

CSA Newsletter

Canadian Society of Agronomy

June 2014



PRESIDENT'S MESSAGE

Greetings Fellow CSA members

Our upcoming joint Annual Meetings at the University of Lethbridge from July 10-12th, and held in collaboration with the Canadian Society of Horticultural Science (CSHS), is now just weeks away. It's been great to see the response to this event grow as the detailed program, including an exciting line-up of invited speakers and many volunteer papers submitted by CSA-member graduate students, gradually took shape over the past year. See inside this issue or visit <http://www.uleth.ca/csa-cshs> for further details on the conference. Our annual general meeting will also be held during this event at lunchtime on Friday July 11th. I am really looking forward to being in Lethbridge in July and hope to see you there. You may also want to note that in 2015 we will be participating once again in the Plant Canada meetings, to be held in Edmonton (see www.plantcanada.ca).

A continuing theme discussed by the CSA executive team this past year has been regarding ensuring the relevance, renewal and revitalization of CSA. I am very encouraged to note that our graduate student membership has increased substantially since last year, although there is no doubt much more that can be done on this front. These new scientists are key to renewal not only of CSA but, of course, the future direction of the science of agronomy in Canada. Providing new awards for graduate students to travel to, and present at, our annual conference has been a positive step forward, judging by the number of submissions received. Additional initiatives already being discussed include helping revitalize, and possibly sponsoring, agronomy clubs at agricultural campuses across the country. Diversifying the makeup of the CSA executive as well as the overall membership, will also strengthen our revitalization efforts. Your new executive in the coming year will comprise a particularly strong team in this regard as it will include federal and university-based agronomists and also representation from a provincial agriculture department. I would like to congratulate and welcome these new executive members (Paula Halabicki, Manitoba Agriculture, Food and Rural Initiatives, Lily Tamburic, University of Guelph, and Rosalie Madden, Dalhousie University) and I look forward to working with them in our efforts to further broaden the outreach of the CSA.

As of our AGM on July 11th at the University of Lethbridge we will be saying farewell to executive members who will be stepping down. This includes: Gavin Humphreys, AAFC (Past-President), Helen Booker, Univ. of Saskatchewan (Western Councillor) and Teketel Haile (Student Representative, Univ. of Sask.). I would like to thank Gavin, Helen and Teketel for their creativity, time and effort over the past number of years that they have so ably served CSA. My tenure as CSA President also ends at our AGM during our annual conference at University of Lethbridge in July. I've been honoured and have much enjoyed over the past year the opportunity to serve our Society in this role.

Derek Lynch



New CSA Executive Members

President - Brian Beres

Dr. Beres is a research scientist at Agriculture and Agri-Food Canada's Lethbridge Research Centre in Alberta. Dr. Beres started his career path as a teacher in southern Alberta after obtaining Bachelor's degrees in Education and Geography. However, the allure of scientific research, which he was exposed to as a summer student at AAFC, inspired him to change career paths whereupon he obtained a Master's and PhD from the University of Alberta. Dr. Beres established an agronomy program in 2000 and leads several multi-disciplinary projects developing innovative and integrated crop management systems. Dr. Beres publishes in the areas of agronomy and crop science and has been the author or co-author of 46 peer-reviewed research articles and 1 book chapter. He is a member and President-elect of the Canadian Society of Agronomy, active member of the American Societies for Agronomy, Crops and Soils, and currently serves as an Associate Editor for the Canadian Journal of Plant Science. Dr. Beres and his co-authors were the recipients of the 2013 Canadian Journal of Plant Science Best Paper Award. He maintains close ties with both producer organizations and several national and multinational private companies that have a stake in crop production systems and life sciences research. Dr. Beres has several international collaborations and represents Canada on the Research Committee of the International Wheat Initiative. Dr. Beres is the past-Chair of the Prairie Recommending Committee for Wheat, Rye, and Triticale and led this cross-sectorial group through a review of the current registration process to ensure any impediments to the pace of delivering new genetics to the marketplace were removed.



President Elect - Dr. Tarlok Singh Sahota

Dr. Tarlok Singh Sahota, Director of Research and Business, Thunder Bay Agricultural Research Station (TBARS), Thunder Bay, Ontario, has been heading the TBARS since January 2004. Dr. Sahota has generated a lot of valuable agronomic data. As a result of Dr. Sahota's research and public outreach, area producers adopted a number of crops/crop varieties and beneficial nutrient management practices, diversified and expanded their operations and initiated new small scale commercial activities. Originally from a family farm, Dr. Sahota has Master's and Doctorate degrees in Agronomy with distinction, from the famous Punjab Agricultural University Ludhiana, India.



