

# CSA Newsletter

Canadian Society of Agronomy

October 2011



## PRESIDENT'S MESSAGE

The Bob Dylan words "Times they are a changing" describe the environment we live in. It seems that the only real consistency in our research lives is change. Since 1992, the number of agricultural scientists in Canada has dropped in half. Scientists are expected to do more research, for less money and fewer staff. Budgets have been reduced, travel has been capped, and it seems that there are more people demanding a piece of your pie. There is more paper work and hoops to jump through than ever.

Not encouraging words to begin a President's address but in order to deal properly with stresses you need to understand them. These stresses aren't new. Sir Charles Saunders himself suffered under the "blighting hand of the efficiency expert" to the extent that it drove him to retire in 1922, commenting that "Scientific Research in Canada today is in a deplorable condition" (Saunders, 1922). Humans are very good at repeating mistakes and very poor at learning from them. The fact that agricultural science has accomplished so much in the past 125 years speaks to our dreams, dedication, and determination to succeed despite the obstacles thrown in our way. We should be proud of way we have helped the farmers of our country provide safe, nutritious and abundant food and a thriving commodity export industry. When you can push aside the stresses, we have wonderful, interesting, and fulfilling jobs.

Your Canadian Society of Agronomy is changing to keep up with the times. We are trying to improve the Canadian Journal of Plant Science and have membership sitting on a committee to implement changes in the way manuscripts are reviewed, and published. We have established a "Best Agronomy Paper" competition which selects and awards the best paper in our journal. We have graduate student representation on the executive to try to get people joining our association at the beginning of their careers. Our meetings are changing. In July 2012, in Saskatoon, the CSA will have joint meetings with the Canadian Consulting Agronomists and the Canadian Society of Horticultural Science. We are bridging the gap between innovation and technology transfer with symposia on *Adapting Crops to Change* and *The Machines of Tech Transfer*. In 2013 we plan to hold our meetings with the American Society of Agronomy in Tampa Florida by having our own Canadian symposia, annual general meeting, and banquet to honor our award winners. These are big changes but we need to keep moving forward.

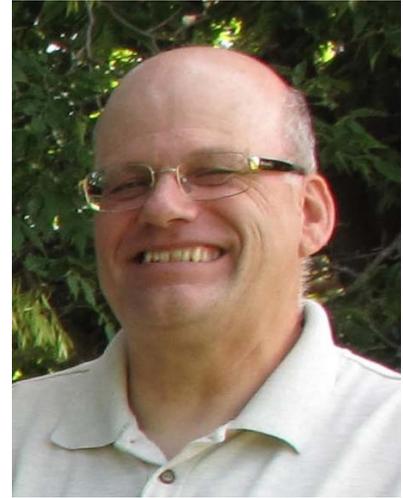
To implement these changes and make them work for all of us we need your participation. You get far more out of a meeting or society when you get participate. Most people want to participate these days and require very little arm-twisting to jump in but they need to be asked. So now I am asking you. When you are called upon next spring to volunteer or nominate a colleague for the CSA executive, step forward, make a difference. When you are asked to nominate your colleagues for a Fellowship in the Society or the Distinguished Agronomists Award, step up, honor and thank others for their contribution. When you are asked to renew your membership, tell your colleagues, and create new reasons why it is important to belong to a society of agronomists in your country. I look forward to seeing you at future CSA functions and serving as your president for this year.

*Malcolm Morrison*  
President



## In Memoriam

**THERRIEN:** The death of Mario Charles Therrien, beloved husband of Heather (nee Davidson) and dear father of Marc (Kylie Stasila), Rachel and Sarah, occurred suddenly in Brandon on Tuesday, September 20, 2011. Mario was born in Quebec City, on November 17, 1952, son of Joseph and Jeanne Therrien. He spent his early years on the family dairy farm in Armagh, Quebec. At age 12, he moved with his family to Springfield, Massachusetts. After high school and a year of med school, Mario tried about 23 brief jobs before attending Springfield Technical College and U. Mass., where he graduated with co-degrees in science and education. He worked at such things as a veterinary assistant, science museum guide and even a deckhand on a yacht. He was fascinated by genetics and chose to return to Canada for graduate school at McGill University. His study of Birdsfoot Trefoil was in depth enough for him to skip a master's degree and proceed directly to a PhD (1981) in plant genetics.



Since 1982, Mario was the six-row and hulless barley breeder at Agriculture and Agri-Food Canada's Brandon Research Centre. Mario's passion for breeding had him involved in many aspects of the industry, from researcher to chair of national committees. Over the years Mario released many six-row malting, feed and forage varieties, as well as numerous hulless barleys. His latest releases were Desperado six-row forage barley, Milhouse hulless barley, and Roseland hulless barley. Each of these varieties reflects the creative way Mario was addressing the needs of the producer and marketplace. Mario enjoyed working with colleagues around the world but preferred a quiet life of fieldwork and meeting farmers' needs.

