



Canadian Society of Agronomy
La Société Canadienne d'Agronomie

CSA Newsletter

July 2021

PRESIDENT'S MESSAGE

Dear Fellow CSA members,

Over the past year it has been an honour to serve as the Canadian Society of Agronomy President. It has been a rewarding and sometimes challenging experience during this unusual year.

Our Tri-Society conference is right around the corner and looks to be a great meeting. The meeting has a great program and many great keynote speakers. This is the first virtual meeting that I've been intimately involved in and it seems to me that it definitely has advantages and disadvantages over a in-person meeting. Maybe we can keep some of the advantages in future in-person meetings. It is a lot easier to attract excellent keynotes when they can record their talks and participate from their offices, rather than travelling to your conference. I hope to see many of you there – or “see” many of you there, as it will be interesting to find out how the inter-activity of the platform works. It is designed to allow both scheduled and informal networking, I encourage everyone to try all the platforms' functions. I have enjoyed working with the board members from the Canadian Society of Phytopathology and the Canadian Society for Horticultural Science to deliver this program. I have to especially mention the hard work of Guillaume Bilodeau, the chair of the organizing committee; Lone Buchwaldt, CPS President; Valérie Gravel, CSHS President; Dilantha Fernando, chair of the scientific committee, and Ken Conn the CPS treasurer who has managed all of the finances for this conference. CSA members Mumtaz Cheema, Sheri Strydhorst, Santosh Kumar, Malinda Thilakarathna, Doug Cattani, Gurcharn Singh Brar, Nathaniel Ort, Sara Stricker, and Ibraheem Olasupo have all made large donations of their time and effort to get everything from the scientific program to awards to student events organized.

Your CSA executive has also been working with the Canadian Weed Science Society to plan a joint meeting in 2022. We signed a memorandum of understanding for this joint meeting scheduled for November of 2022. I look forward to seeing you - actually seeing you - in Halifax for that meeting. Our 2023 meeting will be an in-person reprise next weeks' virtual meeting – joining again with the CPS and CSHS in Ottawa.

Over the last year our executive, principally Sheri Strydhorst, Laurel Thompson and Amy Mangin, have been running monthly Greenbagger sessions for students to present their work over zoom and answer questions from a live audience. These have been a great success and although we paused them for the summer field season, we look forward to starting the sessions up again in the Fall.

Following the conference, our CSA AGM will be held on July 15. At that meeting we will say farewell to executive members who have completed their term and welcoming new executive members. Dr. Sheri Strydhorst (Past President), Doug Cattani (Secretary/Treasurer), Gurcharn Singh Brar (Western Director to become Secretary/Treasurer), and Jamie Larsen (Eastern Director to become President Elect) have completed their terms. I would like to thank them for their instrumental service to the CSA. I also want to welcome new executive members joining the board: Kui Liu (Western Director) and Milad Eskandari (Eastern Director).



President's Message (Con't.)

This AGM will also mark the end of my term as CSA president. I will continue to work with the executive committee as Past President. I would like to take this opportunity to thank Nancy Zubriski for her efficient and kind support as CSA executive director, Sheri Strydorhst our past president, Mumtaz Cheema our in-coming president and other members of our executive for their support and hard work during my term as president. The CSA has a bright future, I was thrilled to see that our most recent elections drew multiple excellent candidates. I encourage all of our members to be as involved as possible by volunteering for executive positions, or working on conferences, other committees, or by suggesting new endeavors for the CSA. This is our society, our long term legacy rests on all of our shoulders.

Andrew Burt
CSA President

Calling all Graduate Students.....

Do you want to share your work with other Canadian scientists and agronomists?

The Canadian Society of Agronomy (CSA) is looking to print short (250 word) summaries of graduate student research projects in the CSA newsletter. This will highlight up and coming graduate students and their work, and bring their energy and enthusiasm to the CSA!

We encourage all graduate students who presented at a CSA Green Bagger session to submit a written summary of their presentation. We also welcome research summaries from students who have not presented at a CSA Green Bagger event.

CSA newsletters are circulated 2 to 4 times per year. One month before the newsletter is circulated, a notice will be sent to the CSA membership requesting submissions of graduate student articles. Articles must be submitted at least 1 week prior to newsletter circulation. Graduate students should have their supervisor and fellow graduate student review their article and make editorial suggestions prior to submission. Articles will be printed as submitted. We also encourage graduate students to submit a photo with their article to be printed in the newsletter.

Please submit graduate student research summaries to Nancy Zubriski at nzubriski@gmail.com.

All CSA graduate student members are eligible to submit a summary of their research project. CSA graduate student memberships are available for \$25 (<https://agronomycanada.com/membership/sign-up-and-renewal/>)

Save the Date!