Dr. Sahota has undertaken International Course for Development Oriented Research in Agriculture (ICRA), Wageningen, The Netherlands (7 months course meant for young agricultural professionals). He has over 30 years experience in agricultural research, extension and development spread over four continents and 11 organizations. Highlights of his career include establishment of a 10101 acre commercially viable contract mint farming program for A. M. Todd Company USA and management of large scale commercial farms in Nigeria, including a fresh produce export project. Dr. Sahota served as a member of an International Panel for the Second External Review of ICRA, The Netherlands and has worked in multinational and multidisciplinary teams. He has several other awards and honors to his credit. Dr. Sahota has been an Ontario CCA since 2007, has published over 110 extension articles in Ontario and has made over 50 research presentations at Canadian Society of Agronomy (CSA), Plant Canada, American Society of Agronomy, and farmers' conferences in Ontario/Canada & USA in the recent past (total over 300 publications to date). Dr. Sahota is a member of the CSA and the American Society of Agronomy for many years now and has been an Eastern

Director of the CSA for the second term. He is a life member of the Indian Society of Agronomy and Indian Society of Soil Science.

Since 1993, Dr. Sahota has held senior management positions reporting directly to the board of directors, has headed multimillion dollar projects/divisions and has served on the board of directors of a commercial organization, marketing agricultural inputs. Dr. Sahota was nominated for the CCA Award of Excellence in 2013 and he has been appointed Adjunct Professor with the Faculty of Natural Resources, Lakehead University, Thunder Bay for the term (retroactive) July 1, 2013 through June 30, 2017.

Western Director - Paula Halabicki

Paula is the Diversification Specialist for the Prairies East Sustainable Agriculture Initiative (PESAI) Diversification Centre, working in the Agri-Innovation and Adaptation Knowledge Centre for Manitoba Agriculture, Food & Rural Development (MAFRD). She is based in Teulon, Manitoba managing PESAI's field research program throughout the Interlake and Eastman regions of the province, with a focus on diversification, innovation and value-added opportunities in the agricultural sector. Paula is a graduate of the University of Manitoba's Agroecology Program and holds a MSc. in Soil Science from the U of M. She has been working for MAFRD since entering the workforce. She resides in Teulon with her husband and two children.



Eastern Director - Lily Tamburic

Dr. Ljiljana (Lily) Tamburic-Ilincic is a Research Scientist at the University of Guelph, Ridgetown Campus and working as a winter wheat breeder/pathologist. She obtained a Ph. D. from the University of Guelph in breeding and genetics and has an adjunct professor appointment with the University of Guelph, Department of Plant Agriculture and University of Manitoba, Department of Plant Science. Lily is a recognized plant breeder by CSGA since 2007. In last fifteen years Dr. Lily Tamburic-Ilincic was a principal investigator or collaborator for numerous projects funded by AAFC, GFO, OMAFRA and several industry partners and currently she is in charge for a winter wheat breeding project funded under Growing Forward 2 and coordinated by Western Grains Research Foundation. Lily is asked to speak on her work on fusarium head blight in wheat at many levels, and she has published a number of papers in peer reviewed journals.



She serves as the provincial cereal disease coordinator on the Ontario Cereal Crop Committee since 2005. She was a member of the National organizing committee for the 5th, 6th and 7th Canadian Workshop on Fusarium Head Blight and The Canadian Wheat Symposium. Lily serves as a co-advisor or committee member for Ph.D. and M.Sc. students at the University of Guelph and University of Manitoba and as a reviewer for the numerous national and international journals including Plant Disease, Plant Breeding, Euphytica, Canadian Journal of Plant Science, European Journal of Plant Pathology and Canadian Journal of Microbiology. She coordinates Performance and Orthogonal winter wheat test at Ridgetown location including fusarium head blight nursery. She developed and registered with CFIA several winter wheat cultivars including OAC Flight, OAC Amber and Marker.

