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Major: Agricultural Engineering

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Organization Background

University of Nebraska-Lincoln extension offices act as a major link between the state's researchers and those implementing new technologies or strategies. The service provided by extension offices vary widely and can cover anything from crop and animal production to youth leadership. The goal of extension offices is to make relevant impacts in their local communities and foster growth within those communities.

Project Description

Projects for this summer have included the installation of three sets of Watermark sensors, one set for each of three producers. ETgages were also installed for two of those producers. Reassessments were also conducted for one producer and one golf course owner in order to confirm findings made by a previous intern. Additionally, some research experience related to the function of soil moisture sensing technologies was gained from a research plot cooperating with Nebraska Extension.

Pollution Prevention Benefits

Possible pollution prevention (P2) direct benefits include water, financial, and energy savings in addition to greenhouse gas reductions resulting from the implementation of recommendations. Energy use factors that can be influenced by producers include: irrigation scheduling, application efficiency, pumping plant efficiency, and the pumping pressure required for center pivot system. Other indirect benefits to P2 may include reduced runoff, reduced nitrate contamination of surface and groundwater, and increased crop yield due to better water distribution and timing.

Results: Pollution prevention benefits are summarized in Table 1 below.

Table 1: Summary of P2 Recommendation Benefits

Focus Area	Total Possible Annual Savings per year	Total Possible Annual Greenhouse Gas Reduction ($MTCO_2$ equivalent/yr)	Total Possible Water Reduction (MG/yr)
Watermark Sensors	$4,655	17.5	16 million gallons