Upcoming Canadian Society of Agronomy Annual General Meetings and Conferences:

The 2021 CSA Annual Business Meeting will be held on July 15, 2021 from 11:30 am - 1:25 pm (CDT - Central Time - Manitoba). This will be a virtual meeting. For more information or to register click this link <http://agronomycanada.com/csa-annual-conference-and-business-meeting-2021/>

The 2021 CSA Annual Conference will be held jointly with CSHS and CPS, July 5-9, 2021. This will be a virtual meeting. More information and registration is available here <https://trisocieties2021.ca/registration/>

The 2022 CSA Annual Meeting and Conference will be held in conjunction with the Canadian Weed Science Society on November 13-19, 2022 in Halifax.

Please plan to attend these future CSA meetings.

Graduate Student Research

*The following are summaries of research presented at the CSA Green Bagger events. Watch for the re-start of the Green Baggers in fall, 2021.

The role of chlormequat chloride in minimizing lodging risk of spring wheat

Presented by Amy Mangin, PhD. Candidate, Dept. Plant Science, University of Manitoba



Amy Mangin, University of Manitoba

Concerns about lodging in spring wheat have resurfaced due to increased yield potential and nitrogen (N) fertilizer requirements of new cultivars. Lodging occurs when the leverage placed on a plant by wind and rain exceeds the stem strength (stem lodging) or the anchorage strength (root lodging). Chlormequat chloride (CCC), a plant growth regulator, is used to reduce lodging by decreasing stem elongation, and as a result, the leverage placed on the plant. The aim of this study was to determine the potential of CCC to reduce lodging risk through increased stem and anchorage strength in addition to reducing canopy height across Manitoba growing conditions. CCC efficacy when applied at the onset of stem elongation was evaluated at four environments during the 2018 and 2019

growing seasons. Lodging ratings, stalk strength, canopy height, stem diameter and root plate size were measured for each plot two weeks after anthesis. Due to environmental conditions, there was very limited natural lodging pressure across all four environments. In the absence of lodging, CCC increased stalk strength and reduce canopy height, with no influence on stem diameter of the lower internodes. Structural root plate width was increased at 1 of 4 environments and root plate depth was increased at 3 of 4 environments in response to CCC application. This research demonstrates the potential of CCC to reduce lodging risk through additional mechanisms, but the consistency of these responses requires additional research.

This is a portion of the project *Agronomic management practices for reducing lodging risk while maximizing yield and protein for spring wheat in Manitoba*. For more information, please contact Amy Mangin: Ummangia@MyUmanitoba.ca

Understanding the Genetic Basis for Nitrogen Fixation in Early Maturity Soybeans under Drought Stress

Presented by: Dilrukshi Kombala Liyanage, M.Sc. Candidate in Plant Science, University of Alberta

With the rising population, there is an increase in the food demand, with a specific need for protein. In Canada, soybean is the third largest field crop in terms of farm cash receipts and its production has recently grown significantly in the Canadian Prairies. Soybean fixes atmospheric nitrogen through the symbiotic rhizobia bacteria that inhabit root nodules. Drought stress limits plant growth, yield, and symbiotic nitrogen fixation in soybean. Notably, the changing global climate is predicted to lead large areas of the world to experience extensive drought conditions over the next few decades. Most importantly, many regions in western Canada have been experiencing frequent and severe droughts over the last few decades. Therefore, there is a great need to improve the drought-resistance in soybean to increase food production for the rising population in the world. We believe that there is a genetic variant(s) for drought-resistance in short-season soybean varieties. The main objective of my study is to identify genotypic variability and allelic variation associated with nitrogen fixation in short-season Canadian soybean varieties under drought stress.

Graduate Student Research (Con't.)

Applying Remote Sensing to Potato Late Blight Detection

Presented by: Claudio Ignacio Fernandez

This presentation summarized results obtained at the leaf level from two studies to characterize spectral changes between 400 to 900 nm induced by potato late blight. We also focused in the red-edge region (680 to 800 nm) to computed red-edge parameters and their changes. To determine the time, the reflectance spectra were plotted as a function of the day post inoculation (DPI), then a Principal Component Analysis (PCA) was applied. A spectral ratio between infected and healthy cases was used to determine the best wavelengths. Additionally, the spectra were used to compute reflectances and associated vegetation indices for the five bands of the Micasense® RedEdge camera. We also computed the red-well point (RWP) by determining the wavelength with minimum reflectance in the red region. The red-edge inflexion point (REP) was determined finding the wavelength with the maximum first derivative reflectance. Spectral separability is achieved at 2 DPI. The best potential bands to detect potato late blight are the blue, green, red, and red-edge. The best vegetation indices are SR, Cl_{green} , RI, TCARI, TCARI/OSAVI-2, $Cl_{Red-Edge}$, and Red-Edge NDVI. Regarding NDVI, the most used vegetation index, was not sensible to the disease development. We provided the first study modelling RWP and REP, showing that RWP fits a linear model while REP fits an exponential model. Using support vector machines over reflectances at specific wavelengths in the red-edge region improves the classification of healthy leaves and those infected with potato late blight.

