**SIX RICH DOMAINS**

for *Genomics* to Advance & Innovate

Ontario’s *Agriculture & Agri-Food* Sector

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**RECOMMENDATIONS**

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.

2. **Sustainable Agriculture & Food**
   Prioritize programs for sustainable agriculture and food that
   consider the economy, the environment, and society, for crop
   production and livestock.

3. **Advanced Processing Systems**
   Enhance advanced manufacturing and processing systems
   for both food and industrial bioproducts, including
   fermentation and traceability.

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.

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.

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.

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**BENEFITS**

- Accelerated innovations with multi-sector applications
- Novel agricultural products
- Healthier people
- More nutritious & flavourful foods
- Higher crop yields
- Reduced use of pesticides
- Enhanced biodiversity
- Greater livestock performance
- Greater diversification of crops and specialty animal products
- Increased exports
- Improved processing efficiencies
- Reduced carbon footprint
- Better disease management
- Reduced use of antibiotics
- Improved animal welfare
- Enhanced food security
- More informed & engaged public
- Increased industry investment
- Greater commercial success
- Reduced trade deficit
- Accelerated agricultural outputs
- Reduced waste
- Faster market applications
- Stronger Ontario bioeconomy

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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.

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Ontario Genomics

Genomics for
Agriculture & Agri-Food:
Ontario’s Strategic Opportunity

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