ADOPTION OF CONSERVATION TILLAGE IN COFFEE COUNTY

Rick Reed[1]

AUTHOR: [1]University of Georgia, Cooperative Extension Service, Douglas, GA 31533.
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I have been asked to speak today about how the adoption of conservation tillage and the use of cover crop production systems evolved in Coffee County. This was not the result of tremendous foresight or wisdom on the part of any one individual, least of all me. It did all start with a need, or several needs actually, but then one thing just sort of led to another until much to our surprise we have become known as leaders in the field.

It's hard to remember exactly what happened first, but to the best of my recollection it all started when a small group of growers (C. Deen, L. Harper, C. Harper, T. Dorminey, and W. Fussell) came to me in the late 80's asking about alternative production systems that might reduce their production costs. Remember, the 80's had been tough on the bottom line for a lot of farmers. There were three factors threatening their future economic stability as well. First, crop production inputs were steadily increasing. Second, erratic market prices had resulted in variable (usually shrinking) profit margins. And third, growers were faced with ever increasing government regulations pertaining to highly erodible land, nutrient management, water quality, etc. Growers needed a practical and sustainable production system to address these issues.

I suggested that we visit the Coastal Plains Experiment Station in Tifton to look at some of the research work being done by Dr. Sharad Phatak. Dr. Phatak had been conducting research for several years on the use of cover crops and conservation tillage with vegetables, soybeans, cotton and peanuts. These growers were very intrigued by "Doc's" unique production philosophy and the research he had done. Thus, was born the Coffee County conservation tillage effort.

After much studying, discussing and rehashing we determined that a system utilizing planted winter cover crops and reduced tillage methods would be both practical and sustainable for our situation and would allow growers to reduce production inputs, minimize soil erosion and protect our streams, rivers and lakes. As county agent I felt obligated to try to work out some of the kinks, so to speak, so that growers would not be vulnerable to quite as much risk while implementing a new production system, and then to educate other growers about the benefits of the system and how to implement it.

We were very fortunate in Coffee County to have a new conservationist Natural Resources Conservation Service (NRCS), who was also very enthusiastic about developing a conservation tillage/cover crop production system. The NRCS staff worked closely with the extension, research and the growers throughout the development of this system.

Initially we concentrated our efforts on on-farm demonstration plots to evaluate various winter cover crops including wheat, rye, clover, vetches and various mixtures of these, as well as optimum planting dates. Our goal was to:

C Determine which winter cover crops can be used in a cotton production system and measure the amounts of biomass and nutrients that are contributed with each.

8. Establish the cotton crop using row-tillage or other conservation tillage that leaves at least 30% of the soil covered with plant residues.
9. Maintain living vegetation or sufficient cover to provide support for beneficial insects during transition to cotton.
10. Keep chemical intervention at a minimum through weekly scouting of predator-prey populations throughout the growing season to determine when pests were out of control.

As information was also deficient concerning nitrogen and potash recommendations for cotton production following cover crops in a no-till or strip-till system, an additional study was incorporated into our research to determine what changes should be made in nitrogen and potash recommendations following winter cover crops for subsequent cotton production.

Once we had a little experience under our belts and some research based information to share, we set out to educate other growers and the general public. To promote conservation tillage we:

-- Held 5 Coffee County field days (approximately 600 contacts)
-- Hosted 2 Georgia Conservation Tillage Alliance Annual Meetings / Field Days (200 contacts)
-- Conducted 3 Coffee County Fall Cover Crop Meetings (60 contacts)
-- Hosted a North Carolina NRCS Soil/Water Quality Work Group Meeting (24 contacts)
-- Met with U.S. Representative Bob Smith (then Chairman of the House Ag Committee) and U. S. Representative Saxby Chambliss (Georgia, District 8) in 1997 to highlight the importance of conservation tillage

in water and soil preservation (26 contacts)

-- Held numerous classroom and community 'shade tree' type grower meetings on beneficial insects and pest management in conservation tillage (85 contacts)
-- And in 1995 we organized the Coffee County Conservation Tillage Alliance. There are currently 58 members in the alliance.