Related published works:

<https://www.tandfonline.com/doi/abs/10.1080/07038992.2020.1769471>

<https://www.mdpi.com/2072-4292/12/8/1292>

Ecological studies of cabbage seedpod weevil and lygus bug to improve sustainable pest management in canola

Presented by: Piratheepa Jegatheeswaran, University of Lethbridge

Canola is the main oilseed crop grown in the Canadian Prairies. Cabbage seedpod weevil (CSW) and lygus bugs are important insect pests that can cause economic losses in canola. Chemical insecticide is the only practical option available to manage these pests, but there is risk of resistance development, and possible impacts on beneficial insects. Therefore, biological control is a potential strategy to manage these insect pests in an ecological and sustainable way. Several studies have shown that the efficacy of natural enemies could be affected by landscape structure. It has been widely studied and demonstrated in Europe. Our study aims to understand the effects of landscape structure on the abundance of cabbage seedpod weevil and lygus bugs, associated weevil crop damage and levels of parasitism on weevil larvae. To assess the landscape effect, variable independent landscape areas were selected and their structure and configuration were documented and digital maps were constructed. From the maps, the proportion of various habitats were calculated. CSW and lygus bugs abundance were estimated by sweep net sampling and damage and parasitism rate was calculated from canola pod sample collections. Data are being analysed with generalized linear models. The results will help to understand the effect of landscape structure on the abundance of CSW, lygus bugs, crop damage and parasitism and provide knowledge to improve sustainable management of these pests. Further, effect of climate on CSW and lygus abundance will be investigated. It will help to predict the insect abundance in relation to climate change.

Co-Authors: Hector Carcamo, Dan Johnson, Scott Meers, James Byrne

Graduate Student Research (Con't.)

Genetic mapping for stripe rust resistance in a hexaploid spring wheat population

Presented by: Momna Farzand, University of Alberta

Stripe rust, caused by *Puccinia striiformis* Westend. f.sp. *tritici* Erikss., is one of the most devastating diseases of wheat (*Triticum aestivum* L.) globally. Exploring and utilising new sources of resistance is essential for breeding resistant wheat cultivars. The Canadian spring wheat cultivar 'AAC Innova' possesses an effective level of stripe rust resistance under field conditions, although the genetic resistance is unknown. To dissect the genetics of resistance in 'AAC Innova', a doubled haploid (DH) mapping population of 291 lines was developed from hybrids of 'AAC Innova' and the susceptible Canadian wheat cultivar 'AAC Proclaim'. This population was tested for stripe rust severity in disease nurseries at Creston, British Columbia (in 2016 and 2020) and Lethbridge, Alberta (in 2016, 2017 and 2020), and genotyped using the wheat 90K Infinium iSelect SNP assay. A high-density genetic map consisting of 7,112 SNPs markers with an average marker interval of 2.31 cM was constructed. Composite interval mapping (CIM) identified one major (*QYr.Irdc-2A*) and 10 minor effect QTLs (*QYr.Irdc-2B.1*, *QYr.Irdc-2B.2*, *QYr.Irdc-2B.3*, *QYr.Irdc-2B.4*, *QYr.Irdc-2D*, *QYr.Irdc-3B*, *QYr.Irdc-5A*, *QYr.Irdc-5B*, *QYr.Irdc-5D* and *QYr.Irdc-7D*). *QYr.Irdc-2A* mapped to chromosome arm 2AL and explained up to 33.0% of the phenotypic variance and was detected across all environments. Other QTLs were inconsistent and explained less than 10% of the phenotypic variance. 'AAC Innova' contributed stripe rust resistance alleles for most of the QTLs except for *QYr.Irdc-2D*, *QYr.Irdc-5A* and *QYr.Irdc-7D*, which were derived from the susceptible parent 'AAC Proclaim'. These QTLs and the flanking markers identified in this study can be used for developing stripe rust resistant cultivars.

