

Nebraska- MCCC State Report 2014

Nebraska Extension has initiated a leadership team of Extension Specialists and Extension Educators that will lead educational programming and evaluation on the use of cover crops in Nebraska. A collaboration of Extension and producers received grant funds for two projects, an Extension Innovative Grant, a pilot project to engage Extension and producers in cover crop & soil health education (\$10,000) and an NRCS Nebraska Conservation Innovation Grant (CIG) (\$75,000). The Conservation Innovative Grant will evaluate cover crops and soil health under several different environments in Nebraska and provide educational opportunities for farmers, NRCS Staff and Extension Educators and Specialists across Nebraska. A collaborative of 25 producers along with Extension Educators have been formed to collect data on impact of cover crops on soil health, cover crop forage quality and biomass on Nebraska farms with this funding from Nebraska NRCS .

Nebraska Extension is conducting research projects across Nebraska involving cover crops. Through a \$1 million USDA-NRCS grant, UNL Water Resources Engineer Suat Irmak and his research team have been conducting trials in multiple fields since 2012. This research will help identify quantifiable, predictable, and actionable relationships between cover crops and related management practices and between cover crop growth and termination timing for maximum soil fertility and water availability for the following growing season. On-Farm fields include seed corn/cover crop and field corn/cover crop rotations. The cover mixes include Ethiopian cabbage, common vetch, hairy vetch, crimson clover, Sudan grass, millet, radishes, winter pea, rapeseed, turnips, cereal rye, sorghum Sudan, and oats.

South Central Agricultural Laboratory near Clay Center. SCAL research sites will be equipped with advanced instrumentation and enable Irmak to research unique relationships of how individual cover crops impact soil quality and water availability dynamics.

In other research across Nebraska, Paul Jasa – Extension Engineer is conducting research at the Rogers Farm in eastern Nebraska to determine impact of cover crops on Long-term No-till Plots and other tillage plots. The Nebraska On-farm Research Network is conducting on-farm cover crop research at a number of locations. Research is being conducted on irrigated cornfields in Central Nebraska to determine the impact of cover crops on the uptake of nitrogen.

The Nebraska Corn and Soybean Boards jointly funded a cover crop research project for \$300,000. This project was initiated in 2014 at Research Stations in Nebraska. This project will evaluate cover crop species, mixes, planting dates and effect on subsequent crop yields.

Nebraska Extension and NRCS have cooperated on several cover crop/soil health programs across Nebraska in 2014. Two hundred and three participants attended two Nebraska Extension, SARE and NRCS sponsored Field Days in 2014. Four hundred and sixty-seven farmers, Extension Educators NRCS staff and Ag Educators increased their knowledge on cover crops and soil health at SARE/Extension sponsored Conferences.

Over 20 farmers and Ag Educators have received travel assistance to participate in cover crop/soil health conferences/workshops over the past two years from SARE and Extension Innovative Grant Funds.

Surveys have been distributed this spring at Crop Production Clinics and Private Pesticide Applicator Trainings, with over 100 participants so far.

Extension and NRCS are working with local farmers to encourage the use of cover crops for soil health and grazing, collecting data on forage quality and quantity of cover crop fields and working with farmers on cover crop grant opportunities.

Where Do We Go From Here? A planned Extension In-service will provide information on what is occurring out in the field and educators and farmers' needs. Our farmer cover crop surveys will also provide information that will assist us as we will continue to apply for grants and explain the benefits of cover crops and how they can best be utilized in Nebraska.



NEBRASKA SARE, THE UNIVERSITY OF NEBRASKA - LINCOLN, NRCS AND PROGRESSIVE FARMERS COOPERATE TO PROVIDE EDUCATION AND EVALUATION OF COVER CROPS AND SOIL HEALTH.