New CSA Executive Members (continued)

Student Representative - Rosalie Madden, Dalhousie University

Rosalie Madden graduated from McGill University in 2007 with a B.Sc. in Food Production and Environmental Science. After graduating, she became the assistant farm manager on a small organic vegetable farm outside of Montreal. In 2009, Ms. Madden accepted a position as a Crops and Soils Technician, conducting applied agricultural research and outreach with the University of Vermont Extension under Dr. Heather Darby. As part of the Northwest Crops and Soils Program at UVM Extension, Ms. Madden worked equally with conventional and organic practices, conducting research on over 20 different species. Topics covered a wide range of applied agriculture research, including variety trials, fertility management, crop rotations, cover crop termination, planting and harvest date studies, weed control methods, and double cropping methods, to name a few. While there she assisted in the writing and execution of numerous grants focusing on applied agriculture research and outreach. As part of her duties, Ms. Madden has written numerous technical bulletins, fact sheets, and research reports, as well as starring in several instructional YouTube videos. She also coordinated numerous field days, conferences, workshops, and annual meetings designed to bring the results of the Northwest Crops and Soils Program's research to farmers, agricultural service providers, industry representatives, legislators, and the public. In the spring of 2013, Ms. Madden returned to her Canadian roots and began her graduate studies with Dr. Derek Lynch in Dalhousie University's Faculty of Agriculture. Her M.Sc. work is focusing on an agronomic evaluation of the nitrogen dynamics of organic crop rotations using novel green manures. She has also assisted Dr. Lynch on a project focusing on legume retention in hayfields on organic dairy farms in Nova Scotia. Becoming a Certified Crop Adviser through the American Society of Agronomy in 2010, Ms. Madden has recently become a Professional Agronomist with the Nova Scotia Institute of Agrologists.



Update on public plant breeding in Ontario

Dr. Ali Navabi was appointed to the Grain Farmers of Ontario Professorship in Wheat Breeding in the Department of Plant Agriculture, University of Guelph starting May 1, 2014. The position is supported by a \$1-million investment involving the Grain Farmers of Ontario, SeCan and the Ontario Agricultural College. Dr. Navabi was previously an Agriculture Agri-Food Canada (AAFC) research scientist located at the Department of Plant Agriculture as the bean breeder in the joint AAFC/University of Guelph Bean Breeding Program. Ali has been an Associate Editor and currently serves as the Canadian Society of Agronomy Editor of the *Canadian Journal of Plant Science*.

Dr. Gavin Humphreys, Research Scientist with AAFC, recently relocated from Winnipeg to the AAFC Eastern Cereal and Oilseed Research Centre in Ottawa. Gavin is responsible for winter wheat germplasm enhancement focusing on the development of winter wheat with improved bread wheat quality for eastern Canada. In addition, Gavin will assist with the administration of the AAFC part of work in the Wheat Cluster. Gavin is currently the Past President of the Canadian Society of Agronomy.

Dr. Mehrzad (Milad) Eskandari has been appointed as an Assistant Professor, specializing in soybean breeding at the Ridgetown Campus of the University of Guelph. Dr. Eskandari started in 2013 and will conduct research on the development of novel soybean varieties for non-food uses continuing some of the work of the late Gary Ablett. Milad is a member of the Canadian Society of Agronomy.

Submitted by Elroy Cober, Eastern Director

2013 CJPS Best Paper

Beres, B.L., H.A. Cárcamo, J.R. Byers, F.R. Clarke, C.J. Pozniak, S.K. Basu, et al. 2013. Host plant interactions between wheat germplasm source and wheat stem sawfly *Cephus cinctus* Norton (Hymenoptera: Cephidae) I. Commercial cultivars. *Canadian Journal of Plant Science* 93:607-617.

Beres, B.L., H.A. Cárcamo, J.R. Byers, F.R. Clarke, C.J. Pozniak, S.K. Basu, et al. 2013. Host plant interactions between wheat germplasm source and wheat stem sawfly *Cephus cinctus* Norton (Hymenoptera: Cephidae) II. Other germplasm. *Canadian Journal of Plant Science* 93: 1169-1177 doi:10.4141/CJPS2013-035.

