

March 2026:

Women Driving Innovation in Water and Management



by Sara Mekideche on 03/20/2026

March 8 marks International Women's Day, a global movement to recognize the achievements and leadership of women across all fields. At the Center for Irrigation Technology, women researchers play a vital role in advancing practical solutions that help agriculture use water more efficiently and sustainably.

This month, we are proud to spotlight two researchers whose work is helping shape smarter water management in California and beyond.

Dr. Dilruba Yeasmin



Dr. Dilruba Yeasmin joined the Center for Irrigation Technology (CIT) in 2013 as a Research Scientist, bringing expertise from her Ph.D. at the University of Arizona and postdoctoral work at Oak Ridge National Laboratory. Over the past decade, her research has focused on agricultural water management, precision agriculture technologies, and orchard system monitoring, with a strong emphasis on improving resource use efficiency in California's Central Valley.

A hallmark of Dr. Yeasmin's work is the development of a ground-penetrating radar (GPR)-based, non-destructive tree root evaluation program, supported by the Jordan College of Agricultural Sciences and Technology. This innovative approach allows researchers and growers to better understand root system development and below-ground responses without disturbing the crop—unlocking new opportunities for smarter irrigation and nutrient management.

Her research portfolio spans almonds, pistachios, vines, vegetables, and other specialty crops, supported through collaborations with industry partners, state and federal agencies, and university researchers across California. Current and recent projects address topics such as climate-smart irrigation, drought resilience in nut crops, cover crop benefits in young orchards, remote sensing for crop water status, and improvements in water and nitrogen use efficiency.

Why it matters: Dr. Yeasmin's work equips growers, industry partners, and the research community with practical, data-driven tools to improve productivity while advancing long-term agricultural sustainability in the Central Valley and beyond.

Dr. Florence Cassel Sharma



Dr. Florence Cassel Sharma, CIT's Assistant Director, led an applied research and outreach effort focused on improving irrigation performance and water use efficiency for growers across California's San Joaquin Valley. Through CIT's partnership with the University of California Cooperative Extension (UCCE) under the CDFA WETA Program, the project delivered hands-on technical assistance and education, particularly for small-scale underrepresented growers.

Over the course of the project, which concluded in January, Dr. Cassel and her team conducted on-farm field site visits evaluating irrigation systems from pump performance and filtration to pressure losses and overall system design. The in-depth assessments covered pumping systems, filters, soil analyses, and meters —helping growers identify inefficiencies. Follow-up recommendations were provided.

The work also incorporated distribution uniformity (DU) testing and soil sampling for texture analyses, providing growers with practical, data-driven insights to help guide their irrigation management. Dr. Cassel also provided guidance on basic irrigation design, soil moisture monitoring, and evapotranspiration-based scheduling (ETc) to better align irrigation practices with crop needs.

Educational outreach was a core component of the project. Dr. Cassel supported a series of hands-on classes and field demonstrations, including the use of CIT's Mobile Education Center, connecting irrigation system performance, pump energy efficiency, aquifer conditions, and maintenance practices to real-world farming decisions.

Why it matters: This completed project supported growers in improving irrigation efficiency, reducing water and energy losses, and strengthening on-farm decision-making—advancing both agricultural productivity and long-term water sustainability.

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This monthly update is part of CIT's ongoing effort to share our work, impact, and vision for the future.