

Centre for Sustainable Food Systems

Strategic Plan

2016-2020

Innovation from field to fork to achieve resilient, thriving, and socially just food systems for all



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Centre for Sustainable Food Systems
at UBC Farm



ubcfarm
AT THE UNIVERSITY OF BRITISH COLUMBIA

Context of Opportunity

Across the globe, land and food systems are confronted with mounting challenges. The preservation of traditional foodscapes and ecosystem services, the elimination of hunger and malnutrition, and adaptation to climate change depend on globally significant research and innovation in socially just and ecologically sustainable food production, processing and distribution.

The Centre for Sustainable Food Systems (CSFS) and the UBC Farm are uniquely positioned to respond to these challenges. With 24 hectares of integrated organic farm and forest ecosystem located on the traditional, ancestral, and unceded territory of the Musqueam people, the UBC Farm and the CSFS are a *Living Laboratory* and *Agent of Social Change*. CSFS engages with a diverse community comprised of UBC students, faculty, and staff as well as international academic, community, and industry partners.

The CSFS supports the development of innovations in sustainable agriculture and food processing technologies, while honoring, respecting, and protecting diverse knowledge pathways within Indigenous and agrarian food systems. The UBC Farm is a practical and symbolic central node in this broad “network of networks” coordinating issues, ideas, collaborators and development towards a socially and ecologically just and food-secure future.

In the 2015-2016 academic year, the CSFS Advisory Committee revisited Cultivating Place, the visionary 2010 academic plan that outlined steps for CSFS and the UBC Farm to weave a culture of sustainability – rooted in stewardship of place – into the intellectual and physical fabric of our University. We consulted the UBC Strategic Plan, the Aboriginal Strategic Plan, the UBC Sustainability Academic Strategy, and the Land and Food Systems Action Plan. We also engaged with a diverse groups of faculty, staff, students, and community members, and national and international research and community outreach initiatives related to food system sustainability.

Our 2016-2020 Strategic Plan outlines key priorities for the CSFS to increase research productivity, improve our teaching infrastructure and develop new frontiers in knowledge mobilization and community engagement leading to sustainable, thriving food systems for all.

The Centre for Sustainable Food Systems

Strategic Foci for 2016-2020:



The **Agroecological Innovation Research Station** will assess a range of management and knowledge exchange strategies for small scale organic and diversified production systems.



The **Business Agrifood Research Network (BARN)** will promote the health and competitiveness of British Columbia’s fresh and processed food industry by fostering innovation in the rapidly growing organic sector.



The **Land Based Knowledge Systems and Health Network** will contribute to decolonizing the food system through teaching, research and policy analysis related to the structural, cultural, and ecological drivers of healthy food systems including food literacy, Indigenous food sovereignty and environmental stewardship.



The **Global Food Research and Policy Network** will foster research, teaching, and policy innovation that cuts across scales, disciplines, and sectors, engaging with community, policy think-tanks, international research organizations, governments, and the agricultural sector.



1 Long-Term Research Station for Agroecological Innovation

Food production currently consumes 70 per cent of the global freshwater supply, 30 per cent of global energy, and produces up to 24 per cent of global greenhouse gas emissions. In response, CSFS agroecological researchers use ecological and systems analysis perspectives for integrated research on bioenergy, water resources and food production to maximize crop yields, improve soil quality, improve and maintain biodiversity and minimize nutrient losses to the environment.

Our leadership in research and development for diversified food systems contributes significantly to UBC's strategic research priorities in Sustainability and the Environment. The Agroecological Innovations Laboratory Ensemble (AGILE) at the UBC Farm will conduct long term monitoring and experimental work to develop adaptive pathways to food security and biodiversity conservation in the face of climate change.

This research strategy uses “field to fork” and “seed to shelf” analytical frameworks that incorporate field research along the food systems spectrum, including traditional and Indigenous land use, ecosystem services, organic production practices, food processing techniques that use less water and energy, and marketing and community development strategies that ensure that sustainable farm practices are economically viable, culturally appropriate and socially just.

- **Optimizing nutrient management and improving soil quality** in organic production systems.
- **Improving water quality and resilience** in irrigation and rural drinking water systems.
- **Protecting biodiversity in agricultural systems** by enhancing ecosystem services, through new approaches for integrated pest management and agroforestry.
- **Improving energy efficiency of greenhouse agriculture facilities using agricultural waste.**
- **Increasing food security and resiliency through the Seed Hub research program**, which will improve local seed production and new climate resilient crop cultivars.
- **The Stronger Bees** research program supports the development of molecular tools to selectively breed bees for disease resistance and increased productivity.
- **Enabling Knowledge mobilization** for climate adaptation and ecosystem service protection.

