

# Megan Bourns, Ph.D., CCA

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*Agronomist and researcher motivated to help farmers align productivity, profitability, and environmental protection goals. Successful track record of nutrient management research, farmer-focused extension, and classroom-based teaching.*

**Soybean, Corn, Pulse, and Cover Crop Agronomy • Soil Fertility • Nutrient Management • Research Program Management • Trial Development and Implementation • Data Analysis • Scientific Communication • Farm-Level Extension • Mentoring • Stakeholder Engagement • Leadership • Facilitating Cross-Functional Teams • Grant Writing • Teaching**

## EDUCATION

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**Ph.D. Agronomy, Soil Fertility**, Kansas State University (2024)

Advisor: Dr. Nathan Nelson

Dissertation topic: Improving sustainability of phosphorus fertility management in Kansas

**M.Sc. Soil Science, Soil Fertility**, University of Manitoba (2020)

Advisor: Dr. Don Flaten

Thesis topic: Potassium fertility in Manitoba soybean

**B.Sc. Agriculture**, University of Manitoba (2017)

Major: Agronomy

Pre-Medical Program, McGill University (2013-2014)

## CERTIFICATIONS

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**Certified Crop Advisor**, ICCA, CCA-PP (2022-present)

## RELEVANT WORK EXPERIENCE

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**Post Doctoral Fellow** (Present)

University of Arkansas

Fertilizer Recommendation Support Tool Project

**Agronomist, On-Farm Network** (2019-2021)

Manitoba Pulse and Soybean Growers

Carmen, Manitoba

- Responsible for a field-scale research program, conducting 150+ trials over three growing seasons
- Restructured the program to address the “why” behind yield results
- Skills developed: trial design and implementation, data collection, collaboration with farmers and external researchers, data analysis, communication, extension, mentoring, and team management

## TEACHING EXPERIENCE

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**Soils Laboratory**, Instructor of Record (Fall 2023)

Department of Agronomy, Kansas State University

Instructor of Record roles – grading, lab preparation, lab facilitation, student assistance

*Teaching Evaluations:*

- *Overall effectiveness: 4.7*
- *Increased desire to learn: 4.2*

- Amount learned in the course: 4.2

**Soil Fertility**, Guest Lecturer (Spring 2024)

Department of Agronomy, Kansas State University  
Lecture: Urea

**World Food Crops**, Guest Lecturer (Spring 2023, 2024)

Department of Agronomy, Kansas State University  
Lecture: Canadian Food Crop Production

**Soil Fertility Laboratory**, Teaching Assistant/Instructor of Record (Spring 2023)

Department of Agronomy, Kansas State University  
Teaching Assistant roles (one section) – grading and lab preparation  
Instructor of Record roles (one section) – grading, lab preparation, lecturing, lecture development, student assistance

*Teaching Evaluations:*

- Overall effectiveness: 5.0
- Increased desire to learn: 5.0
- Amount learned in the course: 4.5

**Soil Fertility Laboratory**, Teaching Assistant (Spring 2018)

Department of Soil Science, University of Manitoba

**Soil Conservation and Management**, Teaching Assistant (Spring 2018, 2019)

Department of Soil Science, University of Manitoba

**Natural Resources and Primary Agricultural Production**, Field Tour Assistant (Fall 2017, 2018)

Department of Plant Science, University of Manitoba

## RESEARCH GRANTS AUTHORED

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**Bourns, M.A.**, Nelson, N.O., and Ruiz Diaz, D. A New Phosphorus Recommendation Paradigm for Sustainable Sufficiency. *Conservation Innovation Grants State Program, USDA-NRCS*.

\*Awarded, 2024: \$125,000

## PEER-REVIEWED PUBLICATIONS

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**Bourns, M.A.**, Yeager, E.Y., Nelson, N.O., Kluitenberg, G.J., Roozeboom, K.L., Hettiarachchi, G., Tomlinson, P., and Presley, D. (2025). Phosphorus use and efficiencies under drawdown management. *Manuscript in preparation*.

**Bourns, M.A.**, Yeager, E., Nelson, N., Kluitenberg, G., Roozeboom, K., Hettiarachchi, G., Tomlinson, P., and Presley, D. (2025). Phosphorus drawdown affects net return and water quality in a no-till corn-soybean system. *Manuscript in preparation*.

**Bourns, M.A.**, Buol, G., Spargo, J., Gatiboni, L., Yost, M., Slaton, N., and Osmond, D. (2025). FRST: The fertilizer recommendation support tool relational database and decision interface tool. *Agricultural and Environmental Letters*, under review (submitted 01/16/2025).