In his personal life, Mario married Heather Davidson in Montreal in 1980 and together they fell in love with the Prairies. Once in Brandon, they were blessed with a son Marc in 1985, daughter Rachel in 1989 and daughter Sarah in 1993. Mario was a Renaissance man with many interests. He was a goalie in university hockey, a reporter for the school paper and had his own show on U. Mass. radio. He loved fishing. In New England he camped and mountain climbed with friends Bob, Steve, and Rich. He played drums in a rock band with Bill. He had researched his family tree back to Acadia and the Huguenot arrivals in Quebec. For years he had a passion for astronomy, building his own telescopes and attending events such as Stellafane in New Hampshire. He took some award winning photographs. When he first arrived in Brandon he was a member of the Brandon Camera Club. If one ever wanted any weather news from around the world Mario knew the details, checking several weather computer networks daily. Once the children arrived, his interests were theirs. He was a Cub Leader for several years, having been an Eagle Scout in the U.S. He coached soccer for both boys and girls. Mario was never happier than attending events involving his children. He was thrilled last year by Marc's marriage to Kylie Stasila of Brandon. In June, he was a happy witness at Rachel's graduation from Brandon University. He was so pleased that Sarah shared his love of cats and rock music. Mario is survived by his loving wife and children; mother Jeanne Therrien; brother Richard, wife Colleen and their four children of Springfield, Mass.; mother-in-law Myrtle Davidson of Brandon; brothers-in-law Bruce Davidson of Cambridge, Ontario and Gordon Davidson of Lachine, Quebec and their families. He was predeceased by his father Joseph Therrien in 1990.

Mario brought a sense of passion to any discussions he was involved in and will be remembered for his ability to articulate on any subject. A wealth of information and intellect has been lost.

*(Some parts of this memorial were excerpted from Mario's Obituary in the Brandon Sun.)*

## CSA Bylaw UPDATES

The Canadian Society of Agronomy revised its by-laws in 2007, but every few years it is time to review them again. And the society's executive felt that it was time to incorporate some up-to-date operations into the bylaws. These include our exciting new venture into having a graduate student sit on the executive. No need to explain how having someone who is the future of Agronomy in Canada is important to our society. One of the other operating procedures we would like to incorporate is having the executive director have an official vote on the Society's board. Perhaps it is because Steve Sheppard has served so well as the Society's Ex. Dir. that we really value his say in things.

Another thing that we would like to update is our membership by adding retired, emeritus and post-doc memberships to our options.

And because this is the age of electronic media, we need to update some of our wording to make this format acceptable in place of paper balloting.

We currently have a four member committee consisting of Yvonne (Western Rep), Steve (Ex. Dir), Rigas (past president) and myself looking over the by-laws. We would like you to have input into any changes that you would like to see in the by-laws, so send your suggestions to one of us. The revised by-laws will be posted on the CSA website, for general reading early in January 2012, and we will then hold an electronic vote on them prior to our AGM.

**YOUR INPUT IS IMPORTANT TO THE CONTINUATION OF OUR SOCIETY.**

*Pat Juskiw*  
*Secretary-Treasurer*



**Lianne Dwyer**, receiving CSA's **Distinguished Agronomist Award** from Malcolm Morrison, CSA President.

## CSA Student Awards 2011

### Poster Presentation Awards

<u>Award</u>	<u>Name</u>	<u>University</u>
Silver	<b>Sandra Fraser</b>	NSAC / Guelph
Bronze	<b>Jeff Nimmo</b>	NSAC
Bronze	<b>Panchali Katulanda</b>	NSAC

### Oral Presentation Awards

Gold	<b>Clare Sullivan</b>	Saskatchewan
Silver	<b>Melissa Arcand</b>	Saskatchewan
Bronze	<b>Francois Gagne-Bourque</b>	McGill

### President's Student Award

**Michel McElroy**      Dalhousie University

# NEWS RELEASE

## Dr. Gordon Rowland receives 2011 Plant Breeding and Genetics Award

**Niagara Falls, ON Monday, July 18, 2011** – Dr. Gordon Rowland is the 2011 recipient of the Canadian Plant Breeding and Genetics Award. This award is presented annually by the Canadian Seed Trade Association and *Germination* magazine to a researcher who has made outstanding contributions to the advancement of Canadian plant agriculture. Dr. Rowland was recognized by his peers for his world class application of plant breeding and genetics in the flax industry; and for his significant contribution to increasing flax productivity.



Dr. Rowland has worked for almost four decades as a flax breeder with the Crop Development Centre (CDC) in Saskatoon, Saskatchewan. During that time he has had remarkable success in science, variety development, market share and extension. He also served a five-year term as the director of the CDC, supervising a staff of 150.

Industry members know Dr. Rowland for his excellent communication skills with farmers and his ability to bridge the gap between researchers, grain producers and the grain industry. “I have seen that it is Dr. Rowland’s friendly personality and scientific ability which make him an invaluable resource to Canadian agriculture,” says Jim Downey, Research and Development Manager for SeCan. “Dr. Rowland’s impact on western Canadian agriculture is an accomplishment that few scientists achieve in their career.”

Dr. Rowland has indeed left his mark on the Canadian flax seed industry. One particular variety he worked on, CDC Bethune, is estimated to have 60 per cent of the market share in western Canada. CDC Bethune’s excellent agronomic traits include strong straw, high grain yield and good oil quantity and quality.

As an international leader in the flax genetics industry, Dr. Rowland is the lead scientist for an \$11 million dollar Genome Canada/Genome Prairie project known as Total Utilization of Flax GENomics. Under Rowland’s leadership, research teams from Asia, Europe and North America are working to develop a set of genomic resources that will help improve the seed and fibre traits of oilseed flax.

Dr. Rowland’s passion for the flax industry is evident through his mentoring of many graduate students over the years and through his participation on the Board of the Saskatchewan Flax Development Commission. “Gordon is an innovator and farmer at heart – one only needs to review his career to feel the passion he has displayed over the years,” says Allen Kuhlmann, Chair of the Saskatchewan Flax Development Commission.

Dr. Rowland received his award at the 88<sup>th</sup> annual meeting of the Canadian Seed Trade Association held in Niagara Falls, ON. Congratulations Dr. Rowland.

