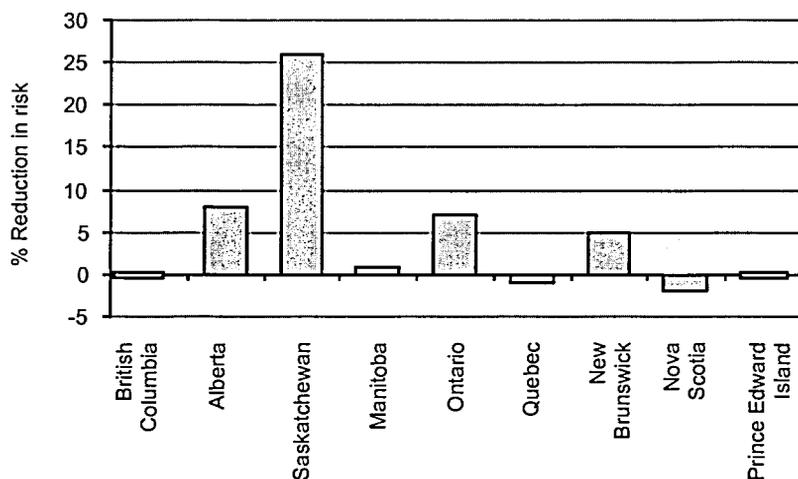


Reduction in the area of Canadian cropland at risk of a tolerable level of water erosion between 1981 and 1996



erosion. An indicator of soil cover that includes a measure of residue cover shows that the number of days that soil was left bare dropped by 20 percent on Canadian cropland between 1981 and 1996, a positive trend.

An indicator of the risk of soil compaction shows that the area of compacted soils under crops that alleviate compaction decreased by 11 to 21 percent in Ontario and the Maritimes between 1981 and 1996. The indicator also shows that the area of soil that was both susceptible to compaction and under compaction-inducing crops increased by about 50 percent or more in Ontario, Nova Scotia, and Prince Edward Island during this time.

Over the years of farming, organic matter is lost from the soil unless steps are taken to protect it and build it up, such as by preventing erosion, maintaining soil fertility by adding nutrients, and adding organic matter such as animal and green manure and compost. A computer-modelled indicator shows that most agricultural soils in Canada continue to lose carbon every year, but at a slower and slower rate because of the adoption of soil conservation measures. The indicator estimates that farm soils in Saskatchewan, where reduced tillage and no-till have been adopted by many farmers, are already accumulating carbon. On the whole, Canadian agricultural soils are predicted to begin accumulating carbon in 2000, reaching a limit 20 years later. This accumulation, called carbon sequestration, may prove to be an important component of reducing atmospheric levels of carbon dioxide, a greenhouse gas.

Reducing Soil Compaction under Reduced Tillage in Ontario

Corn producers in southern Ontario often cite soil compaction as the leading problem for soil and water conservation on their farms. Soil compaction occurs naturally, but it can also be caused by wheel traffic on the field and by tillage, especially when soils are still wet. In reduced tillage systems, soil compaction must be alleviated without reducing the amount of protective cover by crop residues or incurring large tillage costs. To achieve this, University of Guelph and Agriculture and Agri-Food Canada researchers are examining systems that perform tillage in narrow strips to assess the impact of in-row soil loosening on corn performance. Another option being explored is combining fertilizer placement with the strip tillage operation.