

CURRICULUM VITAE

Baljeet Singh, Ph.D., P.Ag.

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EXPERIENCE

Faculty and Researcher (Assiniboine Community College, Brandon, MB, Canada)

August 2017-Continue (Full-Time)

- Teach and develop academic courses such as Soil and Soil Fertility, Soil and Water, Crop Pest Management, Agro-Ecology, Agriculture & Environment, Agricultural Equipment to Agri-Business and Land and Water Students.
- Establish research projects and extension collaborations with Government, industry and academic institutes.
- Currently work on CAP projects in collaboration with Manitoba Pulses and Soybean Growers (MPSG), Brandon University and Manitoba Horticulture Productivity Enhancement Centers.

Instructor (Environmental Sciences, Lakeland College, AB, Canada)

August 2012 – July 2017

- Responsibilities
 - Teach inorganic and organic chemistry to diploma level students.
 - Teach water quality monitoring and environmental contaminants remediation courses, Water Chemistry, Waste Water Management, Environmental Contaminants Chemistry, Environmental Law, and Environmental Toxicology.
 - Conduct lectures, laboratory and field sessions focusing environmental site assessment, water quality, waste water regulation, treatments processes and environmental compliance, including determining the impact of contaminants on aquatic wild-life and terrestrial organisms.
 - Served as a Program Head for Water Conservation Management (WCM) program, Faculty member for student advisory groups, Faculty member for Environmental Board of Directors.

Precision Agronomist, Sure Growth Technologies Inc. (Agri-Trend-Agrology), Langenburg, SK

August 2016 – Continue (Part-Time)

- Responsibilities:
 - Provide all Agri-Coaching services to Sure Growth Technologies clients, such as Crop Planning, Power Zone and Nutrient Management, Field Management and Soil Sampling, GIS/GPS Services, Crop Scouting (weeds, diseases and nutrient management), Customer Service and Farm Equipment Management.
 - Work with Regional Managers of Bayer Crop Sciences and plan, review and execute pesticide efficacy research trials.

04th May 2021

- Improve and develop SOP's in areas of Sure Growth business that are needed to increase efficiency of the work, to provide and ensure a consistent customer service experience such as Strategic Crop Planning meetings and year around consulting with clients.
- Lead the client communication newsletter (Survey Monkey, Mail Chimp) to manage farm communication services.
- Builds brand in the industry as being a leading professional and improves the brand and reputation of Sure Growth.
- Attend training and conduct meetings and workshops to provide new technology information to clients.

Ph.D. Student, University of Manitoba, Canada

June 2008- February 2016

- Responsibilities:
 - Work in a collaborative team of research scientists across Canada to develop and test integrated pesticide fate modeling (PRZM) to estimate the types and amounts of organic contaminants (herbicides) and biological contaminants (estrogens) entering groundwater and prairie wetlands.
 - Conduct research to reduce sampling cost and uncertainty associated with risk assessments techniques for water quality monitoring programs, to benefit clean drinking water policy frameworks of Canada. Collect and compile research data and write publications in peer reviewed journals, and deliver research presentations.

Research Fellow, Pesticide Residue Analysis Laboratory, Punjab Agricultural University, Ludhiana, India

June 2006- June 2008

- Responsibilities:
 - Supervise all agronomic practices for field plot research, such as selection of field, field preparation, selection of sampling design, irrigation, weeding and pest control, fertilizer and pesticide application, harvesting, data collections and report writing and to act as a key personal between Govt. and farming community. Identify and prioritize agronomic, pesticide degradation and efficacy studies including, design and conduct field scale evaluation and testing of new molecules on vegetables and cereal crops.
 - Lead and coordinate projects with external research groups, private industry and execute remote trialing program to expand P.A.U. research facilities.
 - Method development of new crop protection active ingredients i.e. to develop performance data needed to effectively position new technology including integrated pest management solutions and report writing for registration of new pesticide candidates. Provide analytical and field research insights to Project coordinator for the development and execution of the overall crop strategy and work closely with research team scientists to execute needed evaluation

programs for market research. Lead a state level water quality and pesticide monitoring program, advising and coordinating laboratory and field staff.

