



Quantifying the economic benefits and carbon capture efficiency of including forages in cropping systems: A test using long-term data from the Breton Plots

LONG-TERM COST: BENEFIT OF INCLUDING FORAGES IN CROPPING ROTATIONS

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Background: Integrating forages into crop rotations can have many benefits such as weed and disease control, increasing productivity, and improvements in soil quality; but the short-term loss of land used to produce more valuable crops can make this management practice seem uneconomical. However, there has been little research to quantify the long-term agronomic and/or economic impacts of incorporating forages into cropping rotations.

The Breton Research Plots in west-central Alberta have been in use for over 40 years. Over this time, they have been supporting several different long-term crop and forage rotations that range from one to eight years in duration. This team will utilize other long-term datasets in western Canada to support their analysis.

Objectives: The objectives of this study are to:

1. Use multiple datasets from locations across western Canada to conduct a comprehensive cost:benefit analysis of different rotational systems, including isolating the influence of perennial forages in regulating profitability and risk.
2. Conduct a systems level analysis of the carbon fixation efficiency within these rotations, including quantifying the contribution of forages to carbon storage.

Implications of the Program: These long-term rotations present a unique dataset that has never previously been analyzed in terms of potential agronomic and economic effects of including forages in crop rotations. This also represents a significant opportunity to quantify the economic and environmental benefits of incorporating forages into annual crop rotations.

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