

## Determining Optimum Sidedress Nitrogen Requirements for Cotton Receiving Preplant Applications of Broiler Litter

A research summary submitted to the Alabama Cotton Commission

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Litter was applied at the rate of 2 tons per acre to Field 1 (Franklin County) on November 12, 2005 and to Field 2 (Lawrence County) on March 4, 2006. Phytogen 355 cotton was planted in 30 inch rows April 13 and April 14, 2006 in Field 2 and Field 1 respectively. Cotton was grown using standard production practices. Three rates of liquid sidedress N (0, 50 and 90 pounds per acre) were applied May 6 to plots that were 12 rows wide and extended the length of each field. Liquid N-Sol was knifed into the soil using a coulter knife applicator. There were 4 replications of each sidedress N rate. Leaf samples were collected from each plot July 12 for measurement of total nitrate - nitrogen. A leaf was pulled every 20 steps in Field 1 and every 15 steps in Field 2. Both fields at this leaf sampling date had plants which had mostly 15 nodes and 6 nodes above white flower. Plots were harvested in Field 2 on September 26 and in Field 1 on September 27. Yields from each plot were taken using a 6 row John Deere 9986 picker equipped with a yield monitor.

Rainfall was light during the growing season especially at Field 2. Unfortunately, yields were obtained from only two 0 N plots, three 40 N plots, and three 80 N plots in Field 2. Average yields were very similar for all three sidedress N rates in both fields which resulted in no return for any sidedress nitrogen application. Leaf tissue analyses revealed that the average nitrate - N concentration was numerically greater where sidedress N was applied than where none was applied in both fields.

### Summary of Experimental Data

Test Field	N Sidedress Rate/Acre (lbs)	Avg. Yield Lbs Lint./Acre	% Nitrate Nitrogen
1	0	607	3.20
	50	608	3.84
	90	606	4.05
2	0 (2 reps)	398	3.65
	50 (3 reps)	398	3.88
	90 (3 reps)	370	4.04