

BROILER LITTER USE WITH CONSERVATION TILLAGE ON DOTHAN SANDY LOAM SOILS

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Abstract

Waste disposal of broiler litter and utilizing it as a fertilizer source with conservation tillage on Dothan Sandy Loam soils has been a success for the poultry produces as well as the cotton producers.

Introduction

Broiler litter has been used as a fertilizer source for several years. With the wide adaptation of Roundup ready cotton, conservation tillage has become common place with cotton growers. This research was done to determine the amount of broiler litter needed to effectively produce cotton with this tillage method on a Dothan Sandy Loam soil. In addition to this, residual effects from the litter were observed the following year of application on cotton production.

Materials and Methods

A Dothan Sandy Loam soil was selected on the Wiregrass Research and Extension Center in Headland, Alabama. This has been a four year study (99-02) to determine the recommended rate of broiler litter and what residual effects were available from the litter on the following year's production. There were six different treatments. (1) Commercial fertilizer (120-90-90), (2) No Nitrogen check (0-90-90), (3) X – rate of broiler litter (equivalent to 120 lb/a N), (4) 1.5 X – rate of litter (180 lb/a N), (5) 2.0 X – rate of litter (240 lb/a N), and (6) 2.5X rate of litter (300 lb/a N) – this was only used in 00-02. (figure 2) The residual effects from the broiler litter were studied on the following year's crop with no fertilizer being applied to those test plots. All test plots were 24 feet in width and 30 feet in length. Each treatment was replicated four times randomly. The harvest rows were the two center rows of the 8 row plot. A cover crop of oats was planted in the fall each year preceding the cotton crop. A burn down application of Roundup was made three weeks before planting. Broiler litter was applied as a broadcast treatment to the plots one to two weeks before the test was strip tilled and planted to cotton. The broiler litter plots did not receive any other fertilizer. The commercial fertilizer plots received 20-90-90 in lbs/acre of N-P-K at the time the broiler litter was applied. Sidedress application of 100-0-0-20 (lbs/a N-P-K-S) was applied at early squaring of the cotton. 0-90-90 lbs/a of N-P-K was applied to the no nitrogen treatment check at the time of planting. This treatment did not receive any other fertilizer. All treatments received irrigation during the growing season. The residual treatments received no fertilizer or broiler litter, just residual from the previous year's litter treatments. All yields were calculated on relative yield with the commercial fertilizer being 100 percent. (Figure 1 and Figure 3)

References

- C.H. Burmester, C.W. Wood, K.L. Edmisten , and C.C. Mitchell. Broiler Litter on Cotton. Al Coop Ext ANR .S-03-92
- Charles Mitchell. Broiler Litter as a Source of Nitrogen for Cotton. Al Coop Ext. ANR. S-04-97

Broiler Litter on Cotton, Dothan s.l.

1999-2002

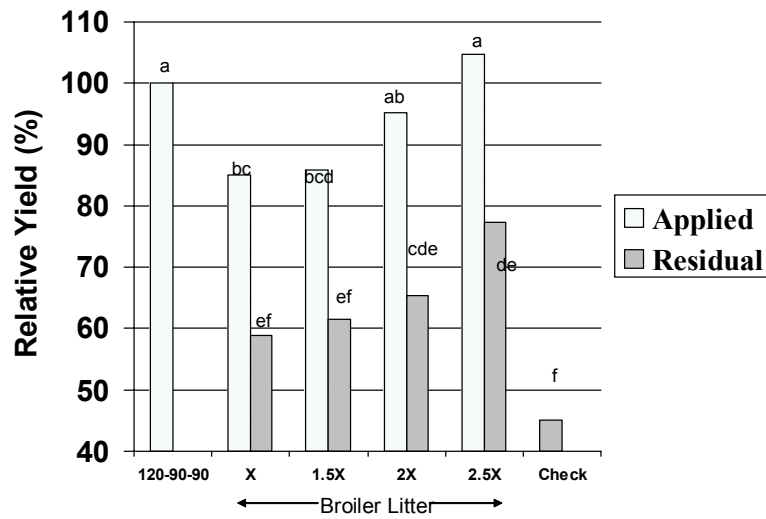


Figure 1.

Amount of Broiler Litter applied to Dothan Sandy Loam Soil for St					
Pounds of Litter per Acre					
Year	X Rate	1.5X Rate	2.0 X rate	2.5X Rate	% Nitrogen
1999	4,460	6,690	8,920		2.69
2000	3,966	5,950	7,932	9,915	3.03
2001	4,528	6,792	9,056	11,320	2.65
2002	5,128	7,692	10,256	12,820	2.34

Figure 2.

Broiler Litter on Cotton, Dothan s.l.

1999-2002

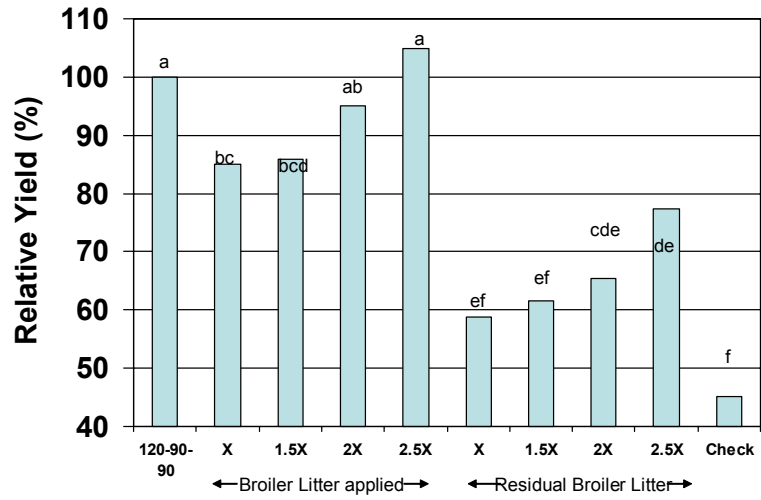


Figure 3.