2020 Best Paper Abstract

Below is the abstract from our 2020 CJPS Best Paper by lead author Francois Tardif from the University of Guelph. This article is available online at <https://cdnsiencepub.com/doi/10.1139/cjps-2019-0114>

Widespread herbicide resistance in pigweed species in Ontario carrot production is due to multiple photosystem II mutations

Gareth Davis, Jocelyne Letarte, Christopher M. Grainger, Istvan Rajcan, and François J. Tardif

ABSTRACT

The apparent efficacy of linuron to control pigweeds (*Amaranthus* spp.) has declined in Ontario, Canada, in past decades, possibly due to resistance. Samples were collected in multiple fields across Ontario with reported linuron failure. These were characterized at the whole-plant and molecular levels. Screening with linuron revealed resistance in six out of nine green pigweed (*Amaranthus powellii* Wats.) populations and 36 out of 38 populations of redroot pigweed (*Amaranthus retroflexus* L.). Sequencing of the *psbA* gene showed resistant plants had mutations conferring resistance to photosystem II (PSII) inhibitors. The most commonly seen mutation was coding for a Val₂₁₉Ile substitution, while other populations had Ala₂₅₁Val or Phe₂₇₄Val. Two populations were documented with a double mutation at Val₂₁₉Ile and Phe₂₇₄Val. All substitutions endowed plants with low to moderate resistance to linuron, with various levels of cross resistance to other PSII inhibitors. The double mutants were characterized by higher levels of resistance to linuron and diuron compared with each single substitution. The widespread failure of linuron to control pigweed species in many carrot fields in Ontario is due to the selection of PSII mutants. This is the first report of double mutation in *psbA* in any weed species and the first report of Ala₂₅₁Val and Phe₂₇₃Val in pigweed species. The presence of a double mutation is probably the result of continuous selection of plants already resistant due to a single mutation. Our results illustrate the need for diversified weed management strategies in crops where herbicide options are limited.

Canadian Society of Agronomy Awards

2021 Distinguished Agronomist



Dr. Tarlok Singh Sahota, Lakehead University

Dr. Tarlok Singh Sahota

Dr. Tarlok Singh Sahota, Director Lakehead University Agricultural Research Station (LUARS) Thunder Bay since May 2018 (formerly Director of Research and Business, Thunder Bay Agricultural Research Station (TBARS), Thunder Bay, Ontario), has been heading the Research Station since January 2004. As a result of Dr. Sahota's development oriented research and public outreach, area producers adopted several new crops/crop varieties and beneficial nutrient management practices, diversified and expanded their operations and initiated new small scale commercial activities such as a stone grinding flour mill and a canola crushing plant; with resultant improvement in rural economy. Originally from a family farm, Dr. Sahota has Master's and Doctorate degrees in Agronomy with distinction, from the famous Punjab Agricultural University (PAU) 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 40 years' experience in agricultural research, extension and development spread over four continents and 12 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 was an invited member of an International Panel for the Second External Review of ICRA, The Netherlands and has worked in multinational and multidisciplinary teams. He has also served on the Board of Directors of (i) Indo-Israel Lab Ltd. Baroda, India (1996-97) - a commercial organization, marketing agricultural inputs, (ii) the CSA for six years (2012-2017; three years as an Eastern Director and one year each as President Elect, President and Past President) and (iii) Plant Canada (2016 and 2017). Dr. Sahota is the winner of the Fellow of Canadian Society of Agronomy (CSA) Award 2018 and an Award of Honour by the Alumni Association, PAU Ludhiana, India (2015). Dr. Sahota was nominated for the CCA Award of Excellence in 2013 and 2017 and for the RBC Innovation Award in 2015. He has several other awards and honors to his credit. Dr. Sahota has worked with farmers all through his 40 years career. He has been an Ontario Certified Crop Advisor (CCA) in good standing since 2007. He has published over 260 extension articles in Ontario and has made ~90 research presentations at Canadian Society of Agronomy (CSA), Plant Canada, American Society of Agronomy, and farmers' conferences in Ontario/Canada and USA in the recent past (total over 635 publications to date). He has often been invited by the Industry and Universities (outside Canada) for presentations of his farmers focussed research results. Dr. Sahota has been a member of the CSA and the American Society of Agronomy for 15 years and a member of OSCIA for 17 years!

Since 1993, Dr. Sahota has held senior management positions in six organizations and has headed multimillion dollar projects/divisions. Dr. Sahota is also an Adjunct Professor with the Faculty of Natural Resources Management, Lakehead University Thunder Bay, Ontario, Canada since 2013 and is on the Research and Innovation Committee, CCA Ontario. Dr. Sahota is a recipient of the CSA Distinguished Services Award 2021.

Canadian Society of Agronomy Awards (Con't.)

