



Connecting Environmental Sustainability with the Science of Organic Production | 2018-2023

The Organic Federation of Canada (OFC) in collaboration with the Organic Agriculture Centre of Canada (OACC) at Dalhousie University are pleased to introduce Organic Science Cluster 3 (OSC3): Connecting Environmental Sustainability with the Science of Organic Production. OSC3 is supported by the AgriScience Program under Agriculture and Agri-Food Canada's Canadian Agricultural Partnership (an investment by federal, provincial and territorial governments) and by over 70 partners from the agricultural community.

Organic Science Cluster 3 provides funding for 28 research activities. Work will be done by 60 researchers at 15 AAFC research centres and 14 universities/research institutions across Canada. Research will also take place at almost 150 Canadian farms. 41 graduate students are expected to participate.

The Cluster also includes a science coordination and national science communication program, to ensure the integrity and impact of the work.

Organic Science Cluster 3 builds on the success of OSC I and OSC II, and is part of the strategic plan of the Organic Value Chain Roundtable. The research activities included in OSC3 are the result of a national research needs and prioritization process, followed by a call for letters of intent. Letters of intent were reviewed for organic sector relevance and impact by a committee of 20 organic sector professionals. The invited full proposals underwent a rigorous scientific peer review process for scientific merit.

Public attention is increasingly being directed toward the roles of agriculture as a source of food and feed, in protecting the shared environment, and in taking responsibility for mitigating and adapting to climate change. Organic agriculture is a model of food production guided by principles of sustainability in terms of environment, resources, economics and animal well-being. The Canadian organic market is thriving, with double digit growth rates over the past decade, and the 5th-largest organic market in the world.

Organic production uses reduced-input, agro-ecological approaches. The research and development priorities for organic agriculture span all commodity groups and apply to the entire value chain, from production to consumption.

OSC3 research:

- a) Targets environmental challenges associated with agriculture,
- b) Supports new crop and variety development to diversify risk management options in an increasingly turbulent economic and ecological environment,
- c) Identifies low risk solutions to address pest problems,
- d) Explores options for improving the health and welfare of livestock,
- e) Transfers scientific knowledge to stakeholders in a form that they can use, and
- f) Builds scientific capacity in ecologically-based agricultural production.

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Themes & Activities

Partners

	Cluster Administration. Nicole Boudreau, Organic Federation of Canada - info@organicfederation.ca Margaret Graves, Organic Agriculture Centre of Canada, Dalhousie University – gravesm@dal.ca
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Science Coordination

1	Ensuring OSC3 science has integrity and impact. Dr. Andrew Hammermeister & Margaret Graves, Organic Agriculture Centre of Canada, Dalhousie University
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Field Crops

2	Development of breeding strategies for organic soybean production systems in Canada. Dr. Istvan Rajcan, University of Guelph	Field Farms Marketing Ltd., Organic Council of Ontario, Manitoba Pulse & Soybean Growers, Grain Farmers of Ontario, Western Grains Research Foundation
3	Evaluation of farmer-selected wheat, oat and potato genotypes under organic production in eastern and western Canada. Dr. Martin Entz, University of Manitoba	Western Grains Research Foundation, Organic Alberta, The Bauta Family Initiative on Canadian Seed Security - USC Canada, FarmFolk CityFolk
4	Efficacy of using cover crops in 2 of the 3 growing seasons on nitrogen supply in an organic soybean-winter wheat-corn rotation. Dr. Xueming Yang, AAFC Harrow	Grain Farmers of Ontario
5	Organic oat breeding / oat cultivars specifically developed for organic production systems in Canada. Dr. Jennifer Mitchell Fetch, AAFC Brandon	Grain Millers, Inc., Nature's Path, Prairie Oat Growers Association
6	Breeding of winter cereals to benefit no-till organic production systems. Dr. Jamie Larsen, AAFC Lethbridge	Western Grains Research Foundation, FP Genetics, SeCan, Saskatchewan Winter Cereals Development Commission, Duban Farms Ltd, Organic Alberta
7	Optimizing yield and resilience of organically grown milling oat. Dr. Steve Shirtliffe, University of Saskatchewan	Western Grains Research Foundation
8	The right balance: management strategies for plugging organic soil health constraints and moving forward. Dr. Bobbi Helgason, University of Saskatchewan Dr. Reynald Lemke, AAFC Saskatoon	Orval G. Caldwell and H. Ruth Gardner Caldwell Fellowship in Sustainable Agriculture/Agroecology, Organic Agriculture Fund Private Endowment, Western Grains Research Foundation, Leffers Brothers Ltd., City of Saskatoon
9	Diversified cropping strategies to improve sustainability of organic crop production in the Brown soil zone. Dr. Myriam Fernandez, AAFC Swift Current	Western Grains Research Foundation, Grain Millers, Inc., Imperial Seed Ltd., Cody Straza, Blair Metke
10	Agronomic performance, resilience and baking quality of wheat cultivar mixtures adapted to organic management in Eastern Canada. Dr. André Comeau & Julie-Anne Wilkinson, Centre d'expertise et de transfert en agriculture biologique et de proximité (CETAB+)	La Milanaise



