

Linking Organic Knowledge



Organic Agriculture Centre of Canada



Linking Organic Knowledge

Organic Science Cluster

2012 - 2013
Annual Report

Organic Science Cluster Partners & Sponsors 2012-2013

		Agriculture and Agri-Food Canada	Agriculture et Agroalimentaire Canada	 <p style="font-size: small;">a federal-provincial-territorial initiative</p>	
 <p>DALHOUSIE UNIVERSITY <i>Inspiring Minds</i> Faculty of Agriculture</p>					
					
		 <p style="font-size: small;">Fruits rouges, culture verte.</p>			
	<p style="font-size: small;">CSGA</p>  <p style="font-size: small;">ACPS</p>		BC New Varieties Development Council		
		 <p style="font-size: small;">CULTURE BIOLOGIQUE EN SERRE</p>	UNIVERSITY of GUELPH	 <p style="font-size: small;">Rethink Tomorrow</p>	
			Organic Grocer www.organicgrocerweb.ca		
					

Additional OACC Partners & Sponsors 2012-2013







		<p style="font-size: small;">Prince Edward Island ADAPT Council</p> 			
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Table of Contents

Director's Message	4
OACC Vision and Mission.....	6
OACC Advisory Board	7
OACC Staff.....	8
OACC Affiliates.....	8
Financial Statement	9
Organic Science Cluster	10
Organic Science Cluster – Overview	10
Organic Science Cluster – Map	11
Organic Science Cluster – Research Activities.....	12
Organic Science Cluster – Activity Leaders	13
Organic Science Cluster – Research Coordination.....	14
Organic Science Cluster – Management	14
Organic Science Cluster – Communication	15
Organic Science Cluster II: Science with impact for profitability, sustainability and competitiveness	16
OACC Research.....	17
Fertility Rate and Timing Effects on Organic Black Currant Growth and Yield during Establishment	17
Impact of Weed Management Strategies on Nutrient Uptake and Soil Microbiology of Organically Managed Small Fruits	18
Organic Management of Black Currants during Early Establishment and Production for an Export Market.....	19
Organic Dairy Transition in Alberta: Feed Quality, Herd Health and Production	20
Farmer, Industry, Research & Extension Collaborators.....	21
Education.....	23
Communications	24
OACC/CABC Website Report.....	24
E-zine.....	25
Newspaper Articles	26
Committees and Professional Activities	28
Peer Reviewed Publications and Theses	28
Conference Presentations and Posters	29
Invited Talks	30
Meetings, Field Days and Workshops	30
OACC Partners.....	31

Note: If you are viewing this report in print form, more information and links are available online. Please see www.oacc.info/About%20Us/annual_reports.asp

Director's Message

The 2012-13 year has been a very busy, challenging and exciting year of transition! A merger of the Nova Scotia Agricultural College with Dalhousie University, coupled with the end of major federal funding programs and planning for new programs has kept us more than busy.

First, the merger with Dalhousie University. As of September 1, 2012, the Nova Scotia Agricultural College merged with Dalhousie University and has become the Faculty of Agriculture. The Dalhousie Agricultural Campus remains as a satellite to the main Halifax campus. We are very optimistic about the merger with Dalhousie University. It will offer increased credibility for the university and faculty, as well as OACC itself. While the Nova Scotia provincial government has been a tremendous supporter of OACC as well as the NSAC over the past 10 years, we are optimistic about engaging with other researchers, granting agencies and industry partners as part of an academic institution. With this transition will come changes in financial management and administration. These changes can be challenging but we are all enthusiastic about settling into the new management systems. The merger will also mean that we will be completely refreshing the OACC website and integrating it within the Dalhousie University web platform. This will be a massive undertaking as we sort through the over 17,000 files that we presently archive.



Over the last four years the OACC has been the lead manager of Canada's Organic Science Cluster, working in collaboration with the Organic Federation of Canada, which acted as the industry applicant, and Agriculture and Agri-Food Canada, which was the principal funding agency. The Organic Science Cluster was a large management undertaking, including 28 research Activities and a communications program with scientists from universities, AAFC, and the private sector across the country collaborating. None of this would have been possible without the financial support from industry partners that leveraged the government money. I strongly encourage you all to recognize the list of OACC partners at the beginning of this report for their important financial commitments to advancing the science of organic agriculture in Canada. Results of the Organic Science Cluster work are available online through links in this report.

As we concluded our first Cluster, over the last year the OACC also led the planning and preparation of a new proposal for Organic Science Cluster II. This was a very thorough and interesting process led through our office in conjunction with the Research and Innovation Working Group of the Organic Value Chain Roundtable, which will act as the Steering Committee of the new Cluster. We received and reviewed 105 letters of intent from researchers across Canada with emphasis on industry collaboration and potential impact. Full proposals were invited from successful applicants and the final overall proposal of over 2500 pages of documentation was submitted at the end of March. The proposal was accompanied by over 100 letters of support from industry. We now anxiously await the decision of AAFC.

I anticipate that 2013-14 will be another year of transition as we continue our 'migration' to Dalhousie University. Once we receive word about funding for Organic Science Cluster II, we will be working hard to establish all of the linkages with industry partners and researchers so that we can get the research happening. A transition year such as this also provides an opportunity for evaluating the current strategic direction of the OACC and planning our course for the next few years.

Finally, I want to acknowledge the tremendous dedication of the OACC staff, Margaret Savard and Joanna MacKenzie, whose commitment and professionalism enable OACC to continue to serve as the leading centre for facilitating organic science and university education in Canada.



Andrew M. Hammermeister Ph.D., P. Ag.
Director, Organic Agriculture Centre of Canada
Assistant Professor, Department of Plant and Animal Sciences
Faculty of Agriculture, Dalhousie University

OACC Vision and Mission



Vision

Sustainable and science-based organic agricultural systems supporting healthy Canadian communities.

Mission

OACC facilitates and leads research and education supporting organic producers, consumers and other organic sector stakeholders to foster sustainable communities.

OACC Advisory Board

OACC is guided by an Advisory Board representing stakeholder groups from across Canada. It is comprised of members appointed for staggered three year terms. The 2012 Board is shown below.

For a current list of Board Members, please see: www.oacc.info/Board/board_welcome.asp

OACC Board members deliberate and make recommendations about policy, strategic directions and sustaining OACC. The Board considers feedback from Advisory Forums held at organic conferences across Canada each year. Groups represented on the Board include organic farmers, transitional farmers, food distributors and retailers, university researchers, organic extension specialists, students, Agriculture and Agri-Food Canada and organic organizations. The board is designed in such a way that it must include at least one member from Manitoba or Alberta, and each of British Columbia, Saskatchewan, Ontario, Québec and the Atlantic provinces.

We are indebted to past and current Board members who selflessly contribute time and help us to pursue our vision.

2012 Advisory Board Members:

- **Claude Berthélmé** - New Brunswick Department of Agriculture, Aquaculture and Fisheries, NB
- **Deb Foote** – The Organic Grocer, BC
- **Tandra Fraser** – Student, University of Guelph, ON
- **Chantal Jacobs** – Saskatchewan Agriculture and Food, SK
- **Michelle Jendral** – Dalhousie University, Faculty of Agriculture, NS
- **Rebecca Kneen** – Crannóg Ales/Left Fields, BC
- **Maryse Leblanc** – Institut de recherche et de développement en agroenvironnement, QC
- **Tim Livingstone** – Strawberry Hill Farm, NB
- **Dorothy Marshall** – Campbellton Farm, AB
- **Dean Spaner** – University of Alberta, AB
- **Randy Whitteker** – Ontario Natural Food Co-op, ON
- **Dwayne Woolhouse** – Crestview Organic Farms, SK
- **Vacant** – Agriculture and Agri-Food Canada

OACC Staff

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Julie MacKenzie (M.Sc.)
Nicholas Taylor (M.Sc.)

