



Coupling Automated Overhead, Low-pressure Irrigation Systems with Conservation Tillage: A New Irrigation, Crop and Drainage Management Paradigm for the Central San Joaquin Valley?

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The project team is evaluating the potential of merging overhead, low-pressure irrigation systems with various conservation tillage practices as a means to reduce water use, save money, and increase farm profitability in California's San Joaquin Valley.

In this project, a team of several University of California researchers and extension advisors and private sector partners are evaluating the potential of merging overhead, low-pressure irrigation systems (center pivot and linear move) with various conservation tillage crop production practices as a means of reducing water use, saving money, and increasing farm profitability in the Central San Joaquin Valley. An 8-acre replicated field study has been initiated at the UC West Side Research and Extension Center in Five Points, CA to evaluate the performance of five irrigation / tillage systems in half-acre plots. The project field was cropped to wheat in the 2007 – 2008 winter, followed by a grain corn crop in 2008. This sequence will be repeated in 2008 – 2009. Irrigation application, soil water storage, crop growth, soil property, and yield data have been collected for the first cycle of this study and these data are currently being analyzed.

We are working closely with two San Joaquin Valley farmers, John Diener and Scott Schmidt, on this project and are also monitoring water application, soil water storage and crop performance at one of their center pivot fields.

To date, we have worked with the private sector supplier of the overhead irrigation

system we are using to refine our management and to become familiar with optimal irrigation scheduling of this system. This refinement is being done in order to take full advantage of the system and to avoid surface ponding that we noticed to some extent in our first year. We now believe that we have the capability to avoid this and to improve our management as this project proceeds.

Because of the potential significance of the merging of overhead irrigation and no-till production technologies for California's Central Valley, we are submitting additional proposals to augment the work initiated in this project and are also making a request to have a companion study field at the West Side Research and Extension Center.





Professional Presentations

Mitchell, J.P. and D.S. Munk. Overhead irrigation and no-till production systems. 2008 Cotton Cropping Systems Annual Field Day. University of California West Side Research and Extension Center, Five Points, CA. September 17, 2008

Collaborative Efforts

A significant team has been coalesced to implement this study, including several UC scientists and extension education personnel, USDA NRCS conservationists, as well as a number of farmers, and other private sector participants. Many of these people routinely take part in our project discussion and planning meetings. This Water Resources Center-sponsored project has enabled a very significant collaboration and extension education effort that we believe will have considerable impact in coming years.

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