

The primary goal of this project is to demonstrate to producers that a diverse mixture of cover crop species can be planted in a timely manner, allowed to grow and accumulate biomass and nitrogen, and then be terminated without using tillage allowing producers to maximize on soil health benefits. Soil Health is defined as the continued capacity of soil to function as a living ecosystem. Soil function is improved by applying the following principles: minimize soil disturbance, increase plant and animal diversity above ground to increase soil diversity, keep a living root growing year-round and keep residue cover on the surface as long as possible. Using cover crops to add diversity along with a diverse crop rotation plus using a no-till system has shown long term and short-term benefits to soil health. These type systems improve soil microbial activity, increased nutrient cycling, mitigated against drought, pests and increased profits over time. Once producers understand these principles, the next obstacle to overcome is to put them into practice.

Project Procedure

Since 2013, six counties in North Carolina with extensive acreages of cotton have participated in the project: Edgecombe, Halifax, Nash, Pitt, Sampson and Stanly. Nash and Stanly District successfully completed their 2017 demonstration; due to weather events, other Districts dropped out of the program. The participating producers have a working knowledge and interest in promoting soil health to improve profits and are already following some basic practices such as no-till. Districts were allocated funding to plant up to 10 acres per county. Cover Crop requirements were:

1. A minimum of four species of seed (minimum two legumes) planted as a mix on a field that has cotton in rotation.
2. The cover crop can be broadcast prior to or drilled after cash crop harvest.
3. Broadcasting must be completed by September 30th at a 25% or higher seeding rate.
4. Drilling must be completed by October 31st.
5. Cover crops cannot be terminated until April 15th or after.
6. Cotton must be part of the cropping rotation and the next crop in rotation must be planted into the cover crop residue using no-till methods the following crop year.

Project Results - Visit website for updates - <http://ncsoilwater.org/programs/soil-health-initiative-multi-species-cover-crops/>

Districts were able to successfully establish a total of 38 acres of cover crop for 2017. Producers are noting improvements in the soil profile. A total of 142 attendees received continuing education related to soil health, cover crops, seed mixes, planting types, and groundwater management. Producer Outreach Workshops consisted of an educational meeting with optional field tours.

Since the partnership with Cotton Incorporated began, over 1000 people have been directly impacted and an average of 50 acres in cotton rotation are planted with multi-species cover crops annually. The demonstration plots include field strips for analyzing changes to multiple soil properties by NC State University and USDA ARS, with additional funding provided by a USDA NRCS Conservation Innovation Grant. Funding was provided by the NC Agriculture Development and Farmland Preservation Trust Fund for an expansion into the piedmont and mountain regions. A Southern SARE On-Farm Research grant funded soil moisture measuring units at three sites. The results to date include regional producer-focused pamphlet sharing lessons learned and a technical report with all data as of Spring 2017.