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Financial Statement

OACC Financial Statement as of March 31, 2013 for 2012/2013 fiscal year

Expenditures

	2012-13 Budget	2012-13 Actual	2013-14 Budget
Information Dissemination	115,000	97,201.23	145,000
Translation	30,000	15,806.76	20,000
Travel	23,400	11,850.92	19,000
Management and Operations	82,000	81,463.15	158,500
Research	85,000	78,247.56	
Total Expenditures	335,400	284,569.61	342,500

Revenue

	2012-13 Budget	2012-13 Actual	2013-14 Budget
PEI Ag Development Fund	26,500	26,500.00	
NS Tech Development	30,000	33,908.00	
Organic Science Cluster Communication & Management	257,000	206,321.91	290,000
Organic Science Cluster Research	28,500	20,481.07	
Other			52,500
Total Revenues	342,000	287,210.98	342,500

Notes:

- This statement does not include the salary of Director, who is paid through Dalhousie University.
- Information Dissemination costs include the salary of our Website Coordinator as well as contracted writing services.
- Management and Operations includes the cost of the Program Manager of the Organic Science Cluster.
- These are unaudited expenditures for the fiscal year ending March 31, 2013.
- This statement represents core OACC financials. Specific research contracts held in whole or in part by OACC staff are not included in this statement. Other research costs are included on those contracts.
- In-kind contributions (not shown here) are significant, especially those of the Nova Scotia Agricultural College/Dalhousie Faculty of Agriculture.
- Funding received through the Organic Science Cluster is received via an agreement with the Organic Federation of Canada, and consists of cash received from industry partners and Agriculture and Agri-Food Canada. For a list of contributors to the Organic Science Cluster, please visit: www.oacc.info/OSC/osc_welcome.asp.

Organic Science Cluster

Organic Science Cluster – Overview

Canada's Organic Science Cluster (OSC) is a collaborative effort led jointly by the [Organic Agriculture Centre of Canada](#) (OACC) at the Dalhousie Agriculture Campus and the [Organic Federation of Canada](#) (OFC). The Organic Science Cluster is part of the [Canadian Agri-Science Clusters Initiative](#) of Agriculture and Agri-Food Canada's [Growing Forward Policy Framework](#) and is supported by contributions from [industry partners](#).

The goals of the Organic Science Cluster are to facilitate a national strategic approach to organic science in Canada, link scientists across the country and disseminate the knowledge generated to organic stakeholders.

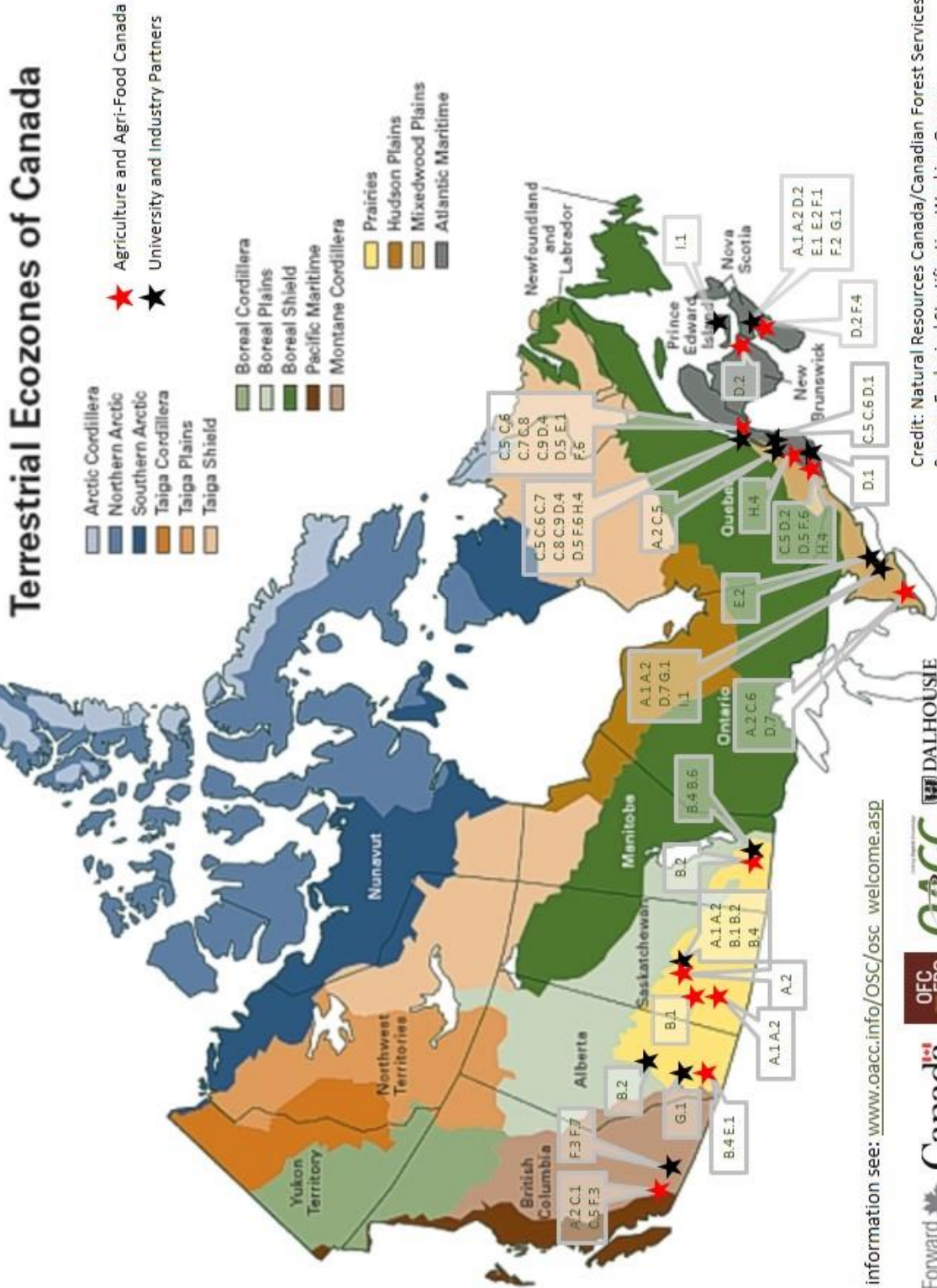
The Organic Science Cluster has identified 10 sub-projects including 29 research and communications activities that will be conducted by over 50 researchers and collaborators in approximately 36 research institutions and facilities across Canada. Activities of the Organic Science Cluster include work in fruit horticulture, agronomy, cereal crop breeding, soil fertility management, vegetable production, greenhouse production, dairy production systems, parasite control in ruminants, environmental sustainability, and food processing. This research comes at a time when there is renewed emphasis on innovation, efficiency (energy, labour, economics), and capturing value-added markets. Most of this research directed toward organic agriculture can also be applied to conventional production systems, drawing interest to this cluster from producers across Canada.

The Organic Agriculture Centre of Canada is responsible for overseeing the operation of the Organic Science Cluster, including management tasks such as the management of financials, reporting, fundraising, and communications.

