## QUANTIFYING THE USEFULNESS OF ENSEMBLE-BASED PRECIPITATION FORECASTS WITH RESPECT TO WATER USE AND YIELD DURING A FIELD TRIAL Emily Christ Peter Webster Georgia Institute of Technology Atlanta, GA

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## Abstract

Because weather is the most significant factor affecting crop yield, it might seem intuitive that the incorporation of weather forecasts into a crop management plan would benefit the producer. However, this assumption is dependent upon the reliability of such forecasts. This leads to the motivation for this study, which is to produce a forecast tool that will enable producers to make more efficient irrigation management decisions. We will use the ECMWF (European Centre for Medium-Range Weather Forecasts) vars EPS (Ensemble Prediction System) model precipitation forecasts for the grid points included in the 1° x 1° lat/lon square surrounding our point of interest, Stripling Irrigation Research Park (SIRP) in Camilla, Georgia. We will then apply q-to-q bias corrections to the forecasts. Once we have applied the bias corrections, we will use the check-book method of irrigation scheduling to determine the probability of receiving the required amount of rainfall for each week of the growing season. These forecasts will be used during a field trial conducted at SIRP. This research will compare differences in yield and water use among the standard checkbook method of irrigation, which uses no precipitation forecast knowledge, the weather.com forecast, a dry land plot, and the ensemble-based forecasts mentioned above.