

NCCC211 2014/2015 Publications

Peer-reviewed

1. Acuña J.C.M., and M.B. Villamil. 2014. Short term effects of cover crops and compaction on soil properties and soybean production in Illinois. *Agron. J.* 106:860-870. doi:10.2134/agronj13.0370
2. Daigh, A.L., M.J. Helmers, E. Kladvko, X. Zhou, R. Goecken, J. Cavadini, D. Barker, J. Sawyer. 2014. Soil water during the drought of 2012 as affected by rye cover crops in fields in Iowa and Indiana. *J. Soil Water Cons.* 69:564-573.
3. Dorn, KM; Fankhauser, JD; Wyse, DL; Marks, MD. 2013. De novo assembly of the pennycress (*Thlaspi arvense*) transcriptome provides tools for the development of a winter cover crop and biodiesel feedstock. *The Plant Journal.* 75(6):1028– 038.
4. Dorn, KM; Fankhauser, JD; Wyse, DL; Marks, MD. 2015. A draft genome of field pennycress (*Thlaspi arvense*) provides tools for the domestication of a new winter biofuel crop. *DNA Research.* doi: 10.1093/dnares/dsu045
5. Gesch, R., D. Archer, and M.T. Berti. 2014. Dual cropping winter camelina with soybean in the Northern Corn Belt. *Agron. J.* 106:1735-1745.
6. Kladvko, E.J., Kaspar, T.C., Jaynes, D.B., Malone, R.W., Singer, J., Morin, X.K., Searchinger, T. 2014. Cover crops in the upper Midwest USA: Potential adoption and reduction of nitrate leaching in the Mississippi River Basin. *Journal of Soil and Water Conservation.* 69:279-291.
7. Malone, R., D. Jaynes, T. Kaspar, E. Kladvko, L. Ma, D. James, J. Singer, X. Morin, T. Searchinger. 2014. Simulated potential water quality impact of fall-planted cover crops across the Midwestern USA. *J. Soil and Water Conservation* 69:292-305.
8. Moore, E.B., Kaspar, T.C., Wiedenhoft, M.H., Cambardella, C.A. 2014. Rye cover crop effects on soil quality in no-till corn silage-soybean cropping systems. *Soil Science Society of America J.* 78:968-976.
9. Daigh, A.L., M.J. Helmers, E. Kladvko, X. Zhou, R. Goecken, J. Cavadini, D. Barker, J. Sawyer. 2014. Soil water during the drought of 2012 as affected by rye cover crops in fields in Iowa and Indiana. *J. Soil Water Cons.* 69:564-573.
10. Samarappuli, D., B.L. Johnson, H. Kandel, and M.T. Berti. 2014. Biomass yield and nitrogen content of annual energy/forage crops preceded by cover crops. *Field Crops Res.* 167:31-39.
11. Sedbrook, J.C., Phippen, W.B., Marks, M.D. 2014. New approaches to facilitate rapid domestication of a wild plant to an oilseed crop: Example pennycress (*Thlaspi arvense* L.). *Plant Science.* 227: 122-132.
12. Xiaofei, Z; DeHaan, L.R.; Higgins, L; Markowski, T.W.; Wyse, D.; Anderson, J.A. 2014. New insights into high-molecular-weight glutenin subunits and sub- genomes of the perennial crop *Thinopyrum intermedium* (Triticeae). *J. Cereal Science* 59:203-210.
13. Wilson, M.L.; Allan, D.L., Baker, J.M. 2014. Aerially seeding cover crops in the northern US Corn Belt: Limitations, future research needs, and alternative practices. *Journal of Soil and Water Conservation* 69(3):67A-72A.

Proceedings

1. Berti, M.T., B.L. Johnson, R. Gesch, A. Aponte, J. Lukaschewsky, Y. Ji, and W. Seames. 2014. Energy balance of relay- and double-cropping systems for food, feed, and fuel in the

North Central Region, USA. p. 103-107 *In* 21st European Biomass Conference and Exhibition. 23-27 June, 2014, Hamburg, Germany Available at <http://www.etaflorence.it/proceedings/index.asp> (verified 10 March 2015).

