

Agricultural Water Intern: Justine Meis

Major: Horticulture

School: South Dakota State University

Organization Background

University of Nebraska-Lincoln extension offices provide assistance with a wide range of topics from crop and animal production to entrepreneurship and youth education.

Extension educators form a link between the state's researchers and those implementing new technologies and practices. Extension offices strive to make a local, relevant impact by responding to the needs expressed by each local community.



Project Description

This summer's projects have included installing watermark moisture sensors, along with their data loggers to collect data with growers who do not have experience using watermark moisture sensors. It has also included the installation of evapotranspiration (ET) gauges that are read manually each week. The goal of using this equipment is to maximize crop water use in the soil profile and increase irrigation efficiency. Six sets of sensors, one for each pivot, were installed for six producers. A set of six sensors were also installed on a golf course.

Pollution Prevention Benefits

Possible pollution prevention (P2) direct benefits include water, cost, and energy savings as well as greenhouse gas reductions from the implementation of recommendations. Energy use factors that producers can influence include: irrigation scheduling, application efficiency, efficiency of the pumping plant, and the pumping pressure required for center pivot system. Potential benefits are listed in Table 1. Other indirect benefits to P2 may include increased crop yield due to better water distribution and timing.

Table 1: Summary of P2 Recommendation Benefits

| Focus Area | Total Possible Annual Savings per year | Total Possible Annual Greenhouse Gas Reduction (CO ₂ equivalent/yr) | Total Possible Water Reduction (MG/yr) |
|-------------------|----------------------------------------|---------------------------------------------------------------------------------|----------------------------------------|
| Watermark Sensors | \$17,600 | 115 | 168 million gallons |

Additional indirect or intangible benefits include:

- Decrease center pivot operating time resulting in reduced GHG emissions
- Prevent contamination to groundwater causing less effect on nitrate groundwater levels