Water Conservation Through Corn Irrigation Analysis
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Project Goals
- To decrease the amount of water wasted in corn production
- To promote efficient irrigation systems
- To determine the best irrigation technique for Nebraska

Background

Water Use in the World

- 70% of the world’s water is used for agriculture (1).

Irrigated Water Uses

- Corn production uses 22% of irrigated water (2).

Irrigated Corn: 2007

- 45% of irrigated corn is in Nebraska; therefore, it is important to implement water efficiency methods (3).

Methods

Implement and analyze each system in 20 acre corn fields in Nebraska

Analysis of Predicted Results

Water Conservation Efficiency

- The water conservation efficiency for subsurface drip irrigation is higher by over 20%, when given 50 gallons of water per acre for 5 consecutive years in the month of August.

Average Crop Yield

- The increase in average crop yield for sub-surface irrigation was statistically significant compared to sprinkler and furrow.

Cost and Funding

Total Irrigation System Costs

- When analyzing implementation, maintenance, labor, and water costs, subsurface irrigation is more expensive than sprinkler and furrow irrigation combined.

Government Irrigation Spending Distribution

- The majority of the US irrigation investments were towards irrigation maintenance and expansion rather than water conservation (4).

Cost effectiveness Water conservation efficiency Crop yield

Project Goals

- 20% of federal funding currently used in irrigation maintenance should be transferred to water conservation. These funds would include the implementation of more efficient irrigation systems, like subsurface drip irrigations.

- More research should be completed to determine if subsurface drip irrigation is viable for other regions of the world and other crops on large scale operations.

Recommendations

References