**For information:** Patty Townsend, Canadian Seed Trade Association  
Tel: (613) 829-9527

## Discussions about CJPS

The Canadian Journal of Plant Science, like many agronomy journals around the world is in trouble. It seems as if there is a new journal coming on line every day. Fewer Canadian Agronomists means fewer Canadian papers published in the journal. The impact factor (IF), which has dropped steadily, is now far below one. The journal is in real danger of becoming irrelevant. On September 29, representatives from CSA, CWSS, CSHS and AIC met to discuss the plight of the journal.

AIC is the publisher of the journal and makes a profit on it. This year it expects to make \$30,000. AIC has reinvested somewhat in the journal in the past few years to modernize the way manuscripts are managed and presented. More money will have to be invested in order to keep up with other world journals.

Despite the best efforts of the Editor and Associate Editors it still takes too long to get a decision on a manuscript. Reviews and mini-reviews are one way of increasing the IF but even when the page charges are waived it is difficult to convince people to publish their review in the journal.

The vision and scope of the journal will be examined to determine if it can be changed somewhat. We still want a journal that publishes plant science relevant to Canadian Agriculture. If our journal does not publish variety descriptions and regionally applicable science which journal will?

It will cost \$1700 per manuscript to make them open access. The publishers are going to investigate making the journal an open access journal and increasing publication costs. The publishers will also investigate increasing the visibility and accessibility of the journal.

In the end, the fate of the journal will partially be in the hands of a volunteer committee of individuals from three societies. Their first task is to review the vision and scope of the journal. When competing journals are managed by well paid, tech-savvy professional publishers it will be a challenge for this committee of volunteers to make any real changes.

## CSA Corporate Sponsors 2011



## Review of 2010 Finances

*The Auditor's report was not quite ready for the Annual Meeting in July. Thus the letter and Profit/Loss statement are printed here. If no concerns are expressed to Malcom Morrison (President), we will assume these statements meet your approval.*

Anita Drabyk  
Deer Woods Imagery and Services  
Box 324  
Pinawa, MB R0E 1L0

August 11, 2011

Canadian Society of Agronomy  
Box 237  
Pinawa, MB R0E 1L0

Dear Canadian Society of Agronomy,

I have reviewed the accounting books for the Canadian Society of Agronomy for FY 2010.

I have summarized the information below:

1. The total at the end of FY 2010 was \$66,291.11.
2. I found the Profit and Loss and the Balance sheets (as attached) to match the actual income and expenses, including all deposits and debits. The amount of \$65,215.19 is the amount carried forward from the previous year.
3. A cheque was lost in 2010 and this amount will be included in the 2011 books.

All the financial records for the Canadian Society of Agronomy for 2010 were found to be accurate and balanced. All amounts on the bank statements were checked against the deposit book and with the receipts and invoices.

Sincerely,

Anita Drabyk

**Canadian Society of Agronomy 3**  
**Profit & Loss**  
 January through December 2010

	<u>Jan - Dec 10</u>
<b>Ordinary Income/Expense</b>	
<b>Income</b>	
Corporate Sponsorship	\$4,147.50
Member Fees & Subscriptions	\$15,658.73
Sponsorship for Awards	<u>\$800.00</u>
<b>Total Income</b>	\$20,606.23
<b>Expense</b>	
Advertising and Promotion	\$251.74
Awards and Grants	\$4,131.60
Bank Service Charges	\$6.50
Business Licenses and Permits	\$30.00
Copying and Reproduction	\$723.52
Insurance	\$729.00
Internet website	\$506.63
Membership Fees	\$1,255.25
Office Supplies	\$869.77
Payroll Expenses	\$1,046.25
Postage and Shipping	\$635.82
Professional Fees	\$175.00
Quarterly Fee Exec Dir	\$5,405.00
Reimbursable expenses	\$1,454.96
Subscriptions	<u>\$3,266.19</u>
<b>Total Expense</b>	<u>\$20,487.23</u>
<b>Net Ordinary Income</b>	\$119.00
<b>Other Income/Expense</b>	
<b>Other Income</b>	
Interest Income	\$956.92
Other revenue	<u>\$65,215.19</u>
<b>Total Other Income</b>	<u>\$66,172.11</u>
<b>Net Other Income</b>	<u>\$66,172.11</u>
<b>Net Income</b>	<u><u>\$66,291.11</u></u>

## Joint meetings July 16-19, 2012 University of Saskatchewan Campus

The Canadian Society of Agronomy (CSA), Canadian Society for Horticulture Science (CSHS), Certified Crop Advisors (CCA) will be jointly holding their annual meetings **July 16-19, 2012**, at the **University of Saskatchewan Campus**. In addition, the **North American Fruit Explorers** are planning to hold meetings on **July 19**.

Conference theme: **“Adapting Crops to Change”**  
(Note: this could mean changing international markets, changing consumer preferences, changing biotic stresses, etc.---not just climate change). There will also be a joint symposium on **“Technology Transfer”**.

Overall Conference Chair: Rigas Karamanos  
Local Organizing Committee chair: Rosalind Bueckert  
CCA chair: Thom Weir  
CSA chair: Tom Jensen  
CSHS chair: Karen Tanino

### Tentative general agenda:

July 16: general joint tours, this includes a Potash mine and more  
July 17: plenary sessions  
July 18: society presentations  
July 19: society presentations/society tours

## Call for Volunteers / Nominations

As you know, the Associate Editors (AEs) for the agronomy sections of Canadian Journal of Plant Science are drawn from members of the Canadian Society of Agronomy. It is time to line up some new candidates. The major prerequisite is some good experience as both an author and a reviewer of journal papers. Of course, patience, good people-skills and an ability to get things done are needed too! For many people, it is a good career stepping stone, especially for young scientists, and for everyone it is a good way to get to know more of your colleagues. As an AE, you'd handle typically less than 10 papers a year, and in total this could be less than a day per paper. The big thing for the journal is that you keep on top of things and process the papers quickly, this usually means reminding reviewers to keep their promises.

