The Centre for Sustainable Food Systems (CSFS) aims to understand and fundamentally transform local and global food systems towards a more sustainable, food secure future.

The CSFS at UBC Farm is a Living Laboratory and an Agent of Social Change, with 24 hectares of integrated organic farm and forest ecosystem located on the traditional, ancestral, and unceded territory of the Musqueam people. The CSFS engages with a diverse community of UBC students, faculty, and staff as well as international academic, community, and industry partners. We support the development of innovations in sustainable agriculture, nutrition, and food processing, while honoring, respecting, and protecting diverse knowledge pathways within Indigenous and agrarian food systems.
The Centre for Sustainable Food Systems at UBC Farm wishes to acknowledge the passion and hard work of our dedicated faculty members, staff, students, and volunteers. Thank you for championing our vision as we continue to grow and evolve.

We are located on the traditional, ancestral, and unceded territory of the hən̓q̓əmin̓əm̓-speaking xʷməθkʷəy̓əm (Musqueam) Peoples.

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All living things depend on the sustainability of the earth's resources, and learning how to protect and better manage those limited resources is crucial to our survival. Researchers at the Centre for Sustainable Food Systems (CSFS) at UBC Farm are addressing critical issues that affect everyone on the planet, like food production and the stewardship of our land and water.

CSFS at UBC Farm is a unique site of research and teaching at UBC, and a key part of UBC's emergence as a global leader in sustainability. As a part of the Faculty of Land and Food Systems, the teaching and research happening at the Farm is in alignment with our five-year Action Plan, which was created to help us define and focus on the Faculty's uniqueness, while allowing us to be robust enough to meet the changing agri-food needs of the world.

We celebrated several milestones in 2016 at the Centre for Sustainable Food Systems (CSFS) at the UBC Farm. It has been five years since UBC designated the land as “Green Academic”, effectively saving the Farm from development in perpetuity, and 15 years since the UBC Farm was newly established in its current South Campus location as a student-and volunteer-run garden. From that student garden, we have now become a fully operational, organic-certified research farm and community space.

Our growing networks of faculty, students, neighbours, community and Indigenous program members, as well as farmers market customers, come together every week to shape an agroecological, holistic approach to land stewardship—involving the incredible diversity of landscapes we have at the UBC Farm. In this community we witness connections that are essential to retaining and rebuilding the health of our foodlands. Moving into the mid-21st century, these connections will be challenged and yet increasingly necessary if we are to adapt to climate change, engage in meaningful reconciliation with Indigenous peoples, and build a thriving food system.

We spent much of 2016 in consultation with our stakeholders and collaborators—UBC and affiliated faculty, researchers, community members, administrators, donors, staff and students—and re-ignited our Advisory Committee to develop the Strategic Plan for 2016-2020 that will guide the next chapters of our academic and community program development.

The UBC Farm gives our faculty members the perfect venue to conduct groundbreaking, practical research for industry, farmers and communities. The research happening here will transcend borders and make a visible difference all over the world. It also provides our students—as well as students across the university—with the opportunity to take their studies outside the classroom, applying their lessons and gaining valuable practical experience in the field.

Beyond research and teaching, the Farm brings the community together by offering programs and workshops, volunteer opportunities, children's camps, long table dinners and a wonderful Saturday market where you can bring home some of the delicious fruits and vegetables grown on site. Or take a tour and learn more about some of our Indigenous initiatives, like the Tu’wusht Garden Project or the Tal A’xin: Maya in Exile Garden.

The UBC Farm is truly a special place. If you haven't been to visit, I hope that the stories in this report will inspire you to come and experience the UBC Farm firsthand.

