

IMPACT



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Soil Moisture Monitoring Equipment Helps Growers Reduce Runoff and Deep Percolation of Nutrients

The Situation

Southern Washington County bordering the Snake River is an agricultural area with a naturally high water table. The groundwater in this area has been identified as having high concentrations of nitrates. Surface waters have also been found to have high levels of sediment and nutrient runoff.

Our Response

The University of Idaho Cooperative Extension System introduced a demonstration project in sugarbeets in the spring of 2000 using Watermark sensors and Hansen monitors. The equipment allows a grower to monitor the soil moisture at various depths in the field. By knowing the soil moisture at various depths the grower can more accurately schedule and apply irrigation water while minimizing runoff and deep percolation of nutrients. In 2001, the project was expanded to include a sugarbeet field and two onion fields in the area.

Growers can push a button on the monitor to view the current soil moisture and view up to five weeks of graphed data. Graph printouts of the soil moisture data were produced by the Extension office using Excel software and made available to the growers weekly.

In addition to the moisture data, soil samples were taken from various depths at the beginning and end of the season to track nitrate movement.



Figure 2. Soil moisture monitor placed at the head of a sugarbeet field.

Program Outcomes

Two prominent growers in the Weiser area are now using the sensors and monitors in their sugarbeet and onion crops. Both growers have identified excess irrigations that can be eliminated from their future management schedules. One onion grower will modify his fertilizer application method after finding that he was applying nitrogen in excess of the crop's needs. A commercial poplar tree grower will also use the sensors in 2002 to determine the optimum irrigation schedule for this alternative crop.

Also the Washington County Natural Resource Conservation District has recognized the value of the

sensors and monitors and has now included them as cost-share items to growers.

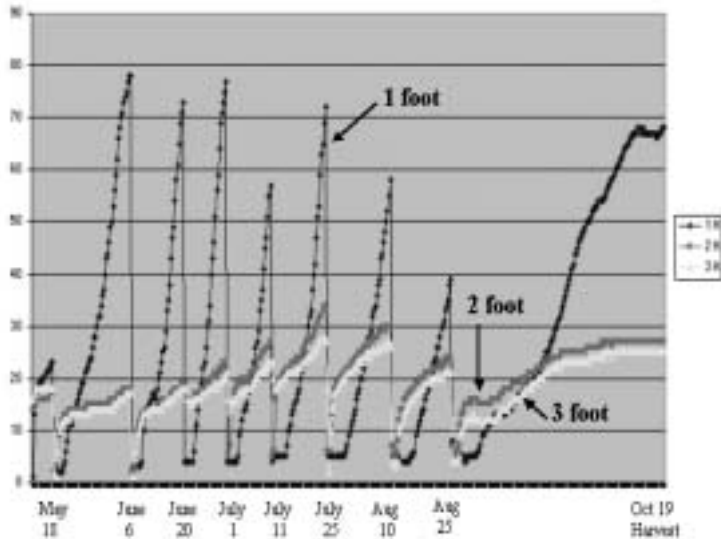
Presentations were made to the Nampa Irrigation Show, the UI Sugarbeet School, the Idaho Ground Water Coordinating Committee, and Weiser recertification workshops on use of the equipment and data.

Finally, the newly formed Weiser Ground Water Quality Committee is evaluating the sensors and monitors as part of its water protection guidelines for the community.

Extension Potato Specialist: Brad Geary
Extension Sugarbeet Specialist: John Gallian
Extension Irrigation Specialist: Howard Neibling

For More Information

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Figure 2. Soil moisture graph for the entire season on a Weiser sugarbeet field (0 is saturated, -90 is very dry).

The Future

The project will continue in irrigated crops such as onions and sugarbeets to demonstrate opportunities for improved water scheduling and runoff reduction. The goal is to get more growers using the equipment, either through direct purchase or through NRCS programs, so that water use is matched to crop needs and less agricultural materials are lost from the field.

Cooperators

Washington County and Canyon County Extension Educators; Jerry Neufeld