HISTORICAL USE OF IRRIGATION IN RESPONSE TO REGIONAL DROUGHT

Alexandra G. Dixon[1], *Hannah L. Lukasik*[2], *Jennifer R. Dierauer*[2], *Samuel J. Smidt*[1]

[1]Soil and Water Sciences Department, University of Florida, Gainesville, FL, USA

[2]College of Natural Resources, University of Wisconsin-Stevens Point, Stevens Point, WI, USA

Irrigation is well-known for overcoming weather variability (e.g., drought) in agricultural systems, but assessment of irrigation as a resiliency strategy has remained incomplete at the nationwide scale due to sparse data records. As a result, much of the research linking irrigation and weather events has relied on predictive models or estimates to forecast future climate change impacts on agricultural systems. Most studies linking irrigation and climate lack a foundation in historical behaviors and observations, so the past cannot robustly inform the future. Here, we use a new historical irrigated production dataset to evaluate the historical relationship between irrigation for major row crops and extreme drought events at the US county-level from 1945-2017. Specifically, we isolate extreme weather events both geographically and temporally to analyze how growers have changed their irrigation strategies to mitigate environmental risk. Results can be used to better inform projections of future irrigated water use and better equip management decisions for water conservation.

PRESENTER BIO: Alexandra Dixon is a Plant Science major specializing in Sustainable Crop Production. She works at the Land and Water Lab conducting independent research. She plans to go on to pursue her masters in Environmental Science and Policy. Her interests include urban and agricultural ecology, water quality, and sustainable community development.