For more information on the Canadian Organic Science Cluster, please visit:
www.oacc.info/osc/osc_welcome.asp

Organic Science Cluster – Map

Organic Science Cluster Researcher and Activity Locations Across Canada – 2009-2013



For more information see: www.oacc.info/osc/welcome.asp

Credit: Natural Resources Canada/Canadian Forest Services.
 Source: Ecological Stratification Working Group;
 © Her Majesty the Queen in Right of Canada, 1996

Organic Science Cluster – Research Activities

Subproject A: Biologically-Based Fertility Management

[Activity A.1](#): Characterizing soil phosphorus dynamics and availability under organic crop production

[Activity A.2](#): Predictive tools for characterizing mycorrhizal contributions to phosphorus uptake by organic crops

Subproject B: Integrated Grain-Based Cropping Systems

[Activity B.1](#): Changing weed populations under long-term organic crop production

[Activity B.2](#): Organic cereal crop breeding

[Activity B.4](#): Low-tillage grain production systems that suppress weeds and minimize tillage

[Activity B.6](#): Integrated grain-based cropping systems for biological and economic sustainability

Subproject C: Organic Greenhouse Production

[Activity C.1](#): Crop nutrition for vegetable plant propagation

[Activity C.5](#): Development of an organic greenhouse growing system for tomato that improves energy use efficiency and reuses the crop effluent as nutrient solution

[Activity C.6](#): Development of an organic greenhouse system for intercrop tomato and extended sweet pepper crop grown under supplemental lighting for year-round locally-grown fruit production

[Activity C.7](#): Feasibility of using geothermal energy as heat and humidity control for an organic greenhouse tomato crop

[Activity C.8](#): Optimizing fertilization and irrigation management for a closed greenhouse organic tomato growing system

[Activity C.9](#): Production of organic cuttings and potted plants

Subproject D: Integrated Management of Horticultural Field Crops

[Activity D.1](#): Agroecosystem management for pest control in organic vegetable production

[Activity D.2](#): System productivity and N flows in two organic vegetable long term rotations: High intensity stocked rotation versus a low intensity stockless rotation

[Activity D.4](#): Organic production of vegetable transplants for gardeners

[Activity D.5](#): Organic production of peat blocks for vegetable seedlings and detection of abiotic and biotic stresses

[Activity D.7](#): Development of a weed management system for pumpkins grown for seed in Ontario

Subproject E: Environmental Stewardship and Product Branding

[Activity E.1](#): Modeling farm scale energy and nutrient efficiency, and Global Warming Potential, as affected by management

[Activity E.2](#): Modeling Global Warming Potential (GWP) reductions associated with sub-watershed wide transition to organic farming

Subproject F: High Value Fruit Production

[Activity F.1](#): Organic management of black currant during early establishment and production for an export market

[Activity F.2](#): Weed management for organic wild blueberry production

[Activity F.3](#): Ecologically sound soil management in perennial fruit plantings

[Activity F.4](#): Innovative herbicide and fungicide replacement strategies for organic apple production

[Activity F.6](#): Organic production of strawberries and raspberries under tunnels

[Activity F.7](#): Control of Rosy Apple Aphid (RAA) in organic apple orchards

Subproject G: Benchmarking the Organic Dairy Production System

[Activity G.1](#): Assessment of health, welfare and milk composition on organic and conventional dairy farms

Subproject H: Organic Food Processing

[Activity H.4](#): Alternative approaches to direct addition of nitrite/nitrate for organic cured meats

Subproject I: Sheep Parasite Control

[Activity I.1](#): Over-wintering of gastrointestinal parasites in organic sheep production

Organic Science Cluster – Activity Leaders

- Activity A.1 – [Derek Lynch](#), Dalhousie University
- Activity A.2 – [Chantal Hamel](#), Agriculture and Agri-Food Canada (Swift Current)
- Activity B.1 – [Steve Shirliffe](#), University of Saskatchewan
- Activity B.2 – [Stephen Fox](#), Agriculture and Agri-Food Canada (Winnipeg)
- Activity B.4 – [Martin Entz](#), University of Manitoba
- Activity B.6 – [Martin Entz](#), University of Manitoba
- Activity C.1 – [David Ehret](#), Agriculture and Agri-Food Canada (Agassiz)
- Activity C.5 – [Martine Dorais](#), Agriculture and Agri-Food Canada (Québec)
- Activity C.6 – [Steeve Pépin](#), Université Laval
- Activity C.7 – [Damien deHalleux](#), Université Laval
- Activity C.8 – [Martine Dorais](#), Agriculture and Agri-Food Canada (Québec)
- Activity C.9 – [Blanche Dansereau](#), Université Laval
- Activity D.1 – [Maryse Leblanc](#), IRDA
- Activity D.2 – [Josée Owen](#), Agriculture and Agri-Food Canada (Bouctouche)
- Activity D.4 – [Martine Dorais](#), Agriculture and Agri-Food Canada (Québec)
- Activity D.5 – [Nicolas Tremblay](#), Agriculture and Agri-Food Canada (St-Jean-sur-Richelieu)
- Activity D.7 – [Robert Nurse](#), Agriculture and Agri-Food Canada (Harrow)
- Activity E.1 – [Derek Lynch](#), Dalhousie University
- Activity E.2 – [Rod MacRae](#), York University
- Activity F.1 – [Andrew Hammermeister](#), Organic Agriculture Centre of Canada
- Activity F.2 – [Nathan Boyd](#), Dalhousie University
- Activity F.3 – [Louise Nelson](#), University of British Columbia
- Activity F.4 – [Julia Reekie](#), Agriculture and Agri-Food Canada (Kentville)
- Activity F.6 – [Shahrokh Khanizadeh](#), Agriculture and Agri-Food Canada (St-Jean-sur-Richelieu)
- Activity F.7 – [Linda Edwards](#), Mennell Orchards
- Activity G.1 – [Trevor DeVries](#), University of Guelph
- Activity H.4 – [Joseph Arul](#) – Université Laval
- Activity I.1 – [Andrew Peregrine](#), University of Guelph

Note: To see a complete list of researchers involved in the Organic Science Cluster, please visit www.oacc.info/OSC/osc_researchers.asp.

Organic Science Cluster – Research Coordination

One of the roles that OACC performed in the Organic Science Cluster is that of research coordination. In addition to general management of the cluster, 28 scientific activities and three communication activities received funding. Each activity had specific deliverables outlined in a workplan and submitted annual performance reports. A comprehensive synopsis was created for each of the ten sub-projects and submitted to Agriculture and Agri-Food Canada (AAFC).

Activities included scientific studies in fruit horticulture, agronomy, cereal crop breeding, soil fertility management, vegetable production, greenhouse production, dairy production systems, parasite control in ruminants and environmental sustainability. The Science Advisory Board has met and deliberated on all research activities; all research activities have gone through the peer review process.

Activities undertaken in the 2012/2013 fiscal year include:

- Maintaining and consistently expanding research information on the website.
- Maintaining work in 29 Organic Science Cluster activities as part of the prescribed plan.
- Reporting, as required, on each research activity.
- Communications with researchers to discuss changes or enhancements to activities.

Organic Science Cluster – Management

One of the key roles undertaken by OACC towards the operation of the Organic Science Cluster is to oversee and administer the Organic Science Cluster on behalf of the Organic Federation of Canada (OFC). Working with the Research and Graduate Studies and Financial Services offices of the Nova Scotia Agricultural College (NSAC) and Dalhousie University, OACC has coordinated the establishment and maintenance of the agreements with industry partners and the universities, distributed funding, and managed reporting to the AAFC Science Cluster Initiative.

- Major administrative undertakings involved quarterly reporting of financial activities to AAFC, creating and maintaining the flow of funds to researchers and retrieving documentation required to produce financial claims. All researchers received reporting documentation as required and have reported as required for their respective activities. Progress reporting was completed as required, twice during the year.
- The Science Advisory Body met as required to maintain the peer review process of the Organic Science Cluster.