Rickey Yada
Dean, Faculty of Land and Food Systems

Dr. Hannah Wittman
Academic Director

Clare Cullen
Operations Director
2016 AT A GLANCE

- $1.1 M RESEARCH FUNDING
- 100,102 lbs OF FOOD GROWN
- 1779 STUDENTS ENGAGED IN 35 FOR-CREDIT COURSES
- 398 VOLUNTEERS 6600+ HOURS
- 9TH SEASON OF PRACTICUM IN SUSTAINABLE AGRICULTURE
- 18 ACTIVE RESEARCH PROJECTS
- 817 PARTICIPANTS IN COMMUNITY TOURS
- 507 WORKSHOP PARTICIPANTS
- 1ST YEAR CERTIFIED ORGANIC
- 1ST YEAR OF COMMUNITY LEARNING SPACE
- 23% MARKET SALES
- 3288 NEWSLETTER SUBSCRIBERS
- 187 Active Research Projects
- 817 Participants in Community Tours
- 507 Workshop Participants
- 39 Researchers Trained
1929 First teaching and learning farm established on main campus, including a dairy research farm.

1966 UBC begins clearing South Campus to create research areas for plant nurseries, greenhouses, labs and housing for swine, sheep, poultry, dairy and cattle.

1975 Faculties of Agriculture and Forestry commence research projects on South Campus.

1980-85 South Campus Animal Care, Zoology, and Forestry facilities completed.

1991-96 South Campus Forestry Nursery and Dairy Facility close.

1997 UBC’s Official Community Plan calls for a doubling of residential population. The agricultural lands on the south campus are identified for development.

2000 Tal A’xin: Maya in Exile Garden established at the UBC Farm.

2001 First crops grown and sold by student volunteers.

2005-08 Friends of the Farm formed to help save farmland from housing development. UBC President given 16,000+ signature petition to save the UBC Farm.

2009 Great Farm Trek 2.0 student and community protest march against development. University commits to retain the integrated farm system as a land-based academic facility. Cultivating Place published as a strategic direction for the Farm.

2011 Centre for Sustainable Food Systems at the UBC Farm created to encourage research with a global reach. UBC Farm land zoned as “Green Academic”.

2016 CSFS 5-year Strategic Plan published.
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.

The Agroecological Innovation Research Station will assess a range of management and knowledge exchange strategies for small scale organic and diversified production systems.
The Centre for Sustainable Food Systems at the UBC Farm provides a globally unique research space aimed at improving the sustainability and resiliency of our regional, national, and global food systems.
Honey Bee Pathogen Response
Lead Researcher: Leonard Foster  
Funding: Genome BC, Genome Canada
Seeks to better understand the means by which bees can defend themselves against pathogens and enrich a particular kind of social behaviour in bees, known as hygienic behaviour that enables bees to better fend-off mites and bacteria.

Land Tenure and Sustainability
Lead Researcher: Navin Ramankutty  
Funding: Social Sciences and Humanities Research Council
Explores relationships between farm size, the amount and type of food produced, farming practices, environmental sustainability, and human well-being.

Crop-Protection Research and Innovation for Adaptation to Climate Change in BC
Lead Researcher: Andrew Black  
Funding: Investment Agriculture Foundation of BC – Farm Adaptation Innovator Program
Studies the effect of state-of-the-art plastic film mulches and low tunnels on soil and atmospheric microclimate with the aim to help the farming community adapt to predicted climate change in BC.

BC Seed Trials
Lead Researchers: Alexandra Lyon, Chris Thoreau, Melanie Sylvestre  
Funding: Bauta Initiative for Canadian Seed Security, FarmFolk CityFolk, Investment Agriculture Foundation of BC
The goal of the BC Seed Trials is to contribute to resilient agri-food systems in British Columbia through participatory research which engages farmers in producing knowledge relevant to seed systems development.

Exploring the Role of Plant Functional Traits and Anatomy in Leaf Litter Decomposition
Lead Researchers: Cindy Prescott, Jenna Zukswert  
Funding: Faculty of Forestry Fellowship, Natural Sciences and Engineering Research Council Discovery Grant
Building forest leaf litter decomposition rate models to increase the preciseness of carbon cycling predictions in the face of climate change.

Organic Production Systems Nutrient Dynamics
Lead Researcher: Sean Smukler, Gabriel Maltais-Landry  
Funding: Natural Sciences and Engineering Research Council, Postdoctoral Fellowship (Gabriel Maltais-Landry)
Explores crop optimization using organic amendments and cover crops to maximize yields.
Stewardship Science Technology for Monitoring the Socio-Ecological Outputs of Farming
Lead Researchers: Hannah Wittman, Zia Mehrabi  
Funding: Natural Sciences and Engineering Research Council, Social Sciences and Humanities Research Council, UBC University Sustainability Initiative

To develop intelligent technology that concurrently tracks the production and environmental outcomes of farm management in a scalable way—and generates the information needed by farmers, governments and consumers to undertake informed decision-making.

