Interest in cover crops continues to grow in Minnesota. Research is focusing on incorporating cover crops into corn-soy rotations in short growing seasons, via interseeding, as well as development of winter annual crop systems to increase profitability. Adoption according to the 2017 Ag Census remains low, but state-level cost share from the MN Department of Ag and Soil and Water Conservation Districts around the state report ongoing subscription, so we anticipate increasing growth. Research in incorporating manure into cover crop systems is also ongoing. Minnesota is characterized by strong participation from non-governmental, farmer-lead organizations in cover crop outreach and education. The University of Minnesota Water Resources Center in collaboration with the MN Board of Water and Soil Resources also recently established a MN Office for Soil Health, which has increased collaboration on cover crop and soil health efforts both internal to UMN and external. We updated our Midwest Cover Crop Council Cover Crop Decision Tool and released two Cover Crop Recipes in collaboration with MCCC in 2019.

Minnesota Highlights:

A. Extension publications


B. Research publications (in 2019)


Yield. Agronomy, 9(12), 852. doi: 10.3390/agronomy9120852


C. Graduate students and post-docs • Ph.D. students, M.S. students, and post-doc


c. Dr. Yesuf A. Mohammed, Postdoctoral Research Associate in Gesch Lab, Evaluating improved methods for winter oilseed cash cover crop establishment and effects of relay-cropping on soybean nodulation and N-fixation.


e. Wayment, Jessica. Project title: Cover crops and living mulches and their role in minimizing unintended nitrogen consequences on the environment. September 2019-Present. Advised by Dr. Fabian Fernandez.

f. Stephen Gregg, MS with Dr. Axel Garcia y Garcia

g. Rabin KC, MS with Dr. Axel Garcia y Garcia

h. Vijaya R Joshi, Post-doc with Dr. Axel Garcia y Garcia

D. Conference Abstracts


Research Laboratory, Morris, MN. 2019. Harvest Aid Effect on Pennycress Plant and Seed Moisture, Seed Yield, and Oil Content. ASA.


Meetings. San Diego, CA, January 6-9.
https://scisoc.confex.com/scisoc/2019sssa/meetingapp.cgi/Paper/116329

https://scisoc.confex.com/scisoc/2019sssa/meetingapp.cgi/Paper/115437

https://scisoc.confex.com/scisoc/2019sssa/meetingapp.cgi/Paper/115441

E. Ongoing research studies
a. Corn Relative Maturity Impacts on Oilseed Survival
b. Corn Stover Residue Management for Improved Pennycress grain yields
c. Wide-row corn for improved cover crop forage and water quality
d. Desiccation of grain corn to hasten direct-drill establishment of oilseeds
e. Double-cropping early semi-dwarf sunflower with winter camelina
f. Optimizing N rate and application timing for winter oilseeds
g. Demonstrating innovative techniques for the integration of cover crops and manure to improve soil health in cool climates. Funded by USDA-NRCS.
   i. Two small plot studies at WCROC and 1 on-farm trial near Nicollet, MN.
h. Best management practices to integrate cover crops and manure. Funded by MN Corn Research and Promotion Council.
   i. Two small plot studies at SROC and 1 on-farm trial near Trimont, MN.
i. Field evaluations of elite pennycress and winter camelina germplasm for commercial production
j. Innovations for sustainable food, energy, and water supplies in intensively cultivated regions: integrating technologies, data, and human behavior
k. The Cover Crops, Water, and Nitrogen Nexus: How do They Impact Corn and Soybean Production and the Environment?
l. Cover crops in high tunnels
m. Tillage and Erosion Survey Advisory Committee at University of Minnesota. They are looking at conducting field survey of cover crop plantings around Minnesota (throughout the year)

F. Extension/Education/Outreach/On-farm trials/NGO
a. Cannon River Watershed Regen Ag. 2019
c. Invited talk “Closing agronomic and breeding gaps for commercialization of pennycress and camelina” given to representatives of the Walton Family Foundation (Walmart), UMN Borlaug Hall, St. Paul, MN (5/13/19).
d. Invited by MPCA (MN Pollution Control Agency) to serve as a panel member to discuss the impact of agriculture on water quality in MN, UMM (9/25/19).
e. Invited to speak to on oilseed cover crops at a Farm-to-Table celebration at the Cato de Prairie Lodge in Havana, ND (8/28-29/19; 200 participants).
f. Invited along with UMN Forever Green Initiative Team to speak to Cargill’s New Food Uses Innovation Team on development of winter camelina and pennycress for commercial production, Cargill Food Innovation Center, Plymouth MN (1/23/20)


p. Land Stewardship Project: Sep to Oct 2019, four events that featured grazing of cover crops and perennials

q. Land Stewardship Project Podcast: A U of M experiment station’s research into grazing, cover crops, and soil health. (12/3/19)

r. Winona Post Article: Ridgeway farmers grow corn and covers — simultaneously (10/2/19)

s. Land Stewardship Project Blog: Soil Health: Short-Term Gains, Long-Term Dividends (7/17/19)

t. No-Till Farmer Article: On-Farm Research Validates Benefits of No-Till, Cover Crops (7/11/19)

u. Land Stewardship Project Blog: Are You Trying to Grow a Crop in a Biological Desert? (5/15/19)

v. Agri-View Article: Cotter chooses cover crops (4/5/19)

w. Land Stewardship Project Blog: ‘Caring for the Land’ with Cover Crops, the Roller-Crimper & Spring CC Seeding (2/20/19)

x. NRCS: Monthly staff meetings held with our Soil Health Teams (1 representative from each area of the state) on 1st Wednesday each month.

y. NRCS: Spoke at Pheasant Forever meeting in Alexandria about NRCS Programs including cover crops (January 2019)
z. Sustainable Farming Association Soil Health Summit in St. Peter on Cover Crops and Soil Health (March 2019)
aa. NRCS field offices: Cover Crop Summit Webinar Series (March 2019)
b. NRCS: Promoted Soil Health and Cover Crops through booth and demonstration at the MN FFA Convention (April 2019)
c. NRCS: Provided Prevented Plant Factsheet and EQIP cover crop signup for producers (June 2019)
dd. NRCS/UMN Office for Soil Health: 2 weeks of Soil Health Trainings in all 4 areas of the state (June 2019)
ee. NRCS/Becker County SWCD/UMN: Soil Health Bus Trip to Bismarck, ND (included University, SWCD, NRCS, and Producers from NW MN) (July 2019)
ff. NRCS: Conservation Planning Training in Morris. Talk about soil health and cover crops in planning process (August 2019)
g. NRCS: Worked with Land O’ Lakes on Soil Health Management Systems (August 2019)
hh. UMN, NRCS, Sustainable Farming Association, Soil Health Coalition: Cover crop education at Farmfest (August 2019)
i. NRCS: 4R Field Day and promoted cover crops and soil health (August 2019)
a. Soil Health Coalition Kickoff—(August 2019)
b. NRCS: State Technical Committee Meeting (August 2019)