

National agricultural watershed study:

Improving water quality in the Black Brook

If soil was treasure, it would be fair to say that farmers in New Brunswick's Black Brook Watershed have done a good job of protecting their valuables.

Over the past decade, local producers have installed 40 kilometres of diversion terraces and nearly 10 kilometres of grassed or rock-lined waterways on their lands. Now, a new research initiative is studying the benefits of these structures and other soil conservation measures as they pertain to regional water quality.

The project is being led 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. Partners in the project include the Eastern Canada Soil and Water Conservation Centre (ECSWCC) and the University of New Brunswick.

The Black Brook study is one of seven taking place in designated watersheds across the country. It's all happening under WEBs – the Watershed Evaluation of BMPs – a national four-year 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.

A tributary of the Little River, Black Brook is located in northwest New Brunswick near Grand Falls, in the Parish of St. Andre. Nearly half of the agricultural land in the watershed is planted to potatoes each year.

“This region has some of the most serious water erosion problems in Eastern Canada,” says Herb Rees, AAFC's WEBs project co-lead in New Brunswick. “The eroded soil carries nutrients. Combined with sediment, this has created water quality issues. We believe that beneficial management practices can help balance the needs of agricultural production with the needs of the greater watershed. But the environmental and economic performance of these BMPs needs to be better evaluated. Results could have a huge impact on where our efforts are focused in the future.”

Two BMPs are being tested at the Black Brook WEBs project. In one sub-basin, the impact of diversion terraces and grassed waterways on water quality is being studied.

Diversion terraces are small channels running perpendicular to the slope to direct runoff into grassed or rock-lined waterways. The waterways channel the water down slope into permanently vegetated areas where it is dispersed.

In a second sub-basin, a grassed channel has been re-shaped and seeded to grass, and a five to 15-metre-wide vegetated buffer strip established along both sides. Its impact on filtering soil and nutrients from the runoff entering the channel will be examined.

As a local project partner, one of the ECSWCC 's roles is to work closely with producers and other stakeholders in the Black Brook Watershed, helping to implement the BMPs.

“The ECSWCC is located right in the community, close to the watershed and participating producers,” says Jean Louis Daigle, director of the Centre. “We have had a good working relationship with many of these farmers over the years.”

“The cooperation of the producers in this area has been great. The more the farmers play an active role in this, the better it will be for overall project success.”

Water quality will be monitored throughout the watershed and compared to data collected before most of the structures were put in place. The composite effect of these BMPs and others will also be monitored at the watershed outlet.

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 Black Brook Watershed project, please contact:

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