Organic Science Cluster – Communication

The Organic Agriculture Centre of Canada manages the communication aspects of the Canadian Organic Science Cluster (OSC), largely through the activities of [Subproject J](#). The OSC has generated valuable information, adding credibility to the science and practice of organic agriculture. The communication of these research results is an important part of this initiative. There are three main components to the communication plan:

1. *Disseminating Information for Use by Practitioners*

- Provide an online overview of Canada's Organic Science Cluster.
- Have a webpage dedicated to reporting progress and results of OSC- associated research.
- Translate the science of the OSC research into extension communications for practitioners.
- Increase awareness of organic research and the Organic Science Cluster.

2. *Translation*

- Make research results available in both official languages.

3. *Scientific Conferences, and Communications*

- Facilitate venues for organic researchers to gather, share results, and communicate, including a national organic science conference that was held in February 2012.

During the 2012-2013 fiscal year, much progress was made in meeting the communications mandate of the Organic Science Cluster, including:

- Webpages dedicated to the OSC were maintained and updated on the OACC website in English and in French (www.oacc.info/osc/osc_welcome.asp).
- Organic research and extension articles are routinely posted on the OACC website. Thirteen monthly E-zines in English and French were prepared and distributed to a mailing list of 17,500, providing updates to Canadian organic stakeholders as to progress in organic research. For more information, please [see below](#).
- Eleven newspaper articles on various topics relevant to organic agriculture in Canada were submitted to over 300 media contacts across Canada and posted on the OACC website. For an overview of the articles published, please [see below](#).
- A special, summer 2012 research issue of The Canadian Organic Grower magazine was produced in collaboration with Canadian Organic Growers. The Canadian Organic Grower is Canada's voice for organic – reaching farmers, gardeners and consumers across Canada for more than 35 years. The special, expanded issue of the magazine featured seventeen articles dedicated to organic research in Canada. The articles focused on disseminating practical information for growers, based predominantly on findings from the Organic Science Cluster. For an overview of the articles included in the special edition, please [see below](#).
- In total, thirteen conferences and meetings were attended by the staff of the Organic Agriculture Centre of Canada to discuss and disseminate information about the Organic Science Cluster. For more information, please [see the listings below](#).
- Ongoing translation of organic research abstracts, science cluster documents and extension files also took place over the past year, allowing research results to be made available in both official languages.

Organic Science Cluster II: Science with impact for profitability, sustainability and competitiveness

OACC, on behalf of the Organic Federation of Canada, submitted a proposal to the Agriculture and Agri-Food Canada Growing Forward II program which, if accepted, will encompass 2013-2018 in its research activities.

Organic Science Cluster II (OSCII) consists of industry-led research and development and its outcomes are centered on competitiveness, market growth, adaptability and sustainability. This will be accomplished by using innovation to drive 'ecological intensification' through the following Themes:

- A. Field crops: Optimizing productivity and competitiveness through adaptable systems for field crops
- B. Horticultural crops: Advancing the science of vegetable, fruit and novel horticultural crop production
- C. Crop pests: Innovation in sustainable pest management strategies
- D. Livestock: Optimizing animal health and welfare for productivity and quality
- E. Markets: Adding value to capture markets, understanding consumer demand and marketing structures
- F. Knowledge transfer: Creating impact through knowledge translation and transfer to organic stakeholders

Innovation is needed for the organic sector to be competitive and to grow and prosper. Innovation is the application of knowledge generated by science that leads to an improvement in the way things are done or a product that is diffused into the market place. Innovation may address barriers constraining production, increase efficiency of production by reducing cost, or support capturing new opportunities. The OSCII proposal includes a number of examples of innovation: crop breeding for improved cultivars, reduced tillage systems under organic management, use of biological soil amendments to improve plant health, development of new management products and practices for crops pests (insects, diseases and weeds) in field and storage as well as diseases and parasites of livestock, technological advances in greenhouse, high tunnel and land-based aquaculture production, management targeting optimization of the nutritional value of crops, utilizing advanced processing techniques to develop value-added products such as nutraceuticals, improved methods of meat preservation, and utilization of waste byproducts to enhance productivity.

OSCII will help producers capture opportunities by supporting the development of emerging and juvenile organic production in Canada that is responding to market demand including: quinoa, amaranth, hops, nutraceuticals, sprouts, ornamental potted plants, aquaculture, and poultry. With OSCII, organic stakeholders will keep the pulse on consumer demand through market analysis which is essential for monitoring growth and identifying opportunities.

OSCII is managed by the Organic Agriculture Centre of Canada at Dalhousie University on behalf of the industry applicant, the Organic Federation of Canada. OSCII is supported by over 100 contributing partners and is endorsed with 115 letters from stakeholders. OSCII includes over 200 collaborating researchers at institutions across Canada.

OACC Research

Fertility Rate and Timing Effects on Organic Black Currant Growth and Yield during Establishment

D.W. Hobson¹, D.H. Lynch², K. Pruski² and A.M. Hammermeister¹

Faculty of Agriculture, Dalhousie University, PO Box 550, Truro, NS, Canada ¹*Organic Agriculture Centre of Canada,* ²*Department of Plant and Animal Sciences*

Summary

A study on Prince Edward Island was initiated to assess the impact of organic fertility amendment rate and timing treatments on the growth, yield, berry size and soluble solids of black currants (*Ribes nigrum* L. 'Titania'). Bushes were planted in the spring of 2009 at two sites with black plastic mulch as a weed control without irrigation, and fertilized with seven fertility treatments in either the spring, the summer or split between spring and summer. Rates were 50, 100 and/or 150 kg estimated available N from a blend of crab meal and poultry manure (Nutriwave®). Yield and berry soluble solids were measured in 2010 and 2011.

Plants at the site with leaf P and K deficiencies showed lower growth and yield (492-2,540 kg ha⁻¹), but had significant differences in growth response to amendments compared with the site that had adequate levels of P and K, which had no significant difference among treatments in yield in 2011 (3,935-5,016 kg ha⁻¹) or growth among treatments in any of the three years. Where significant differences in growth were found, the medium spring fertility treatment gave the greatest growth and yield, followed by the high spring fertility treatment. The high spring treatment had the highest growth in 2010, but the lowest growth and yield in 2011.

Impact of Weed Management Strategies on Nutrient Uptake and Soil Microbiology of Organically Managed Small Fruits

A.M. Hammermeister¹, D.W. Hobson¹, K. Nelson¹, K. Pruski² and A. Singh.

Faculty of Agriculture, Dalhousie University PO Box 550, Truro, NS, Canada. ¹Organic Agriculture Centre of Canada. ²Department of Plant and Animal Sciences

Summary

The organic food market is one of the most active and rapidly growing sectors in North America. Within this growing market, a large portion of the organic producers are diversifying and expanding their operations through the addition of high-value crops such as small fruits and berries. Within the Maritimes, 52% of the organic producers are fruit and berry producers. During a 2008 survey conducted by the Organic Agriculture Centre of Canada (OACC), these producers listed effective and economical weed-management options as one of their top ten research needs.

Ground cover management is more important in organic berry and fruit production than conventional agriculture. Unlike conventionally farmed orchards which rely on inorganic fertility inputs, plants in organic systems rely on soil fertility derived from organic sources which only become available to plants through an active soil biology. Therefore, ground cover management must nurture this soil biology while minimizing competition from other vegetation. Typical ground cover management options for organic orchards include: periodic cultivation, mulching (synthetic or organic) or a continuous surface treatment such as an organic herbicide like acetic acid, flaming or mowing. The effect of eight ground cover management strategies (mowing, cultivation, cultivation + acetic acid, black plastic, black fabric, white fabric, hay under plastic and straw) on plant growth and yield, nutrient availability (PRS™ probes and leaf nutrients), soil biology (earthworm population, insect abundance and diversity and microbial biomass) and weed-suppression for the small-fruit production of black currants was investigated for two growing seasons.

