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## **Impacts of Field Windbreak Removal** **By Toso Bozic**

The value of field windbreaks, either planted or natural occurring, has been known for many decades in Alberta. Since the 1930s, farmers and ranchers have planted trees to reduce the negative effect of the wind to their homes, soil, crops, livestock, and their water and land infrastructure.

### **Advantages of Field Windbreaks**

Well-designed field windbreaks have proper tree/shrub density and stand perpendicular to the prevailing winter wind. Properly planted field windbreaks prevent soil erosion, reduce crop damage, protect livestock from extreme cold wind-chill and reduce overland field flooding in spring. Field windbreaks in southern Alberta also slow down prairie fires that rapidly move through landscapes due to high wind and warm weather. On farm field settings windbreaks will provide good snow distribution across a field to a distance of 10 to 15 times the height of the trees.

Windbreaks also reduce snow drifts into highway ditches. Snow does not melt as quickly in treed areas and the land holds more water than in open fields and grasslands.

### **Removed Windbreaks**

As farm operations become larger and more automated, many windbreaks are removed from the fields due to larger equipment and the convenience of not being required to operate around the field windbreaks. Even though science proves that yields are higher with properly designed windbreaks, trees are cleared for more land for cultivation. Also due to windbreaks, snow stays longer on the field, delaying seeding times.



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## **Consequences**

Weather in Alberta is quite variable in spring, with sudden warm temperatures causing fast snow melting and consequent flooding in many parts of the province. Where trees are removed from watershed, water runs from the land much faster into the creeks and rivers.

The impact of snow drifts on roads during winter is very well understood in rural Alberta. The cost related of snow removal is also well known. Very few pay attention to what happens during the spring snow meltdown when huge amounts of water rush into ditches that are full of hard packed snow with mini “ice/snow dams”. As a result, high volumes of water are diverted from these “ice/snow dams” to areas where they damage roads, culverts and bridges.

The long-term consequences of field windbreaks removal to farmers, local municipal and provincial infrastructure budgets are never properly assessed. Millions of dollars every spring/summer are spent to fix local culverts, roads and bridges due to snow melt and flooding directly attributed to windbreak clearing on the fields. Many decision makers and professionals know that treed areas reduce snow drifts, slow spring melt, reduce water flow, reduce wind and stabilize river banks.

## **Recommendations**

To avoid costly rural road repairs and damages caused by spring run-off there are several recommendations:

- Encourage farmers and landowners not to clear field windbreaks without a strong understanding of their importance and the impact they have on rural roads and infrastructure.

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- Establish new field windbreaks in areas of high risk for snow drifts to reduce possible spring flood damage to roads, culvert and bridges.
- Establish tree planting program incentives for farmers and landowners who wish to plant field windbreaks.
- Rural planners and public works departments need to identify the area of highest risk for snow drifts that will accumulate in the ditch and create “ice/snow dams”, and develop appropriate actions to reduce the risk of field floods.

It is time to assess the impact of removing field windbreaks and to calculate the resulting true cost of infrastructure repairs to rural municipalities.



Picture 1. Ditch ice/snow dam create flooding on fields but also on road.



Photo 2: Road wash-outs due to field flooding. Notice no trees in the area.



Picture 3: Road wash out due to field floods. No trees in sights





Picture 4: Brown water from road washout

For more information:

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