

# ON-FARM RESEARCH AND DEMONSTRATIONS USING CONSERVATION-TILLAGE IN GEORGIA

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## INTERPRETIVE SUMMARY

The overall objective of gaining a better understanding of cover crops and conservation-tillage was met in these studies and therefore can be considered a successful project as a whole. Results from the cover crop screening emphasized the strong and weak points of each cover crop for use in a conservation-tillage system. Rye produced the most biomass, or residue, but legumes produced more nitrogen. However, in both studies where different N rates were applied to both rye and legume cover crops, the effect of cover crop was not significant. In other words, cotton yields increased with increasing N rate regardless of which cover crop was used. It appears that the addition of 30 to 60 lb/a of sidedress N, depending on the fertility history of the field and nematode pressure may optimize cotton yields. Although nematodes were not reported in this study, samples were taken and there are some indications that Cherokee Red Clover and Cahaba White vetch do not suppress nematodes as expected, and that rye may be the best cover crop to help keep nematode levels

in check. Also, the earliness of maturity of AU Robin Crimson Clover and AU Early Cover Vetch make them good choices as legume cover crops for conservation-tillage system using cotton. The optimum planting window for cover crops also seems to be from around the first of October to the end of Thanksgiving. Planting cover crops in December or later should be avoided if possible to maximize biomass and N production and avoid possible winter kill.

Future studies already implemented on-farm using cover crops in conservation-tillage include documented effects on nematode populations and the need for fertilization, especially N on small grain cover crops. Studies involving grazing of cover crops and then the effect on subsequent summer crop yields are also needed as well as documentation of the long term effect of cover crops and conservation-tillage on soil organic matter levels and nutrient stratification.

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