Sustainable Food Systems Pedagogies
Lead Researcher: Will Valley  
Funding: Teaching and Learning Enhancement Fund, UBC University Sustainability Initiative

An emerging signature pedagogy for sustainable food systems education, seeking to spur critical and creative thought regarding challenges of professional education in the field of sustainable food systems.

Truffle Establishment in BC
Lead Researcher: Shannon Berch  
Funding: BC Truffle Association

Successful cultivation of Pèrigord black truffle (Tuber melanosporum) using English oak (Quercus robur) as the host tree to develop Best Management Practices for use in establishing a commercial truffle industry.

Urban Agriculture in Vancouver
Lead Researchers: Will Valley, Evan Bowness  
Funding: Social Sciences and Humanities Research Council, UBC Public Scholars Initiative

Contributing to emerging value frameworks that move beyond economic replacement models of urban agriculture, greenhouse gas emissions analysis or other sustainability arguments frequently used to support the increased development of urban agriculture.

For CSFS Publications refer to our Publications Database at ubcfarm.ubc.ca/csfs-research
The CSFS provides leadership and support for teaching and learning on topics related to sustainable food systems. We support classroom instruction, experiential, community, and service-based learning, opportunities for professional practice related to sustainable food systems education, food literacy workshops, as well as our Practicum in Sustainable Agriculture.
NEW PROGRAMS

Expanding the Living Laboratory
The CSFS is developing learning tools about food systems and sustainability that integrate into UBC courses. Learning tools use UBC food system assets (e.g., UBC dining hall) to teach students about important food system sustainability concepts. Supported by the UBC Teaching and Learning Enhancement Fund.

UBC Sustainable Food Systems Minor project
The Minor will offer all UBC students a pathway to knowledge of how food, health, society, and the environment connect—providing the tools needed to solve complex food systems problems at the local and global scale. Currently in development, supported by the University Sustainability Initiative.

Food Systems Career Development Internship
The internship program prepares UBC students both professionally and academically for future food systems and sustainability careers through mentored experience in the workplace. Interns apply in-class theory through food system-related work activities and course assignments.

UBC FUTURE OF FOOD GLOBAL DIALOGUE SERIES
A campus-wide initiative launched in 2016, this series brings together food security and sustainability experts from UBC and across the globe to engage the UBC community and the public around the Global Food System. The series is jointly convened by the CSFS, the Liu Institute for Global Issues, and UBC Reads Sustainability, an initiative of UBC Sustainability.

The series hosted five speakers and events including:
• Dr. Manulani Aluli-Meyer, Professor, University of Hawaii
• Simran Sethi, journalist and educator
• Dr. Vandana Shiva, scientist and activist
• Dr. Nancy Turner, Professor, University of Victoria

FEEDING GROWTH
This new initiative from the CSFS, Vancity and Fluid Creative supports progressive food brands and entrepreneurs. Through community engagement and education activities, Feeding Growth amplifies the local food economy and helps the production of exceptional, healthy, sustainable, and socially responsible retail and packaged goods companies. Feeding Growth delivered “Scale your Progressive Food Business” a series of four workshops on successful food business development. Thirty-six progressive food entrepreneurs and their brands learned practical tips from 15 established food industry experts and business leaders on subjects such as values-based branding, sustainable manufacturing, and financing growth.
The UBC Farm Practicum in Sustainable Agriculture is an emergent farmer training program at the CSFS. The program’s mission is to inspire and cultivate new farmers and sustainable educators who will transform their communities and their food systems.

Practicum students are trained in a wide array of skills including crop protection, soil fertility management, sustainable cultivation methods, business management and marketing.