EDUCATION

Ph.D. Soil Science, University of Manitoba, Canada

- June 2008 – February 2016
- Ph.D. Thesis title, “Methods to determine spatial variations of herbicide and estrogen sorption coefficients in undulating to hummocky terrains for pesticide fate modeling at the large scale”

M.Sc. Entomology, Punjab Agricultural University, India

- June 2004 – July 2006
- M.Sc. Thesis title, “Estimation of Dicofof Residues on Cucumber”

B.Sc. Agriculture (Hons.), Punjab Agricultural University, India

- June 2000 – July 2004
 - B.Sc. Crop Production Project, “Practical Crop (Rapeseed and Forage) Production with emphasis on Plant Protection”
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AWARDS/HONOURS

- Vice-President, Manitoba Soil Science Society (2021-2023)
 - University of Manitoba Graduate Fellowship: 2008-2012
 - International Conference on NIRS Travel Award: 2011
 - University of Manitoba Graduate Student Travel Award: 2010
 - University of Manitoba Graduate Student Travel Award: 2011
 - International Graduate Student Scholarship: 2009-2010
 - International Graduate Student Entrance Scholarship: 2008-2009
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ANALYTICAL SKILLS

- Visible and Infrared Spectroscopy (NIRS) Research Development Tools
- Gas Liquid Chromatography Instrumentation and Research Tools
- Mass Spectrometry Instruments, Operations and Applications
- Radioisotope (¹⁴C or ³H) Research and Waste Management Ethics
- Data Analysis (SP-SAS, Sigma Stat, Minitab, Unscrambler)
- Certifications:
 - Navigating to Canadian Environmental Law (Eco Canada)
 - Decision Making For Wetlands Management
 - H₂S Alive
 - Ground Disturbance Level II

- First-Aid CPR
 - Workplace Hazardous Material Information Systems (WHMIS)
 - Transpiration of Dangerous Goods (TDG)
 - Motor Boat Operation
 - All Train Vehicle (ATV)
 - Health and Safety Permits (HASP)
 - GIS/GPS, LIDAR Data Analysis
 - Agri-Data Management, Trimble Software
 - Environmental Sampling Techniques (Soil, Water, Air, Crops)
 - Safe Operating Procedure (SOP)
 - Good Laboratory Practices (GLP)
 - Crop Planning, Farm Consulting and Farm Power Equipment's
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CURRENT RESEARCH PROJECTS

- Development of Improved Diagnostics Tools for Pathogens of Soybean (2020-2023), in collaboration with Brandon University and Manitoba Pulses and Soybean Grower.
- To Develop a Weather Based Fungicide Application Decision Support Tool (FADST) for Managing White Mould in Dry Beans in Manitoba (2021-2022), in collaboration with Manitoba Pulses and Soybean Grower.
- AI (Artificial Intelligence) Driven Support Decision Tool for Improving Alfalfa's Winter Survival and Persistency (2021-2023), in collaboration with Canadian Grassland and Forage Association (CGFA) and McGill University, Quebec.
- Development of a Decision Support Tool (DST) for Potato Irrigation Scheduling using Soil and Weather Data Modelling (2022-2025), preliminary studies are underway in the 2021 growing season to build the base line data and support tool, in collaboration with Manitoba Horticulture and Productivity Enhancement Centers (MHPEC), and Key Stone Potato Association.

PUBLICATIONS

EXTENSION/RESEARCH TRIALS REPORTS:

- Megan Bourns and **Baljeet Singh** (2021) Tighten the row and watch yield grow. ON-Farm Network Row Spacing Trials, Pulse Beat, pp 37-38

BOOK CHAPTERS:

- A. Farenhorst, Ross McQueen, Rai Kookana, **Baljeet Singh** and Diane Malley (2014). Spatial Variability of pesticide Sorption: Measurement and Integration to Pesticide Fate Models, American Chemical Society (ACS) Book Series, Chapter DOI: 10.1021/bk-2014-1174.ch014.

PEER REVIEWED RESEARCH PAPERS:

- **Baljeet Singh**, Annemieke Farenhorst, Ross McQueen, and Diane F. Malley (2016) Near-infrared spectroscopy as a tool for generating sorption input parameters for pesticide fate modeling. *Soil Science Society of America journal*. 80(3): 604-612.
- **Baljeet Singh**, Annemieke Farenhorst, Janette Gaultier, Dan Pennock, Dani Degenhardt and Ross McQueen (2014) Soil Characteristics and herbicide sorption coefficients in 140 soil profiles of two irregular undulating to hummocky terrains of western Canada. *Geoderma* 232-234: 107-116.
- **Baljeet Singh**, Diane F. Malley, Annemieke Farenhorst and Phil Williams (2012) Feasibility of using near-Infrared spectroscopy (NIRS) for rapid quantification of 17 β -estradiol sorption coefficients in soil. *Journal of Agriculture and Food Chemistry*, 60(40): 9948-9953.
- **Baljeet Singh**, A. Farenhorst, D.F. Malley, (2010) Feasibility of using NIR spectroscopy for predicting the behaviour of agricultural herbicides in agricultural soils. *Near Infrared Spectroscopy News*, Vol.21, Issue 6, 7-9.
- Arora PK, Jyot G, **Baljeet Singh**, Battu RS, Singh B, Aulakh PS (2009) Persistence of imidacloprid on grape leaves, grape berries and soil. *Bull. Environ. Contam. Toxicol.* 82(2):239-42.
- Raminderjit Singh Battu, **Baljeet Singh**, Rubaljot Kooner, B. Singh (2008) Simple and efficient method for the estimation of residues of flubendiamide and its metabolite desiodo flubendiamide. *Journal of Agriculture and Food Chemistry*. 56:2299-2302.
- P. K. Arora, G Jyot, Puneet Randhawa, **Baljeet Singh**, R.S. Battu and B. Singh (2008) Dissipation of imidacloprid on kinnow mandarin fruits under subtropical conditions of Punjab, India. *Indian Journal of Horticulture*. 65(3): 277-279.
- **Baljeet Singh**, Gurmit Singh, B Singh, BS Joia, RS Battu (2008) Effect of processing on the reduction of dicofol and ethion residue on cucumber [*Cucumis sativus* (Linn.)]. *Journal of Insect Science*, 21(3): 286-89.
- Gurmit Singh, B.S. Joia, **Baljeet Singh**, Gagan Jyot, R.S. Battu and B. Singh (2007) Persistence of ethion residues on cucumber [*Cucumis sativus* (Linn.)]. *Bulletin of Environmental Contamination and Toxicology*. 79: 437-39.
- **Baljeet Singh**, B. Singh, R.S. Battu and G. Jyot (2007) Persistence of dicofol residues on cucumber [*Cucumis sativus* (Linn.)]. *Pesticide Research Journal*. 19(2):244-245.
- R.S. Battu, G Jyot, P. K. Arora, **Baljeet Singh** and B. Singh (2007) Dissipation of triazophos on Kinnow Mandarin fruits under subtropical conditions of Punjab, India. *Journal of Environment and Ecology*. 26(2): 571-574.

IMPORTANT PRESENTATIONS

- **Baljeet Singh**, A. Farenhorst, Ross McQueen and Diane Malley (2014). Near-Infrared Spectroscopy generated sorption input parameters for pesticide fate modeling at large

- scale. 57th Manitoba Soil Science Society Meeting, Winnipeg, MB. Feb. 6-7th, 2014.
- **Baljeet Singh**, D.F., Malley, D.F. and A. Farenhorst (2012). Feasibility of Near-Infrared Spectroscopy (NIRS) to predict the spatial variability of herbicide and estrogen sorption at the field scale. 55th Manitoba Soil Science Society Meeting, Winnipeg, MB. Feb. 2nd-3rd, 2012.
 - **Baljeet Singh**, A. Farenhorst, A. and D.A.R. McQueen (2011). Impacts of climate change on herbicide and estrogen leaching potential assessment by Pesticide Root Zone Modeling (PRZM). International ASA, CSSA, and SSSA Annual Meetings in San Antonio, TX, USA. Oct 16th-19th, 2011.
 - **Baljeet Singh**, A. Farenhorst, and D.F. Malley (2011). Use of NIRS in quantifying the spatial variability of soil characteristics and herbicide sorption parameters at the field scale. 15th International Conference on Near Infrared Reflectance Spectroscopy (NIR-2011). May 16th-20th, 2011 Cape Town, South Africa.
 - **Baljeet Singh**, A. Farenhorst, and D.F. Malley (2011). Near Infra-Red Spectroscopy to characterize soil properties and chemical sorption in soil profiles of the Newdale association. 54th Manitoba Soil Science Society Meeting, Winnipeg, MB. Feb. 4-5, 2011.
 - **Baljeet Singh**, Annemieke Farenhorst and Diane F. Malley (2010). Rapid quantitative and qualitative spectral analysis of herbicides sorption by near infrared reflectance spectroscopy (NIRS): A ray of evolution in pesticide science, Oral presentation at Joint Annual Conference of Canadian Soil Science Society (CSSS) and Canadian Society of Agronomy 2010, 20th -24th May 2010 , Saskatoon, Canada.
 - **Baljeet Singh**, Annemieke Farenhorst, Ross McQueen, Dani Xu and Dan Pennock (2010) Pesticide Root Zone Modeling (PRZM) at soil profiles of the *St. Denis* National Wildlife Area, Saskatoon, SK. Joint Annual Conference of Canadian Soil Science Society (CSSS) and Canadian Society of Agronomy 2010, 20th -24th May 2010 , Saskatoon, Canada.
 - **Baljeet Singh**, Annemieke Farenhorst, Ross McQueen, Dani Xu, Dan Pennock and Jeanette Gaultier (2010). PRZM (Pesticide Root Zone Modeling) in soil of Manitoba Zero Tillage Research Association (MZTRA) Research Farm. 53rd Annual Conference of Manitoba Soil Science Society 2010, 4th and 5th Feb 2010, Winnipeg, Manitoba, Canada.
 - Raminderjit Singh Battu, **Baljeet Singh**, Rubaljot Kooner, Balwinder Singh (2007) Simple and efficient method for estimation of residues of flubendiamide and its metabolite desio-flubendiamide. Poster presentation at AOAC 121st meeting at California, USA.

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