2. Sawyer, J.E., J.L. Pantoja, and D.W. Barker. 2014. Corn nitrogen rate response and crop yield in a rye cover crop system. p. 59-63. *In* Proc. Forty-Fourth North Central Extension-Industry Soil Fertility Conf., Des Moines, IA. 19-20 Nov. 2014. Vol. 30. International Plant Nutrition Inst., Brookings, SD. (208 attendees)
3. Sawyer, J.E., J. Pantoja, and D. Barker. 2014. Corn and soybean production with a winter rye cover crop. RFR-A13118. *In* Northeast Research and Demonstration Farm annual report ISRF13-13. Iowa State University, Ames, IA.

Conferences and abstracts

1. Ackroyd, V., D. Mutch, D. Baas, and C. Sprague. 2013. Impact of Fall-Planted Cover Crops on Greenhouse Gas Emissions and Corn Growth and Yield. Electronic conference proceedings (abstract). ASA-CSSA-SSSA International Annual Meeting, Long Beach, CA. November 2014.
2. Alford, S.L, E.J. Kladivko, and J.J. Camberato. 2014. Cover crops and no-tillage to improve soil health in Indiana. Agron. Abs. (CD-ROM).
3. Aponte, A., E. Deckard, R.W. Gesch, B.L. Johnson, D. Samarappuli, O. Teuber, and M.T. Berti. 2014. Double- and relay-cropping systems of oilseed and biomass crops for sustainable energy production. ASA-CSSA-SSSA International Annual Meetings. 2-6 November 2014, Long Beach, CA.
4. Bartel, C. K. Moore, D. Laird, A. Lenssen. 2014. Managing Perennial Cover Crops for Sustainable Corn Stover Biomass Production, as funded by the North Central Sun Grant Initiative.
5. Basche, A.B., F. Miguez, S. Archontoulis, T.C. Kaspar. 2014. The use of cover crops as climate-smart management in Midwest cropping systems. American Geophysical Union fall meeting, 15-19 Dec. 2014, San Francisco, CA.
6. Berti, M.T., B.L. Johnson, R. Gesch, Y. Ji, K. Alisala, S. Menon, A. Aponte, S.R. Kamireddy, J. Lukasheswky, and W. Seames. 2014. Double-and relay-cropping systems for oil and biomass feedstock production in the North Central Region. 2014 North Central Regional SunGrant Center Annual Meeting. 27-28 March, 2014, Minneapolis, MN.
7. Bietilla, E., E. Silva, A. Pfeiffer, and J. Colquhoun. 2015. Implementing cover crop-based reduced tillage in small scale organic vegetable production. ASA, CSSA, & SSSA International Annual Meeting, 2-5 Nov., Long Beach, CA.
8. Bulyaba, R. and A.W. Lenssen, Bradyrhizobium and seed fungicide application influence pulse biomass and grain yield. ASA-CSSA-SSSA international annual meetings, 2-5 November 2014, Long Beach, CA.
9. Carr, P.M., and G.G. Gramig. Continuous organic zero-till: Elusive or illusory. *In* 2014 Annual Meeting Abstracts [CD-ROM computer disk]. ASA, CSSA, and SSSA, Madison, WI.
10. Chawner, M., M.D. Ruark, J. Stute, M. Ballweg, and R. Proost. 2014. Assessing the benefits of radish as a cover crop. ASA, CSSA, & SSSA International Annual Meeting, 2-5 Nov., Long Beach, CA.
11. Dorn, KM, Johnson, EB, Wyse, DL, and Marks, MD. Towards an Anchored Reference Genome for Field Pennycress (*Thlaspi arvense* L.) - 2015/1/12 - Plant and Animal Genome XXIII Conference.

