



CSA Newsletter

Canadian Society of Agronomy

May 2007



President's Message

Change in the way we conduct the CSA business was indorsed at the 2006 AGM in Halifax. In this world of shifting priorities and declining resources, the dynamics of our discipline has been greatly affected. During the 2006 Annual Conference there was consensus that the CSA response to our changing world must include new ways to deliver our programs, activate new alliances and possibly integrate our operation with other Canadian scientific societies. While focusing on fulfilling the main objectives of CSA your executives were able to implement the following new ways of modernizing former alliances and activating new ones:

- A Memorandum of Understanding (MOU) between the American Society of Agronomy (ASA), Crop Science Society of America (CSSA), Soil Science Society of America (SSSA) and CSA was developed, signed and activated in April. The cooperation identified in this MOU includes: 1) mutual links to each other's web page; 2) space available in each other's newsletter; 3) complimentary space for a display at each other's annual meeting; 4) facilitated interaction among the executives of the collaborating societies; 5) and other mutually agreed activities of benefit to the profession. The collaboration will be expanded as the interaction between the above societies evolves.
- The AIC restructuring in 2004 necessitated the need to develop a new mechanism to insure the AIC Journals are effectively sustained intellectually and financially. Your executives are working with all partners (AIC, CSAS, CSSS, CSHS, CWSS and CSA) to develop an MOU to achieve the above objective.
- Partnering with the Nova Scotia Institute of Agrologists (NSIA) in activating the first Undergraduate Agronomist Club at the Nova Scotia Agricultural College (NSAC).
- The executives of both CSA and CSHS are working on developing an infrastructure model to facilitate integration of services and program delivery while sustaining the operational independence of each society.
- The CSA Conference Committee, activated in the summer of 2005, has been very effective in setting the foundation for successful scientific gathering. This committee ensures that effective planning is being conducted in a timely fashion and the committee members actively participate in supporting the local organizing committees of CSA conferences.

In addition to the above main accomplishments I am pleased to report that many of our newly activated committees are making great progress in recruiting new committee members and forging ahead executing their work plans. Please stay tuned for their updates at the 2007 AGM.

On behalf of the steering committee for the Plant Canada Conference I am delighted to report that we have excellent participation and the CSA planning committee is working to make this gathering the best networking meeting in 2007. I am confident that we will have a productive conference and a great experience. I look forward to seeing those who are planning to attend our conference in Saskatoon in June. Those who can not attend the conference please send us your feedback on the issues raised in this newsletter and also those to be emailed to you prior to the annual meeting.

As my participation in planning the 2007 AGM comes to a close with it I will complete my term as President. It has been a busy but very satisfying experience. I would like to welcome Dr. Tom Bruulsema as the incoming President. Tom is a well-known agronomist and a devoted member of the CSA, and as you know is completing his term as President-Elect. As a member of our executive team he was incremental in providing leadership on many tasks and above all he helped make my job as president enjoyable and rewarding. He will do an outstanding job in his new role as President following the 2007 AGM.

In closing I would like to take this opportunity to thank Steve Sheppard and our committed team of executives for their hard work and unfailing interest in our society affairs. Also, I would like to thank the many individual members who were called on to help the Executives with specific tasks or serve on various CSA committees. During my tenure as President, I have been blessed with the extraordinary support provided by our membership. Your hard work continues to ensure that our organization meets the highest standards expected from a national scientific society.

Yousef A. Papadopoulos
President

Variable weather: is it still a challenge to agronomists?

In Ontario and east, 2006 had a consistently wet fall season that resulted in delayed harvesting of most fall field seed crops, and a large decrease in plantings of winter wheat. Based on spring growth of winter wheat it appears that growers planting wheat after the rains resulted in poor stands. Growers that planted wheat by the third week of September appear to have very good stands and potential for a good harvest. As agronomists we repeatedly are reminded by nature that weather conditions have the greatest impact on production and quality of seed crops. Risk management due to weather has been greatly reduced by large strides in crop breeding and production technology. But Agronomists have on occasion been challenged by producers as to how much have we really improved in the area of crop production, such as yield improvements of a field crop over the last 10, 20 or 30 years.

The answers to the question of genetic improvement are very hard to identify and several forms of explanation have been undertaken. Scientific studies and publication articles on the subject of genetic yield improvement then and now usually offer explanations based on comparative studies for sets of varieties that were grown in the past and compared to existing varieties. Trend lines of yields from provincial yield trials based on best estimates aid in the interpretation of changes in yields. Results from provincial crop variety test plots are another source of genetic performance that offers more consistent comparison information.

