



USDA-CSREES 2006 National Water Quality Conference

The Tailwater Recovery System as an Agricultural BMP - Improving Effectiveness and other Lessons Learned

According to the NRCS New Jersey Conservation Practice Standard, a tailwater recovery system is a planned irrigation system in which all facilities utilized for the collection, storage, and transportation of irrigation tailwater for reuse have been installed. This conservation practice should be applied to conserve irrigation water supplies and/or improve offsite water quality. In accordance with the NRCS Field Office Guide, a New Jersey nursery grower built a tailwater recovery system on his property in 2001. For this nursery grower, the tailwater recovery system design proved faulty in avoiding pump clogging and excessive maintenance requirements. Furthermore, water quality monitoring data, which was being collected independently of his project, found that overflow from the tailwater recovery system was resulting in nutrient spikes downstream of the discharge. The benefits of the recovery system were obvious; the nursery grower was saving 1/3 of the irrigation supply each year totaling gallons. The disadvantages were equally clear – the long term benefits of reuse and conservation were quickly having a negative impact on water quality of the local stream.

The RCRE Water Resources Program, with assistance from the local Soil Conservation District office, New Jersey Department of Environmental Protection (NJDEP), the private landowner, and National Fish and Wildlife Foundation (NFWF), has designed and installed a treatment wetland to reduce the nutrient rich overflow from the tailwater recovery system before introduction to the local stream network. Through the course of one year, the project team has planted almost 5,000 native plants, incorporating aquatic vegetation, herbaceous vegetation, and shrubs into the design with a goal to remove nutrients from the nutrient-rich pond. The project team has also continued to collect water quality data to monitor the effectiveness of the biofilter wetland pond as a treatment strategy for this unique design.

Nurseries are the fastest growing agricultural industry in New Jersey. According to the 2002 Census of Agriculture, there are more than 350,000 nurseries in New Jersey, and NJ ranks 11 in the country for number of nurseries. The increasing demand for water and the current competition between rural and urban for this resource will continue to be an issue for the State. With this in mind, it is imperative that New Jersey nursery farmers are aware of the lessons learned by others in regards to the tailwater recovery system as a means to conserve water. This presentation will incorporate the advantages and

disadvantages of a tailwater recovery system, the effectiveness of a biofilter wetland to treat nutrient-rich runoff from this agricultural best management practice, maintenance requirements, and lessons learned.

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