CARRY OVER NITROGEN FROM A PREVIOUS YEAR CLOVER CROP

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ABSTRACT: Cover crops have received much attention when talking about conservation tillage. Cover crops not only serve as a means of protecting the soil from winter erosion but also can serve other purposes as in the case with legumes, a N source for the crop following the legume. Our objective was to determine whether N from the previous clover crop carried over to the proceeding crop. Seed cotton yields ranged from 940 lb/ac for the no clover + 60 lb N/ac to 2934 lb/ac for the tilled clover with no added N. Yields for tillage were higher than the no-till and no difference between the added N and no added N.

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KEYWORDS: Cover Crops, Clover, Tillage, Cotton,

MATERIALS AND METHODS:

Objective: To determine if there is any carry over nitrogen in clover cover crop into the second year cotton crop.

In the fall of 2001 after cotton harvest and the stalks were shred, plots were left undisturbed until spring. Roundup (glyphosate) at 1.0 lb ai/ac was sprayed over the no-till plot area in late March. The tilled plot area was disked in late March and re-disked in the second week of April before the plots were hipped. Rows were on thirty-eight inch centers. Five hundred pounds of 0-20-20 fertilizer/ac was broadcast across the entire plot area in April prior to planting. Plots were 4 rows, 38 in wide and 35 feet long. Experimental design was a RCB with four replications. Treatments were: winter clover 2001 followed by (fb) tilled cotton in 2001 and tillage 2002; clover in 2001 fb no-till (NT) cotton 2001 and 2002; native vegetation (no clover) in 2001 fb tilled cotton 2001 and 2002, native vegetation in 2001 fb NT cotton 2001 and NT + 60lb N/ac in 2002. Planting was the first week of May with a John Deere 7300 planter. Sure-Grow 215 BG/RR cotton was planted at 4 seed/ft of row Terrachlor Super X (Pentachloronitrobenzene) 18.8G at 1.5 lb ai/ac + Temik (aldicarb) 15G at 0.75lb ai/ac was applied as granules in furrow at planting. Cotoran (fluometuron) at 1.0 lb ai/ac was broadcast over the tilled area. Cotoran + Gramoxone (fluometuron + paraquat) at 1.0 lb ai/ac + 0.625 lb ai/ac was sprayed over the no-tilled plots behind the planter. Roundup at 1.0 lb ai/ac was sprayed over the entire plot area two weeks after emergence. Appropriate plots were side dressed with 60 lb N/ac before squaring, CyPro (cyanazine) at 0.75 lb ai/ac was direct sprayed over the plot area as a lay by treatment. Cotton was defoliated in late September using Superboll (ethephon) at 1.5 lb ai/ac + Def 6 (tribufos) at 1.5 lb ai/ac. Harvest was the second week of October.

RESULTS AND DISCUSSION: The year 2002 was an extraordinary growing season with a cool wet spring followed by an extended period of drought when the plants were fruiting and ended with a cool wet summer and fall. Seed cotton yields ranged from 940 lb/ac for the no clover + 60 lb N/ac to 2934 lb/ac for the tilled clover with no added N (Table 1). Yields for tillage were higher than the no-till and no difference between added N and no added N.

TABLES:

Table 1. Seed Cotton Yield the Second Growing Season after a Clover Cover Crop.

TREATMENTS	SEED COTTON YIELD
Tilled Clover	2934
NT Clover+60 lb N/ac	2590
No Tilled Clover	1648
NT No Clover+ 60 lb N/ac	940
LSD 0.05	787