If you are interested, or know someone who would be a good AE, send the names to Steve Sheppard ([sheppards@ecomatters.com](mailto:sheppards@ecomatters.com)) or Malcolm Morrison ([Malcolm.Morrison@AGR.GC.CA](mailto:Malcolm.Morrison@AGR.GC.CA)).



7th Canadian Workshop  
on Fusarium Head Blight  
7<sup>e</sup> Colloque canadien  
sur la fusariose

## 7th Canadian Workshop on Fusarium Head Blight

November 27-30, 2011  
Winnipeg, Manitoba, Canada  
Delta Winnipeg Hotel

### • Research Topic Sessions •

Resistance Breeding	Genomics & Genetics	Pathogen Dynamics
Mycotoxins	Epidemiology & Management	Industry & Consumer Issues

### • Plenary Session • Invited Oral Presentations • Poster Presentations •

#### To Receive Future Notices

For registration and hotel details as well as a preliminary agenda, contact the workshop registrar

[Brent.McCallum@agr.gc.ca](mailto:Brent.McCallum@agr.gc.ca)

with the subject line "CWFHB more info"

#### Questions?

For additional information contact the co-chairs of the organizing committee

[Andy.Tekauz@agr.gc.ca](mailto:Andy.Tekauz@agr.gc.ca)  
(204) 983-0944

[Jeannie.Gilbert@agr.gc.ca](mailto:Jeannie.Gilbert@agr.gc.ca)  
(204) 983-0891

[www.cwfhb.org](http://www.cwfhb.org)



CWS • CCB

## 1<sup>st</sup> Canadian Wheat Symposium 1<sup>er</sup> Congrès canadien sur le blé

November 30th - December 2nd 2011  
Delta Winnipeg Hotel  
Winnipeg, Manitoba, Canada

### Program Sessions

Plenary	Wheat Health Issues
Biotic Stress	Emerging Issues
Agronomy	Abiotic Stress
Genomics & Genetics	Economics

#### Website:

[www.cwfhb.org](http://www.cwfhb.org)

#### For more information please contact:

[brent.mccallum@agr.gc.ca](mailto:brent.mccallum@agr.gc.ca)

## SPOTLIGHT: Université Laval Students

*In the past few issues, we highlighted students from different universities. Now it is Laval's turn.*

### **Amélia dos Passos Bernardes**

M.Sc. student in Plant Biology  
Université Laval, Québec, QC, Canada  
amelia.dos-passos-bernardes.1@ulaval.ca



#### **Research director:**

Anne Vanasse, Université Laval

#### **Research codirector:**

Gaëtan Tremblay (AAC)

#### **Education:**

B.Sc. in Agronomy, University of Brasilia, Brazil, 2003

#### **Research project**

##### ***Forage nutritive value and ensilability of sweet pearl millet and sweet sorghum after sap extraction***

(GT) Ethanol produced from plant biomass is considered as a substitute for gasoline. Among the potential crop for biomass source, sweet pearl millet and sweet sorghum are interesting. The sweet sap extracted by pressing the forage is used to make ethanol while the forage residue obtained after pressing can be used to feed cattle. This research project aims to measure the effects of harvest date and the time between mowing and pressing the biomass of sweet pearl millet and sweet sorghum on sugar yield, nutritive value, and ensilability of forage residues.

Plots were harvested either in mid-August and mid-September in Sainte-Anne-de-Bellevue and end-August and late September in St-Augustin-de-Desmaures. For each harvest date, four times between mowing and pressing were considered (0.5, 2, 4, and 6 hours). Ground biomass of each plot was mechanically pressed. Forage biomass and residues were analyzed for their sugar concentration and nutritive value. Silages were made with forage residues with or without the addition of inoculant. These dual-purpose crops allow a balance between food and energy production, thus avoiding competition for land while providing income diversification for farmers.

#### **Career opportunities**

I hope that my research can contribute positively to the research community and producers in the province of Quebec. I would like to deepen my knowledge of crop production in the province of Québec either by carrying out a Ph.D. or through work experience with industry or government.

## Patricio Esteves

### **Education:**

Philosophie Doctor, Plant Biology; Université Laval, Québec: present  
Master of Science, plant production; Universidad de Buenos Aires,  
Argentina: 1994  
Biologist; Centro de Altos Estudios en Ciencias Exáctas, Argentina:  
1987  
patricio.esteves.1@ulaval.ca



### **PhD-research Project**

#### ***Optimisation of an Isolated Microspore Culture protocol in barley.***

Doubled-Haploids (DHs) are 100% homozygous genotypes that, in plants, can be derived from gametes using *in vitro* culture techniques. DHs are valuable materials when included in plant breeding projects, as well as very useful in genetic or genomic research projects. In barley breeding, F1 plants are used as source material to produce sets of lines that are the products of meiotic recombination between the parental lines but that are homozygous. Moreover, by means of modern techniques –like Isolated Microspore Culture (IMC), DHs can be massively produced and several years of inbreeding can be shortened to just a few months. It has usually been reported that success in IMC is highly dependant on the genotype, both in terms of plant regeneration as well as of the frequency of albino plants. Both aspects are important constraints to an efficient use of the IMC technique in DH production. In this context, the objectives of my research project centered on the optimisation of an IMC-protocol in barley, by studying: the pre-treatment of spikes, the *in vitro* cultivation of microspores, and green plant regeneration.

