

July 30, 2024

Background

New climate change data and knowledge mobilization hubs to maximize the impacts of genomics-based agriculture and food system solutions

Genome Canada is proud to announce the launch of two new cross-cutting hubs to maximize and amplify the impacts of its Climate-Smart and Agriculture Food Systems portfolio: one to coordinate data assets, standards and analytics and one to coordinate knowledge mobilization strategies. Designed to support climate change and adaptation, the nine projects in the portfolio focus on translating genomics research and innovation into solutions supporting producers, resilient supply chains and Canada's food system.

This announcement represents \$6.6 million in federal support to cutting-edge genomics science and innovation funded by Genome Canada. Provincial governments, business and research partners are investing another \$9.2 million in co-funding, for a total investment of more than \$15.8 million.

Funded hubs

Title: Climate-Smart Data Collaboration Centre (CS-DCC)

Academic Leaders/Institutions: Dr. William Hsiao (Simon Fraser University), Dr. Michelle Edwards (University of Guelph), Dr. Claude Robert (Université Laval)

Genome Centres: Genome British Columbia, Ontario Genomics, Génome Québec

Total Funding: \$ 11,145,521

The projects and Interdisciplinary Challenge Teams (ICTs) within the Climate-Smart Agriculture and Food Systems portfolio are generating a variety of data types such as surveys and interviews, genetic and omics, economics, climate, traits and phenotypes. To effectively connect these outputs and maximize their impact, data must be available and understandable across research domains. This requires organizing and understanding the needs of researchers across the data lifecycle, as well as those of downstream data users such as scientists, policymakers, non-profits, governments and companies.

The Climate Smart Data Collaboration Centre (CS-DCC) will serve as a cross-cutting data coordination and collaboration hub. It will develop a federated, decentralized and distributed data ecosystem featuring common frameworks for data exchange and sharing, community-developed data standards, open-source and reusable data processing toolkits, consensus-driven data governance structures that emphasize equitability and accessibility, and

community data competency and literacy development through workshops and online training.

The CS-DCC will work with the ICTs and the Agricultural Genomics in Action Centre (the knowledge mobilization hub of the Climate-Smart Agriculture initiative) to create a joint portfolio data plan in three phases: 1) development of open-source and open-access resources including data specifications, software tools, training material, guidelines and policies, and analytical workflows; 2) gradual transfer of these resources to stakeholders as they build up capacities and skills through training and community engagement; and 3) leveraging of cloud technologies to scale up a mature and sustainable data ecosystem.

Title: Agricultural Genomics Action Centre: Innovation, Implementation and Impact for Climate Smart Agriculture (AG-Act)

Academic Leaders/Institutions: Elizabeth Shantz and Jessica Bowes (University of Guelph), Dr. Nancy Tout (Global Institute for Food Security, University of Saskatchewan), Dr. Lupin Battersby (Simon Fraser University)

Genome Centre: Ontario Genomics, Genome Prairie, Genome British Columbia

Total Funding: \$4,655,180

The innovative genomics solutions developed by the projects and Interdisciplinary Challenge Teams (ICTs) in the Climate-Smart Agriculture and Food Systems portfolio will help mitigate climate change by reducing CO₂ equivalents produced by the agri-food sector and increasing carbon sinks, helping to move Canada towards net-zero.

The Agricultural Genomics Action Centre (AG-Act), the portfolio's knowledge mobilization and implementation hub, will work with the ICTs to help bridge the gap between knowledge research, practice and policy. It will support each ICT's knowledge mobilization strategies and identify areas of alignment or opportunities for cross-cutting connections to help make research findings relevant, accessible, and usable by end users to drive climate change impacts. It will also support portfolio-level GE³LS research and genomics in society activities for knowledge mobilization and implementation. GE³LS research is the study of the implications of genomics in society, including its ethical, environmental, economic, legal, and social impacts. The AG-Act's leadership of a coordinated multi-stakeholder and synergistic initiative within the agriculture ecosystem will maximize the impacts of the ICTs and enable the delivery of positive economic, environmental and societal outcomes for Canadians.

The work will be done in three phases. Phase I will focus on stakeholder engagement and needs assessment to develop the portfolio-level, value-added knowledge mobilization plan, pilot foundational activities and build knowledge mobilization capacity through training. In Phase II (implementation), the AG-Act will host external stakeholder and end-user engagement sessions with policy makers, industry, other vital organizations and under-represented groups to synthesize knowledge, build relationships and drive uptake. It will connect across sectors and disciplines for knowledge exchange and dissemination on portfolio-level activities, including working with the National Index on Agri-Food Performance to develop and apply genomics-related sustainability indicators and knowledge. Phase III will focus on building collaborations for the future and moving towards a legacy plan that ensures the long-term impact of the portfolio.