rototilling gave the lowest resistance numbers. This correlated well with the better rooting observed for these two treatments. Note that the solid and hollow tine cultivation treatments resulted in rapidly increasing penetrometer readings at the 3-4 inch depth, at the bottom of the coring hole. Rototilling gave looser soil through the 3-4 inch depth at the depth set for the rototiller. Obviously, the deeper the soil can be loosened on such soils, the better the rooting from sodded turfs.

Additional studies have been established on a highly compacted clay soil at the Soil Science Research Farm on campus. Rooting boxes will be lifted during 1988 to determine the longer term effects of different cultivation practices.

Sulfur Effects on Kentucky Bluegrass

Residual responses to sulfur applications made in July, 1986 were evaluated in 1987. Few visual differences were apparent in 1897 (Table 27) except for some residual injury caused by the 20 pounds per 1000 square feet application of Thiolux. Even though there were no significant visual responses in 1987 there were higher clipping weights in both May and July on plots receiving Cleary's flowable sulfur. This clipping response occurred in 1986 as well. The nature of this response is not clear as all carriers provide sulfur. There was no meaningful effect of sulfur treatment on soil pH (Table 28). Although this response occurred both years from the application made in 1986 the use of sulfur from Cleary's flowable sulfur should still be considered experimental until the nature of the response is better understood.

Wetting Agent Studies

A series of wetting agent studies were initiated in 1987. One was a preventative study on a Penncross creeping bentgrass green grown on a loamy sand. Irrigation was withheld from the area but localized dry spots did not develop due to water from adjacent plots and untimely rainfall. Another study was applied curatively on a Penncross creeping bentgrass green growing on a sand/peat soil mix. A hydrophobic soil condition developed at the end of the summer at which time a number of wetting agent treatments were applied. Shortly thereafter consistent rainfall occurred masking any treatment effects as all plots greened up uniformly.

Table 27. Effect of sulfur applications on soil pH and clipping weights of a Kentucky bluegrass turf growing on clay loam subsoil. Treatments applied July 12, 1986. Application rates in pounds product per 1000 sq ft. Hancock Turfgrass Research Center. Averages for 3 replications.

Treatment		pH		Clipping weights, grams		
Carrier	Rate	0-1 inch	1-2 inch	5/7/87	7/6/87	9/29/87
Thiolux	10	7.5a	7.7ab	128cd	116a-d	79a
	20	7.5a	8.0a	116cd	86d	86a
LESCO Microprill	10	7.4a	7.5b	128cd	118a-d	84a
	20	7.2a	7.6b	122cd	125a-c	66a
LESCO Water degradable	10	7.4a	7.5b	123cd	131ab	105a
	20	7.3a	7.5b	148bc	121a-d	66a
Frit-sul-ate	10	7.5a	7.6b	121cd	107a-d	88a
	20	7.4a	7.4b	142b-d	89cd	70a
Cleary's Flowable	10	7.4a	7.5b	165b	144a	78a
	20	7.4a	7.7ab	198a	129ab	96a
Check	-	7.6a	7.7ab	118cd	114a-d	81a

* Means in columns followed by same letter are not significantly different from each other using Duncan's Multiple Range test (5%).

Table 28. Effect of sulfur applications on turf quality and density ratings of a Kentucky bluegrass turf growing on clay loam subsoil. Treatments applied July 12, 1986. Application rates in pounds product per 1000 sq ft. Hancock Turfgrass Research Center. Averages for 3 replications.

Treatment		Turf quality rating (9 = best)			Turf density
Carrier	Rate	4/17	5/7	9/1	5/7
Thiolux	10	6.3a*	6.3bc	7.0a-c	6.8a
	20	5.0b	6.0c	7.7a	4.2b
LESCO Microprill	10	6.7a	6.8a-c	7.3ab	7.2a
	20	6.0a	6.0c	6.2ab	6.7a
LESCO Water degradable	10	6.3a	6.8a-c	7.8a	7.3a
	20	7.0a	7.5a	5.7c	7.8a
Frit-sul-ate	10	6.3a	7.7a	7.7a	7.8a
	20	7.0a	7.7a	5.8c	7.7a
Cleary's Flowable	10	6.3a	7.0a-c	7.3ab	7.3a
	20	6.3a	6.7a-c	7.3ab	7.5a
Check	-	6.3a	6.7a-c	7.0a-c	7.0a

* Means in columns followed by same letter are not significantly different from each other using Duncan's Multiple Range test (5%).