**Bourns, M.A.**, Nelson, N.O., Roozeboom, K.L., Kluitenberg, G.J., Tomlinson, P., Kang, Q., and Hettiarachchi, G. (2024). Cover crops impact phosphorus cycling and environmental efficiency in a corn-soybean system. *Agronomy Journal*, 116, 109-120.

<https://doi.org/10.1002/agj2.21498>

**Bourns, M.A.**, and Flaten, D.N. (2022). Soybean yield is relatively nonresponsive to K fertilizer rate or placement in Manitoba soils. *Canadian Journal of Plant Science*, 102 (4), 835-847.

<https://doi.org/10.1139/cjps-2021-0254>

## ADDITIONAL PUBLICATIONS

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- Bourns, M.,** Buol, G., Gatiboni, L., Spargo, J., Yost, M., Slaton, N., and Osmond, D. (2025). The FRST decision aid for soil test P and K interpretation. *FRST Fact Sheet Series*, <https://soiltestfrst.org/resources/soil-test-decision-aid/>.
- Bourns, M.,** Buol, G., Gatiboni, L., Spargo, J., Yost, M., Slaton, N., and Osmond, D. (2025). The FRST soil test database. *FRST Fact Sheet Series*, <https://soiltestfrst.org/resources/FRST-Soil-Test-Database/>.
- Bourns, M.A.,** Nelson, N.O., Roozeboom, K.L., Hettiarachchi, G.M., Tomlinson, P.J., Presley, D.R. (2025). Cover crops for protecting water quality. *Under review by KSRE*.
- Bourns, M.A.,** Manzar, E.K., Nelson, N.O., Roozeboom, K.L., Kluitenberg, G.J., Hettiarachchi, G.M., Yeager, E.A., Tomlinson, P.J., and Presley, D.R. (2023). Corn and soybean yield as affected by cover crop and phosphorus fertilizer management. *Kansas Agricultural Experiment Station Research Reports*, 9 (8).  
<https://doi.org/10.4148/2378-5977.8547>
- Bourns, M.A.,** Nelson, N.O., Ruiz Diaz, D., and Roa, G. (2023). Developing a sustainable sufficiency paradigm. *North Central Extension-Industry Soil Fertility Conference*.
- Bourns, M.A.,** Flaten, D., Heard, J., and Bartley, G. (2018). Soybean response to potassium fertility and fertilizer in Manitoba. *North Central Extension-Industry Soil Fertility Conference*.
- Bourns, M.A.** (2021). Dry Bean Responses in a Droughty Year: Findings from Tillage and Nitrogen Fertility Trials. *Pulse Beat Magazine, Issue 94. 2021*.
- Bourns, M.A.** (2021). Guide to Conducting On-Farm Trials. *Pulse Beat Magazine, Issue 93*.
- Bourns, M.A.** (2021). On-Farm Network Soybean Row Spacing Trials: Tighten the Row and Watch Yield Grow? *Pulse Beat Magazine, Issue 92*.
- Bourns, M.A.** (2021). Soybean Seeding Rate Trials: Optimizing the bottom line. *Pulse Beat Magazine, Issue 92*.
- Bourns, M.A.** (2020). Findings from the On-Farm Network: Do Higher Soybean Seeding Rates Pay? *Pulse Beat Magazine, Issue 91*.
- Bourns, M.A.** and Domitruk, D. (2020). On-Farm Network Strives to Answer the Why Behind Yield Results. *Pulse Beat Magazine, Issue 90*.
- Bourns, M.A.** (2020). Thinking Spring Inputs: Setting Soybeans Up for Success. *Pulse Beat Magazine, Issue 89*.
- Bourns, M.A.** (2019). On-Farm Research – by Farmers, for Farmers. *Pulse Beat Magazine, Issue 88*.
- Bourns, M.A.** (2019). Preliminary Results of Potassium Management of Soybean Production in Manitoba. *Pulse Beat Magazine, Issue 86*.

