Combining Remotely-Sensed Crop Coefficients with the FAO-56 Irrigation Scheduling Procedures. (A03-hunsaker205300-Poster)

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Abstract:

An experiment was conducted at the UA Maricopa Agricultural Center to determine if the normalized difference vegetation index (NDVI) could provide crop coefficients for scheduling cotton irrigations. Treatments included 2 scheduling approaches based on Food and Agricultural Organization Paper No. 56 (FAO-56). The first calculated daily evapotranspiration (ET) from a locally-derived, basal crop coefficient (Kcb) curve developed using FAO-56 guidelines. The second used Kcbs based on ground-measured NDVI and a previously defined relationship between NDVI and cotton water use. Reference ET for both was calculated per FAO-56 using local weather data. Additional variables (3 plant densities, 2 N levels) created conditions that altered crop water use yet are not commonly nor easily accounted for in typical FAO-56 use. Supporting measurements included overflights with a precision, 3 CCD camera and thermal scanner plus observations of soil water, canopy temperature, stem flow, crop growth and yield. Results revealed the potential for NDVI to provide near-real time feedback for adjusting Kcb to variations in cultural and edaphic conditions and may result in more efficient irrigations.

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