12. Dozier I, GD Behnke, ED Nafziger, and MB Villamil. Agronomic Assessment of Cover Crops in Illinois. Poster presented at ASA, CSSA and SSSA International Annual Meeting. Long Beach, CA. Nov 2-6.
13. Frank, T.J. and E.J. Kladvko. 2014. Soil physical properties under a corn-soybean rotation using no-tillage and a cereal rye (*Secale cereale* L.) cover crop. Agron. Abs. (CD-ROM).
14. Gesch, R.W., D.W. Archer, M.T. Berti, and A. Aponte. 2014. Dual purpose oilseed cover crops for sustainable bioenergy production. ASA-CSSA-SSSA International Annual Meetings. 2-6 November 2014, Long Beach, CA.
15. Hill, E. 2014. Cover crop use in the United States. North Central Weed Science Society annual meeting. 147. Minneapolis, MN. Oral presentation.
16. Hill, E., C. Sprague, and K. Renner. 2014. Cover crop and herbicide interactions: A Michigan perspective. North Central Weed Science Society annual meeting. 148. Minneapolis, MN. Oral presentation.
17. Hill, E., K. Renner, and C. Sprague. 2014. Impact of cereal rye and red clover on weed seed mortality. Weed Science Society of America annual meeting. 63. Vancouver, BC. Poster.
18. Kladvko, E.J. and L.C. Bowling. 2014. Nitrate leaching to subsurface drains as affected by cover crops, drainage intensity, and rainfall distribution. Agron. Abs. (CD-ROM).
19. Malone, R., D. Jaynes, T. Kaspar, K. Thorp, L. Ma, D. James, E. Kladvko, and J. Singer. 2014. Water quality improvement from management practices in agricultural watersheds. ASABE international meetings.
20. Martinez-Feria, R.A., T.C. Kaspar, National Laboratory for Agriculture and the Environment, Ames, IA and Mary H. Wiedenhoft, Iowa State University, Ames, IA. An empirical approach for estimating seeding dates for winter canola in Iowa. ASA-CSSA-SSSA international annual meetings, 2-5 November 2014, Long Beach, CA.
21. Millar N, D.G. Baas, S.R. Miller, D.R. Mutch and G.P. Robertson. 2014. Nitrous oxide emissions from Cover Crop systems: Comparisons within and between Conventional and Organic management systems. (abstract). ASA-CSSA-SSSA International Annual Meeting, Long Beach, CA. November 2014.
22. Millar N. and G.P. Robertson. 2014. Manual Chamber Sampling Strategies to Help Account for Temporal Variability of Nitrous Oxide Emissions from Agricultural Cropping Systems. in Measuring Nitrous Oxide Emissions from Soil Workshop. (abstract). ASA-CSSA-SSSA International Annual Meeting, Long Beach, CA. November 2014.
23. Millar N, D.G. Baas, S.R. Miller, D.R. Mutch, and G.P. Robertson. 2014. Nitrous Oxide Emissions from Row-Crop Systems: Comparing Presence and Absence of Winter Cover Crops. Great Lakes Bioenergy Research Center (GLBRC). Annual Retreat, South Bend, IN. May 2014.
24. Nair, A., J. Tillman, and R. Kruse. 2014. Summer Cover Crops and Plastic Mulch Affect Fall Lettuce (*Lactuca sativa* L.) Production. 2014 American Society for Horticultural Science Annual Conference, July28-30, 2014, Orlando, FL
25. Ruark, M., K. Shelley, R. Proost, J. Stute, M. Ballweg, and B. Halfman. 2014. On-farm cover crop trials: Clover, Rye, and Radish. In Proceedings of the 2014 Wisconsin Crop Management Conference. 14-16 Jan., Madison, WI.
26. Schenck L., T. C. Kaspar, Thomas B. Moorman, M. Bakker, and T. E. Loynachan, 2014. Winter rye cover crop effect on corn seedling pathogens. ASA-CSSA-SSSA international annual meetings, 2-5 November 2014, Long Beach, CA.