The trial was established in Brookside, NS in 2011, and planted with black currant (cv. 'Resista'), with weed treatments applied throughout the growing seasons of 2011 and 2012. PRS™ probes and growth measurements were taken throughout, and berries were harvested to assess yield in 2012. Plants in the mowing treatment experienced severe water and nutrient stress, so this treatment is not recommended. However, the other treatments produced satisfactory weed control and bush growth. After two years of growth, cultivation produced the greatest bush growth, while the white fabric proved to have the best yield. Nutrient supply rate tended to be greater in the hay under plastic treatment, but was not directly related to bush growth or yield. Cultivation had the greatest cost-effectiveness, but soil biology parameters were low. Soil moisture was greatest under the straw and white fabric treatments, and temperatures were also the lowest. Temperature was highest under the black plastic treatment, with high fluctuations observed during hot summer days. While K supply rates were greatest under straw, this did not influence bush growth, yield or berry size and sugars. Earthworm and beetle populations were also greatest in the straw treatment, but beetle species diversity was low. Greatest beetle diversity was found in the hay under plastic treatment. Hay is recommended for use with black plastic, as it increased the supply rate of essential nutrients, notably P, which appeared to have increased soil biology.

Organic Management of Black Currants during Early Establishment and Production for an Export Market

A.M. Hammermeister, N. Taylor, D.W. Hobson, and K. Nelson.

Faculty of Agriculture, Dalhousie University. Organic Agriculture Centre of Canada. PO Box 550, Truro, NS.

Summary

Organic producers in Prince Edward Island (PEI) are utilizing black currants (*Ribes nigrum* L.) to diversify their operations and supply the market demand in Japan. This has increased the need for understanding the impact of cultivar selection and timing of harvest on black currant yields and berry characteristics such as anthocyanins and phenolics.

Consumers are constantly looking for new functional foods to incorporate into their diet. With that in mind, PEI farmers have started growing black currants to capture this market, as studies have shown that black currants provide protection from certain cancers, cardiovascular diseases, type II diabetes, obesity, and age-related macular degeneration. Black currants have not previously been grown commercially in PEI, so research on production practices and their effects on berry yield and quality is needed. Like most specialized fruit, growing organic black currants for large scale production requires specialized knowledge of factors that can affect berry quality.

Cultivar selection is important in the fruit and berry industry, as it can affect the end product. We investigated seven cultivars at one site in PEI to assess performance under Maritime conditions. While there were variations by year, overall the cultivar 'Whistler' was found to exceed the other six cultivars, as it had high plant growth, large berries, high sugar content and low titratable acidity. The cultivar 'Blackcomb' was also found to have a large bush size and high yield, accompanied with high levels of antioxidants, but exhibited slightly smaller berry size and lower levels of soluble solids. 'Ben Connan' exhibited the greatest yields in 2011, however 'Whistler' and 'Blackcomb' were found to have similar yields in 2012. 'Whistler', however, demonstrated a great deal of variability between plants. 'Ben Alder' tended to have the least amount of growth and low yields, suggesting that it will not lend itself to machine harvesting. As well, its lower berry quality, indicated by high titratable acidity, will also make this cultivar less desired for commercial and pick-your-own operations. The cultivar 'Titania' also exhibited high soluble solids, in spite of its noted bitter taste.

Harvest timing is also an important aspect of black currant production. Results suggest that berries that were left on the plants after 95% of berries had turned fully black had increased total soluble solids and total antioxidant capacity, which could prove to be desirable traits for the export market. Many berry parameters, such as total soluble solids, have reached their maximum 6 to 10 days after 95% of the berries on a bush have turned black and could be deemed ready to harvest. However, some parameters, particularly antioxidant measures, continue to improve after this time, suggesting that a delayed harvest could maximize these characteristics, should growers be able to delay harvest without a significant loss of berries or loss of firmness.

White pine blister rust was the most prominent disease on all cultivars, having greater than 90% infection rates. This could be a concern for future yields and plant growth as this disease can stunt growth, resulting in reduced yields.

Some black currant sites in PEI are showing deficient levels of N, P, and K in the leaf tissue which can influence bush growth, flower set and yield. These issues need to be addressed.

Organic Dairy Transition in Alberta: Feed Quality, Herd Health and Production

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Canada

Summary

This project was initiated to characterize the transition of dairy herds from conventional to organic production. Key challenges in organic dairy transition include herd health, reproduction and fertility, and the consistency of organic feed quality and supply, all with implications for milk yield and quality. The objectives of this study are to characterize the key crop, livestock and economic factors affecting organic dairy transition, and to identify factors constraining the transition process. Key findings of the research are as follows.

Standard milk production varied with changes of approximately +20%, +6%, +2% and -26% across four farms through the transition period. Milk production generally decreased as the cattle went out on pasture in the summer, however, standard milk did increase on some farms when cows were put out on pasture with high quality forage. The results of NDFD analysis, the first of its kind for pasture in AB, was generally quite high and the pasture forages had consistently high 30 hr degradability of NDF. Somatic cell count ranged from <100,000 to >400,000 depending on farm and timing of sampling. Milk urea nitrogen was closely related to protein intake through the feed and linked to milk production. The results demonstrated that intensive management of protein feed could result in sustained milk production if so desired. Conjugated linoleic acid content in milk of cows on pasture was higher than observed in dry lot.

The needs for calving assistance in herds ranged from 0.8% to 31.5%, with a Jersey herd having very low need for assistance. Overall incidence rate of clinical mastitis across all six herds was 0.23 cow cases per 365 cow-days at risk. Lying time was identified as a sensitive indicator of stall comfort, with 12 hours of lying time optimal (longer indicating greater comfort). Average lying time on farms ranged from 8:31 to 11:54. Across all farms, there were very low incidences of severe injuries (hock, knee, neck), however some farms did have moderate rates (15-30%) of major injury. Cleanliness scores varied among farms, and the farm with the lowest lying time also had the poorest cleanliness score and body condition. However, the farm with the highest lying time did not have the lowest injury or lameness scores. These results suggest that, while conditions are not severe, improvements are possible in most farms relating to health management.

The metabolic profiles and immune status of periparturient dairy cows transitioning from conventional to organic management system were observed. Taken together, data indicated that metabolic changes associated with initiation of lactation are preceded by an acute phase response in dairy cows, and that cows in organic systems seem to be healthier than cows under conventional systems. These differences might be due to differences in nutritional management and milk production expectations in the two systems. Differences in nutrition regimens, and likely in milk yields for summer and winter seasons, exacerbated cow responses to negative energy balance variably and the effects were more pronounced in summer than in winter. The severity of negative energy balance (NEB) can impair health status and productivity of dairy cows. Variability in blood metabolites and haptoglobin (Hp) among 3 Holstein and 1 Jersey herds was evaluated during their transition period. Neither breed nor stage of lactation affected concentrations of Hp in the cows. These observations imply that NEB is manifested similarly in Jersey and Holstein cows and only differs in the degree of severity.

Management practices varied considerably across farms as they went through organic transition. These differences in feed management and housing were reflected to some extent in the productivity and health of the livestock. Purposeful management of the cattle is more likely to produce desired results that can be sustained.

