



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005TX192B

Title: Evaluation of Irrigation Scheduling Using the Biotic Model

Project Type: Research

Focus Categories: Agriculture, Irrigation, Conservation

Keywords: irrigation, biotic model

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Federal Funds: \$5,000

Non-Federal Matching Funds: \$19,808

Congressional District: 17th

Principal Investigators:

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Abstract

This project will play a key role in furthering developing of the BIOTIC (Biologically-Identified Optimal Temperature Interactive Console) model. BIOTIC provides a management tool by which irrigation events can be improved by utilizing a thermal kinetic window (TKW), which is a temperature range that permits normal enzyme function in crops. The estimated TKW for cotton is from 23.5 to 32 degrees C. Within TKW temperature ranges, plants are able to cool themselves through transpiration. The objectives of this study are to refine the BIOTIC model so it more precisely times irrigation to minimize irrigation inputs and optimize yields, and to determine how the use of BIOTIC affects cotton yield and fiber quality. The model will be tested in field studies in Burleson County, Texas. Ultimately, the use of the BIOTIC model has the potential to increase water use efficiency while producing maximum cotton yields.