27. Sklenar T., A.W. Lenssen, M.H. Wiedenhoef and T.C. Kaspar. 2014. Cover crop termination timing and biomass removal: impact on soybean systems. ASA-CSSA-SSSA international annual meetings, 2-5 November 2014, Long Beach, CA.
28. Teuber, O., A. Aponte, L.J. Cihacek, E.L. Deckard, B.L. Johnson, D. Samarappuli, K. Sedivec, and M.T. Berti. 2014. Performance and production of brassicas cover crops in North Dakota. ASA-CSSA-SSSA International Annual Meetings. 2-6 November 2014, Long Beach, CA.
29. Tillman, J., and A. Nair. 2014. Strip-tillage and Row Cover Use in Organic and Conventional Cucurbit Crops. 2014 American Society for Horticultural Science Annual Conference, July 28-30, 2014, Orlando, FL.
30. Villamil, M. B., and R. Y. Welch. 2014. Alleviating soil compaction with cover crops on organic farms: a participatory experience. 2014 Illinois Specialty Crops, Agritourism & Organic Conference, Jan., Bloomington, IL.
31. Villamil, M. B. 2014. Winter cover crops for sustainable cropping systems: Expectations and realities (In Spanish). Invited keynote speaker. XXIV Argentinian Congress of Soil Science and II National Meeting on Organic Matter and humic substances: Sustainable Production in Marginal Environments. Bahía Blanca, Argentina, May 5-9, 2014.
32. Villamil, M. B and E. D. Nafziger, 2014. Agronomic assessment of cover crops in Illinois. Commissioned Symposium. Soil Management Strategies for Enhancing Crop Yields. Invited speaker. 20th World Congress Soil Science. ICC Jeju, Korea. June 8-13, 2014.
33. Villamil, M. B. 2014. Opportunities and challenges in today's Agro-ecology. Invited keynote speaker. New Perspectives on Agro-ecology and Sustainability Symposium. University of San Luis Potosí, Mexico. Dec 1-4, 2014.
34. Welch, R. Y., G. Behnke, J. Masiunas, and M. B. Villamil. 2014. Alleviating soil compaction and suppressing weed populations with multifunctional cover crops in organic grain production. 2014 MOSES Organic Farming Conference, Feb., La Crosse, WI.
35. Welch, R. Y., G. Behnke, J. Masiunas, and M. B. Villamil. 2014. Improving weed suppression with cover crops in organic grain production. ASA. CSSA. & SSSA International Annual Meeting 2014, Nov., Long Beach, CA.
36. West, J., M.D. Ruark, and K. Shelley. 2014. Winter rye cover crop and forage comparison following corn silage in south central Wisconsin. ASA, CSSA, & SSSA International Annual Meeting, 2-5 Nov., Long Beach, CA.

Extension

1. Berti, M.T., H. Kandel, D. Samarappuli, and B.L. Johnson. 2014. Cover crops for fall grazing or as a source of nutrients for subsequent crops. Crop and Pest Report No. 14, North Dakota State Univ. Ext. Serv. 6 August 2014. Available at <http://www.ag.ndsu.edu/cpr>
2. Blawat, M., A.F. Wick. 2014. Cover Crops used as a Viable Tool for Soil Health, Impact Report, NDSU Extension Service. Available at: <http://www.ag.ndsu.edu/impactreports/reports/2014-impact-reports>
3. Cover Crop Termination
4. https://host.cals.wisc.edu/wcws/wpcontent/uploads/sites/4/2013/03/WCWS_204_cover_crop_termination_WEB.pdf
5. Forage Herbicide Quick Sheet: Spring Seeded Forages after Corn
6. https://host.cals.wisc.edu/wcws/wpcontent/uploads/sites/4/2013/03/WCWS_202_spring_seeded_forages_WEB.pdf
7. Forage Herbicide Quick Sheet: Cereal Rye Forage after Corn Silage

