-use efficiency while maintaining crop yields and environmental quality. My expertise is in Agronomy and Soil Sciences. Currently, I am working on multiple projects evaluating the interaction of irrigation water management with other crop production practices followed in the MS Delta including cover crops, nutrient management, tillage systems, row spacing, row patterns, and crop rotations.

I am also serving as major advisor for three graduate students and a committee member on several graduate student advisory committees.

How does water resources research fit into your future plans?

Water resource research is an integral part of my research. To meet sustainable agriculture production goals, resource conservation is critical. There is big competition for water resources among different sectors in our society including both urban and agricultural sectors. In agriculture, irrigation water is the most important input for achieving high yield/productivity goals; however at the same time it is the most overexploited resource in irrigated agriculture production systems. My future research will focus on answering the question: How we can efficiently manage water resources by conserving them for future generations and at the same time providing food to the growing population?

What does MWRRI provide in research and mentoring?

We are thankful to MWRRI for supporting our research. MWRRI funded our project entitled "Irrigation Systems, Row Spacing, and Applied Fertilizer Effects on Water Use and Crop Productivity" through the USGS 104g grant. I am Co-PI on the project. Results from this project will help us provide recommendations to MS producers about the irrigation systems for

reducing irrigation water use. Grant funding from MWRRI allows us to hire a Ph.D. student for this project. The funding also pays the travel costs for the student to present his research findings at regional/national/international conferences and meetings.

Student Advising:**Major advisor:**

- Dillon Russell, Department of Plant and Soil Sciences, Mississippi State University (2019-2021)
- Amrinder Singh, Department of Plant and Soil Sciences, Mississippi State University (2021-2022)
- Michael Pruden, Department of Plant and Soil Sciences, Mississippi State University (2020-2023)

Graduate Student Advisory Committee:

- Chad Hankins, Department of Plant and Soil Sciences, Mississippi State University (2019-2022)
- Amilcar Vargas, Department of Plant and Soil Sciences, Mississippi State University (2021-2023)
- Gurjot Singh, Department of Plant and Soil Sciences, Mississippi State University (2021-2022)

Recent Publications:

Please visit the sites below for my list of publications.

Google Scholar: <https://scholar.google.com/citations?user=mhuthUUAAAJ&hl=en>

ORCID: <https://orcid.org/0000-0003-0766-3336>

Research Gate: https://www.researchgate.net/profile/Gurpreet_Kaur85

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=56779576000>



NCAAR Water Management Research Team. From left: Hayden Burford, Trace Steadman, Amilcar Vargas, Chad Hankins, Curjot Singh, Dr. Gurpreet Kaur, Sofia Quintana, Jim Nichols, Amrinder Jakhar, Dillon Russell, and Dr. Gurbir Singh.

Upcoming Events

- USGS 104g proposals due to USGS – June 24, 2021 – due to MWRRI on June 7, 2021
 - <https://www.grants.gov/web/grants/view-opportunity.html?opId=333655>
- USGS 104g AIS proposals due to USGS – June 24, 2021 – due to MWRRI on June 7, 2021
 - <https://www.grants.gov/web/grants/view-opportunity.html?opId=333657>
- USGS 104g PFAS proposals due to USGS – June 24, 2021 – due to MWRRI on June 7, 2021
 - <https://www.grants.gov/web/grants/view-opportunity.html?opId=333658>

- UCOWR/NIWR Annual Water Resources Conference will be held virtually June 8-10. Use this link for conference updates, registration, and agenda <https://ucowr.org/conference/>
- Water Testing and onsite technical assistance in Prentiss County June 15, 2021
- University Industry Consortium, Ft. Collins, CO, June 22-24, 2021

Do you have a publication that you would like to share? Consider distribution through the MWRRI newsletter. Contact Keri Lewis for information.

Do you have an upcoming event that all those interested in water-related issues and agriculture would find interesting? Considering adding it to the newsletter and/or listserv. Also available is the MWRRI Twitter account - @MS_WRRI.

About the Mississippi Water Resources Research Institute (MWRRI)

The institute exists as both a federal and a state research unit. Established in 1964, the MWRRI is one of 54 institutes (one in each state, The District of Columbia, Guam, Puerto Rico, and the Virgin Islands) that form a national network to solve water problems of state, regional, or national significance. In 1983, the Mississippi legislature formally designated the MWRRI as a state research institute. Federal funds designated for the institute are used to consult with state water officials to develop coordinated research, technology transfer and training programs that apply academic expertise to water and related land-use problems. These various activities are funded through an annual grant from the United States Geological Survey (USGS). Mississippi state appropriations provide additional funds for cost share. The institute also assists state agencies in the development of a state water management plan, maintaining a technology transfer program, and serves as a liaison between Mississippi and federal funding agencies.



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Mississippi State University is an equal opportunity institution. Discrimination in university employment, programs, or activities based on race, color, ethnicity, sex, pregnancy, religion, national origin, disability, age, sexual orientation, gender identity, genetic information, status as a U.S. veteran, or any other status protected by applicable law is prohibited.