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DISCOVERY FARMS PARTNERS

PEPIN COUNTY
NITROGEN LEACHING PROJECT

Pepin County Land Conservation and Planning
Farmers 4 Health

Discovery Farms, the Pepin County Land Conservation and Planning Department, and Farmers 4 Health, a local farmer-led watershed group have partnered on a new Nitrogen Leaching Project. Traditionally, Discovery Farms monitoring has focused on surface water quality and monitoring of tile drainage. This is the first Discovery Farms project monitoring the amount of water draining below to crop rooting zone towards groundwater. Water samples are collected and analyzed for nitrate and chloride content.

Lysimeter technology installed on an agriculture field captures water leaching below the root zone which is then collected and sent to the lab for analysis. This project expands upon the existing efforts to improve drinking water quality in the area. The goal is to get an in depth comparison of the ability of a conservation practice to mitigate nitrate leaching to groundwater.

Nitrogen is a critical nutrient for agricultural crops, however nitrate-N is also Wisconsin's most widespread groundwater contaminant. Elevated concentrations in private water wells and public water supply systems pose major challenges for local governments and citizens. An estimated 90% of the total nitrate inputs into Wisconsin's groundwater originate from agricultural sources. Quantification of nitrogen leaching losses is essential to provide improved management recommendations to minimize nitrate contamination of groundwater.

This project will provide farmers with applicable information to address and reduce nitrate losses.

Eight lysimeters were installed on a field with sandy loam soils in a corn, soy rotation in fall 2021. The field is separated into two sections where a control and treatment area will be studied. Four lysimeters are placed in a plot that will be conventionally managed and four lysimeters are placed in a treatment plot that will incorporate a conservation practice. Cover crops and manure management are potential conservation practices to be evaluated.

The participating farmer is hoping to learn what management practices can help mitigate the loss of nitrogen to drinking water from nutrients spread on these sandy loam soils. Keeping drinking water clean is important for the community and his family.

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