8. https://host.cals.wisc.edu/wcws/wpcontent/uploads/sites/4/2013/03/WCWS_203_for_age_cereal_rye_WEB.pdf
9. Gaugler, E.M., B.W. Neville, A.F. Wick, D.L. Whitted, and K.K. Sedivec. 2014. Utilizing annual forages in single- and dual-crop systems for late-fall and early winter grazing: Impacts on cattle performance and economics. p. 31. *In* 2014 North Dakota Beef report, North Dakota State University, Fargo.
10. Herbicide Rotational Restrictions in Forage and Cover Cropping Systems
11. http://wcws.cals.wisc.edu/wpcontent/uploads/sites/4/2013/03/WCWS_201_Herbicide_Rotation_Restrictions_WEB.pdf
12. Hill, E. 2014. Introduction to regulated, dicamba-tolerant soybean trials. MSU Weed Science Tour. July 2, 2014. Attended by 240.
13. Hill, E. and J. Heilig. 2014. Breeding efforts and cover crop choices for improved organic dry bean production systems in Michigan. eXtension- eOrganic Webinar. March 25, 2014. Attended by 105. Available at <http://www.extension.org/pages/25242/webinars-by-eorganic#.UzGMhvldXhc>.
14. Knudson, M., A.F. Wick. 2014. Salinity Management and Cover Crops, Impact Report, NDSU Extension Service. Available at: <http://www.ag.ndsu.edu/impactreports/reports/2014-impact-reports>
15. Practical Farmers of Iowa research reports: Published **11** reports from on-farm research trials where farmers compared the ecological and economic resilience of cover crop systems to a control on their farms.
16. Rossman, D., E. Hill, K. Renner, and C. Sprague. 2014. Cover crop influence on organic dry beans: 3 year summary. SunOpta Grower Meeting. April 3, 2014. Attended by 60.
17. Scheve, A., A.F. Wick. 2014. Bringing Cover Crops and Soil Health to Traill County, Impact Report, NDSU Extension Service. Available at: <http://www.ag.ndsu.edu/impactreports/reports/2014-impact-reports>
18. Villamil MB, D Bowman, and ED Nafziger. Cover crops for Illinois: What we hear and what we know. Agronomy Day. Crop Sciences Research and Education Center. Urbana, IL. August 14, 2014.
19. Villamil MB. 2014. Working with cover crops in Illinois. AgMasters Conference. University of Illinois Dec 15-16. <http://www.cropconferences.com/program/10>.
20. Villamil MB. 2015. Cover Crops in Illinois Row Crop Production: Answers or Just More Questions? Crop Management Conferences. <http://web.extension.illinois.edu/csrec/2013conference/> Offered at 4 venues around Illinois: Champaign, Malta, Mt. Vernon, and Springfield. Jan-Feb 2015.
21. Wick, A.F., D. Franzen, H. Kandel. 2014. Considering Cover Crops on Prevented Plant Ground. NDSU Crop and Pest Report, June 26. Available at: <http://www.ag.ndsu.edu/cpr>
22. Wick, A.F., H. Weiser, T. DeSutter. 2014. Managing Saline Soils. Progressive Forage Grower Magazine. (focus on use of cover crops for salinity management) available at: <http://www.progressiveforage.com/forage-production/management/divide-and-conquer-managing-saline-soils>
23. Wick, A.F. 2014. Cover Crop Programs in the Red River Valley, Impact Report, NDSU Extension Service. Available at: <http://www.ag.ndsu.edu/impactreports/reports/2014-impact-reports>