The experimental phase of my thesis is now finished, and a new IMC protocol has been developed. In terms of green plant production, comparative evaluations indicate that its efficiency dramatically surpasses that of previously published protocols, and that the frequency of albino plants is minimized. So, genotypes previously considered as recalcitrant can now be routinely used for DH production in our lab.

### **Objective**

To work in R&D in the area of Crop biotechnological breeding. My areas of expertise are Plant tissue culture, and Adaptive experimentation of crop species.

## **Louis Longchamps**

MSc Agr.

PhD candidate, Plant Biology, Université Laval, Québec, QC, Canada

[louis.longchamps.1@ulaval.ca](mailto:louis.longchamps.1@ulaval.ca)



### **Advisors**

Dr. Gilles D. Leroux (UL), Dr. Bernard Panneton (Agriculture and Agri-Food Canada (AAC)) and Dr. Marie-Josée Simard (AAC)

### **Education**

B.Sc. Agronomy, Université Laval

M.Sc. Plant biology, Université Laval

### **Research project**

***Spatial distribution of weed infestation in corn fields and development of a field diagnosis for site-specific weed management potential.***

The spatial distribution of weed infestation in corn fields is a result of aggregated and random patterns merged together. The level of weed aggregation varies among corn field. For site-specific weed management purposes, this implies that certain fields have better potential than others for weed free areas, and so better potential for profitability. Ideal conditions are a low level of infestation and a high level of spatial aggregation.

The various aspects of my research project cover the following questions:

- How does row units and tractor wheel traffic affect the spatial pattern of weeds?
- What level of randomness is encountered in weed spatial distribution?
- Are grasses and broadleaved weeds segregated or randomly associated in space?
- Is obligatory to discern monocot from dicot weeds to realize herbicide spot-spraying?
- How to identify field that have better potential for site-specific weed management prior to the implementation of herbicide spot-spraying?

Answers to these questions will help better understand spatial distribution of weeds in corn fields and increase the chances of making site-specific weed management profitable.

### **Future prospects**

I am currently working as a research associate at Colorado State University for Dr. Raj Khosla, president of the International Society of Precision Agriculture. My goal is to learn and promote the use of precision agricultural practices among the farmers in Québec. Precision agriculture has the potential to increase productivity, profitability and sustainability. To me, the best way to do so is by training the agronomists that will be advising the farmers. I envisage becoming a professor in precision agriculture in Québec.

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## **Chantale Morin**

Ph.D. candidate , Biologie végétale,  
Université Laval,  
Québec, QC, Canada  
chantale.morin.4@ulaval.ca

### **Advisors:**

Guy Allard, Gaëtan Tremblay (AAC) , and Annick Bertrand (AAC)

### **Education:**

B.Sc. in Agronomie, Université Laval, 2000  
M.Sc. in Biologie Végétale, Université Laval, 2008



### **Current research:**

#### ***Fate of non structural carbohydrates in forages: from cutting to feed intake.***

*(Devenir des glucides non structuraux dans les fourrages: de la fauche à la prise alimentaire.)*

Limited readily available energy combined with fast degradation of proteins in forages contribute to poor N use efficiency in dairy cows. Non structural carbohydrates (NSC) in forages, a major source of readily available energy for rumen bacteria, are known to accumulate in forages during the day and decrease during wilting and silage conservation. Few studies, however, have established the time at which maximum NSC concentration is reached during the day, or described their fate during field wilting or during the silage fermentation. This project is focused on those.

First, this research will describe the diurnal variation of NSC in alfalfa (*Medicago sativa* L.) and timothy (*Phleum pratense* L.), two major forage species used in the dairy industry in Québec, to determine the best cutting time maximizing NSC concentration. Second, we will study and describe NSC during the field wilting process and during the silage fermentation under different cutting (AM or PM) or field management during wilting (narrow or wide swaths).

By the end of the project, we should be able to give some recommendations to the dairy industry to maximize NSC in their forages, and by the way, it might improve their production.

### **Future vision:**

My strength and passion are in sharing knowledge, preparing formation, and giving conferences or formations to educate others. I hope to do so through research (while also acquiring new knowledge myself), teaching, or working with a company with those kinds of objectives

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## **Éric Poupart**

MSc Candidate, Plant Biology  
Université Laval  
Quebec, Qc, Canada  
[eric.poupart.1@ulaval.ca](mailto:eric.poupart.1@ulaval.ca)

### **Supervisor**

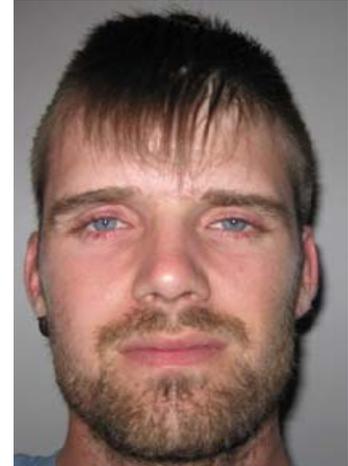
Martine Dorais

### **Co-Supervisor**

André Gosselin

### **Education**

BSc. Agronomy, soil and environment specialisation



### **Project:**

#### ***Organic growing of soilless strawberry in high tunnel.***

The project is to evaluate the possibility of producing organic strawberry in pot under high tunnel. To do so, there are two types of organic fertilizers studied; the first one is put only through the drip irrigation, the second one combines drip irrigation fertilizer with dehydrated and granulated poultry manure as a solid input. The effectiveness of the two nourishments is evaluated using the strawberry production quality, sugar content, soluble solid content and minerals elements. Comparisons will be made from the two organic fertilizers and nutrient solution of the conventional type developed by the company.

