IRRIGATION IN A CHANGING WORLD – SCHEDULING TOOLS AND STRATEGIES FOR CONSERVING WATER IN THE MID-SOUTH H. C. (Lyle) Pringle, III Mississippi State University/Delta Research and Extension Center Stoneville, Mississippi L. Jason Krutz Mississippi State University/Delta Research and Extension Center Stoneville, Mississippi

Abstract

Irrigated acreage is increasing while ground water supplies are decreasing in the Mississippi Delta area which demands the efficient use of water. Furrow irrigation is the most popular method of irrigating, yet generally one of the least efficient methods. Proper irrigation scheduling and irrigation management can improve furrow irrigation efficiencies and help sustain our water resources.

Cotton Incorporated funded an irrigation initiation demonstration project in 2011-2013 in Mississippi to access the usability of commercially available wireless soil moisture systems. Decagon EC-5 soil water content sensors and Irrometer / Watermark 200SS soil water potential sensors and their associated dataloggers and wireless equipment were installed and monitored through the season. The producer used the data to make irrigation decisions and look at down-the-row furrow irrigation uniformity. He has become confident that he can delay initiation of irrigation compared to his normal practice, saving an irrigation without decreasing yield. He also determined that he needs to improve his down-the-row uniformity. The wireless systems worked reasonably well and were user-friendly but do need some attention from time to time.

Concurrently, the Mississippi Soybean Promotion Board and the Mississippi Corn Promotion Board funded an extension effort to improve furrow irrigation efficiency and timing in corn and soybean. Sixteen production irrigation sets averaging approximately 40 acres were optimized for furrow irrigation application efficiency using PHAUCET and surge valves. Irrigation application timing was optimized using soil moisture sensors installed at 6, 12, 24 and 36 inches into the soil profile. Results indicate potential to reduce irrigation water use in corn and soybean by 50% while maintain yield potential and improving profitability.