



Ausable Bayfield

OVERWINTER VEGETATIVE COVER ON AGRICULTURAL LANDS



The health of soil and downstream water quality can be impacted by the amount and duration of vegetative plant cover on agricultural lands in the watershed during the year.

In our developed landscape, low-impact development (LID) can reduce the effects of urbanization. A rain garden is one example of an urban LID strategy. Best management practices such as cover crops and improved crop diversity, with hay and other forage (plant food for livestock), are important in rural areas.

Cover crops are grown to protect and enrich the soil. There are many ways they could be incorporated into cash crop rotations.

Methods

Agricultural land use is the total area of agricultural land within a watershed and is expressed as a percentage. Overwinter vegetative cover is the total area of agricultural land covered by wheat, forages, or hay during the winter season, and which is also expressed as a percentage. If fields were in a corn-soybean-wheat rotation, a minimum of 30% of overwinter vegetative cover might be expected. The percentage of overwinter vegetative cover on agricultural lands was

not assigned a point score or final grade.

In the 2018 Watershed Report Card, overwinter cover was calculated with aerial imagery of the Ausable Bayfield Conservation Authority (ABCA) area from 2010 and 2015 and the Modified Soil Adjusted Vegetative Index (MSAVI) algorithm. Due to the early spring flight date for the aerial imagery, it is likely that the MSAVI algorithm underestimated hay, pasture, and winter wheat fields.

For the 2023 Watershed Report Card, overwinter cover is still expressed as a percentage of agricultural land; however, the method for calculating the overwinter vegetative cover in a subwatershed has changed. Instead of using aerial imagery, the annual crop inventory layer published by Agriculture and Agri-Food Canada (AAFC) was used. AAFC uses satellite imagery and remote sensing techniques to determine the type of crop grown in fields across Canada every year.

From the AAFC crop layer, the number of acres of winter wheat, hay, and pasture can be extracted, and a percentage calculated based on the number of farmable acres per subwatershed.

The AAFC crop inventory layer allows for percentages to be calculated every year, compared to only two years using the aerial imagery. Using this five-year range of data (2017-2021) to calculate overwinter cover provides a more consistent approach that follows the same five-year period as the other indicators in this Watershed Report Card.

An important consideration is that the AAFC annual crop inventory layer includes hay, pasture, and winter wheat, but may miss overwinter cover planted specifically as a cover crop. Therefore, this method does not incorporate cover crop acres into the total overwinter cover amount.

Results

In the ABCA area, overwinter cover ranged

from 11% to 35% of agricultural land.

Higher hay, pasture and winter wheat percentages were seen in the Bayfield Headwaters, Main Bayfield, Bayfield North, Little Ausable, Upper Ausable and Nairn Creek subwatersheds over the five years.

Lower overwinter percentages were seen in the Bannockburn, South Gullies, Ausable Headwaters, Black Creek, Lower Ausable, Middle Ausable, Mud Creek, Upper Parkhill and Lower Parkhill subwatersheds.

If AAFC begins to produce an agricultural layer that reports directly on cover crops then this methodology can be refined. If you are interested in this analysis, please contact us and share your thoughts.



An overwintered, eight-species cover crop grown at the Huronview Demonstration Farm, near Clinton, helped to protect the gently sloping fields, adjacent to the Bayfield River, from erosion. It also contributed nutrients to the soil, which helped grow the soybeans that were planted into it in the spring.