2021 Fellow Awards



Dr. Robert Graf
Agriculture and Agri-Food Canada

Dr. Robert Graf

Dr. Rob Graf is a principal research scientist at the Agriculture and Agri-Food Canada Lethbridge Research and Development Centre. Dr. Graf has led AAFC's winter wheat breeding efforts in western Canada for the past 22 years, concentrating on simultaneous improvements in yield and agronomic type, disease and pest resistance, and end-use quality. During that time he has released 12 winter wheat cultivars, of which 10 are of the CWRW milling and baking class. Over the course of his career he has developed or co-developed 26 wheat and 2 triticale cultivars. Dr. Graf has had major involvement in the wheat registration system in western Canada and has served as the Chair of the Alberta Regional Variety Advisory Committee (ARVAC) for the past decade. Rob is the author or co-author of 85 peer-reviewed research articles and 5 book chapters. He has done extensive outreach, presenting at about 280 events over his career. Dr. Graf has been recognized with numerous awards, the most

recent being the 2020 Canadian Plant Breeding and Genetics Award.



Dr. Jaswinder Singh, McGill University

Dr. Jaswinder Singh

Dr. Jaswinder Singh is an Associate Professor in the Department of Plant Science, McGill University, Canada. He is also a member of an Executive Committee of his Department and Associate Member of the Bieler School of Environment. After completing his PhD from the University of Sydney and CSIRO, Canberra Australia, he did his postdoctoral studies at the University of California, Berkeley. His research focuses on genomics, molecular breeding and biotechnological approaches. His laboratory is actively researching precocious germination from a unique perspective and discovered novel barley genes associated with Pre-Harvest Sprouting (PHS) and β -glucan activity. He is the Director of the multi-institutional NSERC-CREATE program on the "Genome Editing for Food Security and Environmental Sustainability". He has published 65 research articles in peer reviewed journals, books & conference

proceedings, and delivered more than 60 invited talks and keynote lectures in renowned academic institutes and international meetings. He served on various executive positions in different science societies, notably as President Elect (2017-18), President (2018-19) and Past President (2019-20) of the Canadian Society of Agronomy (2018-19), Board of Directors-Plant Canada (2018-20), Chair-Gleb Krotkov award committee of Canadian Society of Plant Biologists (2019), Membership officer of the Canadian Association of Plant Biotechnology (2013-14), member of International Affairs Committee of the American Society of Plant Biologists (2012-15) and the Eastern Director of the Canadian Society of Agronomy (2010-12). He is also an acclaimed researcher, receiving accolades such as the prestigious C. D. Nelson award in 2018 for his outstanding contribution to plant biology. In 2020, he was identified as one of the top 50 McGill Professors for envisioning the future over the coming decades and participated in Video for McGill Bicentennial Digital Time Capsule.

Canadian Society of Agronomy Awards (Con't.)

2021 Early Career Agronomist Awards



Dr. Kate Congreves, University of Saskatchewan

Dr. Kate Congreves

Dr. Kate Congreves is an Assistant Professor of Environmental Agronomy & Horticulture in the Department of Plant Sciences at the University of Saskatchewan. Her research program is aimed at understanding the functioning of ecosystem services, and to use this information to support sustainable agriculture. She has expertise in nutrient cycling, soil health, and greenhouse gas dynamics. She received the Dean's New Researcher Award of Excellence in 2020 and was named the Prof of the Year by the Agricultural Students' Association in 2021—honours awarded by the College of Agriculture and Bioresources at USask. She has authored 31 peer-reviewed publications, including a highly-cited paper in *Nature Geoscience*; an

invited Marschner Review in *Plant and Soil*; and an invited textbook chapter on soil health. Funding bodies from across Canada have supported her research—contributing over 2 million to support her program and team. More than 20 HQP have trained with Kate at various levels from undergrad to postdoctoral researchers. Recently, she co-developed the national NSERC CREATE program that trains graduate students across Canada on Climate-Smart Soils. In service to the discipline, she serves on the Expert Panel of the Council of Canadian Academies to drive the focus of Canada's first report on Plant Health Risks. She currently serves as Lead Guest Editor for the first-ever Special Issue on Canadian Horticulture in the *Canadian Journal of Plant Science (CJPS)*, and on Editorial boards for *Geoderma* and *Frontiers in Agronomy*. Previously, she held editorial positions with *CJPS* and the *Journal of Environmental Quality*.



