

Shiv Nadar Institution of Eminence

Off-campus water conservation support

Shiv Nadar IoE is committed to enhancing awareness around sustainable water management practices. We, as a university, urge our faculty, staff, and students to be aware and also reiterate their knowledge of good water management practices and sustainability by providing efficient water management support to the local communities.

Researchers at the University are actively involved in monitoring a farmer's field in the vicinity by collecting soil moisture, canopy temperature, leaf area index (LAI), and spectral reflectance data using different instruments and sensors available with the group. The instruments used for the collection of these data are theta probe (ML3), profile probe (PR2/6), infrared thermometer (IRT), LAI meter, and spectroradiometer. In addition, biomass, grain yield, irrigation application, and soil properties data are being observed. Also, the group is dedicated to interacting with farmers to get details about the impact of climate change on crop productivity. Apart from these data, remote sensing data from satellites (Sentinel-1, Sentinel-2, Landsat-8, and Landsat-9) is used in monitoring the health and productivity of the crops in the farmers' fields.

The aim is to model the impact of extreme weather conditions on biomass and crop yield through physical and machine learning-based models. Further, the group also aims to suggest various water application methods and precautions to enhance crop yield and water use efficiency in the farmers' fields. Recently, group members published one article explaining the use of Sentinel-2 satellite data in monitoring wheat crops in the farmers' fields. Further, the group members have submitted articles on water use efficiency and crop yield modeling of the wheat crop.

Through the Water Management Field Laboratory, the faculty and student research team are developing AI-based decision-support systems for improved crop water use efficiency under a regulated deficit drip irrigation regime against the backdrop of climate change. The research aim is to provide /water-saving solutions for the two widely grown and consumed crops, rice and wheat. The laboratory is co-funded by the Government of India and the university to serve as a state-of- the-art research facility. It has an extensive crop experimentation facility equipped with a drip irrigation system and research equipment facility for monitoring crops and soil parameters. The research group conducts interactions, workshops, and training with local farmers.



Interaction with the local farmer

Water Conservation in Wider Communities



Installation of access tubes and soil moisture data collection



Visual inspection of phenology and health of wheat and mustard



Collection of crop yield data