Project Overview

Intern**:** Zully Perez-Sierra
Major: Chemical Engineering
School: University of Nebraska-Lincoln

Company Background

The University of Nebraska-Lincoln extension offices provide reliable research assistance to the local communities of Nebraska. Extension educators have faculty status and provide outreach education through research based programming to the local communities. The goal of extension is to provide skills and knowledge to Nebraskans to improve their community, business, family, and personal lives. Their local focus is in the following areas: Cropping Systems; Beef Systems; Water and Environment; Food, Nutrition and Health; 4-H Youth; and Community Vitality.

Project Description

The projects for this summer are put together by the Pollution Prevention interns. Each intern assists with the installation of watermark moisture sensors, perform interviews with 4-to-5 producers who are using Watermark Granular Matrix sensors to evaluate impact, and provide a series of brief, no cost source reduction services related to irrigation water management and related energy savings techniques to two or three agricultural producers. The report composed presents the producer's current practices and offers suggestions to improve efficiency. The goal of this project is to reduce irrigation water and energy use.

Pollution Prevention Benefits

Benefits presented in this project by the use of watermark sensors and irrigation assessments include a reduction in energy, fuel, water use, and greenhouse gas emissions. Other indirect benefits are increased crop yield, reduced surface water runoff, and leaching of nitrogen with the even water distribution. With the irrigation assessments, producers will become more knowledgeable in pivot efficiency and be more aware of pivot pressure, flow rate, and performance.

Assessment Results

Table 1. Summary of P2 Recommendation Savings

Cooperator	Water Savings per Year	Cost Savings per Year	Energy Savings per Year	GHG Reduction per Year
6 Producers assisted with sensors	140 million gallons	$31,000	50,000 kWh, 8,700 gallons of diesel/propane	600 MT-CO_2 Equivalent
Wayne Country Club	1.2 million gallons	$1,700	1,700 kWh of electricity	1.6 MT-CO_2 Equivalent
3 Producers assisted with equipment improvement	More efficient water distribution.	$4,000	20,000 kWh of electricity	18.9 MT-CO_2 Equivalent