Dr. Malinda Thilakarathna, University of Alberta

Dr. Malinda Thilakarathna

Malinda Thilakarathna is an Assistant Professor in plant-microbial interactions at the Department of Agricultural Food & Nutritional Science, University of Alberta. He obtained his PhD from the Department of Biology, Dalhousie University in 2013. After completing his PhD, he worked as a postdoctoral researcher at the Department of Plant Agriculture, University of Guelph. There, his researched focus was on agronomy and beneficial plant-microbial interactions, and he also contributed to an international development research project in Nepal. In a broad sense, Malinda's research interests aim to enhance economic and environmental sustainability in field crop production, improve crop resilience to biotic and abiotic stresses, and enhance crop and soil health. His current research program at the University of

Alberta focuses on studying agronomic practices that reduce the need for synthetic nitrogen fertilizers in crop production, assessing beneficial microbes to improve biological nitrogen fixation in legumes and non-legumes, evaluating beneficial microbes and biomolecules to alleviate abiotic stress in plants, and evaluating factors that influence nitrogen fixation and belowground nitrogen transfer from legumes to non-legumes. Malinda employs both basic and applied research in his research program, and he has experience working on a range of crops, including soybeans, pea, dry bean, lentil, cowpea, kidney bean, corn, winter wheat, forage legumes, and grasses. He has published 20 peer-reviewed publications and has presented at numerous national and international conferences. Malinda joined the *Canadian Journal of Plant Science* editorial team in 2021 as an Associate Editor. He also serves the 2021 CPS-CSA-CHSH Tri-Society conference organizing committee. Malinda has been a member of the Canadian Society of Agronomy since 2009.

Canadian Society of Agronomy Awards (Con't.)

2021 Pest Management Award



Piratheepa Jegatheeswaran
University of Lethbridge

Piratheepa Jegatheeswaran

Piratheepa Jegatheeswaran is an agricultural graduate, majoring in Agricultural Biology, with first-class standing, and awarded the 2015 gold medal from the University of Jaffna, Sri Lanka. Her interests in environmentally sustainable plant protection, especially regarding management and ecology of plant pests, led to research on eco-friendly management of nematodes attacking onion crops, by using organic amendments and science-based integrated pest management. She published a paper and presented an abstract from that study. She was appointed as a Lecturer (2017) in the Faculty of Technology of the University of Jaffna, Department of Biosystems Technology (BST) in the field of Commercial Green Farming Technology. She completed a M.Sc. in Plant Protection Technology (2018) from University of Peradeniya, Sri Lanka, and she is currently pursuing a doctoral degree in application of analysis of biosystems and biodiversity in support of environmental crop pest management to improve food production sustainability at the University of Lethbridge, working under the supervision and in

collaboration with Prof Dan Johnson and senior scientist Dr. Héctor Cárcamo of Agriculture and Agri-Food Canada (AAFC). She received the Alberta Graduate Excellence Scholarship (AGES) in 2020. Her PhD studies concern a major group of economically and ecologically relevant insects, seedpod weevils and lygus bugs, and impacts of landscape and climate on pest abundance in canola. She has presented her results in five science conferences and won the best presentation award in Graduate Symposium 2019, at the Lethbridge Research and Development Centre (AAFC). Her personal goal is to become an outstanding academic lecturer and scientist, and contribute to the wellbeing of humankind through reduction of chemicals usage for pest and disease management, where possible, and promotion of the values of biodiversity and ecological pest management.

2020 CSP and CSA Best Paper Award



François Tardif

François Tardif is a weed scientist and professor at the University of Guelph. He teaches at the bachelor's and diploma level, trains graduate students and conducts research on herbicide activity, weed biology and integrated weed management.

François studied agronomy at Laval University, Quebec City, and obtained his bachelor's degree in 1985. Having worked on the provincial weed survey in 1982 and 1983, he decided to pursue a career in weed science. Thus, he began his master's and doctoral studies, under the direction of Dr. Gilles Leroux at the Department of Plant Science at Laval University focusing his research on the control and physiology of quackgrass.

Dr. Tardif received his PhD in January 1991 and later worked in Australia at the University of Adelaide under the supervision of Professor Stephen Powles, aiming to understand the physiology of herbicide cross-resistance in annual ryegrass. He joined the University of Guelph in 1996 and is conducting most of his research on understanding and managing herbicide resistance as well as the management of invasive plants such as giant hogweed and wild parsnip. Dr. Tardif has taught multiple classes on various aspects of agronomy and weed science and supervised or co-supervised 30 graduate students.

Canadian Society of Agronomy Awards (Con't.)

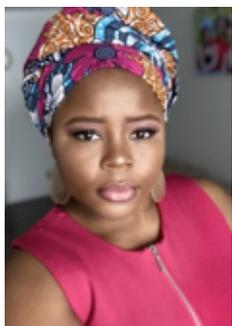
2021 Ali Navabi Travel Awards



Bilal Javed

Bilal Javed is a current graduate student at Boreal Ecosystem and Agriculture Sciences of Grenfell Campus Memorial University. He has done his bachelors from University of Agriculture Faisalabad, Pakistan. He has developed his interest in research related to plant growth and development during his bachelor's studies. At Grenfell he is working as a Mitacs intern in collaboration with Corner Brook Pulp and Paper Mill and Provincial Government of Newfoundland and Labrador. He is testing mill wastes (wood ash and paper sludge) as sources of liming and nutrients for plant growth and NL acidic soils by using agronomic and horticulture crops. This investigation will help paper mill in the

utilization of these wastes instead of dumping them at the landfill sites as well as for NL farmers in getting cheaper inputs for growing crops instead of lime and chemical fertilizers which are quite expensive.