Horticulture

11	Participatory variety trialing and breeding for commercial organic vegetable growers and seed producers in Canada. Dr. Hannah Wittman, University of British Columbia	The Bauta Family Initiative on Canadian Seed Security - USC Canada
12	Development of an organically managed baby greens production system: a multidisciplinary approach. Dr. Caroline Côté, Institut de recherche et de développement en agroenvironnement (IRDA)	Vert Nature
13	Organic vertical farming vs. smart use of greenhouses. Dr. Martine Dorais, Université Laval	L'Abri végétal, Inno-3B, Premier Tech Ltd.
14	Improving organic vegetable farm sustainability through enhanced nutrient management planning. Dr. Sean Smukler, University of British Columbia	Anonymous
15	Unique cover crops, rootstocks, and irrigation techniques for Canadian vineyards. Dr. Liette Vasseur & Dr. Andrew Reynolds, Brock University Dr. Mehdi Sharifi, AAFC Summerland	BC Wine Grape Council, Heather Laundry's Vineyard, Southbrook Vineyards
16	Physical control of pests and increasing the harvesting season via an innovative high tunnel adapted to organic berry farming, rain shelter and insect-proof nets. Dr. Martine Dorais, Université Laval	Les fraises de l'île d'Orléans inc., Les Industries Harnois inc., Dubois Agrinovation

Pest Management

17	Optimizing tillage and competitive green manures for Canada thistle control. Dr. Steve Shirliff, University of Saskatchewan	Western Grains Research Foundation
18	Potential of predatory bugs (Nabis and Orius) as biological control agents of the tarnished plant bug (<i>Lygus lineolaris</i>) in organic strawberry field. Dr. Caroline Provost, Centre de recherche agroalimentaire de Mirabel (CRAM)	Centre de recherche agroalimentaire de Mirabel, L'Institut national de la recherche scientifique, Association des producteurs de fraises et de framboises du Québec
19	Saponins as inducers of host resistance for insect and disease management in organic greenhouse production. Dr. Simon Lachance, University of Guelph	Erievue Acres, Freeman Herbs, Ontario Greenhouse Vegetable Growers
20	Ecological pest management for Spotted Wing Drosophila. Dr. Juli Carrillo, University of British Columbia	Active Agriscience Inc., The Carrillo Lab, Association des producteurs de fraises et de framboises du Québec

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21	Managing wireworms in vegetable crops using novel tactics. Dr. Todd Kabaluk, AAFC Agassiz	Enterra Feed Corporation, Red Soil Organics, Amara Farm, GWR Visser Farm, Fraser Valley Organic Producers Association, Lower Mainland Horticultural Improvement Association, Mid-Island Farmers Institute, PEI Potato Board, Snow Farms Ltd., Terralink-Biofert, E.S. Cropconsult Ltd., Eatmore Sprouts & Greens Ltd., Fraserland Organics, Growers Supply Co., West Coast Seeds
22	Biological control and management of Fusarium head blight and associated diseases in organic grain production. Dr. Manish Raizada, University of Guelph Dr. Myriam Fernandez, AAFC Swift Current	Grain Farmers of Ontario, Alberta Wheat Commission, Saskatchewan Wheat Development Commission, Prairie Heritage Seeds Organics Inc., Denis Brisebois, Martin Meinert, Dwayne Smith
23	Development of postharvest UV light therapy system and technology for extended preservation of fresh organic fruits and vegetables. Dr. Joseph Arul, Université Laval	Andor Corporation

Livestock

24	Optimization of berry by-products use in organic poultry production. Dr. Moussa Diarra, AAFC Guelph	Wild Blueberry Association of North America, Canadian Cranberry Growers Coalition, Fruit d'Or, Centre de recherche en sciences animales de Deschambault, Rosebank Farms
25	Welfare friendly alternative to surgical castration for organic pigs. Dr. James Squires, University of Guelph	Canadian Centre for Swine Improvement

Environment

26	The effects on soil biology, soil chemistry, and water quality of amending organically managed soils with struvite. Dr. Henry Wilson, AAFC Brandon	Ostara Nutrient Recovery Technologies Inc., Western Grains Research Foundation
27	Soil health in organic tillage-based systems. Dr. Derek Lynch, Dalhousie University	Grower participants (12)
28	Increasing pollination, biological control and beneficial insect diversity farms using flowering habitats. Dr. Jason Gibbs, University of Manitoba	Western Grains Research Foundation, Grower participants (25-30)
29	Net life cycle greenhouse gas emissions of Canadian organic field crop production systems. Dr. Peter Tyedmers, Dalhousie University	Grower participants (up to 60)

Knowledge Transfer

30	Enhancing research impact: knowledge translation and transfer (KTT) for the Canadian organic community. Nicole Boudreau, Organic Federation of Canada Dr. Andrew Hammermeister, Organic Agriculture Centre of Canada, Dalhousie University	
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