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Abstract:

Nebraska SARE, the University of Nebraska-Lincoln, NRCS, and progressive farmers are cooperating to provide education and evaluation of cover crops and soil health. Nebraska SARE has made cover crops and soil health education a primary initiative of its program since 2013. With soil health being a major focus of NRCS EQIP, there is considerable interest among farmers on the use of cover crops and how they can improve soil health. The University of Nebraska-Lincoln has initiated on-farm research with cover crops, received funding from the Nebraska Corn and Soybean Boards to conduct research on cover crops and has received internal funding from Extension to initiate soil health education and build a network of farmers, researchers and educators that are committed to learning about cover crops. Nebraska Extension has also received a grant from NRCS to continue to evaluate cover crops and soil health under several different environments in Nebraska and provide educational opportunities for farmers, NRCS Staff and Extension Educators and Specialists across Nebraska. University of Nebraska-Lincoln Extension staff have conducted research addressing cover crop issues and potential as a forage in no-till systems and other different rotational cropping systems as well. Surveys have been conducted with educators and crop and livestock farmers across Nebraska to determine their needs as well. An Extension In-service Training is being planned for March 12, 2015 to discuss current research and projects and determine what our next steps should be as we address this important topic.

Goals:

- Determine how cover crops can best be utilized under Nebraska's very diverse environmental conditions and different cropping systems.
- Provide education to Ag Extension Educators, NRCS staff, and Nebraska farmers on potential opportunities for cover crops, their benefits to soil health and utilization as a forage in Nebraska cropping systems.
- Nebraska farmers will incorporate cover crops into their cropping systems to provide maximum benefits.

Why?:

1. Cover crops potentially can reduce erosion, improve water infiltration rates, improve nutrient availability, suppress weeds and reduce nematodes.
2. Cover crops can provide excellent quality forage for livestock producers in Nebraska.



A grass (oats), legume (winter pea) and a brassica (tillage radish) provide a diverse mix of species in a cover crop mix.

Program Delivery Methods:

- Partner with NRCS and Nebraska farmers on field days.
- Initiate Cover Crop Research funded by the Nebraska Soybean and Corn Boards
- Extension, SARE & NRCS will sponsor Conferences & workshops for farmers and ag educators that focus on cover crops/soil health
- SARE will provide travel scholarships to regional cover crop/soil health conference s
- Conservation Innovative Grant will evaluate and compare cover crop/soil health cropping & grazing systems
- A Website will provide a vehicle for information transfer on cover crops and soil health.
- Conduct survey of producers to learn their needs.
- Extension In-service Training on Cover Crops/Soil Health



At Field Days, diverse cover crop mixes are shown to producers.

Program Results:

- 467 farmers, Extension Educators NRCS staff and Ag Educators increased their knowledge on cover crops and soil health at SARE/Extension sponsored Conferences.
- 203 participants attended two Nebraska Extension, SARE and NRCS sponsored Field Days in 2014.
- A collaborative of 25 producers along with Extension Educators has been formed to collect data on impact of cover crops on soil health, cover crop forage quality and biomass on Nebraska farms with funding from Nebraska NRCS.
- A Cover Crop Research Project at UNL-ARDC showed no significant impact on soybean yields following cover crops, with cattle gaining 100 lbs./ac. from the forage.
- Soil Health and Cover Crop forage quality and biomass data has been collected on over 10 on-farm sites in 2014.
- A Nebraska Extension Cover Crop Leadership Team has been formed to lead educational programming and evaluation on the use of cover crops in Nebraska.
- Over 20 farmers and Ag Educators have received Travel Assistance to participate in Cover Crop/Soil Health Conferences/Workshops over the past two years from SARE and Extension Innovative Grant Funds.
- Surveys have been distributed this spring at Crop Production Clinics and Private Pesticide Applicator Trainings, with over 100 participants so far.

Where Do We Go From Here?

- Our planned Extension In-service will provide information on what is occurring out in the field and educators and farmers needs.
- The Conservation Innovative Grant from NRCS will allow Extension to collect data and provide education and evaluation of cover crops.
- The grant with the Nebraska Soybean and Corn Boards will provide an opportunity for additional cover crop/soil health projects in the future.
- A Collaborative is being formed between Extension, farmers and industry to better address the issue of cover crops as a component of cropping systems in Nebraska agriculture.
- These programs will open the door for more cooperation and grant opportunities in the future with other organizations.



Field Days provided the opportunity for farmers to learn about cover crops and soil health from UNL Extension Specialists.



Dry conditions during the fall of 2011 lead to a sparse stand of broadcast seeded cover crops, which emerged in the spring of 2012.