Highlights
- 9th season of the program
- 12 students trained in 8-month program
- 18 field trips explored different regions to learn about diversified farming systems
- Highest number of applicants in program history

As Community Animator for Farm to School’s Vancouver Area Regional Hub, I regularly find myself drawing upon the knowledge and skills I gained from the Practicum, and from the incredible network of farmers, activists, experts, and educators—including former Practicum alumni and UBC Farm crew—who have become friends, mentors, and colleagues over the past four years.

– Samantha Gambling, Practicum 2013, LFS Master’s 2016

Workshops at the CSFS offer hands-on learning from a diversity of experts on food and sustainable-living skills. CSFS Workshops create a space for integrative, interactive, and experiential learning that engages UBC and greater Vancouver communities across disciplines.

Highlights
- 8 new presenters and 21 new workshops, including: Small-Space Gardening, Cheese-making, Summer Foraging, How to Make a Food Forest, and Intro to Honeybees & Apitherapy.
- 39 total workshops, 140% increase from 2015
- 507 participants, 115% increase from 2015
- For-credit Food Skills Education internship developed

– Katie Selbee, Practicum 2013
STUDENT ENGAGEMENT

**COURSES BY UBC FACULTY**

- Forestry: 18.0%
- Science: 57.0%
- Other: 12.0%
- LFS: 13.0%

**PROFESSIONAL EXPERIENCE**

- 9 Student Staff Positions
- 10 For-Credit Internships

**STUDENT ENGAGEMENT**

- 7 Faculties and Schools engaged with CSFS
- 35 For-Credit Courses
- 1779 Students in CSFS-Related Courses
- 959 Students took UBC Farm Tours
- 301 Student Volunteers
- 175 Students doing Course-based Projects
The CSFS is advancing dialogue on sustainable community engagement that builds common ground across age, ability, political views, socioeconomic status, culture, belief, ethnicity, sexual orientation, and gender. We value the diverse knowledge sets and experiences that community supporters offer to the CSFS.
The Centre for Sustainable Food Systems (CSFS) at UBC Farm is located on the unceded ancestral territory of the hən̓q̓əmin̓əm'-speaking xʷməθkʷəy̓əm (Musqueam) Peoples, whose guidance and collaboration is vital to all activities on the Farm.

The CSFS works closely with three Indigenous Initiatives at the UBC Farm: Tu’wusht Garden Project, initiated in 2005 with partner Vancouver Native Health Society, Tal A’xin: Maya in Exile Garden, established in 2000 as one of the earliest projects at the UBC Farm, and xʷc̓ic̓asəm: Indigenous Health Research & Education Garden, part of LFS Indigenous Research Partnerships. Each year, these initiatives bring thousands of visitors to the Farm and engage hundreds of UBC students through academic connections such as class visits, group projects, graduate research, and directed studies.

The Indigenous Initiatives programming supports the objectives of UBC’s First Nations House of Learning in promoting research that will benefit First Nations, Métis, and Inuit People, the specific research goals of the Indigenous Research Partnerships, as well as the university-wide strategy for Indigenous engagement, as outlined in UBC’s Aboriginal Strategic Plan. By expanding its existing programs and international Indigenous links, as well as furthering opportunities for community-based research, the CSFS aims to enhance UBC’s role as an agent of change at the intersection of land, food and community.

Research Projects:

**Culturally Relevant Urban Wellness Program (CRUW)**
Lead Researchers: Eduardo Jovel, Jeffrey Schiffer  
*Funding: Vancouver Foundation*

CRUW as a support for youth acknowledging land in a context of healing, growth, self-reflection, and personal and community development.

**Decolonizing Framework for Land Based Pedagogies**
Lead Researchers: Eduardo Jovel, Alannah Young  
*Funding: Social Sciences and Humanities Research Council (SSHRC)*

Examines a practice of decolonizing pedagogy used by a group of Indigenous Elders and community knowledge holders in the unceded xʷməθkʷəy̓əm (Musqueam) Coast Salish areas of British Columbia.

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**Highlights**

- 173 xʷc̓ic̓asəm: Indigenous Health Research & Education Garden volunteer shifts totalling nearly 500 hours
- 97 individuals volunteered at the xʷc̓ic̓asəm Garden, including 48 UBC Students, 5 UBC Alumni and 2 Faculty Members
- 4 Traditional Medicine workshops offered to 80 participants
Community education and outreach activities encourage education in sustainability, environmental stewardship, healthy diets and lifestyles, and social development.