Therese Audrey M. Nzwinda

I am Therese Audrey M. Nzwinda a Master's student at the School of Science and Environment, Memorial University of Newfoundland (Grenfell Campus) and I am currently doing my graduate internship at CLEANTECH. I graduated with Honours from the Catholic University Institute of Buea, Cameroon with a BSc degree in Integrated Agriculture. To promote sustainable agricultural development, my domain of interest is Agronomy. Currently, my research interest at Grenfell focuses on the quality and quantity of various feed crops grown with different types of nitrogen fertilizers. Specifically, I am evaluating the effects of nitrogen fertilizer stabilizers on the growth, yield, quality, and nitrogen uptake of annual feed crops. These different Nitrogen fertilizer formulations with urease and nitrification inhibitors

can improve nitrogen use efficiency and minimize nitrogen losses in agricultural fields. However, this is yet to be proven for feed crops in Newfoundland and Labrador (NL) field conditions; hence warrants investigations.



Dilrukshi Kombala Livanage

Dilrukshi Kombala Liyanage is an MSc student at the University of Alberta in the Department of Agriculture Food and Nutritional Science (AFNS) under the supervision of Dr. Malinda Thilakarathna. She obtained her BSc in Agricultural Science specialized in Biotechnology at the University of Wayamba, Sri Lanka. She started her MSc in 2020 January at the University of Alberta and her research project is focused on identifying genotypic variability and allelic variation associated with nitrogen fixation in short-season Canadian soybean varieties under drought stress. She has presented her preliminary results in multiple conferences. She has also been selected among the top 15 National Competition for young women science students

to present at the 2021 SCWIST Symposium. In addition to her research activities, she is currently serving as the Vice president of academics in the AFNS Graduate Students Association (GSA) and will be serving as the VP of Finance at ALES GSA from July 2021. She is looking forward to pursuing a PhD in the future using the knowledge and experience she has gained in her research project.

Canadian Society of Agronomy Awards (Con't.)

2021 Ali Navabi Travel Awards (Con't.)



Olasupo Ibraheem Olamide

Ibraheem Olamide Olasupo holds a M. Agric. (Horticulture) and B. Agric. (Soil Science and Land Management) from the Federal University of Agriculture Abeokuta, Nigeria; and a HND (Horticulture and Landscape Technology) from Binyaminu Usman Polytechnic, Hadejia. He is currently studying Vegetable Science as a Ph.D. student at the Chinese Academy of Agricultural Sciences, Beijing. His professional interest revolves round greenhouse production of horticultural crops (soil-based and hydroponics) and sustainable agriculture. He is a recipient of the prestigious Beijing Government Scholarship (2020) and the GSCAAS Ph.D. Scholarship (2018) awards, among others. He worked as a hydroponics agronomist at Terratiga Ltd, one of the pioneer soil-less greenhouse companies in Nigeria. He served as a volunteer and later as a project assistant at the West African Network on Organic Agriculture and

Training. He also worked as a full-time lecturer at Binyaminu Usman Polytechnic, Nigeria, teaching horticulture-related disciplines – a stint of four years which afforded him another opportunity to voluntarily consult for private orchards. He currently serves as a volunteer member of the Tri-society student committee (2021), planning career and social events for students' audience. To him, research, extension, farming and meeting people are a passion. He is happily married with adorable children.

2020 CJPS Outstanding Reviewers



**Parthiba
Balasubramanian**
AAFC – Lethbridge
Research and Development
Centre, Canada



Shaun Sharpe
AAFC – Saskatoon
Research and Development
Centre, Canada



Breanne Tidemann
AAFC – Lacombe Research
and Development Centre,
Canada

Outstanding CJPS Associate Editor



Eric Page
Research Scientist - Weed Ecology and Crop Physiology
AAFC - Harrow Research and Development Centre

10 Year Membership Awards

Malinda Thilakarathna

T.Q. Zhang

2021 Canadian Society of Agronomy Annual Meeting

The 2021 CSA Annual Business Meeting will be held on July 15, 2021 from 11:30 am - 2:00 pm (CDT - Central Time - Manitoba). This will be a virtual meeting. For more information or to register click this link <http://agronomycanada.com/csa-annual-conference-and-business-meeting-2021/>



Canadian Society of Agronomy
La Société Canadienne d'Agronomie

Canadian Society of Agronomy Annual General Meeting and Awards Agenda (draft) July 15, 2021 11:30 – 1:25 CDT