NEBRASKA REPORT FOR MIDWEST COVER CROP COUNCIL – February 19, 2015

Gary Lesoing, Extension Educator
Nebraska Extension

Nebraska Extension Program

- Nebraska Extension has initiated a leadership team of Extension Specialists and Extension Educators that will lead educational programming and evaluation on the use of cover crops in Nebraska.

A Collaboration of Extension and Producers Receive Grant Funds for two projects

- **Extension Innovative Grant – Pilot Project to engage Extension and Producers in Cover Crop & Soil Health Education. (\$10,000)**
- **NRCS Nebraska Conservation Innovation Grant (CIG) (\$75,000)**

Conservation Innovation Grant

- Evaluate cover crops and soil health under several different environments in Nebraska and provide educational opportunities for farmers, NRCS Staff and Extension Educators and Specialists across Nebraska.

Conservation Innovation Grant

- A collaborative of 25 producers along with Extension Educators has been formed to collect data on impact of cover crops on soil health, cover crop forage quality and biomass on Nebraska farms with this funding from Nebraska NRCS .







Nebraska Extension Conducting Research Projects across Nebraska

- Through a \$1 million USDA-NRCS grant, UNL Water Resources Engineer Suat Irmak and his research team have been conducting trials in multiple fields since 2012.
- This research will help identify quantifiable, predictable, and actionable relationships between cover crops and related management practices and between cover crop growth and termination timing for maximum soil fertility and water availability for the following growing season.

Research Sites

- On-Farm fields include seed corn/cover crop and field corn/cover crop rotations. The cover mixes include Ethiopian cabbage, common vetch, hairy vetch, crimson clover, Sudan grass, millet, radishes, winter pea, rapeseed, turnips, cereal rye, sorghum Sudan, and oats.
- South Central Agricultural Laboratory near Clay Center. SCAL research sites will be equipped with advanced instrumentation and enable Irmak to research unique relationships of how individual cover crops impact soil quality and water availability dynamics.

Other Research in Nebraska

- **Paul Jasa – Extension Engineer is conducting research at the Rogers Farm in eastern Nebraska to determine impact of cover crops on Long-term No-till Plots and other tillage plots.**
- **Nebraska On-farm Research Network is conducting on-farm cover crop research at a number of locations.**

Research on Nutrient Uptake

- Research is being conducted on irrigated cornfields in Central Nebraska to determine the impact of cover crops on the uptake of Nitrogen.

Nebraska Corn and Soybean Boards Fund Cover Crop Grant

- A Cover Crop Research project was funded by the Nebraska Corn and Soybean Commodity Boards for 300,000
- This project was initiated in 2014 at Research Stations in Nebraska.
- Project will evaluate cover crop species, mixes, planting dates and affect on subsequent crop yields.

Extension/NRCS Cover Crops- Soil Health Programs

- 203 participants attended two Nebraska Extension, SARE and NRCS sponsored Field Days in 2014.
- 467 farmers, Extension Educators NRCS staff and Ag Educators increased their knowledge on cover crops and soil health at SARE/Extension sponsored Conferences.

Cover crops and their benefits

- Erosion Control
- Nutrient Capture/Cycling
- Improve Soil Health
- Water Management
- Increase Biodiversity
- Balance C:N Ratio
- Nitrogen Fixation
- Reduce Compaction
- Weed Supression
- Provide Forage/Grazing





Cover Crop Education & Programs

- Over 20 farmers and Ag Educators have received Travel Assistance to participate in Cover Crop/Soil Health Conferences/Workshops over the past two years from SARE and Extension Innovative Grant Funds .
- Surveys have been distributed this spring at Crop Production Clinics and Private Pesticide Applicator Trainings , with over 100 participants so far.

Local Farmers Utilize Cover Crops

- Encourage the use of cover crops for soil health and grazing.
- Collect data on forage quality and quantity of cover crop fields.
- Work with farmers on Cover Crop Grant opportunities.



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Where Do We Go From Here?

- Our planned Extension In-service will provide information on what is occurring out in the field and educators and farmers needs.
- Continue to Apply for Grants and Explain the Benefits of Cover Crops.