Research Grants

1. Eastern North Dakota Soil Salinity Specialist – Years Three Four and Five. 2012-2015, EPA-319, \$191,921 (Franzen and Wick). (heavy emphasis on use of cover crops for saline soil management).
2. Preserving water resources in Wisconsin.” USDA-NRCS Conservation Innovation Grant, 2012-2014. (\$1,400,051)
3. Building market foundations for sustainable vegetable production and processing.” USDA-SCRI, 2012-2016. (\$2,523,336)
4. Quantifying benefits of radish as a cover crop in Wisconsin cropping systems.” Wisconsin Fertilizer Research Council, 2012-2015. (\$77,693)
5. Assessing the benefits of radish as a cover crop.” SARE-Graduate Student Program, 2013-2014. (\$9,484)
6. Understanding cover crop use in soybean production systems.” North Central Soybean Research Program, 2013-2014. (\$7,500)
7. Cover crops in Wisconsin: Measureable benefits to yield, residual nitrogen, and soil test P.” Wisconsin Fertilizer Research Council, 2014-2017. (\$114,207)
8. Morton, L.W, et al. (11 institutions) 2011-2015. Cropping systems coordinated agricultural project: Climate change, mitigation, and adaptation in corn-based cropping systems. USDA-NIFA, Award No. 2011-68002-30190.
9. Martinez-Feria, R., M. Wiedenhoef. 2014. NC-SARE. Suitability of winter canola (*Brassica napus*) for enhancing summer annual crop rotations in Iowa.
10. Comito, J., M. Helmers, J. Benning, T. Kaspar. 2014. Management and performance of Iowa cover crops. Leopold Center for Sustainable Agriculture.
<http://www.leopold.iastate.edu/grants/e2014-02>
11. Miguez, F., J. Tyndall, J.G. Arbuckle, A. Basche and G. Roesch. 2013-2015. Leopold Center for Sustainable Agriculture. Covering the Ground: A transformative approach to scientific learning for greater cover crop adoption in Iowa.
<http://www.leopold.iastate.edu/grants/e2014-20>
12. Mallarino, A., R. Cruse, M. Helmers, J. Sawyer, D. Jaynes. 2014. Iowa Nutrient Reduction Center. Impacts of cover crops on phosphorus and nitrogen loss with surface runoff.
http://www.nutrientstrategy.iastate.edu/sites/default/files/documents/abstracts/cove_rimpacts.pdf
13. Lenssen, A.W., S. Carlson, M. Wiedenhoef. 2013-2014. NCR-SARE Research & Education. Improving cover crop options for the Corn Belt.
14. Kaspar, T., T. Moorman. 2012-2015. Leopold Center for Sustainable Agriculture. Winter rye cover crop effect on corn seedling pathogens.
<http://www.leopold.iastate.edu/grants/e2012-03>
15. Kaspar, T., T. Moorman, A. Robertson, A. Lenssen. 2014. Iowa Nutrient Reduction Center. Investigating the causes of corn yield decreases following cereal rye winter cover crop.
http://www.nutrientstrategy.iastate.edu/sites/default/files/documents/abstracts/cere_alrye.pdf
16. Miguez, F, J. Tyndall, J.G. Arbuckle, G. Roesch, and A. Basche. 2014-2015. Leopold Center for Sustainable Agriculture. A transformative approach to scientific learning for greater cover crop adoption in Iowa.
17. Moore, K.J, D. Laird, K. Lamkey, and A. Lenssen. 2013-2014. NC-SunGrant. Managing perennial cover crops for sustainable corn stover biomass removal.

18. Nair, A., D. Brainard, A. Shaw, C. Chase, and C. Bregendahl. 2014-2017. NCR-SARE Research & Education. Cover crops and strip tillage to promote soil quality, environmental sustainability, food safety, and profitability in cucurbit cropping systems.
19. Nair, A., K. Delate, C. Bregendahl, and G. Artz. 2014-2016. Leopold Center for Sustainable Agriculture. Quantifying nitrogen credits and impacts of cover crops on soil biology and health in vegetable cropping systems in Iowa.
<http://www.leopold.iastate.edu/grants/e2014-16>
20. Nair, A., V. Lawson, and C. Chase. 2014-2015. National Wildlife Federation. Quantifying nitrogen scavenging benefits of non-traditional fall planted cover crops to mitigate nitrogen movement into the Mississippi river basin.

Graduate students in cover crops research

MS students: 2 in North Dakota, 2 in Minnesota, 4 in Wisconsin, 4 in Michigan, 4 in Indiana, 9 in Iowa, and 3 in Illinois. Total= 28 MS students

PhD students: 3 in North Dakota, 2 in Minnesota, 1 in Wisconsin, 4 in Iowa, and 1 in Indiana. Total= 11 PhD students

Postdoctoral Researchers

3 in Iowa