## RESEARCH PRESENTATIONS

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### **Invited**

- “Short-Form Communication for a Technical Audience”  
AGSA Scientific Communication Workshop, Manhattan, KS, 2023
- “Your Field, Your Farm: Getting the most from on-farm trials”  
Virtual Top Crop Summit, Winter 2021
- “A Manitoba Perspective: On-Farm Research Across Time and Space”  
Plenary Session, Manitoba Agronomists Conference, Winnipeg, MB, 2019

### **Contributed**

- “Phosphorus Drawdown: A benefit or detriment to farmers?”  
ASA-CSSA-SSSA Annual Meeting, San Antonio, TX, 2024
- “Sustainable Sufficiency: An upgrade to phosphorus fertilizer management strategies”  
ASA-CSSA-SSSA Annual Meeting, San Antonio, TX, 2024

- “Sustainable Sufficiency: An alternative paradigm for phosphorus fertilizer management”  
Great Plains Soil Fertility Conference, Lubbock, TX, 2024 (*Poster*)
- “Efficiencies of Phosphorus Fertilizer Strategies Under Cover Crop Management”  
ASA-CSSA-SSSA Annual Meeting, St. Louis, MO, 2023
- “Sustainable Sufficiency: A new approach to phosphorus fertilizer management”  
ASA-CSSA-SSSA Annual Meeting, St. Louis, MO, 2023 (*Poster*)
- “Developing a Sustainable Sufficiency Paradigm”  
North Central Soil Fertility Conference, Des Moines, IA, 2023 (*Poster*)
- “Phosphorus Cycling and Efficiencies in a No-Till System with Cover Crops”  
ASA-CSSA-SSSA Annual Meeting, Baltimore, MD, 2022 (*Poster*)
- “Potassium Research in 3D: Aspects of fertility across spatial scales”  
ASA-CSSA-SSSA Annual Meeting, San Antonio, TX, 2019
- “4R Potassium Management for Soybean Production – Is it a-o.k.?”  
ASA-CSSA Annual Meeting, Baltimore, MD, 2018
- “4R Potassium Management for Soybean Production”  
SSSA Annual Meeting, San Diego, CA, 2018
- “Soybean Response to Potassium Fertility and Fertilizer in Manitoba”  
CropConnect, Winnipeg, MB, 2018 (*Poster*)
- “O.K. – How do I manage potassium fertility for my soybeans?”  
Manitoba Soil Science Society Annual Meeting, Winnipeg, MB, 2018

## **EXTENSION PRESENTATIONS & ENGAGEMENT**

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### ***Invited Extension Talks***

- “Phosphorus: How, when, and why in crops and soils”  
Cover Your Acres, Winter Meeting, Oberlin, KS, 2024
- “Using On-Farm Data!”  
Ontario Agriculture Conference, Virtual, 2021
- “Pea Agronomy & the On-Farm Network”  
Grower Meeting, New Era Ag, Swan River, MB, 2020
- “On-Farm Network Long-Term Research Results”  
Table Talk, Getting it Right, Portage la Prairie, MB, 2020
- “Wireworms and Seed Treatments”  
Table Talk, Getting it Right, Portage la Prairie, MB, 2020
- “On-Farm Network Research Results”  
SMART Day, Manitoba Pulse and Soybean Growers, Carmen, MB, 2019
- “Crack Open the Pod of MPSG Research and Resources”  
Crops-a-Palooza, Carberry, MB, 2019
- “Soybean Response to Potassium Fertility and Fertilization in MB”  
AgVise Soil Fertility Seminar, Portage la Prairie, MB, 2019
- “Soybean Response to Potassium Fertility and Fertilizer in MB”  
AgVise Soil Fertility Seminar, Portage la Prairie, MB, 2018
- “Feeding Soybeans”  
SMART Day, Manitoba Pulse and Soybean Growers, Carman, MB, 2018
- “Your Fields, Your Results: Findings from the On-Farm Network”  
Manitoba Pulse and Soybean Growers, Live Webinar, 2021
- “2019 On-Farm Network Results”  
On-Farm Network Appreciation Dinner, Winnipeg, MB, 2019

### ***Original Video Series & Webinars Developed***

On-Farm Network Results Series

13-Part Video Series, Manitoba Pulse and Soybean Growers YouTube Channel, 2021.

2021 Agronomists Answer Interactive Webinar Series

Three-part series, Manitoba Pulse and Soybean Growers.

On-Farm Network Results Series

17-Part Video Series, Manitoba Pulse and Soybean Growers YouTube Channel, 2020.