**Highlights**
- 817 people participated in tours and hands-on activities at the UBC Farm
- 25% of the groups returned for second or third visits
- Initiated free UBC Farm tours at UBC Farm Markets

**COMMUNITY ENGAGEMENT**

**Events**

The UBC Farm is a gathering place for diverse communities to support the CSFS and celebrate sustainable food systems.

- **400 guests attended Joy of Feeding**, a unique inter-generational, international food festival and fundraiser for the CSFS in the fields of UBC Farm chaired by Meeru Dhalwala of Vij’s and Rangoli Restaurants. Joy of Feeding hosted 12 home cooks from 12 countries.
- Inaugural **UBC Farm Open House** attracted more than 500 visitors—despite torrential rain—featuring workshops, demos, research presentations, and Farm tours.
- 14th annual **FarmAde**, hosted by the UBC Alma Mater Society (AMS), allows new students to discover the UBC Farm, and enjoy local and sustainable food, music and square dancing.

**Volunteer Program**

The CSFS Volunteer Program enhances community food literacy, increases student experiential learning, and supports the organic production certification maintained by the UBC Farm.

- **Urban Farmers** teaches volunteers about all aspects of sustainable farming, from weeding to planting and harvesting
- Volunteers at the xʷc̓icəsoam and Tu’wusht gardens gain hands-on experience with traditional foods and medicines and learn from Elders
- Farm Market volunteers gain business and retail experience at the **UBC Farm Market**
- Volunteers with **Children’s Programs** learn to lead children’s activities in the FarmWonders programs
- Volunteers of all-ages learn sustainable growing and cultivation in the **Children’s Learning Garden**

- **398 volunteers**
- **6,078 total volunteer hours**—533 more hours than in 2015
- **301 student volunteers**
- **47 participants completed 20+ volunteer hours**
- **50% of participants returned to volunteer multiple times**
Highlights

- Increased formal student engagement with UBC Students:
  - 5 Community Field Experience (CFE) teacher practicum students
  - 2 Social and Emotional Learning practicum students
- 321 participants in the FarmWonders Camps
- 2,106 participants in the FarmWonders Field Trips
- Pilot Projects: Spring Break Camp and After Camp Care
- Intergenerational Landed Learning Project hosted 98 children and 102 children from 4 elementary schools from grades 3 to 7 (2016-2017)
- Intergenerational Landed Learning engaged over 70 community volunteers with a 67.5% retention rate from the previous year

CHILDREN’S PROGRAMS

The Children’s Programs offered at the UBC Farm include FarmWonders, FarmLeaders and the Intergenerational Landed Learning Project. CSFS Children’s Programs meet an important facet of our Academic Mandate by engaging and integrating learners of all ages.

FarmWonders

The FarmWonders program is a community education initiative that allows preschoolers through to secondary students to engage in hands-on activities at the UBC Farm through day camps and field trips. Children learn about the social and ecological aspects of food production through science-based, experiential learning. FarmLeaders, for children aged 12-14, furthers this learning into a leadership role.

Intergenerational Landed Learning Project

The Intergenerational Landed Learning Project, led by the UBC Faculty of Education, is a unique program dedicated to the advancement of knowledge and understanding of sustainable living, learning and practice through land food community-based environmental education programs and research. Students in grades 3 to 7 and adult mentors (with an emphasis on older adults) learn together in the field. Teachers work with project staff to integrate and extend the experiential component of the program with classroom lessons across the curriculum.

Pilot Project: Saplings Outdoor Program

Saplings partnered with the CSFS to pilot its nature-based preschool program at the UBC Farm, making this unique program available to families at UBC, the University Neighbourhoods Associations (UNA) Vancouver’s West Side and beyond. The outdoor program gives children the opportunity to connect with each other and the living environment through experiential, play-based learning, both in the forest and the agricultural spaces of the UBC Farm.
The UBC Farm is situated within a 90-year old coastal hemlock forest that comprises a mosaic of cultivated annual crop fields, perennial hedgerows, fruit orchards and educational demonstration gardens. The UBC Farm dedicates large fields to research, production and public engagement.

