Project Overview

Small Business Intern: Cale Mages
Major: Civil Engineering
School: University of Kansas

Company Background

University of Nebraska-Lincoln extension offices provide assistance with a wide array of topics from animal agriculture and horticulture to entrepreneurship and youth education. Extension educators form a link between the state's researchers and those implementing the new technology or practices. Extension offices strive to make a local, relevant impact by responding to the needs expressed by each local community.

Project Description

In Fillmore County the existing relationships between extension educators and agricultural producers was used to assist those interested in improving water and energy efficiency. Reports of the producer's irrigation current practices and offering suggestions for further improvement were prepared. Although two fields per producer were analyzed, suggestions and accompanying calculations apply to individual fields. Suggestions were tailored to each main component of the irrigation equipment (i.e. pump, engine, sprinkler system), with the goal of optimizing the system for maximum efficiency under the given conditions.

Pollution Prevention Benefits

Direct impacts include water use reduction, energy reduction, and fuel reduction. Other benefits include yield increase, and reduced surface water runoff. The project collected data that can provide a benchmark for additional improvements, maintenance, and component replacement and encourage further investigation by producers into efficiency improvements.

Results

The potential pollution prevention results from the **9 agricultural producers** assisted in Fillmore County are given in Table 1.

Table 1: Potential Pollution Prevention Annual Results

Focus Area	Annual Savings	Water Savings	Energy Savings	Greenhouse Gas Reduction (CO_2 equivalent)
Engine Upgrades	$2,900	-	4,670 Therms (natural gas) 100 gallons (diesel fuel)	23 Metric Tons
Watermark sensors	$15,500	162,400,000 gallons	31,620 Therms (natural gas)	158 Metric Tons
Repair Broken Equipment	$300	540,000 gallons	-	0.9 Metric Tons
Total	**$18,700**	**163 Million Gallons**	**36,000 Therms (natural gas) 100 gallons (diesel fuel)**	**182 Metric Tons**