Explanations of a field crop yield history lack the most critical factor to explain changes in genetics of the past and the present which is the environment. Environmental key factors are usually unexplainable due to the inability to interpret how the weather conditions affected crop variety performance. As an agronomist would you be able to compare the yields of winter wheat variety performance to varieties 10 or 20 years ago based on the effects of the 2006 wet fall environmental impacts?

Tom Welacky, GPCRC, AAFC, Harrow, ON

Your Executive wants to hear from YOU!

This summer in Saskatoon, along with the excellent scientific program of Plant Canada 2007, a member discussion session is planned. Last year in Halifax we received great input from the informal Tuesday evening session discussing our future as agronomists and as a society in Canada. The pizza was really good too! So mark your calendar for 5 to 7 pm on Tuesday the 12th of June, in Salon D.

Here are some things to be thinking about:

- What does it mean to be a distinctively Canadian agronomist?
- How can agronomic scientists better serve the needs of agronomy practitioners?
- How can the sciences of horticultural, weed science, agronomy and more improve their linkages for the benefit of crop production advisers?
- How can the discipline of agronomy be revived on campuses across Canada?

Canadians need agronomists more than ever. The number of issues per acre of arable land has never been greater. They include:

- Ammonia and air quality
- Nutrients and water quality
- Mitigation of greenhouse gases
- Crop adaptation to changing climate
- Pesticides in the environment
- Food safety
- Nutritive and nutraceutical value of food
- Pressure to produce biofuel in addition to food, feed and fibre
- Soil quality
- The consumer's perception of agronomy
- The opportunity to tell the story of the positive trends in crop production

And many more....

I look forward to the opportunity to discuss these issues with you in Saskatoon.

*Tom Bruulsema
President-Elect*

CONFERENCE IN SASKATOON!!

The Canadian Society Agronomy will hold its annual meeting in conjunction with Plant Canada 2007 in Saskatoon. The six Plant Science Societies affiliated with Plant Canada will be meeting from June 10-14. Plenary and volunteered paper and poster sessions will be held with the other societies. Full details and registration information are available at www.plantcanada.ca.

CSA Program Activities:

Sunday, June 10: CSA board meeting 9:00-15:00

Monday, June 11:

Student paper sessions 13:30-17:00

Student poster session 17:00-18:30

Tuesday, June 12:

CSA mini-symposium 10:30-12:00

Progress in Organic Cropping Systems:

Organic Cropping in the Semi-Arid Prairies: Opportunities, challenges and progress. S. Brandt*, E. Johnson, S. Malhi, G. Thomas and O. Olfert, Agriculture and Agri-Food Canada.

Soil-plant interactions in long- term organic cropping systems.

Martin Entz, University of Manitoba.

Economic and Social Impacts of Organic Production Systems.

Rod McCrae, Brenda Frick* and Ralph Martin, Organic Agriculture Centre of Canada.

CSA mini-symposium 13:30-15:00

Emerging Barriers to Marketing Crops:

The Good, the Novel and the Bad

Gordon Rowland, Crop Development Centre, University of Saskatchewan, Saskatoon SK

Challenges for the Export of Canadian Crops

Peter Burnett, Director, Grain Research Lab, Canadian Grain Commission, Winnipeg, MB

The Changing Market for Potatoes: Challenges for the Development and Introduction of New Varieties

Richard Tarn, Potato Research Centre, AAFC Fredericton NB

CSA general discussion of members on future initiatives 17:00-19:00

Wednesday, June 13:

CSA luncheon, AGM and awards 12:00-14:30

CSA board meeting 16:00-17:00

Thursday, June 14:

“Nutrient Cycling in the Soil-Plant System: Filling the GAPS” 8:30-12:00

Field tour – Kernen Crop Research Farm and AAFC Research Farm 13:00-16:30

PRESIDENT-ELECT NOMINEE:

Dr. Shabtai Bittman (acclaimed)

EASTERN DIRECTOR NOMINEES:

Dr. Tiequan Zhang

Dr. Tiequan Zhang obtained his B.Sc. (1982) in Soil Science and Plant Nutrition and M.Sc. (1988) in Soil Chemistry and Fertility from Shanxi Agricultural University, China; and his Ph.D. in soil Chemistry and Fertility from McGill University (1997). Dr. Zhang has been employed as a Research Scientist working in soil fertility area by Agriculture and Agri-Food Canada since 1998.