The UBC Farm grows over 200 varieties of fruits, vegetables and herbs. The Farm also features honey beehives, seed production, flowers and egg-laying, open-pasture hens.
Annual Field Crops
The UBC Farm aims to grow food in a financially, socially and environmentally sustainable manner that allows for food systems research, education, and community outreach to flourish. The program grows over 200 varieties of fruit, vegetables, flowers, and herbs.

- Improved seedling germination and tighter spacing (which increased crop density) led to increased production
- New equipment (plastic mulch layer, ripping/lifting implement) increased production density and yield
- Six research projects integrated into annual fields, including BC Seed Trials, Organic Production Systems Nutrient Dynamics, and Crop-Protection Research and Innovation for Adaptation to Climate Change in BC

Perennials and Biodiversity
Crops such as apples, flowers, and berries, as well as UBC Farm biodiversity hedgerows, increase our agrobiodiversity at the UBC Farm. The perennial crop fields act as classrooms and labs for UBC classes and the UBC Farm Practicum in Sustainable Agriculture.

- Fresh hops were sold as hop u-pick and to Dogwood Brewery
- Nature Vancouver bird survey organizers noticed an increase in bird population in the UBC Farm biodiversity hedgerows

Sales Distribution

- UBC Farm Market: 33%
- Wholesale: 37%
- CSA Shares: 7%
- Miscellaneous: 17%

Highlights
- UBC Farm Market sales increased by 23%
- 71 of 110 Community Supported Agriculture (CSA) shares sold to campus community
- 25% of wholesale sales sold to campus community
- Sales per cropped square feet: $1.09—increase from $0.92
- Sales per food cultivation labour hour: $27.83—increase from $23.42
- Increase in production for blueberries, strawberries, apples, hops, and flowers which resulted in an increase of 25% overall revenue for these crops
- On May 1, 2016 UBC Farm became certified organic through NOOA. Our market and wholesale produce is grown according to British Columbia Certified Organic Management Standards.

Poultry Program
The UBC Farm houses a flock of 150 hens using organic practices.

- Provided an example of a small-scale agricultural production operation, demonstrated agroecosystem integration through pasture management
- Point of engagement for the children’s programs, indigenous programs, and guided tours
- Eggs sales created a continuous, stable source of revenue for the Farm
- Overwintering the poultry flock increased revenue and provided community engagement opportunities during the off-season
The Centre for Sustainable Food Systems at UBC Farm’s Strategic Plan outlines a vision for how research, teaching and community engagement will promote change in our local and global food systems.

Dean Rickey Yada of the Faculty of Land and Food Systems (LFS) has tasked the LFS Development and Alumni Engagement team to fundraise for the classrooms, laboratories, community spaces and other capital infrastructure essential to achieving this vision. Leaders who share our vision and commitment to making sustainable food systems a reality for future generations have pledged over $11 million of the $20 million goal to date, including a transformational gift from Arran and Ratana Stephens (co-CEO’s & co-Founders of Nature’s Path), $1M from RBC, $1M from the Real Estate Foundation of BC, $500K from Vancity (of which $100k was in support for the Feeding Growth program), and other partners such as Whole Foods, Fairchild Capital, and the UBC Alma Mater Society (AMS). Industry and community members of the UBC Farm Social Innovation and Value Chain Innovation Working Groups have been instrumental in supporting us to bring to life CSFS’s vision of capital infrastructure to transform food systems. In addition, Meenu Dhalwala of Vij’s and Rangoli Restaurants’ annual Joy of Feeding celebration and the LFS annual appeal raise funds for CSFS at UBC Farm operations.

If you would like to participate in our annual appeal to contribute to the CSFS at the UBC Farm or if you would like further information, please contact Anna Grabowski, LFS Development Coordinator, at anna.grabowski@ubc.ca.

Partners Investing to Build the Future of CSFS at UBC Farm:

Arran and Ratana Stephens
(co-founders & co-CEOs of Nature’s Path)