- 11:30 am Introductory Remarks
- 11:35 am Division Business Meeting and Awards Presentations
1. Approval of 2021 Agenda
 2. Approval of 2020 AGM Meeting Minutes
 3. Report of Executive Board
 4. Treasurers Report and Appointment of Auditor for 2021
- 12:00 pm Presentation: Dr. Bruce Coulman, CSA Distinguished Agronomist 2020
- 12:30 pm 2021 Award Presentations (Sheri Strydhorst, CSA 2020-21 Past President)
- Distinguished Agronomist
 - CSA Fellow
 - Early Career Agronomist
 - Ali Navabi Student Travel Awards
 - 2021 Pest Management Award
 - Canadian Journal of Plant Science Best Paper Award
 - Canadian Journal of Plant Science Outstanding Associate Editor Award
 - Canadian Journal of Plant Science Outstanding Reviewers Award
 - 2021 Annual Meeting - Student Poster and Oral Presentation Awards
 - CSA 10 Year Membership Acknowledgements
- 2021 CSA Photo Contest Awards (Doug Cattani/Andrew Burt)
- 12:40 pm Presentation: Dr. Tarlok Sahota, CSA Distinguished Agronomist 2021
- 1:10 pm Retiring Executive Members (Andrew Burt, CSA 2020-21 President)
- Introduction of New Board (Mumtaz Cheema, CSA 2021-22 President)
 - Upcoming Conferences and Next AGM (Mumtaz Cheema, CSA 2021-22 President)
- 1:20 pm Concluding Remarks (Andrew Burt, CSA 2021-22 Past President)
- 1:25 pm Adjourn

2021 Canadian Society of Agronomy Reviewed Financials for the Year Ended December 31, 2020

Michelle's Bookkeeping Services

37 Hogue Road
Ile Des Chenes, MB
R0A 0T3
Tel : (204) 223-7580
Tel : (204) 272-3331

April 13, 2021

NOTICE TO READER

These statements have been compiled by me from information provided by management, without audit or review or other attempts to verify accuracy or completeness of such information. Readers are cautioned that these statements may not be appropriate for their purposes.



Michelle Trudeau

CANADIAN SOCIETY OF AGRONOMY STATEMENT OF FINANCIAL POSITION Year Ended December 31, 2020

	2020	2019	2018
ASSETS			
Current Assets			
Cash	\$ 88,712	77,548	87,813
Accounts Receivable	0	1,000	
Grants Receivable	0	8,000	0
	<u>\$ 88,712</u>	<u>86,548</u>	<u>87,813</u>
LIABILITIES			
Current liabilities			
Accounts payable and accrued liabilities	\$ 0	0	1,845
SURPLUS			
Surplus	<u>88,712</u>	<u>86,548</u>	<u>85,968</u>
	<u>\$ 88,712</u>	<u>86,548</u>	<u>87,813</u>

2021 Canadian Society of Agronomy Reviewed Financials for the Year Ended December 31, 2020 (Con't)

CANADIAN SOCIETY OF AGRONOMY STATEMENT OF OPERATIONS AND CHANGES IN NET ASSETS Year Ended December 31/20

	2020	2019	2018
INCOME:			
Award Sponsorships	0	5,000	1,000
Conference	3736		0
Corporate Sponsorships	0	625	11,000
Grants	8000	8,000	
Interest	1192	1,754	1,697
Member Fees & Subscriptions	6920	9,588	7,174
Total Income	19,848	24,967	20,871
EXPENSES			
Advertising	450	500	543
Awards & Grants	599	6879	5108
Bank Service Charges		0	30
Bookkeeping Services	380		4678
Business Licenses & Permits		20	20
Conference/Event Costs	1781	300	3,868
Executive Director Fees	10364	9,825	5,857
Honorarium	0	1,500	
Insurance	1029	961	918
Miscellaneous	4	21	186
Office Supplies		906	441
Professional Fees	224	0	158
Subscriptions	959	1,669	1,571
Telephone		0	
Travel		919	1,733
Website	1894	887	585
Total Expenses	17,684	24,387	25,696
NET INCOME	2,164	580	(4,825)
RETAINED EARNINGS - BEGINNING OF YEAR	86548	85,968	90,793
RETAINED EARNINGS - END OF YEAR	\$ 88,712	86,548	85,968

Canadian Society of Agronomy Executive Committee 2021/2022

CSA Executive - To Be Appointed at 2021 Annual General Meeting

PRESIDENT

Mumtaz Cheema
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Memorial University of Newfoundland
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PAST-PRESIDENT

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andrew.burt@canada.ca

PRESIDENT-ELECT

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Canadian Society of Agronomy

Nancy Zubriski, Executive Director

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