Farmer, Industry, Research & Extension Collaborators

(Including researchers in the Organic Science Cluster)

Ametaj, Burim - *University of Alberta*
 Angers, Paul - *Université Laval*
 Antoun, Hani - *Université Laval*
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 Bergeron, Renée - *University of Guelph*
 Berthéléme, Claude - *New Brunswick Department of Agriculture and Aquaculture*
 Bevis, Eric - *AAFC Kentville*
 Bittman, Shabtai - *AAFC Agassiz*
 Blackshaw, Robert - *AAFC Lethbridge*
 Boisclair, Josée - *IRDA*
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 Brault, Danielle - *Ministère de l'agriculture, des pêcheries et de l'alimentation du Québec*
 Braun, Gordon - *AAFC Kentville*
 Bunch, Martin - *York University*
 Burgess, Peter - *AgraPoint (NS)*
 Burton, David - *Dalhousie University*
 Carlberg, Jared - *University of Manitoba*
 Cassells, Logie - *NS Organic Farmer*
 Cousins, Stephen - *PEI Organic Farmer*
 Cutler, Chris – *Dalhousie University*
 Dansereau, Blanche - *Université Laval*
 deHalleux, Damien - *Université Laval*
 DesJardins, Yves - *Université Laval*
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 Doucette, Michael - *PEI Organic Farmer*
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 Forge, Tom - *AAFC Agassiz*
 Fox, Catherine - *AAFC Harrow*
 Fox, Stephen - *AAFC Winnipeg*
 Fredeen, Alan – *Dalhousie University*
 Frick, Brenda – *Bluebur Fluent Organics*
 Gariépy, Claude - *AAFC Saint-Hyacinthe*
 Gravel, Valérie – *McGill University*
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 Gulden, Robert - *University of Manitoba*
 Halberg, Neils - *ICROFS*
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 Hao, Xiuming - *AAFC Harrow*
 Hijri, Mohamed - *Université de Montréal*
 Hollinger, John - *Manitoba Agriculture, Food and Rural Initiatives*
 Holmes, Matthew - *Canadian Organic Trade Association*
 Hucl, Pierre - *University of Saskatchewan*
 Jacobs, Chantal - *Saskatchewan Ministry of Agriculture*
 Jansen, Jocelyn - *Ontario Ministry of Agriculture and Food*
 Janzen, Henry - *AAFC Lethbridge*
 Johnson, Eric - *AAFC Scott*
 Jones, Andria - *University of Guelph*
 Juurlink, Shelly – *Organic Meadow*
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 King, Jane - *University of Alberta*

Knight, Diane - *University of Saskatchewan*
Koberinski, Jodi - *Organic Council of Ontario*
Lacasse, Benoît - *AAFC Saint-Jean-sur-Richelieu*
Leblanc, Claude - *AAFC Saint-Hyacinthe*
Leblanc, Maryse - *IRDA*
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Mitchell, Scott - *Carleton University*
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Nelson, Louise - *University of British Columbia*
Nichols, Doug - *AAFC Kentville*
Noronha, Christine - *AAFC Charlottetown*
Nurse, Robert - *AAFC Harrow*
Owen, Josée - *AAFC Bouctouche*
Papadopoulos, Yousef - *AAFC Truro*
Pépin, Steeve - *Université Laval*
Peregrine, Andrew - *University of Guelph*
Pruski, Kris - *Dalhousie University*
Raviv, Michael - *Newe Ya'ar Research Center*
Reekie, Julia - *AAFC Kentville*
Reimer, Priscilla - *Manitoba Organic Alliance*
Richards, Theresa - *Atlantic Canadian Organic Regional Network*
Robinson, Darren - *University of Guelph*
Rochette, Phillipe - *AAFC Quebec*
Rodd, Vernon - *AAFC Nappan*
Roddy, Elaine - *Ontario Ministry of Agriculture and Food*
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Saucier, Linda - *Université Laval*
Sharifi, Mehdi - *Trent University*
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Shirliffe, Steve - *University of Saskatchewan*
Singh, Av - *AgraPoint (NS)*
Smith, Susan - *British Columbia Ministry of Agriculture, Food and Fisheries*
Spaner, Dean - *University of Alberta*
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St. Arnaud, Marc - *Université de Montréal*
Stewart, Katrine - *McGill University*
Tenuta, Mario - *University of Manitoba*
Tremblay, Nicolas - *AAFC St-Jean-sur-Richelieu*
Trépanier, Martin - *Université Laval*
Tucker, Anita - *University of Guelph*
van Biert, Pauline - *Alberta Agriculture*
vanLeeuwan, John - *University of Prince Edward Island*
Voroney, Paul - *University of Guelph*
Walsh, Ron - *PEI Organic Farmer*
Whitty, Frank - *PEI Organic Farmer*
Whitty, Mike - *PEI Organic Farmer*
Zagury, Gérald - *Université de Montréal*
Zebarth, Bernie - *AAFC Fredericton*
Zettel, Ted - *Organic Federation of Canada*

Education

OACC web-based courses are available to farmers, students, and others involved in organic agriculture. Participants can register for the courses regardless of their location and participate in the course material during the hours most suitable to them. Many students have found the interactive approach to be enjoyable and educational. It can be a valuable experience to interact with the instructor and with classmates that have similar interests and questions while sitting comfortably at home.

The courses offered in 2012-2013 are listed below, followed by the host institution.

- Composting and Compost Use (Dalhousie University).
- Key Indicators of Sustainable Agriculture (University of British Columbia).
- Organic Field Crop Management (Dalhousie University).
- Organic Livestock Production (Dalhousie University).
- Organic Marketing (University of Guelph).
- Organic Soil Fertilization (McGill University).
- Transition to Organic Agriculture (Dalhousie University).
- Weed Control in Organic Agriculture (University of Saskatchewan).

Five web-based courses are also available in French, through l'Université Laval and McGill University. These courses are roughly equivalent to the corresponding English courses offered at Dalhousie University.

- Compostage et utilisation du compost en agriculture biologique (Université Laval).
- Fertilisation biologique des sols (McGill University).
- Productions animales biologiques (Université Laval).
- Production biologique des cultures en champ (Université Laval).
- Transitions vers l'agriculture biologique (Université Laval).

Dalhousie University's Faculty of Agriculture offers a "Certificate of Specialization in Organic Agriculture". Any student who has successfully completed four of the eligible organic agriculture credit courses (including at least two courses from Dalhousie), and who has an overall average of at least 60% in these courses can apply to receive a Certificate of Specialization in Organic Agriculture.

For more information or to register for a course please visit the OACC website:

www.oacc.info/Courses/course_web.asp

Communications

OACC/CABC Website Report

While work continued behind the scenes to keep the OACC/CABC website (www.oacc.info) current, consistent and tidy, there were also a few more noticeable changes to the website over 2012-2013.

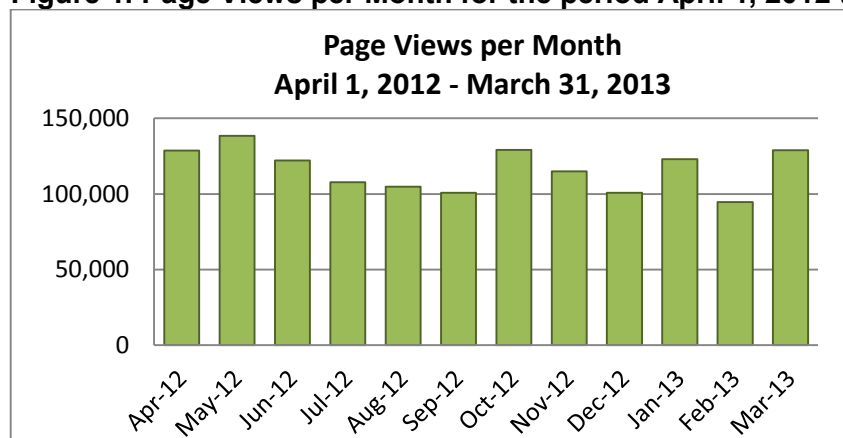
The Canadian Organic Science Conference was a great success, and lent many new webpages, documents and videos to the OACC website. There was excitement in 2012 as we embarked upon the early planning stages of Organic Science Cluster II (OSCII). The Call for Letters of Intent and Expressions of Interest for Organic Science Cluster II was launched in 2012, and along with it a set of new webpages dedicated to OSCII. The past fiscal year was also a year of transition, as the former Nova Scotia Agricultural College merged with Dalhousie University. The OACC/CABC website was revised to reflect this new relationship, with wordings and references to NSAC on the website revised and the Dalhousie logo added to the website banner. As we continue through the transition process, there will be more substantial changes for the site in the coming months.

