

Midwest Cover Crop Council
Iowa State Report

Contact Information

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Research

What we have: Research/measurements related to cover crops on nitrate leaching, erosion, soil C, N in shoots, species and varieties, living mulch, tillage systems, planting dates, and cropping systems. Literature database.

What we need: Better establishment methods for cover crops into standing corn and/or continuous corn harvested for grain. Information on changes soil productivity/soil quality and in total soil C and soil N resulting from cover crops. Information on planting date/kill date and cover crop shoot growth and N related to growing degree days. Legume cover crops with inexpensive seed. Better and cheaper seed sources.

Current Research:

Kaspar; Effect of winter rye, winter wheat, and winter triticale cultivars used as cover crops on corn yield and population.

Kaspar; N balance and N leaching of corn-soybean system with oat and rye cover crops. In progress; continuation of previous 4-yr study.

Kaspar, Rye cover crop biomass production and effect on corn silage yield.

Singer; Self-seeding winter small grain cover crops. Evaluating winter wheat, triticale, and rye using different seeding rates and seed dispersal techniques to minimize competition with soybean.

Singer: Evaluating methods of swine manure injection on cover crop nutrient capture and release.

Singer; Evaluating living mulch performance in a corn-soybean-forage rotation.

Malone; Modeling of nitrate losses in tile drainage with a rye cover crop.

Parkin; Rye cover crop effect on N₂O losses.

Al-Kaisi; Interaction between cover crop and tillage system and the effect on water quality and soil carbon dynamics.

Helmers and Kaleita: Soil moisture dynamics and plant transpiration under contrasting annual-perennial cover types, includes winter cover crops in a corn soybean system.

Helmers; Rye cover crop effect on nitrate losses in tile drainage.

Future Research:

Kaspar; Impact of rye cover crops in a corn-soybean system on soil quality/productivity.

Kaspar; Rye cover crops in continuous corn systems

Kaspar and Malone; Estimating impact of rye cover crops on erosion at the watershed scale using WEPP.

Singer; Evaluating living mulch performance in a corn-soybean-forage rotation.

Singer; Evaluating living mulch carbon contributions in a continuous corn system with stover removal.

Singer; Evaluating corn plant population response to preceding winter small grain cover crops.

Nonnecke; Living mulch/cover for vineyards.

Extension/Education

What we have: Strong potential for on-farm demonstrations and field days. Practical Farmers of Iowa, Leopold Center, and Iowa Learning Farms. Good farmer network and connections. Cover crops CAI module.

What we need. Centralized website for regional cover crop information. Different cover crop species information. Organic cover crop information

Presentations:

Practical Farmers of Iowa (PFI) and National Soil Tilth Lab Farm Crawl research field day. May 2008. Ames, IA.

Nebraska annual organic crop improvement association. Keynote speaker: Cover crops for Midwest farming systems. January 12th 2008. Lincoln, NE.

North Central Iowa NRCS cover crop meeting. Annual and perennial cover crops for Midwest cropping systems. December 6th 2007. Jewell, IA.

Integrated Crop Management Conference. Coupling manure injection with cover crops to enhance nutrient cycling. November 28th, 2007. Ames, IA.

Cover Crops Field Day Panora, IA. PFI. August 18, 2007.

Sustainable agriculture symposium. Sustainable agricultural systems for soil and water quality. August 8-9, 2007. Beltsville, MD.

NRCS and Extension technology transfer workshop. Cover crop survey and living mulch research summary. August 7th 2007. Ames, IA.

Iowa NRCS state and area resource conservationist meeting. Cover crop survey and living mulch research summary. June 19-20, 2007. Ames, IA.

Kura Clover Workshop. Annual and Perennial Cover Crops for Midwest Farming Systems. March 8th 2007. Ames, IA.

Hertz Farm Management Staff Seminar. Cropping system effects on water quality. March 7th 2007. Ames, IA.

Fact Sheet/Extension Publications

Gibson, L.R., J.W. Singer, S. Barnhart, and B.C. Blaser. 2006. Intercropping winter cereal grains and red clover. Iowa State University Extension Publication PM 2025.

Singer, J.W., Kaspar, T.C., Pedersen, P. 2005. Small grain cover crops for corn and soybean. Iowa State University Extension Publication PM 1999

Singer, J.W., and Pedersen, P. 2005. Legume living mulches in corn and soybean. Iowa State University Extension Publication PM 2006.

PFI; 2004-2007 On-farm Research results newsletter available at:
http://www.pfi.iastate.edu/ofr/OFR_Reports/Data04-07.pdf

Demonstrations:

PFI; Proposed: On-farm assessment of winter cereal grain establishment and spring grazing potential in a corn on corn system.

Singer, Gibson, Whitaker, Hafner and Mugge; Field scale evaluation of red clover or alfalfa intercropped in winter cereal grains.

Pridie, Juchems, Caviness and Buman; Iowa Learning Farm, On-farm cover cropping trials.

Al-Kaisi; Iowa Learning Farm Project; On-farm demonstrations of cover crops over different tillage systems and with silage production at several sites with several field days every summer.

Lamb; Cool season legume crops interseeded with warm season native prairie species for enhancing forage quantity and quality, demonstration

Iowa Soybean Association, on-farm cover crops use in targeted sub-watershed (Boone River Watershed Project)

SouthFork Watershed Association, proposed to IA. state tech committee: 350 acres of on-farm cover crops.

Educational Module:

Cover Crops; Educational Module produced by the Crop Adviser Institute at Iowa State University,
<http://www.cai.iastate.edu>

Communication

What we have: No formal communication plans. Good communication with Iowa NRCS, Iowa GLBW, Iowa Soybean Association, and Iowa Department of Land Stewardship.

What we need: A plan. Contacts with media. Connections with environmental and water groups.

Occasional magazine articles and news releases

PFI Spring Newsletter article focusing on the benefits of cover crops. May and September will be PFI Cover Crop months. Release two articles and hold one field day event to publicize cover crops.

PFI Farming Systems website with available cover crop resources and research results beginning in 1987 available at: http://www.pfi.iastate.edu/ofr/OFR_Reports/OFR_Reports_Intro.htm

Leopold Center Ecology Initiative website with available cover crop resources, presentations, and publications; available at <http://www.leopold.iastate.edu/research/ecology.htm>

Leopold Center prepared a cover crops poster for the Iowa Legislature Agricultural Issues Day

NSTL has had numerous field days and training sessions for NRCS on cover crops in the since 2006.

Policy

What we have: No policy changes that we know of that were a direct result of our activities.

What we need: Financial incentives for farmers to use cover crops.

Leopold Center has sponsored studies by the Center for Agriculture and Rural Development (CARD) at Iowa State University that have attempted to estimate the costs and impacts of water quality practices (Impact of High Crop Prices on Environmental Quality: A Case of Iowa and the Conservation Reserve Program; Conservation Practices in Iowa: Historical Investments, Water Quality, and Gaps). Similar, studies considering cover crops as a conservation practice are needed, but models and data showing cover crop water quality impacts on nitrate, phosphorus, and sediment are lacking.

NRCS has established a statewide uniform payment of \$35/acre for cover crops for up to 30 acres for the EQIP program. No data on how many acres have signed up for 2008. However, decisions on priorities for EQIP program are made at the county level and proposals or requests far exceed available money. Cover crops are not often identified as a priority for funding at the county level. USDS-ARS, the National Soil Tilth Lab and ISU have a good working relationship with Iowa NRCS and the NRCS National Technical Staff.

Iowa branch of Green Lands Blue Waters is involved and supportive of cover crop work through ISU and Leopold Center.