Installation of the combined surface and sub-surface monitoring equipment occurred in December of 2011. An 8 foot Agri Drain structure and equipment needed for automatic, routine measurement of combined surface water runoff and sub-surface drainage was installed. Water samples are collected automatically, whenever runoff occurs. Weather station equipment to record precipitation, temperature and other climatic variables was also installed at this time. The monitoring site at the Simonsen Farm was fully operational for snowmelt and spring runoff beginning in 2012. Combined surface water runoff and subsurface drainage from the edge-of-field site will be monitored year round for the 5 to 7 year duration of this project. Samples collected are analyzed for sediment, total phosphorus, phosphate phosphorus, chloride, total kjeldahl nitrogen, ammonia nitrogen and nitrate nitrogen. By combining a measure of water flow and sediment and nutrient concentrations, it will be possible to calculate total nutrient and sediment movement.

CONCLUSION

The Discovery Farms Minnesota project at the Simonsen Farm is designed to provide information to better understand how farm management practices can impact sediment and nutrient loss to surface waters. Throughout the 5 to 7 year duration of this project, the site will provide information on surface and sub-surface water runoff on a tiled field with multiple surface inlets (open intakes). Work at the Simonsen Farm will help to identify some of the strengths and challenges of similar farming systems and landscapes.

FOR MORE INFORMATION, PLEASE CONTACT

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WWW.DISCOVERYFARMSMN.ORG
As might be expected, the fertilizer program varies with the type of crop planned, the previous crop and soil test results. For both sweet corn and field corn, nitrogen rates are based on the previous crop and yield expectations. The majority of the phosphate and potash needed is broadcast and incorporated before planting. The rates of phosphate and potash applications are determined by soil test results. Liquid starter fertilizer is placed in contact with the seed at planting for field corn production.

Location and Climate
The Simonsen Farm is located in the Western Corn Belt Plains region of south central Minnesota. The region is characterized by small streams that drain directly into the Minnesota River. Row crop agriculture is the main land use in the area, with corn and soybean production accounting for approximately 90% of cropped lands. Water from the farm drains into County Ditch No. 106A, then into Fort Ridgely Creek and finally into the Minnesota River, which is approximately 5 miles to the south. Average annual precipitation including snowfall is 27.5 inches, most of which occurs during the growing season. Mean daily temperatures are 17° F and 70° F for winter and summer months, respectively.

Cropping System
A corn-soybean rotation is used on the majority of acres at the Simonsen Farm. On the remaining acres, a sweet corn-peas rotation is used. About 2/3 of the field corn is sold to the ethanol plant at Winthrop and soybeans are frequently contracted for seed production. Sweet corn and peas are grown using contracts with various canning companies.

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