



Bailey Nurseries



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Organization Background

Bailey Nurseries is a locally owned and operated wholesale plant nursery. Currently in its 5th generation of family ownership, the company runs a multitude of farms near the Twin Cities, as well as farms in Oregon, Washington, Illinois, and Georgia. Bailey Nurseries is known for their diverse market, growing everything from woody ornamentals to perennial flowers.



“My time at Bailey Nurseries has taught me how to gather data in the field and apply it to real projects with definable outcomes. I’ve been able to interact and work with a variety of great people. Without them, I wouldn’t have truly learned how to translate skills from the classroom to real life. I’ll value my time at Bailey Nurseries for a long time.” ~ CP

Project Background

The 2017 MnTAP intern project at Bailey Nurseries focused on water conservation and reuse opportunities and water use analysis at two farm properties in southern Washington County. The first project, Nord Farm, is a 22-acre indoor greenhouse and 40 acre outdoor seedbed operation located in Cottage Grove, MN. The second project is identified as Container East, a 250 acre container-grown operation in Woodbury MN.

The Nord Farm objectives were to document water flow patterns, determine water retention capacity in on-site ponds, and determine the optimal way to use pond water for daily irrigation, thereby reducing the volume of groundwater pumped. The water conservation objectives at Container East were to increase the irrigation efficiency and reduce the amount of sediment runoff leaving the farm.

Incentives To Change

Bailey Nurseries is located in the Minnesota Department of Natural Resources North and East Metro Ground Water Management Area, a designation allowing the DNR a more comprehensive and focused approach to water resource management. As a large water user, Bailey Nursery is interested in reducing groundwater use to protect the environment and preserve natural resources



“The MnTAP internship program provided a valuable and beneficial service to the nursery. Our intern went to work right away with enthusiasm and minimal supervision. Her work demonstrates a possible reduction in groundwater use by 75%, resulting in water quality improvements in runoff leaving the farm. Thanks to our intern’s technical expertise and hard work, the nursery now has a path towards environmental sustainability for years to come.”

*~ Jean-Marc Versolato,
Production Manager Bailey Nurseries*

Solutions

The Nord Farm: Pumping System

The Nord Farm project mapped the precipitation flow and drainage system on the property and proposes a pond pumping and treatment system that will reuse and recycle irrigation and rain water, therefore reducing the amount of water pumped daily from the groundwater table. Pumping from a surface water pond will reduce the amount of runoff and sediment that leaves the farm.

Based on research findings, there is the potential to save 38 million gallons of water per year at Nord Farm.



Container East: Irrigation Improvements

The Container East project determined whether or not the plants can be irrigated less frequently or for a smaller amount of time. Test criteria included substrate water holding capacity, plant available water, substrate nutrition, irrigation uniformity, irrigation capture, and leaching fraction. In order to adjust the irrigation schedule additional extensive research would have to be done to see which plants can handle less irrigation. However, if the substrate is changed to increase its water holding capacity, the plants could be watered less, saving water used per year at Container East by 10 million gallons.

Recommendation	Annual Reduction	Annual Savings	Status
Nord Farm: Pumping system	38 million gallons	Dependent on funding	Recommended
Container East: Irrigation improvements	10 million gallons	Further investigation needed	Recommended