Dr. Zhang's major research has focussed on soil fertility management and its relationships with crop productivity and water quality. This includes research on bio-availability of nitrogen and phosphorus from livestock manures and composts, agronomic values of soil residual phosphorus, both short- and long-term transformation pathways of soil phosphorus and their relationships with phosphorus losses, and development of soil phosphorus index and BMPs for commercial inorganic fertilizers and organic wastes. Other areas of research are relationships between nutrients (nitrogen, phosphorus, and potassium) and crop (both field and horticultural crops) productivity and quality (e.g. isoflavones in soybeans and lycopene in processing tomatoes). He has authored/co-authored 44 peer-reviewed scientific papers/book chapters, 66 technical reports/conference proceedings, 22 invited speeches, and over 100 scientific presentations.

Dr. Zhang has been invited to conduct external review for a book proposal for CRC Press and grant proposals submitted to NSF (U.S.A), FCAR, and OMAF New Direction Research Program. He has been an advisor on one graduate student committee and a principle advisor for five others since 2000. He serves as a member for 4 Ontario Soil and Crop Management Research and Services Committees. He served as the Secretary/Treasurer (2003/04), Vice-President (2004/05), and President (2005/06) for the Association of Chinese Soil and Plant Scientists in North America. He serves as a member for the International Service in Agronomy Award Committee, America Society of Agronomy. He has served as the Eastern Director for the Canadian Society of Agronomy since 2005.

Dr. Philippe Seguin

Philippe Seguin is an Associate Professor in the Department of Plant Science at the Macdonald Campus of McGill University. He received a B.Sc.(agr) (General Agriculture) in 1995 and a M.Sc. (Plant Science) in 1997 from McGill University. In 2000, he received his Ph.D. (Agronomy) from the University of Minnesota.

Since joining the Department of Plant Science as an Assistant Professor in 2000, Dr. Seguin has developed a successful independent research program in basic and applied agricultural sciences. Currently his main research objectives are to increase knowledge of: i) factors affecting the flavonoid content of legumes in order to develop their use as nutraceuticals, ii) the potential and limitations of forage species in eastern Canada, and iii) nodulation specificity in legume-rhizobia symbioses.

Dr. Seguin's own research program has attracted over \$1 million in support from granting agencies, producers' organizations, and the private sector. Dr. Seguin's research has so far led to 40 peer-reviewed publications. He received the CSA Young Agronomist Award in 2005, and currently serves as Associate Editor for the *Canadian Journal of Plant Science* and *Agronomy Journal*.

WESTERN DIRECTOR NOMINEE:

Dr. Rigas Karamanos (acclaimed)

Rigas holds a Bachelor's in Agriculture from the Aristotelian University in Thessaloniki, Greece and M.Sc. (1975) and Ph.D. (1979) in Soil Chemistry and Fertility from the University of Saskatchewan. Rigas taught at the University of Saskatchewan and Macdonald College from 1980-85 and 89-90, and 1985-86, respectively. From 1986 to 1989 he served as the Senior Research Agronomist with Esso Chemical Canada and from 1989 to 1994 as a Professor of Soil Science and Director of the Saskatchewan Soil Testing Laboratory (SSTL). Rigas continued with his involvement in the Laboratory business after SSTL was privatized and until 1997 as President and General Manager of Enviro-Test Laboratories Saskatoon. As of mid-June 1997 Rigas was appointed as Manager of the Agronomic Crop Enhancement Specialists (ACES) program at Westco and as of January 1, 1999 as Manager, Agronomy.

WESTERN DIRECTOR NOMINEE (concluded):

Dr. Rigas Karamanos (acclaimed)

Rigas has 73 research and over 200 technical and conference proceedings publications covering an array of topics and has given over 530 extension talks to farmers, agronomists and government employees along with a number of radio and TV interviews and articles in popular magazines and newspapers.

Rigas has served or is serving as a member or on the executive of a variety of professional organizations and committees and maintains active membership in Canadian Society of Agronomy, Canadian Society of Soil Science, International Society of Soil Science, American Society of Soil Science, American Society of Agronomy, Alberta Institute of Agrologists and Agricultural Institute of Canada.

Rigas has participated in number of international projects in Greece, Zambia, India, North Korea and China through the International Atomic Energy Agency, the Food and Agriculture Organization of the United Nations or the Canadian International Development Agency.