### ***Interviews & Media***

“P & K for soybeans”

The Agronomists, Episode 111, *Podcast*, 2023

“Trials offer critical, site-specific results”

Top Crop Manager, *Magazine*, 2021

“2020 On-Farm Network Results”

Manitoba Farm Journal, *Podcast*, 2020

“On-farm research can best answer producer questions”

Manitoba Cooperator, *Newspaper*, 2020

“A special K soybean problem”

Top Crop Manager, *Magazine*, 2019

“Soybean response to potassium”

Top Crop Manager, *Magazine*, 2019

Megan Bourns, Faculty of Agriculture, Department of Soil Science

Grad Talks, *Podcast*, 2018

“Soybean response to potassium fertilizer in Manitoba”

Top Crop Manager, *Magazine*, 2018

## **SERVICE AND ENGAGEMENT**

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Soil Science Society of America

Graduate Student **Board Representative** (2024-2025)

Member, S201 Organization and Policy Committee

Member, S592 Science Policy Committee

ACS Graduate Student Committee

Member ex-officio (2024-2025)

**Chair**, Strategic Planning Subcommittee (2024)

Ellis Lectureship Committee, Kansas State University

Agronomy Graduate Student Association Representative (2023)

Peer Reviewer, *Agronomy Journal* (2024-Current)

Agronomy Graduate Student Association, Kansas State University

**Treasurer** (2023)

Committee member, Scientific Communication Committee (2022-2024)

Committee member, Professional Development Committee (2022-2024)

Founder, Annual Networking Night (2022)

Soil and Water Conservation Society, KSU Chapter, Kansas State University

**Founding member** (2022)

Outreach Coordinator **Officer** (2023)

Graduate Student Council, Kansas State University

**Co-Chair**, Professional Development Committee (2022)

Soil Science Graduate Students' Association, University of Manitoba

Graduate Student Association Representative (2018-2019)

Graduate Students' Association, University of Manitoba  
Councillor (2018-2019)  
Bylaws and Policy Committee Member (2018-2019)  
Department of Soil Science Headship Committee, University of Manitoba  
Graduate Student Representative (2018)

## **SCHOLARSHIPS AND AWARDS**

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**1<sup>st</sup> place**, student oral competition, ASA Nutrient Management Community, Annual ASA-CSSA-SSSA Meeting, San Antonio, TX, (2024)

**1<sup>st</sup> place**, student rapid oral and poster presentation competition, SSSA Soil Fertility and Plant Nutrition Division, Annual ASA-CSSA-SSSA Meeting, San Antonio, TX (2024)

### **Graduate Student Award for Outstanding Leadership and Service K-State Alumni Association (2024)**

Encompass Fellow

Bayer Crop Sciences (2023-2024)

**1<sup>st</sup> place**, student poster competition, Great Plains Soil Fertility Conference, Lubbock, TX (2024)

Finalist, 3MT Graduate Student Competition, Kansas State University (2024)

### **Nelson Yield Limiting Factors Scholarship**

**American Society of Agronomy (2023)**

Robert Nunemacher Scholarship

College of Agriculture, Kansas State University (2023)

Kenneth C. and Ann (Neff) Currie Agriculture Scholarship

College of Agriculture, Kansas State University (2023)

**1<sup>st</sup> place**, student oral competition, Soil Science Society of America Soil and Water Management Professionals Division, Annual ASA-CSSA-SSSA Meeting, St. Louis, MO (2023)

**4<sup>th</sup> place**, student rapid oral and poster presentation competition, Soil Science Society of America Soil Fertility and Plant Nutrition Division, Annual ASA-CSSA-SSSA Meeting, St. Louis, MO (2023)

### **Edward H. Lloyd Scholarship**

**Foundation for Environmental Agriculture Education (2022)**

Schrader/Massier Graduate Excellence Fund in Agronomy

Department of Agronomy, Kansas State University (2022)

**1<sup>st</sup> place**, student rapid oral and poster presentation competition, Soil Science Society of America Soil Fertility and Plant Nutrition Division, Annual ASA-CSSA-SSSA Meeting, Baltimore, MD (2022)

**1<sup>st</sup> place**, student oral competition, MSSS Annual Meeting, Winnipeg, MB (2019)

**4<sup>th</sup> place**, student oral competition, Soil Science Society of America Nutrient Management and Soil/Plant Analysis division, Baltimore, MD (2018)

Finalist, 3MT Graduate Student Competition, University of Manitoba (2018)

Faculty of Agriculture and Food Science BSA Medal, University of Manitoba (2017)

Manitoba Graduate Scholarship

Government of Manitoba (2017)

University of Manitoba Graduate Fellowship

University of Manitoba (2017)

Canada Graduate Scholarship

NSERC, University of Saskatchewan (2017) \*declined to pursue M.Sc. at University of Manitoba\*

Agriculture Faculty Walter Williamson Award

University of Manitoba (2017)

Industrial Experience Award

NSERC (2016)