

## 2016 Multi-Species Cover Crop Demonstration Project Summary

### Project Focus

The primary goal of this project was 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 five counties in North Carolina with extensive acreages of cotton were selected for this project: Edgecombe, Halifax, Nash, Pitt and Stanly. Nash and Stanly District successfully completed their 2016 demonstration; due to extreme weather events, other Districts had to terminate the project. 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 approximately 10 acres per county. Cover Crop requirements were:

1. A minimum of four species of cover crops (a minimum of two legumes) planted as a mix on land that is in rotation with cotton.
2. The cover crop can be broadcast prior to or drilled after cash crop harvest.
3. Broadcasting must be completed by September 30<sup>th</sup> at a 25% or higher seeding rate.
4. Drilling must be completed by October 31<sup>st</sup>.
5. Cover crops cannot be terminated until April 15<sup>th</sup> 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/>

The 2015 cover crops produced a good stand with some producers noting an immediate positive benefit to soil health. Districts were able to establish successfully a total of 35 acres of cover crop for 2016. Producer Outreach Workshops consisted of an educational meeting with optional field tours. A total of 108 attendees received continuing education related to soil health, cover crops, seed mixes, planting types, and groundwater management. Since the partnership with Cotton Incorporated began, 850 people have been directly impacted (workshop attendees and District Boards) and an average of 50 acres in cotton rotation were planted with multi-species cover crops annually. The 2016 demonstration plots include field strips for analyzing changes to multiple soil biological, chemical and mechanical properties by NC State University and USDA ARS, with additional funding provided by a 2014 USDA NRCS Conservation Innovation Grant. Funding was also provided by the NC Agriculture Development and Farmland Preservation Trust Fund for a 2016 and 2017 expansion into the piedmont and mountain regions. The result will be a producer-focused pamphlet sharing lessons learned and cover crop best management practices recommendations for southeaster farming systems.

