South Nation project – Ontario

National agricultural watershed study:

Improving water quality along the South Nation River

It's all a matter of water quality when it comes to Eastern Ontario's South Nation River Watershed – managing the quality of water draining off agricultural lands, so as to improve the quality of water in nearby receiving streams.

Controlled drainage is one possible solution. Tile drainage controls have been installed on four farms in the watershed by Agriculture and Agri-Food Canada (AAFC) as part of a national study to help evaluate the effectiveness of science-based farming methods called beneficial management practices (BMPs) in reducing the potential impacts of agriculture on water quality.

"By restricting the flow from tile drainage outlets in the summer, producers can keep the soil, water and nutrients in the root zone where the crops need them, which should improve crop performance," says Mark Sunohara of South Nation Conservation, the local conservation authority and a partner in the project. "The benefit to water quality in the watershed is that chemicals and nutrients are not running out of the field and into the drainage system. In the spring, the discharge can be increased to allow the soil water to drain so the producer can work in the field."

The South Nation study is one of seven similar evaluations taking place in designated watersheds across the country. It's all happening under WEBs – the Watershed Evaluation of BMPs – a four-year national project being carried out with the participation of producers in each of the watersheds. Funding for the WEBs project is provided largely through AAFC's Greencover Canada program, with Ducks Unlimited Canada a key funding partner. A number of other government and non-government organizations are also contributing to the project.

The South Nation River originates near the city of Brockville and flows northward to join the Ottawa River near the community of Plantagenet. Two micro-watersheds near the community of St. Albert have been chosen to evaluate the effectiveness of two BMPs in improving water quality in the watershed – controlled tile drainage and restricted livestock access to streams.

"We believe that beneficial management practices such as controlled tile drainage and restricting livestock access to the stream can reduce agricultural contributions to nutrient and bacterial loading in streams," says David Lapen, AAFC's WEBs project lead in

Ontario. “However, the environmental and economic performance of these practices needs to be better evaluated. Results might have a huge impact on where our BMP efforts are focused in the future.”

According to Sunohara, the South Nation Watershed is a well-suited candidate for the WEBs project. The application of appropriate BMPs could play an important role here.

“The Ottawa Valley is pretty flat, so much of the farmland has been tile drained,” says Sunohara. “There is a lot of land in the South Nation Watershed that could benefit from controlled tile drainage.”

The other component of the project, evaluating the impact on water quality of restricting cattle access to streams, will begin in spring of 2006 after sufficient baseline data has been gathered. This BMP will be assessed by comparing water quality in fenced-off areas to sites where cattle have direct access to the stream.

Although various BMPs have been evaluated in the past on small test plots and individual fields, the WEBs project marks new territory for assessing BMP effectiveness in a small watershed setting. Results of this research will be applied to larger watersheds using computer models.

For more information on the South Nation WEBs project, please contact:

David Lapen, Agriculture and Agri-Food Canada
Phone: (613) 759-1537
E-mail: lapend@agr.gc.ca

For more information on the Greencover Canada Program, visit the web site at:

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