2 The Food and Beverage Technology Centre at the “Barn”

Led by faculty at UBC's Food, Nutrition and Health Program, in partnership with Entrepreneurship @UBC, the Business Agrifood Research Network (BARN) will promote the competitiveness of British Columbia's \$8 billion food processing industry by fostering innovation in the rapidly growing organic sector.

Infrastructure development – including a food processing innovation laboratory, a fresh processing and market area, and an entrepreneurship hub for diversified agricultural business development – will address the current gap in pilot food processing facilities in British Columbia, creating an innovation and knowledge portal that will be globally unique.

- **Vertical Integration:** collaboration between the agri-food industry and UBC across the supply chain from organic agricultural cultivation, food pilot processing, and culinary arts, to food services, retail and export markets.
- **Jobs and Training:** the facilities and network of knowledge experts will foster food and beverage entrepreneurs, and be a training ground for food technologists and scientists at the undergraduate and graduate levels.
- **Health and Sustainability:** the processing facility will integrate with UBC Farm's sustainable food production capacities with a particular focus on food safety, diet and nutrition, sensory innovation, and value-added BC agricultural products. The centre will promote food and beverage security for domestic and export markets by building local capacity.



3 Land-Based Knowledge Systems and Health

Contributing to UBC's priority to increase student experiential learning and community engagement, and in collaboration with the First Nations House of Learning, Indigenous Research Partnerships, the Centre for Excellence for Indigenous Health, as well as the Faculties of Education, Land and Food Systems, Forestry, and Medicine, the CSFS supports community-based research and teaching environments for food literacy education and Indigenous, traditional and land-based approaches to health and well being.

With research and knowledge mobilization activities at UBC Farm, across campus, in our region, and at networked sites nationally and globally, the CSFS will build on UBC's research strengths in the social sciences and humanities to support innovative research, community education and outreach activities. These will include initiatives to enhance community food literacy and encourage advocacy on issues of public concern including environmental stewardship, healthy diets and lifestyles, and social development.

- **The Indigenous Health Research and Education Garden (IHREG)** focuses on issues of shared priorities and concern to Indigenous Peoples and UBC including food security, environmental sustainability, ethical frameworks, cultural resilience, and ways of knowing.
- **Curriculum Development and Public Programming in Sustainability Education** brings together farm- and community-based research collaborations and interdisciplinary hands-on learning. The CSFS facilitates UBC's development of academic programs in sustainable food systems education through the UBC-Wide Sustainable Food Systems undergraduate Minor and the Integrated Studies in Land and Food Systems Graduate Program.
- **The Global Food Dialogues Seminar Series** supports cross-disciplinary engagement across UBC's faculties, students, and community.

4 Global Sustainable Food Systems Research and Policy Innovation

The CSFS serves as a hub for interacting, sharing and developing international collaborative research on the sustainability of global food systems across the UBC campus, with partners in the region, across Canada and around the world. Innovations to address global food system challenges range from technological advances such as biotechnology and vertical farming, to policy levers such as land reforms, trade reforms, and food labeling, to changes in farming practices such as organic farming, sustainable intensification of conventional systems, and urban farming.

Evaluating the role and impact of these strategies in distinct global contexts requires research and policy innovation that cuts across scales, disciplines, and sectors, and engagement with non-governmental organizations, policy think-tanks, international research organizations, government, and agribusinesses.

- **Global farming system assessment** to evaluate the agronomic, socio-economic, and environmental trade-offs of various farming system characteristics such as organic farming, farm size, intercropping systems, and landscape-scale farm management.
- Statistical and crop modeling to evaluate the **impacts of climate change on crops** across North America, India, and the globe.
- **The genomic (genetic-based) and physiological (physical) impact of drought, flooding, salt, and low-nutrient stress resistance** in cultivated sunflower and reproductively compatible, stress-adapted wild species that are potential donors of beneficial resistance traits.
- **Food sovereignty and food security:** policy pathways that link the "right to food" – especially for the urban poor – to the "right to produce and market food" using fair, sustainable and equitable models of food production and distribution.



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Land and Food Systems

