



Peak and low flow captured by the camera at the bioreactor outlet



Weather station on the Ewoldt Farm



Drone footage was used for plant health mapping

SOLUTIONS IN THE LAND

River Action: Ewoldt Farm Nutrient Study Muscatine, Iowa

River Action initiated a study of phosphorous and nitrogen run-off from corn production in the Mississippi Watershed with funding from the Scott County Regional Authority. For this study, a local farmer volunteered his production fields located in Muscatine, IA. These fields are highly erodible and drain into the Pine Creek, a small tributary of the Upper Mississippi River.

Solutions in the Land, (SITL) was enlisted to collect data and summarize the results. There is much confusion today about the negative environmental contributions of agriculture. The ecological effects of different production systems monitored and data analyzed, allowing us to determine if crop production profitability and environment stewardship can coexist.

Solutions in the Land installed an on-site weather station to accurately record temperatures and rainfall events for the duration of the study. Site-specific weather information is critical to ensuring environmental impacts, and specifically of nitrogen leaching. Excessive rains contribute to nitrogen leaching, washing it off of the fields and into water bodies. On the farm, the operator sees lower yields when less nitrogen is available to the crops. Daytime and nighttime temperature were recorded to assist in interpreting last season cornstalk nitrate testing to determine whether nitrogen availability was adequate or excessive. In addition to the weather station, data from FarmLogs and AgSolver, two websites providing agricultural data and decision-making tools, were also used to support on-farm data.

This study does not offer implications of these practices on the operator's bottom-line profitability. Although input costs were minimal, excessive corn production and weak demand have kept the market price of corn well below the cost of production. We have collected excellent baseline data and have begun making plans for next year's cropping study. We will attempt to reduce input cost further while providing target yield results. It is impossible in this year's survey to draw linear relationships between specific practices and outcomes. We will continue and improve this study next year with information we collected this year.