The wheat stem sawfly (WSS) *Cephus cinctus* Norton (Hymenoptera: Cephidae) is an economically destructive insect pest of wheat in the northern Great Plains. A significant resurgence in the southern prairies of Canada caused substantial economic losses from 1999 through 2007. It continues to be a major economic pest in states adjoining the Canadian Prairies and has become problematic in other wheat growing states such as Colorado and Nebraska. Solid stem cultivar selection is critical to the integrated management of WSS but adoption of these cultivars was low, which compounded losses at harvest. A study was conducted from 2001-2005 in southern Alberta and Saskatchewan, Canada to 1) establish the range of susceptibility of hollow stem varieties representing the major spring wheat classes, 2) characterize resistance levels in solid stem germplasm derived from traditional and novel genetic backgrounds, and to 3) determine the impact of host plant on WSS population dynamics. The solid stem varieties were generally superior at reducing damage and fitness response of WSS. However, some varieties such as McKenzie and the Canada Western Amber Durum cultivars AC Navigator and AC Avonlea provided improved efficacy over the other hollow stem cultivars. The novel germplasm Golden Ball and the derivative G9608B1-L-12J11BF02 were the most consistent at reducing damage, fitness and fecundity of WSS across an array of environments. The challenge will be to maintain this level of efficacy as the Canada Western Red Spring phenotype is reintroduced into the germplasm. Variability in fitness response suggests that stem type alone was only a partial solution to reduce female fecundity, and illustrates why multiple integrated strategies over the long term are needed to reduce populations to manageable levels. In summary, solid stem cultivars are highly effective but prone to inconsistent performance and should therefore be integrated into a holistic strategy for WSS that includes agronomics and biocontrol.

CSA AWARDS

Report of the 2014 CSA Awards Committee:

Preamble: There were nominees for three CSA Awards this year: Distinguished Agronomist, CSA Fellow and the Pest Management Award. There was no nominee for the Early Career Agronomist Award. The committee felt that the nominations/applications for the awards were all well prepared and the CSA Awards committee thanks everyone involved in applying or nominating a candidate for an award. The CSA should continue to publicize and encourage its membership to nominate worthy candidates for these awards.

Award Recipients:

Distinguished Agronomist: Dr. Harvey Voldeng

Dr. Voldeng has been active in research for over 40 years working in corn physiology, soybean and spring wheat breeding. Dr. Voldeng is responsible for pioneering work on early maturing soybeans which resulted in the release of “Maple Arrow” soybeans and ultimately led to the release of over 36 short season soybean varieties. Dr. Voldeng’s lines were the foundation for the over 700-fold increase in soybean production in Eastern Ontario and Quebec. He also developed the “Canatto”, a Canadian adapted soybean destined for the lucrative Japanese Natto market. Finally, he developed high protein soybean varieties suitable for on-farm feeding. Today, soybeans are grown from PEI to Saskatchewan contributing up to \$3 billion dollars to the Canadian economy. Later in his career, Dr. Voldeng moved to spring wheat breeding where he focussed on the development of Fusarium head blight (FHB) resistance. He has developed spring wheat varieties and germplasm with improved FHB resistance and the screening nursery he coordinates provides invaluable FHB disease reaction data for wheat breeders across Canada. In addition to research and cultivar development, Dr. Voldeng held multiple administrative positions in Agriculture and Agri-Food Canada and served as a member of Expert committees for many years. Dr. Voldeng has supervised graduate students and mentored many young scientists. He has published approximately 100 refereed publications.



CSA Fellow: Dr. Patricia Juskiw

Dr. Patricia (Pat) Juskiw has been an active researcher since 1986 and an active CSA member since 1990. Dr. Juskiw has worked as a scientist for Agriculture and Agri-Food Canada and with the Alberta Agriculture and Rural Development she has been an agronomist, geneticist and plant breeder. Most recently, Dr. Juskiw has been the leader of the two-row barley breeding program at the Field Crop Development Centre (FCDC) at Lacombe. In this capacity, she has produced six barley varieties including the first FCDC malting barley variety ‘Bentley’,



and she has been instrumental in production of several more feed barley and triticale varieties. Dr. Juskiw has led the cereal agronomy program for the Field Crop Development Centre in the development of management practices for cereals. Dr. Juskiw has served the Canadian Society of Agronomy through organising CSA meetings (2004) and executive positions including 3 terms as Western Director and three years as Secretary/Treasurer of the Society. Dr. Juskiw has served in numerous capacities on western registration committees including eight years as secretary of the Barley and Oat Subcommittee. Dr. Juskiw has authored or co-authored in excess of 70 peer reviewed scientific papers in Canadian and international journals.

