IMPLEMENTING SIMPLE VARIABLE RATE IRRIGATION WITH PRODUCERS TO IMPROVE COTTON IRRIGATION MANAGEMENT Brian Leib University of Tennessee Knoxville, TN Tim Grant University of Tennessee – BESS

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Abstract

Irrigated cotton producers in Tennessee face challenges in irrigation management due to significant in-field soil variability. Often, only one irrigation decision is made for a field, which may not be appropriate for all field areas. Our objective is to work with producers in order to recommend irrigation management zones, assist in implementing a program that can address differential irrigation needs within these zones, and finally to install monitoring stations to make real-time decisions. In doing this, we hope to demonstrate environmental, economical, and agronomic benefits of simple variable rate irrigation. We have intensely soil sampled several fields to map various soil properties (texture, water holding capacity, depth to restrictive layers, depth to grey soil, etc.). These soil properties that are deemed possibly important for irrigation management are then compared to more easily attainable data such as yield maps, aerial imagery, EC, etc. With these factors in mind, we can delineate several pie-shaped irrigation management zones within a field. These zones can be irrigated independently, or at differing rates. Within the growing season, soil moisture sensors and a water balance within MOIST+ are used to make irrigation decisions. This presentation will focus on a field with significant soil textural variability. Success of this simple variable rate irrigation can be evaluated most directly by yield results.