The OACC website remains strong and continues to grow. While total page views dropped in 2012-2013, both the total number of visits and the number of unique visitors increased in this period (See Table 1 & Figure 1), suggesting that perhaps users are more targeted in the information that they are seeking, rather than simply browsing the site. Many visitors returned to the OACC website, with the average user returning between 2 and 3 times. OACC has also entered a memorandum of understanding with the International Centre for Research in Organic Systems (ICROFS), which has included the training of OACC staff as editors for their online, open access archive for papers and projects related to research in organic food and farming, Organic Eprints (www.orgprints.org).

Table 1: OACC/CABC Website Summary Statistics for the 2011/2012 and 2012/2013 Fiscal Years

	April 1, 2011 – March 31, 2012	April 1, 2012 – March 31, 2013
Total Page Views	1,739,183	1,393,869
# Unique Visitors	263,702	290,250
# Visits	643,175	682,564
% Returning Visitors	51%	48%
Average Visits per Visitor	2.47	2.42

Figure 1. Page Views per Month for the period April 1, 2012 to March 31, 2013



E-zine

A monthly E-zine, the Organic Friends' E-Zine/Cyberbulletin Les amis du bio, is published electronically in both English and French by the Organic Agriculture Centre of Canada. In 2012, the E-zine entered its ninth year of publication with a mailing list that remains strong at a relatively constant 17,500 subscribers. Of these recipients, approximately 15% open the distribution e-mail in a traceable fashion, with 25-30% of those clicking links to the main monthly E-zine page.

The Organic Friends' E-zine / Cyberbulletin Les amis du bio provides subscribers with an easy-to-use list of the new articles, research abstracts and extension bulletins that have been posted on the OACC website (www.oacc.info) each month. A website and E-zine survey was launched in March and April 2012, in an effort to better understand OACC's online audience and to best target materials to their needs, the results of which are being used to guide upcoming revisions to the website and E-zine

In 2012/2013, monthly E-zines were published in both English and French, as listed below.

English Organic Friends' E-zines 2012-2013	French Cyberbulletin Les amis du bio 2012-2013
March 2013	Mars 2013
February 2013	Février 2013
January 2013	Janvier 2013
December 2012	Décembre 2012
November 2012	Novembre 2012
October 2012	Octobre 2012
Special Organic Week Issue 2012	Édition spéciale pour la Semaine bio 2012
September 2012	Septembre 2012
August 2012	Août 2012
July 2012	Juillet 2012
June 2012	Juin 2012
May 2012	Mai 2012
April 2012	Avril 2012

Newspaper Articles

Every month, organic research and innovation in Canada is highlighted in one or more newspaper articles that are distributed to over 300 media contacts across the country, including the Western Producer, Farm Focus and Ontario Farmer. These articles are posted on the OACC website one month after publication. In addition, seventeen articles were written for a special, expanded summer 2012 edition of The Canadian Organic Grower Magazine. The articles focused on disseminating practical information for growers, based predominantly on findings from the Organic Science Cluster. To read, please see the list below, or visit www.oacc.info/NewspaperArticles/na_welcome.asp

March 2013	The Science of Cow Behaviour: An Interview with Dr. Trevor DeVries
February 2013	Nitrates and Nitrites in Preserved Meats – An Evolving Process Les nitrates et les nitrites dans les viandes conservées – un processus en évolution
January 2013	Sheep Solutions: An Interview with Dr. Andrew Peregrine Solutions moutons: Une entrevue avec le Dr Andrew Peregrine
December 2012	The Apple Tree Immunologist L'immunologiste des pommiers
November 2012	Help Wanted: Supporting Organic Agriculture in Canada Pour développer l'agriculture durable, les Canadiens ont besoin de davantage de soutien pour se convertir vers l'agriculture biologique
October 2012	The Projects of the Organic Science Cluster Answer Producers' Needs Les projets de la Grappe scientifique biologique répondent aux besoins des producteurs
September 2012	A Passion for New Organic Varieties Une passion pour les nouvelles variétés
August 2012	The Crafting of Organic Oats Avez-vous mangé de l'avoine au petit déjeuner ce matin?
July 2012	Helping New Trees Thrive in Organic Orchards Soutenir la croissance des jeunes arbres dans les vergers biologiques
June 2012	Soil Microorganisms are at the Heart of the New Green Revolution Les microorganismes du sol sont au cœur de la nouvelle révolution verte
April 2011	Establishing an Insectary: Using Flowers to Attract Beneficials Établir un insectarium: utiliser les fleurs pour attirer les insectes bénéfiques

Special Summer 2012 Issue of The Canadian Organic Grower Magazine

[Many Little Hammers: Ecologically-Based Weed Management](#)
[De multiples petits marteaux : Gestion écologique des mauvaises herbes](#)

[Weeding Organic Cucurbits](#)
[Déssherber les cucurbitacées](#)

[Weed Control in Lowbush Blueberries](#)
[Le contrôle des mauvaises herbes dans la culture des bleuets à feuilles étroites \(ou nains\)](#)

[Planting for Pest Control](#)
[Planter pour le contrôle des ravageurs](#)

[Crop Rotation: The 19-Year Glenlea Study](#)
[Rotation des cultures : L'étude Glenlea de 19 ans](#)

[Catch P If You Can: The Story of Farmers & Phosphorus](#)
[Attrape P si tu peux : Histoires d'agriculteurs et de phosphore](#)

[Grazing Green Manures](#)
[Paître des engrais verts](#)

[Cover Crops for Disease Suppression](#)
[Les cultures-abris pour la suppression des maladies](#)

[Managing Internal Parasites in Sheep](#)
[La gestion des parasites internes du mouton](#)

[Organic Dairy Cows: Health and Welfare](#)
[Vaches laitières biologiques : Santé et bien-être](#)

[The Northern Tomato: A Hot Topic in a Cold Climate](#)
[La tomate du Nord : Un sujet chaud dans un climat froid](#)

[Perfecting the Potting Mix](#)
[Parfaire le mélange de cultures](#)

[The Apple Tree Immunologist](#)
[L'immunologiste des pommiers](#)

[Growing Apples Using an Organic Philosophy](#)
[Cultiver des pommes en appliquant la philosophie biologique](#)

[Berries, Berries, Berries](#)
[Petits fruits, petits fruits, petits fruits](#)

[Nitrates and Nitrites in Preserved Meats – An Evolving Process](#)
[Les nitrates et les nitrites dans les viandes conservées – un processus en évolution](#)

[The Carbon Footprint of Organic Farms](#)
[L'empreinte carbone des fermes biologiques](#)

[Canadian Organic Extension Network](#)

Committees and Professional Activities

Andrew M. Hammermeister

Advisor, Landscape Indicators and Agri-Environmental Policies for Biodiversity, Carleton University
Chair (Interim), Research and Innovation Working Group, Organic Value Chain Roundtable (OVCRT)
Member, Agricultural Institute of Canada Honours and Awards Committee
Member, Dalhousie Agricultural Campus Chef Garden Committee
Member, Dalhousie University Faculty of Agriculture Faculty Council
Member, Food Subcommittee of the Dalhousie University Campus Sustainability Committee
Member, Guelph Organic Conference Committee
Member, Graduate Student Committees: David Hobson (co-supervisor), Nicholas Taylor (co-supervisor), Kyle Gallant (co-supervisor), Julie MacKenzie (co-supervisor), Caroline Halde, Harun Cicek, Basanti Bandekar
Member, Steering Committee and seat at the general table of the Organic Value Chain Roundtable
Peer reviewer for scientific journal articles

Joanna MacKenzie

Member, Canadian Organic Extension Network (COEN)
Member, Atlantic Canadian Organic Regional Network Conference Planning Committee
Member, Organic Council of Nova Scotia
Member, Nova Scotia Institute of Agrologists

Karen Nelson

Member, Nova Scotia Institute of Agrologists

Peer Reviewed Publications and Theses

Hobson, D. W. 2012. Establishing organic black currants in Atlantic Canada. M.Sc. Thesis, Dalhousie University.

