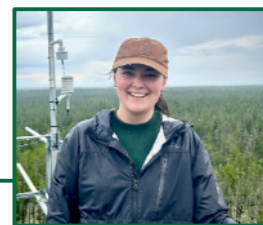


SOIL DRIVERS OF CROPLAND MARGINALITY IN THE CANADIAN PRAIRIES

RESEARCH SUMMARY | JULY 2026
www.dig-soilscience.research.st



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WHY THIS RESEARCH?

- ❖ Marginal land is unproductive agricultural land that may not be ideal for annual crop production.
- ❖ Marginal land has little economic return for crop production.

RESEARCH GOALS



Investigate soil drivers of marginality (salinity, sodicity, water content, erosion, and compaction) and understand their distribution patterns within crop fields.



Compare marginality drivers to pre-existing crop yield to assess how low yield responds to soil conditions.

PROCESS

Soils from 10 sites in the Brown, Dark Brown, and Black soil zones have been sampled. Each site consisted of two transects designed to have two points in the marginal area, one point in the marginal boundary, and one point in the productive cropland. Two 100 cm cores were collected per sampling point using a hydraulic punch truck. One core was used for soil classification and the other was split (0-15, 15-30, 30-60, and 60-100 cm) for soil analysis.



Photo: A. Cline

IMPORTANCE



Part of the Prairie Precision Sustainability Network (PPSN) initiative comparing productive and marginal croplands and then converting some marginal lands into perennial forage.



Gain insight into marginal land soil drivers and their relationship with crop yield to ultimately enhance land management strategies.



Provide necessary foundational research for future productivity and soil health optimization of marginal lands.

Production Type:



Crops

Practice Benefits:



Economic



Soil Health



Ecosystem Services

Research Locations:



Across AB and SK



Photo: B. Barrett

Soil Properties Measured:

- ❖ Bulk Density
- ❖ Moisture
- ❖ Organic Carbon
- ❖ Electrical Conductivity
- ❖ pH
- ❖ Sodium Absorption Ratio
- ❖ Base Cations

Results Expected May 2027



Scan here to get updates on this project!

Research funded by:



This research summary was made possible by:

