

SIX RICH DOMAINS

for **Genomics** to Advance & Innovate Ontario's **Agriculture & Agri-Food** Sector

RECOMMENDATIONS

BENEFITS

1 **Multidisciplinary Research**

Augment multidisciplinary R&D using a systems biology approach, with a focus on increased understanding of microbiomes and their interconnectivity to human health.

- Accelerated innovations with multi-sector applications
- Novel agricultural products
- Healthier people

2 **Sustainable Agriculture & Food**

Prioritize programs for sustainable agriculture and food that consider the economy, the environment, and society, for crop production and livestock.

- More nutritious & flavourful foods
- Higher crop yields
- Reduced use of pesticides
- Enhanced biodiversity
- Greater livestock performance

3 **Advanced Processing Systems**

Enhance advanced manufacturing and processing systems for both food and industrial bioproducts, including fermentation and traceability.

- Greater diversification of crops and specialty animal products
- Increased exports
- Improved processing efficiencies
- Reduced carbon footprint

4 **Rapid Diagnostics & Biologics**

Develop rapid diagnostic methods to support regulation and trade, rapid disease detection and traceability in crops and livestock, and biologics to reduce the use of antimicrobials.

- Better disease management
- Reduced use of antibiotics
- Improved animal welfare
- Enhanced food security

5 **Address Barriers to Adoption**

Address barriers to the adoption of genomics innovations including issues related to data sharing, intellectual property, regulation and public acceptance.

- More informed & engaged public
- Increased industry investment
- Greater commercial success
- Reduced trade deficit

6 **Leverage Computational Biology & AI**

Leverage Ontario's strengths in computational biology and artificial intelligence to accelerate the development and application of agricultural genomics-based innovations.

- Accelerated agricultural outputs
- Reduced waste
- Faster market applications
- Stronger Ontario bioeconomy

Recommendations are based on opportunities provided by genomics-based technologies and innovations to meet sector priorities in the context of enhancing a socially and environmentally responsible industry.

