

Unique Opportunities for Sustainable Agriculture in Alberta through the Alberta AgriSystems Living Lab.

Presented at the First International Forum on Agroecosystem Living Labs, October 4-6, 2023, Montréal, QC, Canada.

Karisa, B. K¹., Schmid, K.², Herron, A.¹, Flaim, K.¹, Flaig, J.¹, Bork, E.W. ³, Chau, H. W.⁴, Baron, V. S.⁴

- ¹ Alberta AgriSystems Living Lab.
- ² Alberta Beef Producers. ³ University of Alberta.
- ⁴ Agriculture and Agri-Food Canada.

ALBERTA AGRICULTURE -AT A GLANCE

Alberta has over 50.3 million acres of farmland 41 %

Alberta leads the nation in cattle inventory, with 41 percent of Canada's total herd.

50%

Alberta accounts for 50% of Canada's barley production.



\$22B

Total farm cash receipts for 2022.



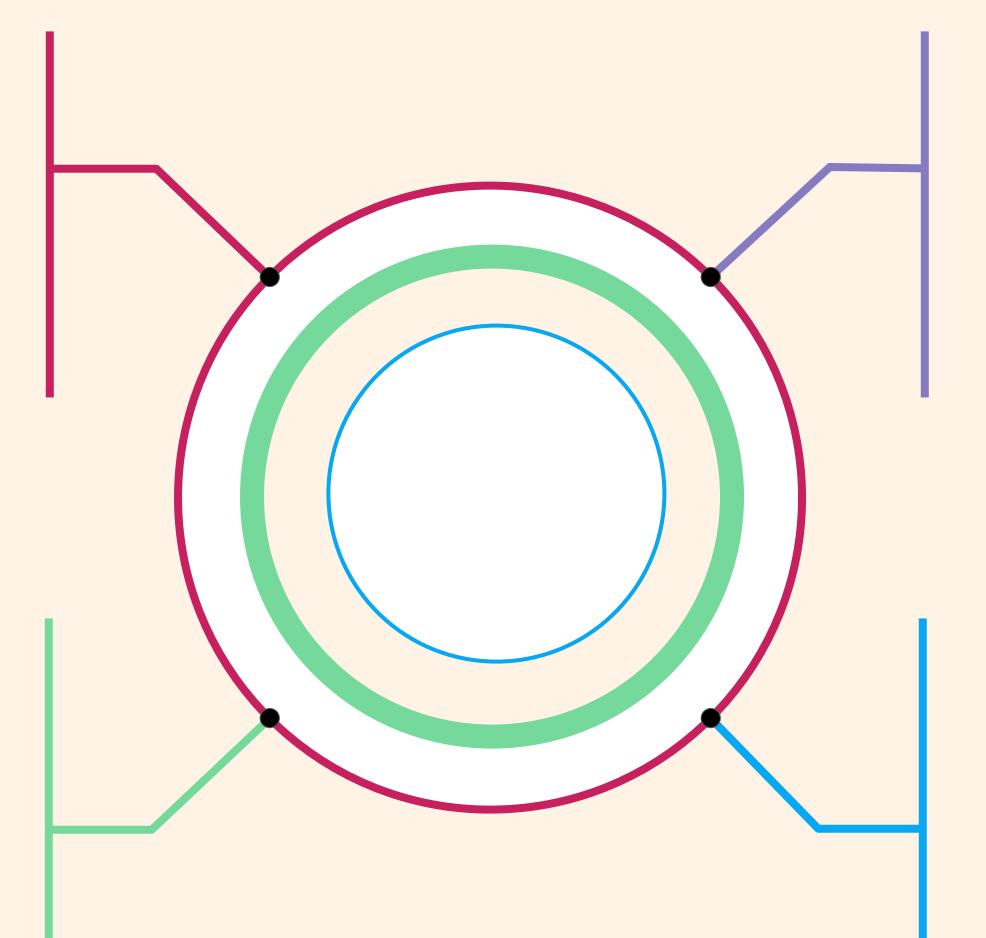
\$16B

Total value of Alberta's agriculture exports.

SUSTAINABILITY OF ALBERTA AGRICULTURE

Protect and conserve natural resources, and improve agricultural ecosystems.

Adapt governance and policy to future challenges



Increase productivity, profitability, value addition, competitiveness and foster system-wide economic growth

Enhance the livelihoods, health and resilience of farmers, farm employees and communities.

THE ALBERTA AGRISYSTEMS LIVING LAB

LAND USE CHANGE

Conversion of marginal land to perennial or annual forages, conservation/restoration of wetlands, forages/vegetative buffer strips,

CROPPING SYSTEMS

Diversifying crop rotations, cover cropping, relay and intercrops, residue management, tillage optimization, incorporation of livestock grazing, etc.

MAIN OBJECTIVE

To support Alberta's beef, forage, and crop sectors to implement beneficial management practices (BMPs) to store carbon, mitigate greenhouse gas emissions, improve environmental co-benefits, and address the impacts of climate change. The BMPs include:

NUTRIENT MANAGEMENT

4R nutrient management, variable rate fertilizer, nitrification inhibitors, manure, composting, etc.

GRAZING **MANAGEMENT**

Planned livestock grazing on crop or marginal land, managed grazing strategies, pasture rejuvenation, etc.

LIVESTOCK **FEEDING**

Feed additives to reduce GHG emissions, diet formulation strategies, precision feeding, etc.

SYSTEMS **APPROACH**

Increasing total carbon on the whole farm

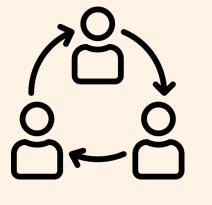
KEY ELEMENTS OF THE ALBERTA AGRISYSTEMS LIVING LAB



Producer-led practice change implemented on-farm in real-life setting.



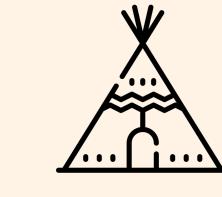
Practices and innovations driven by sound scientific principles.



Strong partnerships between producers, researchers and industry organizations.



Focus and measure results and impacts of practices to improve all three pillars of Ag sustainability



Utilize and adapt traditional knowledge on the sustainability of Alberta's food systems.































