

## **Enhancing Irrigation Management in Tennessee through High-Resolution Weather Data Collection**

Tennessee experiences diverse and intense rainfall events that sometimes cause flooding and runoff, as well as extended dry periods, especially during the growing season, when there is insufficient rainfall to sustain water available for agricultural purposes during the growing season. Access to high-temporal-resolution meteorological data is essential for designing irrigation systems, and managing irrigation by assisting growers with irrigation scheduling, and supporting sustainable crop production. Providing such data helps predict irrigation needs and optimize irrigation scheduling for farmers across the state of Tennessee. This abstract highlight one of the efforts of Precision Irrigation & Engineering Lab at the College of Agriculture, Tennessee State University, to install and provide high resolution weather data from TSU's Agricultural Research and Education Center in Ashland city, Cheatham County. Two different weather stations were installed in 2024 at this site. The first is a Campbell Scientific weather station equipped with various sensors to measure parameters such as air temperature, relative humidity, solar radiation, wind speed, wind direction, and precipitation. The second is an All-In-One ATMOS-41 weather station, that measures all these parameters separately. This poster presentation will demonstrate data analysis evaluating the accuracy of the measured meteorological parameters at high resolution intervals and comparing them to data from the nearest weather station to the Ashland research farm.