I also spread the word through local radio programs, newspaper articles, our Extension newsletter, and one-on-one grower contacts.

As I mentioned earlier, the conservation tillage efforts and accomplishments in Coffee County have been a team effort between growers, Extension, Research and the Natural Resources Conservation Service in the county. It is a given that growers are not likely to adopt a new, unproven production system without some evidence that it will work and that their risk will be minimal. NRCS personnel in Coffee County recognized this concern and helped acquire a grant through the Seven Rivers R C & D office for $18,300 to purchase a no-till drill, a no-till and strip-till planter and trailer. This equipment was used to do on-farm demonstrations and could be leased by growers to try on their own farms with assistance from Extension and NRCS personnel if needed. I am fairly certain we would not have achieved the success we did with this project had that equipment not been available.

Speaking of success, let me share with you how far we have come with conservation tillage in Coffee County. In the 1980's Coffee County had one grower practicing conservation tillage on his 200 acre farm. Due to our cover crop research, farm demonstrations and many other educational activities, conservation tillage use has jumped to approximately 30,000 acres in cotton, peanuts, soybeans, corn, vegetables and tobacco. Some 8,000 to 10,000 acres of winter cover crops are planted annually into which summer crops are then planted using the no-till system. There are currently four no-till drills in the county and 45-55 conservation tillage planters.

In 1997 NRCS personnel determined that eight tons of topsoil per acre were saved through these conservation methods, the result being a savings of over 24,000 tons of soil. Besides just holding the soil in place, a conservation tillage/cover crop system improves the moisture holding capacity of the soil, results in less compaction of the soil, a higher nutrient content in the soil, and improved structure and tilth of the soil. By simply holding the soil in place, there is less sediment and chemical and fertilizer contamination in our surface water. By using this system we are able to reduce the amount of time, labor and fuel necessary to produce a crop because we don't have to make as many trips across the field. We can use less expensive equipment because less horsepower is required. We've been able to use less fertilizer and pesticides. And we have greater flexibility at planting and harvest. In 1997 our farmers using conservation tillage realized a 15-20% reduction in production costs. That's an estimated savings of somewhere between $1,012,550 and $1,350,000!

We are all excited about the future of the conservation tillage program in Coffee County and plan to continue our research and educational efforts in this area. We believe this approach is a more biologically and ecologically friendly system than conventional tillage and that it provides the potential for greater profit margins while helping farmers meet government regulations to reduce soil erosion and protect water quality. Our future efforts will focus on 1) soil health and quality, 2) cover crops and nematode reaction, and 3) the feasibility of using black oats and other crops as cover crops with emphasis on nematode and disease suppression qualities, allelopathic properties, and cold hardiness.

Before I close I would like to recognize the growers and cooperating agencies who have made our program so successful. The following growers have gone out of their way to help us provide research based information for the general good. It takes a special kind of farmer to be willing to plant 8 different cover crops in 100 different plots in one 50 acre field! Tom Batten, Max Carter, Charles Deen, Jim Deen , Tommie Dorminey, Wayne Fussell, Lamar Harper, Chris Harper, Mike Nugent and Mark Vickers are that kind of farmer.

A number of agencies have provided technical and/or financial assistance for this program. They include: the Coffee County Ag Council, the Coffee County Conservation Tillage Alliance, the Georgia Conservation Tillage Alliance, the Georgia Cotton Commission, NRCS of Georgia, NRCS of North Carolina, Seven Rivers R C & D out of Waycross, Georgia, UGA Cooperative Extension Service, UGA Coastal Plains Experiment Experiment Station in Tifton, USDA-ARS Coastal Plains Experiment Station also in Tifton., and numerous banks, chemical companies and farm supply companies.

I have intentionally been brief with my presentation to give you time to ask questions. I didn't go into the specifics of our research or what we would do different if we had the chance. Please feel free to ask any questions you might have about the conservation tillage/cover crop program in Coffee County.

NO-TILL IN THE NORTH CAROLINA BLACKLANDS: A CASE STUDY FOR FARMER-TO-FARMER EXCHANGE