In addition, the project is evaluating a new biological substrate developed for pot production and is compared with a commercial substrate marketed for several years. Pot culture allows avoiding all the problems linked to pest organisms in the soil, one of the best examples is probably the *Verticillium*.

The objective is to develop a fertilization program to produce quality organic strawberry and in sufficient quantity to fill the markets which is presently served almost exclusively by the United States.

### **Future Vision**

Once the research project is finished, I plan to work part time as an agricultural consultant mainly in organic or hydroponic cultures. In conjunction with this work, I want to start a company specializing in the production of organic *fines herbes* of high quality in order to serve the area of fine dining in Montreal and / or Sherbrooke.

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## **Sarah Ann Raymond-Bayne**

MSc Candidate, Centre de Recherche en Horticulture, Department of phytology  
University Laval, Québec, Canada  
sarah-ann.raymond.1@ulaval.ca



### **Advisors:**

Yves Desjardins and André Gosselin

### **Education:**

- Technique in horticultural production and the environment, I.T.A. LaPocatière, 2005
- Bachelor of Biology, University Laval, 2009

### **Current Research:**

#### ***Optimization of Primocane-Fruiting Red Raspberry Production Grown Under High Tunnels***

An experiment was conducted in 2009 and 2010 on Ile d'Orléans, Québec, Canada to determine the effect of two training systems (hedgerow and V-trellis), apex pinching at a height of 1.5 m, and reflective groundcover (Extenday™) on yield and yield components of 'Autumn Britten' primocane-fruiting red raspberry (*Rubus idaeus* L.) grown under high tunnels.

Our results demonstrate a significant increase in raspberry yield (25%) with the use of the reflective groundcover. The increase in raspberry yield correlated with an improvement in reflected light reaching the canopy (450%). In contrast, the trellising systems did not exert any substantial effect on raspberry yield. When primocanes were pinched, no significant differences in terms of total yield were observed in spite of the one-week delay in the onset of fruiting.

The present work demonstrates that it is possible to enhance raspberry yield by using reflective groundcover. Furthermore, our results indicate that pinching can improve harvest efficiency by maintaining fruiting zone to a manageable height without any significant reduction in neither yield nor fruit size.

### **Future vision:**

I would like to do research and development in small berries to help growers to optimize their production and to find new avenues to explore.

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## **Marie-Noëlle Thivierge**

PhD Candidate in Plant Biology  
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### **Advisors:**

Dr. Anne Vanasse and Dr. Martin Chantigny (AAC)

### **Education :**

M.Sc. Plant Biology (2011), Université Laval  
B.Sc. Agronomy (2006), Université Laval

### **Current Research**

#### ***Nitrogen fertilizer requirements of sweet pearl millet and sweet sorghum and assessment of their energy balance when used for ethanol production***

I am currently studying sweet pearl millet and sweet sorghum, two crops that could produce a large quantity of ethanol from their sap and also quality feed for ruminants from their stalks. First of all, by comparing eight nitrogen fertilizer treatments, including manures and mineral fertilizers, this project will allow me to specify the nitrogen fertilizer requirements for sustainable production of these crops. Furthermore, the use of <sup>15</sup>N labelled fertilizers will lead to a better understanding of nitrogen use by millet and sorghum and nitrogen losses to the environment. Finally, this project hopes to assess the energy balance of millet and sorghum production and transformation into ethanol, confirming the potential of these crops for ethanol production in the Province of Quebec.

### **Future Vision**

I'm at the very beginning of my PhD, but I already know that I want to pursue research on bioenergies after completing my degree. My long term plan is to pursue a career in education.

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## **Annie Van Sterthem**

MSc candidate in Plant Biology (Biologie végétale)  
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Québec, QC, Canada  
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### **Advisors:**

Yves Desjardins and André Gosselin

### **Education:**

BSc in Agronomy, 2010, Université Laval  
Member of Ordre des agronomes du Québec.

### **Current research :**

#### ***Influence of mini tunnels on development and productivity of day-neutral strawberry plants.***

It was demonstrated that use of high tunnels for the culture of strawberry plants gives good results onto the productivity and the quality of fruits and that they allow to expand period of culture. However, its construction and its use require an enormous investment for small fruits producers. The objective of the present project is to conceive a new system of production of day-neutral strawberry plants under mini tunnels, allowing to harvest earlier, to increase yields, to protect fruits against bad weather and to reduce use of pesticides. Different plastic covers and level of aeration are evaluated. Growth, total and marketable yields and quality of fruits will be measured in every treatment and compared to unprotected culture. Production management will be studied in detail by taking into account climatic conditions, pest and disease intensity and economic aspects.

This project will increased the knowledge on physiology and crop management of strawberry plants growing under plastic covers. The reduction of yield losses and the increasing productivity of strawberry plants in out-of-season period will ensure a more regular customer's supply. Consequently, strawberry production in Quebec will remain competitive against California's importations.

### **Future vision:**

In the near future, I hope to pursue a career of agrologist with a specialization in fruits and vegetables production. I would also like to participate in research projects connected to the environment and sustainable development. I would eventually farm my own land and for the moment I am interested in growing hops.

