

**Determining Optimum Sidedress Nitrogen Requirements for Corn Receiving
Preplant Applications of Broiler Litter**

A research summary submitted to the Alabama Wheat and Feed Grains Committee

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January 15, 2007

Litter was applied at the rate of **3 tons** per acre to Field 1 (Franklin County) on November 12, 2005 and to Field 2 (Lawrence County) on March 2, 2006. Pioneer 31R87 was planted March 17, 2006 in Field 1 and March 5, 2006 in Field 2. Liquid nitrogen was surface-applied at a rate of 70 pounds per acre to both fields shortly after planting. Three rates of sidedress N (0, 40 and 80 pounds per acre) were applied April 28 to plots that were 12 rows wide and extended the length of each field. There were 4 replications of each sidedress N rate in Field 1 and 5 replications of each treatment in Field 2. Soil samples were taken from each individual plot (total of 27 plots) in mid-May. Leaf samples were collected from each plot June 14 and 15 for measurement of total nitrate - nitrogen. Plots were harvested in Field 1 on August 21 and in Field 2 August 7. Yields from each plot were taken using a combine equipped with a yield monitor.

Average yields were very similar in Field 2 which had litter applied just before planting. Average yields were 29 and 53 bushels per acre more where 40 and 80 lbs of sidedress N were applied, respectively in Field 1 than where no sidedress N was applied. This field received litter in the fall. Yield differences probably were due to this field getting a little more rain in April and May in combination with varying sidedress N rates. 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. Statistical analyses of the data has not yet been conducted. Soil samples indicated that phosphorus, potash and pH did not contribute to differences in corn yields.

Summary of Experimental Data

Test Field	N Sidedress Rate/Acre (lbs)	Avg. Soil pH	Avg. Soil Test P	Avg Soil Test K	Avg. Yield Bu./Acre	% Nitrate Nitrogen
1	0	6.62	171	305	111	1.15
	40	6.62	185	307	140	1.78
	80	6.60	155	270	164	1.67
2	0	5.90	154	535	112	2.08
	40	5.88	189	560	113	2.23
	80	5.92	118	428	111	2.24