

Evaluation of overhead, low-pressure irrigation and no-till production systems in California's Central Valley

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Abstract

While center pivot and linear move irrigation systems are commonly used in many parts of the world, they are not widely used in California. Coupling the use of these irrigation systems with no-till production practices may, however, be a means for addressing a number of economic and resource conservation goals in this region. In 2006, we initiated a study in Five Points, CA to compare a traditional furrow-irrigated crop rotation with three conservation tillage crop rotations that are irrigated with an automated overhead linear move system. The alternative systems include an “intensified” traditional rotation that uses no-till and strip-till planting and transplanting techniques to enable greater crop intensity and diversity within a given time period, a strip-till system that will include direct-seeding crops that have not been strip-tilled yet in California, and a no-till biofuel / forage system. These systems are being evaluated in terms of their productivity, profitability, water use efficiencies, labor requirements and impacts on soil quality indicators.