The Region of Peel relies on natural snow fences to keep roads clear of snow

The Region of Peel, a 475-sq-mile area located west of Toronto, has unique geography in that it encompasses everything from highly urban areas one would expect in a vibrant city to rural protected natural areas and everything in between. This “in between” includes thriving agricultural lands that occupy a significant portion of the region’s surface area.

Keeping farm-lined roads clear of snow is a challenge because of the relatively flat topography that lacks wind breaks. Simply put, it is not uncommon to plow a road, only to have strong winds redeposit blowing snow. To constantly re-plow the road would be a costly exercise. Blowing snow can lead to white-out conditions that reduce visibility and icy road conditions, and are a contributing factor to accidents.

One step further

Snow fences involve installation to raise the artificially made buffers manufactured from wood posts and plastic tarps. Labor and materials are required. But to line all regional roads can be costly and time-consuming. Approximately 39,000 meters of snow fence are installed throughout the region each winter season. Snow fences are a solution, but the Region of Peel has gone a step further by exploring natural snow fences.

Natural snow fences mitigate...
labor and materials from the region. Instead, farms are asked and encouraged to leave corn stalks standing throughout the winter where stalks are adjacent to roads. No labor or materials are borne by the region.

The Region of Peel is entering a third year of an environmental pilot program and has asked farmers to, once again, allow the region to utilize their corn crop as natural snow fences during the winter months in an effort to increase winter road safety.

Natural snow fences can be a low-cost and environmentally friendly solution that prevents drifting snow problems. These barriers are strategically placed and designed to trap snow that blows across fields, piling it up before it can reach roads, waterways, farmsteads or communities.

Snow fences force wind to go around and through the fence, causing the wind to lose energy and speed. The snow particles suspended in the fast-moving air come to rest as the speed slows. This forms a drift behind or in front of the snow fence. The height of the fence and amount of snowfall common to the area determines how much snow a fence can trap.

A win-win scenario

Peel staff have employed a program to use corn crops as a natural snow fence. This required participating farmers to leave a portion of crop not harvested along regional roads throughout the winter season.

For participating in the program, farmers are remunerated based on current market value of the corn plus a premium. This helps to create a win-win scenario with the farmers as well as recouping all additional costs incurred from leaving the crops standing throughout the winter season.

Farmers are required to enter into a crop-use agreement with the region, requiring they leave a minimum of 12 designated rows of corn crop standing throughout the winter season. At the conclusion of each winter season, participating farmers will be remunerated at a fair market value for their corn crop used, which is currently two-and-a-half times less expensive than traditional installation of manufactured snow fence.

The effectiveness of the snow fence was closely monitored, because the region had been unable to obtain the generally accepted setback of 210 ft, based on 35 times the height of corn (i.e., 6 ft). So far, the corn rows have been highly effective, with the consensus being the natural snow fence is outperforming the manufactured ones.

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Growing success

The Region of Peel’s discussion with the farming community and results from their two-year evaluation of the program has presented the following challenges:

- Corn is a rotating crop (through a combination of corn, wheat and soy beans). Rotation results in inconsistent year-to-year participation;
- “Volunteer” (unharvested) corn “goes to seed” and begins growing amongst the following year’s crop. This requires hand-picking to clear; and
- Initially, there were concerns of unharvested corn attracting wildlife that might be struck by motorists. The region has not yet experienced any increase of this nature and no incident history to be
concerned of to date.

The region expects continued dialogue about specified setbacks from the roadway with the farming community each year. However, after the first two years, existing setback adjacent to the roadway has yielded positive results. In addition, the region will be pursuing the benefit of living fences (i.e., permanent hedging). The region expects that after a few years, this program will form part of the farming communities’ active involvement.

The region is continuing to monitor the success and growth of the program in five-year increments and is hoping to expand the program beyond 10,000 meters of natural snow fence, solicit additional participation from the local municipalities (the town of Caledon and the city of Brampton) as well as piloting some live snow-fence locations—the use of trees and shrubs—in selected locations.

To date, benefits of the program include:
- Farmers expand their community involvement and environmental stewardship, reduce soil erosion and receive a higher-than-market value for their corn crop;
- Taxpayers reap the benefit from better budget utilization, and better snowdrift control equates to increased driver safety and accident prevention;
- The region benefits through budget efficiency, reduced salt usage, reduced plowing frequency and gained environmental benefits; and
- Natural snow fencing aids in decreasing soil erosion and can benefit natural wildlife, lower greenhouse-gas emissions and reduce airborne particulate matter.

The cooperation and involvement of the farming community was, and will continue to be, essential in the success of the natural-snow-fence program. The region has received excellent feedback from both the farming community and the agriculture associations, as well as the public.

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