ALBERTA INNOVATES

CLEAN RESOURCES

SMART AGRICULTURE AND FOOD

Livestock Gentec: An Alberta Innovates Centre for research and commercialization of genomics technologies for beef competitiveness and sustainability

Objective: to merge genetics and big data to produce more profitable beef cattle in Alberta. Livestock Gentec has played an integral role in Alberta's livestock industry in transforming genomic information into tools accessible to producers for breeding healthier and more efficient livestock. However, technology adoption in the beef sector lags compared to others due to industry structure. With this investment, Gentec will develop its platform to establish Alberta as a world leader in precision livestock breeding and management by developing, validating, and demonstrating new omics-based technologies, and facilitating the commercialization and adoption of smart livestock technologies to improve the profitability, sustainability, and competitiveness of the sector.

Head of Beef Operations, John Basarab, receives the Don Matthews award from Canadian Beef Breeds Council CEO Michael Latimer Fall 2020.

FUNDING DETAILS

RECIPIENT:
Livestock Gentec at the University of Alberta

PARTNERS:
Results Driven Agriculture Research

TOTAL BUDGET:
$900,000

AI FUNDING:
$400,000

PROJECT DATES:
Mar 2021 - Jan 2023

PROJECT TRL:
Start: 6
End: 8

APPLICATION

Alberta's livestock sector does not have the same level of access to smart agriculture services as the crop sector. By linking Gentec-derived novel and applied omics-based research directly with industry needs, the industry will be enabled to see beyond traditional best practices and move to production systems that are informed in real-time, using validated intelligence for healthier livestock of higher quality and optimized efficiency, including reduced GHG emissions and improved environmental practices.

ALBERTA INNOVATES

CLEAN RESOURCES

SMART AGRICULTURE AND FOOD

PROJECT GOALS

- Added-value selection indexes delivered to the commercial producers allowing for more accurate selection of livestock.
- Increased application of data-based decision tools through advanced, user friendly, data analytics platforms.
- Increased number of HQP placed directly into industry (or industry facing research roles) and immediately impacting their organization and industry.
- Target of up to $12M in incremental industry investment in applied projects targeting genetic improvement through a better understanding of trait outcomes / genomic linkages and an animal's environment (management).
- Increased adoption of real-time data collection and genomics tools including reduced cost to producers from new / innovative genotyping and sequencing technologies.
- Improved understanding, accessibility, and relationships with key stakeholders and ability to engage in longer-term projects with greater confidence of being around to fulfill them.

BENEFITS TO ALBERTA

- Creation of new decision support tools for industry and opportunities for new businesses to fill the gap that exists in applying data-informed technologies in the livestock sector.
- Initiate a provincial Smart-Ag Network focused on livestock that will serve as a platform to establish Alberta as a world leader in precision animal breeding and management through:
    - Providing HQP to meet existing needs;
    - Training HQP to meet future needs;
    - Developing, validating and demonstrating new technologies; and
    - Facilitating adoption of smart-ag and precision livestock technologies that improve the profitability and competitiveness of producers and value-adding firms utilizing their inputs.
- Economic diversification is increased as rural communities are enabled to produce the highest quality, safe, and sustainable proteins destined for Canada's expanding beef and pork export markets.

4 Focused Industry Events

1 New Breeding Tool, DNA Pooling

7 Industry Directed Communications

5 Project HQP

CURRENT STATUS

MAY 2021

Livestock Gentec has compiled phenotypes and genotypes on nearly 30,000 Canadian beef cattle. This unique and invaluable database allows for the development of genomic tools and more accurate and customized molecular breeding values. Producer organizations and livestock companies have invested significantly in projects with Gentec, and because of these collaborations Gentec is now equipped to deliver new omics-based tools to help improve the competitiveness and sustainability of Alberta's livestock sectors.

Disclaimer • Alberta Innovates (AI) and Her Majesty the Queen in right of Alberta make no warranty, express or implied, nor assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained in this publication, nor that use thereof infringe on privately owned rights. The views and opinions of the author expressed herein do not necessarily reflect those of AI or Her Majesty the Queen in right of Alberta. The directors, officers, employees, agents and consultants of AI and the Government of Alberta are exempted, excluded and absolved from all liability for damage or injury, howsoever caused, to any person in connection with or arising out of the use by that person for any purpose of this publication or its contents.