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**Other graduate students carrying out Agronomy-related (wide sense) projects in the Plant Biology program at Université Laval - Département de phytologie**

**Ph.D. Program**

Name	Supervisors/co-sup.	Start	Project
Arsenault Labrecque, Geneviève	R. Bélanger / F. Belzile	201009	To be determined (soybean rust)...
Bastien, Maxime	F. Belzile	200901	Identification de gènes de résistance à la sclérotiniose ( <i>Sclerotinia sclerotiorum</i> (Lib.) de Bary) chez le soya ( <i>Glycine max</i> (L.) Merrill) via une approche de cartographie par association
Bélanger, Valérie	A. Vanasse	200609	Élaboration d'une méthode d'évaluation de la durabilité des fermes laitières québécoises
Bérubé, Vicky	L. Rochefort	200905	Identification des espèces-clés pour la restauration des tourbières minérotrophes
Brisson, Danya	M. Dorais / D. Massé / P. Juteau	200609	Étude d'un procédé de nitrification de type MBBR pour la valorisation de digestat de méthanisation comme fertilisation pour la tomate de serre
Cimon-Morin, Jérôme	M. Poulin / M. Darveau	201101	Développement d'une approche de sélection de réseaux de conservation des milieux humides nordiques intégrant les services écologiques.
Grégoire, Caroline	R. Bélanger / F. Belzile	200905	Caractérisation du mécanisme d'absorption du silicium par <i>Equisetum arvense</i>
Grégoire, Guillaume	Y. Desjardins	200501	Caractérisation et quantification des gènes impliqués dans les mécanismes de défense naturels induits par différents éliciteurs chez l'agrostide stolonifère
Gruyer, Nicolas	M. Dorais / G. Zagury	200801	Développement de systèmes passifs de traitement des effluents afin d'éliminer les ions indésirables, les composés organiques phytotoxiques et les pathogènes de l'eau de recirculation
Iqira, Elmer	F. Belzile	200901	Diversité génétique chez le soya: la mesurer, l'accroître et en tirer profit
Léonhart, Sébastien	Y. Desjardins / P. Angers	200909	Extraction et stabilisation des tannins issus des résidus industriels de canneberge, pomme, framboise, bleuet et fraise
Paradis, Étienne	L. Rochefort	200809	Restauration écologique des écotones «tourbière-forêt» dans les marges de tourbières abandonnées après la récolte de la tourbe
Rasoolizadeh, Asieh	D. Michaud / C. Cloutier	200909	Differential compensatory processes in Colorado potato beetles fed different diets or protease inhibitor variants
Rhéaume, Ann-Julie	D. Michaud / M.-A. Daoust	200909	Altération de l'activité protéolytique de <i>Nicotiana benthamiana</i> utilisé pour la production d'anticorps recombinants
Robert, Stéphanie	D. Michaud	200909	Activités protéolytiques du tabac sauvage <i>Nicotiana benthamiana</i> et protection in situ de protéines recombinantes produites en système d'expression transitoire.
Sarraf, Christiana	Y. Desjardins / A. Gosselin	201109	Optimisation de la fertilisation des fraisiers remontants cultivés hors sol.
Théroux Rancourt, Guillaume	S. Pepin	200909	Relation entre la conductance du mésophylle au CO <sub>2</sub> et les propriétés hydrauliques du système sol-plante chez des clones de peuplier hybride ( <i>Populus x sp.</i> )
Thiagarajan, Arumugam	S. Pepin / R. Lada	200905	Cold acclimation induced-root derived signals in needle retention in Balsam fir ( <i>Abies Balsamea</i> (L.) Mill.)

<b>M.Sc. Program</b>			
<b>Name</b>	<b>Supervisors/co-sup.</b>	<b>Start</b>	<b>Project</b>
Belzile, Johannie	V. Fournier / C.-E. Desjardins	201001	La galéruque du kalmia (Coleoptera : Chrysomelidae) : un agent de lutte biologique potentiel pour le contrôle du kalmia à feuilles étroites (Éricacées) dans la culture du bleuet nain
Bernier, Martine	V. Fournier / P. Giovenazzo	201009	Développement des pupes d'Aethina tumida (Coleoptera:Nitidulidae) en climat tempéré et dépistage des adultes
Bolduc, Maggie	M. Dorais	201009	Optimisation des marais filtrants pour le traitement biologique des effluents de serre
Bordeleau, Mélissa	M. Dorais	201005	Fertilisation organique des framboisiers remontants sous tunnel
Champagne, Michel	J.-A. Rioux	200809	Optimisation d'une régie de production du bleuet nain comportant une rotation de 3 ans au Québec.
Chauvette, Sam	G. Leroux	201001	La maîtrise des plantes nuisibles dans la production de canneberges biologiques par l'application de sable
Chouinard-Michaud, Caroline	G. Allard / R. Michaud	200805	Amélioration de la teneur en énergie de la luzerne en vue d'augmenter les performances chez la vache laitière
Comtois, Audrey	M. Poulin	201109	Caractérisation de la structure et délimitation des zones riveraines en milieu forestier boréal
Corriveau Boulay, Jennifer	A. Gosselin	200909	Étude des effets de diverses pratiques culturales sur la croissance de la laitue et sur l'incidence de la brûlure de la pointe
Courchesne, Geneviève	M. Poulin / M. Darveau	200901	Facteurs déterminants de la composition des communautés végétales des milieux humides aménagés pour la sauvagine dans le Québec méridional.
D'Amour, Noémie	M. Poulin / A. Vanasse	201109	Succession végétale dans les bandes riveraines en régénération naturelle en milieu agricole
D'Astous, Amélie	M. Poulin / L. Rochefort	200905	Approches par communautés et par groupes fonctionnels pour l'évaluation du succès de restauration d'une tourbière – Suivi de 10 ans
Dion, Marie-Ève	Y. Desjardins / A. Gosselin	200801	Effet de différents types de plants et de densités de plantation sur le développement et la productivité de fraisiers à jours-neutres cultivés hors-sol sous serres-tunnels
Emond, Catherine	L. Rochefort	201101	Expériences de végétalisation de bogs contaminés par l'eau salée à l'aide d'espèces végétales de marais salés et saumâtres
Essekkouri, Taoufik	D. de Halleux / A. Gosselin	201105	Optimisation du microclimat des potées fleuries produites en serre dans une optique d'économie d'énergie
Gauthier, Marie-Eve	L. Rochefort / L. Nadeau	201005	Regeneration of Fen Plant Communities on Decommissioned Well Pads
Guérin, Valérie	R. Bélanger	201109	To be determined (new student in phytopathology)...
Hassane Moumouni, Kadidiatou	F. Belzile	201109	Effet de l'hétérogénéité intra-variétale sur la stabilité du rendement de variétés locales de mil au Niger
Iraba, Amandine	F. Belzile / Y. Castonguay	201001	Les bases moléculaires de la tolérance au gel chez le ray-grass anglais (Lolium perenne) à gazon
Karaboneye, Fausta	F.-P. Chalifour / P. Dion	201009	Contribution à l'étude de la performance symbiotique de lignées africaines de soya à haute promiscuité
Laberge, Virginie	M. Poulin / L. Rochefort	200905	Restauration de mares artificielles en tourbière : Techniques de stabilisation et d'ensemencement
Lajoie, Julie	L. Rochefort	201105	Influence de la nappe phréatique sur la germination et l'implantation de semences de Scirpus cyperinus sur 4 substrats différents et sur la croissance du Scirpus cyperinus en compétition pour les nutriments avec Calamagrostis canadensis et Glyceria canadensis