PLEASE SEND NOMINATIONS FOR CSA AWARDS

Fellow of the Canadian Society of Agronomy:

A maximum of three Fellows are conferred each year on those members who have made a significant contribution to agronomy in Canada and to the Society over a period of at least ten years.

Young Agronomist Award:

This award is presented each year for distinguished service to a Scientist who is 40 years old or younger.

Distinguished Agronomist Award:

Is presented to members who have made a significant lifetime contribution to agronomy in Canada and to the Society.

Pest Management Research Award:

The award is made available annually to qualified graduate students enrolled in any aspect of pest management at Canadian universities.

Student Presentation Awards:

Criteria and forms for judging student presentations at the CSA Annual Meeting.

CSA PREVIOUS AWARD WINNERS 1993—2006:

Fellow:

K. Clark
T. Kunelius
B. Fowler
B. Christie
L. Bailey
D. Major
B. Coulman
A. McElroy
L. Dwyer
D. Smith
R. DePauw
H. Voldeng
J. Clark
Alan Hamill

David Hume
Gilles F. Belanger
Clarence Swanton
Robert Zentner
Shabtai Bittman
Yousef Papadopoulos
Martin Entz
Jim Moyer
Vern Baron
Cynthia Grant
Surya Acharya
George Clayton
Stewart Brandt
Adrian Johnston

Young Agronomist:

B. Rossnagel
D. Smith
C. Grant
A. Johnston
A. Brule-Babel
Hugh Beckie
Denis Pageau
William May
Istvan Rajcan
Ramona Mohr
Philippe Seguin

Distinguished Agronomist:

H. Stepler
B. Goplen
R. Wolfe
K. Kirkland
Lyn Kannenberg
Don Wentz
Bert Christie

Pest Management Scholarship:

Nathan Froese
Robin Underwood
Christian Willenborg
Mohammed Abu-Dieyeh

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Bio-Fuels: Agriculture in the Energy Sector

Bio-fuels are at the nexus of climate change and sustainable energy, to of the major challenges of the 21st century. The global extraction of crude oil is at its maximum about now, so that this energy resource will become increasingly limiting over the coming decades. At the same time global energy consumption is rising steeply, both in the “west” and in rapidly expanding economies such as China and India. A concerning side effect of increasing energy consumption is rising levels of the greenhouse gas CO₂, leading to climate change. For the last two years it has been the case that every time we get better data on climate change, the situation looks worse. Policy makers and the general public are now taking this issue very seriously. Thus, the combination of energy limitations and climate change make the development of sustainable energy sources imperative.

Bio-fuels will be particularly necessary as transportation fuels. The major bio-fuels currently of interest are bio-diesel and bio-ethanol. They have the energy density required to power our current transportation fleet. In North America bio-ethanol has received more attention than bio-diesel, however, in Europe the reverse is true. The major preoccupation in the US has been the development of alternatives to crude oil to improve energy security, while the Europeans have been focused on reducing greenhouse gas emissions. Ethanol production is generally through formation of sugars derived from one of three sources: 1. sucrose, as is the case with sugar cane, 2. starch, when seeds for corn or wheat are used and 3. cellulose, where stem and leaf material of plants (including trees) are converted into glucose. These sugars are then fermented to ethanol. There are other forms of bio-fuels, such as direct combustion (the most efficient), production of methane biogas through anaerobic fermentation of biomaterials and gasification, leading to production of syngas that can be used for hydrogen production and, through the Fisher-Tropsch process, bio-diesel. New technologies are now being developed in various laboratories, such as direct conversion of biomass into hydrogen and hydrogen treatment of fatty acids to remove the oxygen atoms, producing material much like petro-diesel. These will make a longer term contribution to the viability of bio-fuel.

The use of bio-fuels is not new. The first car produced by Henry Ford, the quadracycle, ran on bio-ethanol, and the first demonstration of the diesel engine was with a prototype powered by peanut oil. Bio-fuels continued to be used to varying degrees into the second world war, however, after that time the use of petro-chemical fuels became completely dominant.

Petro-chemical refineries make a reasonable amount of their profits from the production of energy fuels, however, a very important part of the economic viability also depends on the production of high value chemicals, eg. precursors of plastics. Production of bio-fuels must follow a similar approach with bio-refineries producing also producing precursors for bio-plastics, nutraceuticals, dyes and inks, etc. The interesting thing about bio-fuels is the ability to genetically alter the composition of the bio-feed stocks to enhance the levels of the high value components, or even add new ones.