2014 Pest Management Research Award - Andrea Hichon, University of Guelph

Andrea Hichon received her B.Sc in Environmental Biology from the University of Guelph (2012). Originally from the suburbs of Markham ON, she became curious about agriculture during her undergraduate degree and took time off to complete an 8-month farm internship. Curiosity turned to passion and Andrea is now completing her M.Sc. in Plant Agriculture at the University of Guelph Ridgetown Campus. She has gained experience in her field through a co-op term with the Canadian Corn Pest Coalition and through her participation in a number of international working group meetings. Her research focuses on detecting resistance to transgenic Bt corn by a major pest, western corn rootworm. Alongside advisor Dr. Art Schaafsma and Research Associate Jocelyn Smith, Hichon has engaged with academics, industry, government, and growers in both Canada and the U.S.A., in an effort to prolong the usefulness of Bt corn for insect management.



STUDENTS—Advantages to CSA Student Membership

The Canadian Society of Agronomy welcomes and strongly encourages graduate students from higher institutions across Canada to become members of the society.

Student members will get the benefit of:

- Networking with other Agronomists across Canada to share information about the recent developments in their area of expertise.
- Competitive travel awards to attend and present their research at the CSA annual conference
- Discounts when publishing their research findings in the Canadian Journal of Plant Science, which is an international, peer-reviewed journal
- Enhanced career opportunities.

All of these opportunities are available to students with greatly discounted annual membership fees (\$10/year). So you can be a member today by visiting: <http://www.agronomycanada.com/membership.html>

*Teketel Haile,
CSA Student Representative*

Renewals and the Newsletter

As I know you are aware, we are **well underway with the renewals and new membership campaign for 2014**. We are using the RegOnLine system that we had used for many years, and most people who have commented about it say it is slick and easy. Hope most of you find it that way, certainly I did when I renewed.

Remember that we all need to **encourage our colleagues and especially our students to join**. This year, student members are eligible to apply for a travel grant to attend the conference in Lethbridge, something new we are trying.

If you've renewed, you know that in that process we are asking a few questions about how best to deliver the newsletter. I've always hoped that the newsletter was not only a communication tool, but also a way to promote CSA. To this end, when you are done with the newsletter, **can you pass your newsletter to someone else who will not otherwise see it?** Maybe drop a copy in the coffee room?

By-law Update

Congratulations to all of us. CSA has succeeded in meeting the requirements to continue as a non-for-profit corporation under the new Federal Act. If you were a member in the last 2 years, you will recall all the fuss we went through about this. Thanks for your patience. Tedious stuff!

We were not successful in registering CSA as a charity. Some other similar organizations have this status, but it seems those organizations were Grandfathered as charities from an earlier time. Of course, CSA can still accept donations, but we cannot issue receipts that would allow you to use the donation as a tax credit. We now have new By Laws, filed with Corporations Canada, and we hope we don't need to change these for a long time! To avoid having to revise the By Laws too often, we opted for a new structure whereby we have a Rules and Operations document that gives many of the details that were in the former By Laws but often were in need of revision. Things like the deadline dates for award applications, names of awards, etc. The Rules document is still in draft, and it will be a 'living' document. By that I mean that we anticipate changes almost yearly. The Rules document will be revised and approved by the Executive, and it may even become an annual requirement for the Executive to vote on the Rules document. Both the By Laws and the Rules document will be posted on the web site. In that way, members can help identify errors or omissions in the Rules document and can alert the Executive.

Now we can get on with more productive Agronomy activities. Certainly the conference this year in Lethbridge is shaping up to be a highlight. Hope you can make it!

Thanks!

Steve S
Executive Director, Canadian Society of Agronomy

\$3000 in prize money
available to CSA student members!
Split among the 3 top oral and 3 top poster agronomy presentations
at the conference in Lethbridge.
Co-sponsored by SeCan and CSA

Balancing the Trade-Off between Productivity and Environmental Health

CSA and CSHS Joint Annual Conference, July 10-12th, 2014
University of Lethbridge, Lethbridge, Alberta

Plenary speakers Dr. Shabtai Bittman (Agriculture and Agri-Food Canada) and Dan Heaney (RandomCross Consulting) will explore the challenge of balancing productivity and environmental health within horticultural and agricultural crop production.

