

WILLOW RIPARIAN BUFFERS

ARE A BEST MANAGEMENT PRACTICE THAT CAN REDUCE NUTRIENT RUNOFF AND MITIGATE GREENHOUSE GAS EMISSIONS WHILE MAINTAINING OVERALL CROP PRODUCTION.

11 WILLOW BUFFERS

were planted in 3 Prince Edward Island watersheds.

The total effective buffer area installed by the 2016-2021 trial was **1 hectare**.

7.4 OVEN-DRY TONNES HARVESTED

from 9 trial sites.

The non-destructive determination of stem biomass using allometric equations was an effective method of monitoring willow growth between harvest cycles.

29 TONNES CO₂ CAPTURED ANNUALLY

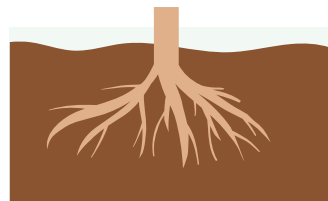
The mean global warming potential of the willow buffers was **343 Mg CO₂e ha⁻¹ lower** than the cultivated fields across all sites, with **reductions of up to 697 Mg CO₂e ha⁻¹ observed**.

N₂O emissions from willow buffers were significantly lower than those of upslope cultivated agricultural fields in potato rotation, with **mean cumulative seasonal reductions of 0.9 to 1.8 kg N ha⁻¹ observed**.

103 KG NITROGEN AND 14 KG PHOSPHOROUS INTERCEPTED

The majority of nitrogen was removed through harvest whereas phosphorus was sequestered in the plant's root system.

Site quality and growing conditions have a significant impact on biomass productivity.

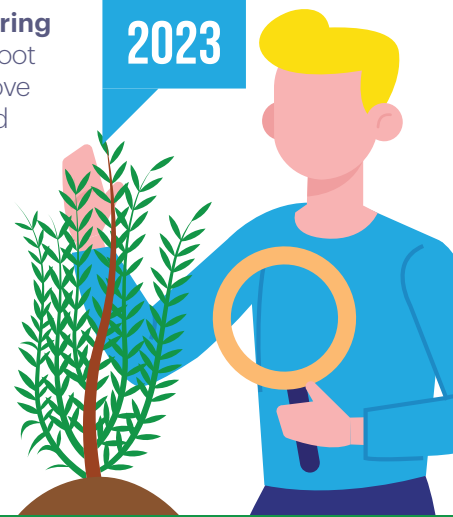


Belowground biomass accumulation for willow in riparian buffers was significant. **The average willow root:shoot ratio was 0.55.**

We anticipate increased yields and nutrient uptake during the second harvest cycle (2021-2023). More extensive root growth resulting in greater root and stem biomass will improve the commercial and ecological value of the purpose-planted willows.

Willows riparian buffers provide a long-term place-based solution for farm operations where there is a high risk of non-point source pollution.

2023



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