Lalonde, Olivier	A. Vanasse / M. Roy	200801	Évaluation de l'abondance relative et de la richesse spécifique des carabes associées à différents systèmes culturaux et travaux du sol
Landry, Guy-Anne	Y. Desjardins / A. Gosselin	201105	Influence de bâches plastiques réfléchissantes, du mode de palissage et de la densité de tiges sur le rendement de framboisiers remontants (variété Autumn Britten) cultivés sous grands tunnels.
Lefebvre, François	R. Bélanger	201009	Étude de la fonction des gènes fat2 et fhd1 associés à la voie de synthèse de la flocculosine
Lemaire, Émilie	V. Fournier / M. Roy	200805	La lutte biologique contre les tétranyques dans les framboisières sous tunnel...
Marcoux, Olivier	L. Rochefort	201101	Évaluation de l'efficacité de méthodes de construction de barrages de grandes dimensions pour la remise en eau d'une tourbière drainée
Martin-Lapierre, Andréanne	R. Tweddell / T. Avis	200901	Application de composts et de fumigants pour lutter contre la verticillose ( <i>Verticillium dahliae</i> ) du fraisier
Moine, Lauriane	R. Bélanger	201109	To be determined (new student)...
Moisan-De Serres, Joseph	V. Fournier / M. Chagnon	201001	Influence de l'effet de bordure et spécificité des pollinisateurs indigènes du bleuet nain ( <i>Vaccinium angustifolium</i> Ait)
Munger, Hélène	A. Vanasse / S. Rioux	200901	Mesure de la qualité du grain, de la fusariose de l'épi et de la cécidomyie orangée du blé selon différents travaux de sol combinés à un système avec ou sans intrant chimique
Nguyen, Van Cuong	F. Belzile	201101	Exploration de la cartographie par analyse d'associations («Association Mapping») chez l'orge ( <i>Hordeum vulgare</i> L.).
Paiement, Ian	S. Pepin / M. Lamhamedi	200905	Effets des propriétés physico-chimiques du substrat sur la croissance et la physiologie des plants d'épinette blanche
Parvarandeh-Farimani, Nafiseh	A. Vanasse / S. Rioux / G. Tremblay	201109	L'évaluation du contenu en mycotoxines de différents hybrides de maïs cultivés au Québec
Pelletier-Rousseau, Julie Andrée	V. Fournier / P. Giovenazzo	201109	To be determined (new student)...
Ramirez, Julio Cesar	A. Gosselin	201105	To be determined (new student)...
Rieux, Christine	A. Vanasse / M. Chantigny	200901	Qualités panifiables du blé selon le type d'engrais, la texture et le travail du sol
Roy-Fortin, Valérie	G. Leroux / D.L. Benoit	201101	Évaluation d'un sarcler-coupeur sur le contrôle des mauvaises herbes dans la carotte cultivée en sol organique
Sall, Papa Malick	C.-J. Beauchamp	201109	Optimisation des activités de cocompostage des résidus de ferme et des résidus agroalimentaires végétaux pour une valorisation du compost à la ferme
Simard, Frédéric	J.-A. Rioux	201001	Stimulation de la synthèse des composés nutraceutiques des fruits et légumes par les champignons endomycorhiziens
Tardif-Paradis, Corinne	G. Leroux / M.-J. Simard	201101	Évaluation de l'effet de la perturbation du sol de l'entre-rang sur le couvert de mauvaises herbes dans les cultures de maïs et de soya
Tardivel, Aurélie	F. Belzile / L. O'Donoghue	201109	Utilisation du séquençage pour le développement d'outils de sélection pour la maturité hâtive chez le soya.
Turcotte Létourneau, Louis-Pierre	A. Vanasse / G. Labrie / D. Pageau	201009	Impact du travail du sol et de la fertilisation azotée sur le rendement et les insectes ravageurs du canola

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