Special symposia featured speakers:

- Tim McAllister (AAFC) - *Role of condensed tannin containing forages in pasture productivity, animal and environmental health*
- Perry Miller, Montana State Univ. – *Using pulse crops to optimize nitrogen in dryland wheat production*
- Martine Dorais (AAFC) - *Environmental health through sustainable and organic protected horticulture production of fruits and vegetables*
- Alireza Navabi (AAFC) - *Plant breeding to target enhanced productivity and environmental sustainability in agricultural systems*
- Karen Tanino, Univ. of Saskatchewan - *An overview of abiotic stress research and introducing a novel model system to examine mechanisms of acclimation, freezing avoidance and tolerance.*
- Rod Bennett, Alberta Agriculture, Food and Rural Development - *Challenges and opportunities for enhanced irrigated crop production in Alberta*
- Brian Beres (AAFC) - *Host plant interactions between wheat germplasm source and wheat stem sawfly* (CSA Best Paper Award 2013)
- Samir Debnath (AAFC) - *In vitro and molecular techniques in cool climate berry crop improvement.*

For full program and registration details see: <http://www.uleth.ca/csa-cshs>

CSA Annual General Meeting

12:30-1:30pm Friday July 11th, 2014
Markin Atrium, University of Lethbridge, Lethbridge, Alberta

Come out and support your society and participate in our annual general meeting.

In addition to approving the treasurer report and budget, updates on CJPS and promotion of graduate student membership etc., we will be meeting the incoming executive and presenting awards to outstanding colleagues.

Lunch will be provided.

CSA EXECUTIVE

PRESIDENT

Derek Lynch

Dalhousie University
Dept Plant and Animal Science
50 Pictou Road
Truro, NS
B2N 5E3
Phone: 902-893-7621
derek.lynch@dal.ca

EXECUTIVE DIRECTOR

Steve Sheppard

P.O. Box 637
Pinawa, MB R0E 1L0
Phone: (204) 753-2747
Fax: 204-753-8478
sheppards@ecomatters.com

PAST-PRESIDENT

Gavin Humphreys

Agriculture & Agri-Food Canada
195 Dafoe Road
Winnipeg, MB R3T 2M9
Phone: 204-984-0123
Fax: 204-983-4604
gavin.humphreys@agr.gc.ca

PRESIDENT-ELECT

Brian Beres

Agriculture & Agri-Food Canada
Lethbridge Research Centre
5403 1st Avenue South
Lethbridge, AB T1J 4B1
Phone: 403-317-2251
brian.beres@agr.gc.ca

SECRETARY-TREASURER

Yvonne Lawley

University of Manitoba
Rm 222, Agriculture Building
66 Dafoe Road
Winnipeg, MB R3T2N2
Phone: 204-474-6504
Fax: 204-474-7528
ylawley@gmail.com

WESTERN DIRECTORS

Helen Booker

University of Saskatchewan
51 Campus Drive
Saskatoon, SK
S7N 5A8
Phone: 306-966-5878
Fax: 306-966-5015
Cell: 306-260-1464
helen.booker@usask.ca

Alison Nelson

Agriculture & Agri-Food Canada
303 Main Street, Floor 2, Room 200
Winnipeg, MB R3C 3G7
Phone: 204-259-4051
Fax: 204-259-4055
alison.nelson@agr.gc.ca

EASTERN DIRECTORS

Tarlok Sahota

Thunder Bay Agricultural Research Station
B012 435 James St. S.
Thunder Bay, ON P7E 6S7
Phone: 807-475-1373
Fax: 807-475-1313
tarloksahota@tbaytel.net

Elroy Cober

Agriculture & Agri-Food Canada, ECORC
960 Carling Ave
Ottawa, ON
K1A 0C6
Phone: 613-759-1610
elroy.cober@agr.gc.ca

STUDENT REPRESENTATIVE

Teketel Haile

University of Saskatchewan
51 Campus Drive
Department of Plant Sciences
Saskatoon, SK S7N5A8
Phone: 3068817624
teh837@mail.usask.ca

Canadian Society of Agronomy

Steve Sheppard, Executive Director

P.O. Box 637, Pinawa, Manitoba, R0E 1L0

Ph: 204-753-2747 Fax: 204-753-8478

E-mail: sheppards@ecomatters.com

Website: www.agronomycanada.com