

## **Assessing Conservation Effects of Agricultural Management Practices in Irrigated River Basins**

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**Abstract.** Assessing the effectiveness of agricultural management practices is often jeopardized by lack of comprehensive monitoring data and computational burden at larger scales. The Soil and Water Assessment Tool (SWAT) within the eRAMS platform was used to assess the benefits of different agricultural management practices at field and watershed scale for the South Platte River Basin (SPRB), a relatively large semi-arid watershed located in northeastern Colorado. The model was calibrated using measured field observations from a study field within the watershed where the target management practices are implemented and their effectiveness is being monitored and analyzed. The agricultural management practices studied included fertilizer application rate and timing, different tillage practices (i.e. conventional, reduced, strip, and no tillage), and center pivot versus surface irrigation for roughly 26,000 irrigated agricultural fields (526,000 hectares) in the SPRB. Center pivot irrigation showed the highest potential for nutrient reduction while tillage practices had an intermediary effect. This project will fill in research gaps within the literature associated with efficient approach for identifying the potential ways to reduce nutrient pollution in semi-arid regions by the implementation of different agricultural management practices.