Applying irrigation based on crop demand avoids wasting irrigation water and energy and minimizes nutrient runoff into streams. Crops with adequate soil moisture, produce leaf canopies early that shades competitive weeds and plants that are more resistant to diseases due to a lack of stress. Irrigation scheduling, by estimation of daily crop evapotranspiration (ETc) using weather data from regional weather stations is a proven technology for improving water use efficiency. However, farmers have not widely adopted this technology in Missouri because too many manual calculations and time were required. The Crop Water Use app (CWU) is designed to be simple for farmers to use. Currently, the app uses available water holding capacity (AWHC) based on soil texture as a component of the irrigation triggering recommendation. During the testing phase of the app development we observed sensitivity of rooting depth and soil texture selections chosen in the CWU. We initiated an experiment to determine the effects of lint yield of cotton by delaying the first irrigation recommended in the CWU. We installed soil moisture sensors on well-watered and non-irrigated (rain-fed) treatments to help determine the effectiveness of the rooting depth selected in the CWU. Lastly, we compared an six ETgages to six weather stations across Missouri to see if increases in rainfall and humidity affected the operation of the ETgage.