

**PROJECT TITLE: NITROGEN FERTILIZER SOURCE, RATES, AND TIMING FOR A COVER CROP AND SUBSEQUENT COTTON CROP**

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**SUMMARY:** Biomass levels measured in 2007 produced a timing X rate interaction, which indicates that biomass levels increased with fall application of N. This would indicate that if growers choose to maximize biomass production in a conservation system by utilizing some form of N fertilizer that fertilizer would be more beneficial to the cover crop if applied in the fall. The residual effects of the poultry litter are apparent based on higher lint yields measured following on poultry litter applied to the cover crop. However, regardless of N source, lint yields increased as cover crop N rate increased, but poultry litter improved lint yields compared to commercial fertilizer. When the recommended sidedress rate was used, the difference between sources was not as great, but lint yields following poultry litter were again higher. The data also showed there is no advantage to cover crop N rates greater than 30 lb N ac<sup>-1</sup> as commercial fertilizer or 1 ton ac<sup>-1</sup> as poultry litter when 90 lb N ac<sup>-1</sup> is supplied at sidedress to the cotton. Future work in this area should focus on comparing poultry litter supplied to the cover crop combined with lower cotton N sidedress rates to the current cotton conservation tillage systems that utilize approximately 30 lb N ac<sup>-1</sup> to the cover crop and maintain recommended sidedress N rates may be warranted. These scenarios could maximize biomass, maintain yields, and decrease costly commercial N use.