Hobson, D.W., Lynch, D.H., Pruski, K. and Hammermeister, A.M. (2013). Fertility rate and timing effects on organic black currant growth and yield during establishment. *Acta Hort.* (in press)

Renkema, J.M., Cutler, G.C., Blanchard, D. and Hammermeister, A. 2013. Using ground beetles (Coleoptera: Carabidae) to control slugs in salad greens in the laboratory and greenhouse. *Can. Entomol.* (submitted)

Taylor, N., Hammermeister, A.M., Rupasinghe, V.P. and Pruski, K. 2013. Characterization of *Ribes nigrum* in relation to fruit maturity and genotype. *Acta Hort.* (in press).

Conference Presentations and Posters

Halde, C., Gulden, R.H., Hammermeister, A.M., Ominski, K.H., Tenuta, M. and Entz, M.H. 2013. Nitrogen dynamics in an organic rotational no-till system in Southern Manitoba. CSSS/MSSS/CSAFM Annual Meetings. July 22-25, 2013. Winnipeg, MB.

Hammermeister, A.M. 2012. The origin of soil and its properties. ACORN Organic Conference, November 22-24, 2012. Charlottetown, PEI.

Hammermeister, A.M. 2012. Research funding for organic fruit production in Canada. 2nd International Organic Fruit Research Symposium. June 18-21, 2012. Leavenworth, WA.

Hammermeister, A. M., Hobson, D.W., Pruski, K. and Lynch, D. 2012. Fertility management of establishing organic black currants. 2nd International Organic Fruit Research Symposium. June 18-21, 2013. Leavenworth, WA.

Hobson, D.W., Hammermeister, A.M., Pruski, K. and Lynch, D. 2012. Flower removal of organic blackcurrant (*Ribes nigrum* L.) to increase bush growth and yield during establishment. CSA-CSHS-CCA-AIC Conference 2012. July 16-19, 2012. Saskatoon, SK.

Hobson, D.W., Hammermeister, A.M., Pruski, K. and Lynch, D. 2012. Weed management of establishing organic blackcurrants (*Ribes nigrum* L.). CSA-CSHS-CCA-AIC Conference 2012. July 16-19, 2012. Saskatoon, SK.

Sharifi, M., Lynch, D.H., Hammermeister, A.M, and Burton, D. 2012. Green manure and biowaste compost impacts on soil quality under organic potato production in Atlantic Canada. CSA-CSHS-CCA-AIC Conference 2012. July 16-19, 2012. Saskatoon, SK.

Sharifi, M., Alam, Z., Reekie J. and Hammermeister, A. 2013. Assessment of modified Swiss sandwich system of ground cover for supplying nitrogen to an organic apple orchard. CSSS/MSSS/CSAFM Annual Meetings. July 22-25, 2013. Winnipeg, MB.

Taylor, N., Hammermeister, A.M. and Rupasinghe, V. 2012. Characterization of berry quality of *Ribes nigrum* in relation to harvest timing and cultivar. 2nd International Organic Fruit Research Symposium. June 18-21, 2013. Leavenworth, WA.

Invited Talks

Hammermeister, A. M. 2013. Overview of the Organic Science Cluster. Atlantic Canadian Organic Regional Network (ACORN) 2012 Conference. Charlottetown, PE.

Hammermeister, A. M. 2013. Overview of the Organic Science Cluster. Organic Connections Conference 2012. Saskatoon, SK.

Hammermeister, A. M. 2013. The Science of Organic Agriculture. Canadian Health Food Association Expo East Trade Show. Toronto, ON.

Hammermeister, A. M. 2012. Organic management in Canada. Special presentation in a review of the International Centre for Research in Organic Farming Systems. Copenhagen, Denmark. (Invited, delivered by video due to family emergency).

Hammermeister, A.M., Savard, M. and MacKenzie, J. 2013. Organic Science Cluster Research Results. Eco Farm Day. Cornwall, ON.

Savard, M. 2013. Extension and the University. Guelph Organic Conference. Guelph, ON.

Savard, M. 2013. Overview of the Organic Science Cluster. Guelph Organic Conference. Guelph, ON.

Meetings, Field Days and Workshops

Atlantic Canadian Organic Regional Network (ACORN) 2012 Conference. Charlottetown, PE. November 22-24, 2012.

Atlantic Canadian Organic Regional Network's Beginner Farmers' Symposium. Sackville, NB. August 20, 2012.

Canadian Health Food Association Expo East Trade Show. Toronto, ON. September 20-23, 2012.

CSA-CSHS-CCA-AIC Conference 2012. Saskatoon, SK. July 16-29, 2012.

Eco Farm Day. Cornwall, ON. February 23, 2013.

Guelph Organic Conference. Guelph, ON. January 31 - February 3, 2013.

2nd International Organic Fruit Research Symposium. Leavenworth, WA. June 18-21, 2012.

International Centre for Research in Organic Farming Systems (ICROFS) Denmark – Invited speaker and expert adviser to a special meeting of the Danish Ministry of Agriculture, August 2012.

Invited witness for Senate Standing Committee on Agriculture and Forestry to give perspective on "Importance of Innovation in Agricultural Practices From the perspective of Environmental Sustainability". Ottawa, ON. April 26, 2012.

Invited witness House of Commons Standing Committee on Environment and Sustainable Development. Halifax, NS. May 29, 2012.

Organic Connections Conference. Saskatoon, SK. November 2-3, 2012.

Organic Value Chain Roundtable (OVCRT) Meetings. Ottawa, ON. May 2012 and February 2013.

Organic Week Celebration and Presentation at Dalhousie University's Agricultural Campus – Truro, NS, September 2012.

OACC Partners

Note: These partners represent financial and in-kind contributions to OACC and the Organic Science Cluster, its management and communication programs.

Canadian Agri-Science Clusters Initiative	Les Serres Sagami
Growing Forward	Les Tourbières Berger Ltée.
Agriculture and Agri-Food Canada	McGill University
Agri-Futures	Nature's Path Foods, Inc.
Alberta Livestock Industry Development Fund	Novozymes Biologicals
Anne's PEI Farm	OCIA
British Columbia New Varieties Development Council	Olymel
Canadian Seed Growers Association	Ontario Sheep Marketing Agency
Canadian Sheep Breeders Association	Organic Grocer
Canadian Wheat Board	Organic Federation of Canada
Dalhousie University	Organic Meadow
Dubois Agrinovation	Prairie Oat Growers Association
Gartshore Memorial Sheep Fund	Prince Edward Island ADAPT Council
Grain Millers Canada	Province of Alberta
Home Hardware	Province of Nova Scotia
Homestead Organics	Province of Ontario
Kubota Canada	Province of Prince Edward Island
L'Abri Végétal SENC	Symbionature
LaHave Forests	Université Laval
La Jardinerie Fortier	Université de Montréal
Les Fraises de l'Île d'Orléans	University of Alberta
Les Productions Horticoles Demers	University of British Columbia
Les Serres Frank Zyromski	University of Guelph
Les Serres Jardins-Nature	University of Manitoba
Les Serres Lefort	University of Saskatchewan
Les Serres Nouvelles Cultures	Western Ag Innovations
	York University