Governments are now mandating various levels of bio-fuels and this presents a new opportunity for crop producers and those involved in crop development, but it also presents challenges, such as competition between food and fuel uses of crops, water supply for crop production, and the potential for expanded environmental damage as the total crop production area expands to accommodate bio-fuel cultivation. There are many things that can be done to improve the ability of crop plants to produce bio-fuels. We need to improve their nitrogen use efficiency or ability to fix nitrogen, depending on the crop, to improve the photosynthetic conversion of atmospheric CO₂ into biomass, to improve the quality of the materials produced (the exact nature of this depends on the intended use of the crops – combustion, bio-diesel, bio-ethanol, etc), and improved efficiency of overall production systems. It seems certain that, initially, we will divert our conventional food crops into bio-fuel production, but as time goes by we will begin to develop specialized bio-fuel crop and crop production systems. This will be both a major opportunity and a major challenge to the members of the Canadian Society of Agronomy over the next few decades.

*Donald L. Smith
Plant Science Department
McGill University*

IN MEMORIUM:

Dr. NORMAN CAMERON LAWSON, a lifelong promoter of Scottish culture, died on St Andrews Day, November 30, 2006 in Winchester Hospital. Having survived a heart attack and double by-pass in 2005, he was to succumb to pulmonary fibrosis ("farmer's lung") in his 78th year. He is survived by his wife Sara, children Laurie, Cameron and Yvonne, and grandson Connor.

Norman was born in Glasgow, Scotland and was educated at Queen's Park school. After completing school and before entering university, he spent two years working on a dairy farm.

Norman obtained his BSc at the University of Glasgow in 1953 and received a National Diploma in Agriculture the same year. He followed this with a Postgraduate Diploma in Agriculture at the University of Reading in 1954.

Between 1954 and 1956, he served in the Royal Artillery and was stationed in Germany and Hong Kong.

Norman arrived in Canada in September 1956 to enroll in graduate studies at Macdonald College in the Department of Agronomy. His research, for which he was awarded an MSc in 1958 and PhD in 1961, was in the area of plant breeding, specifically improvement of red clover, timothy and birdsfoot trefoil. It was at Macdonald College also, that he met and married Sara Grisdale, and acquired a blind collie (Captain), a bulldog (Droppo), and a wee daughter, Laurie.

After graduation, he migrated with his growing family to take up a position as Research Officer for the Canada Department of Agriculture and was located at the Experimental Farm in Prince George, British Columbia from 1961-1965, during which time his son Cameron was added to the family. He was promoted to Research Scientist in 1965 and moved to the Research Station in Saskatoon, Saskatchewan, where his daughter Yvonne was added to the family.

In 1967, he returned to Macdonald, taking up a position as an Assistant Professor in the Department of Agronomy. He was promoted to Associate Professor in 1973 and became Director of the Diploma Course that same year. Norman took the Diploma Course, which had been seen by many as just an add-on to the Faculty, and turned it into a program, directly funded from MAPAQ, from which students graduated with a diploma in collegial studies. Norman served as Director of the Program for 13 years until 1986.

Between 1986 and 1987, Norm served as the first coordinator of the Canada-Egypt- McGill Agriculture Response Program (CEMARP). Then he returned to the Department of Plant Science and took early retirement in 1991.

During the course of his career, Norman served on several provincial, national and international committees dealing with plant breeding and plant improvement. In addition, he took on the task of acting as the chair of the Agricultural Institute of Canada (AIC) Convention held at Macdonald and McGill in 1989.

Upon his retirement Norman remained very active. He volunteered for Meals on Wheels in Ste-Anne-de-Bellevue, where he was an accomplished soup maker. He was a great and eclectic reader and served on the acquisitions committee for the Baie d'Urfé Library. He and his wife Sara restored a family home in Iroquois where he spent his final years happily surrounded by his family. Throughout his retirement, he enjoyed yearly sojourns in Victoria, the last one for the joyous family occasion of his younger daughter's wedding, just one month before his death.

Those of you who knew Norm know that he loved people, and he loved a good party. He would have been preparing for one of his favorites (Burns night) in January, so it seems appropriate that we should finish these remarks with some Robert Burns' words that reflect Norm's life.

When Death's dark stream I ferry o'er,
A time that surely shall come,
In Heav'n itself I'll ask no more,
Than just a Highland welcome.

*Written by Professor Katrine Stewart, Macdonald College, with additions by Sara Lawson.
January 2007*

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