

**COTTON PARTNERED WITH HIGH-BIOMASS RYE COVER CROPS: ASSESSING WATER USE  
EFFICIENCY WITH PLANT-BASED IRRIGATION SCHEDULING****Calvin Meeks****John L. Snider****A. Stanley Culpepper****Gary L. Hawkins****University of Georgia****Tifton, GA****Abstract**

A new tool for growers dealing with glyphosate-resistant Palmer amaranth is planting a heavy rye cover crop and then rolling it over before planting operations have begun. This method of control is a potential solution for dealing with these persistent and vigorous weeds. However, cover crops are also considered a tool for reducing soil water losses as well. The goal of this project was to evaluate the effects of a heavy rye cover crop on cotton physiology and yield. Treatments were implemented at the University of Georgia's Lang-Rigdon research farm in 2014 and 2015 under a lateral irrigation system with valves on the nozzle drops that allowed irrigation to be turned on and off. The treatments were two rye treatments: Heavy rye or conventional tillage, and three irrigation triggers: -0.4 MPa, -0.5 MPa, and -0.7 MPa predawn water potential measured twice per week. Infield physiological data was collected biweekly, while remote sensing data was collected weekly and included Normalized Difference Vegetation Index (NDVI) and aerial RGB photography.