

PRE-PLANT TILLAGE EFFECTS ON WHEAT YIELD AND GRADE 2001-02

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Location: Edisto Research and Education Center, Barnwell Co. SC, Field B-6 C.

Design: Pair-comparison with four replicates; plot size 31.7' (ten 38" corn rows) x 60'

Soil Type: Varina sandy loam.

Rotation: 2001 strip-till corn; 2000 wheat, fallow; 1999 strip-till corn, wheat; 1998 peanut, fallow; 1997 corn, fallow

Planting

Date: Dec 7, 2001

Seeding

Rate: 24 seed / row foot

General

Fertility: 30 lbs. /acre P + 90 lbs./acre K applied pre-plant. 30 lbs./acre N (11.3 gal S-25) was applied 19 Dec and 70 lbs./acre N (26.4 gal S-25) was applied 13 Feb (GS 23). Total N = 100 lbs./acre, total S = 14 lbs./acre.

Herbicide: 0.33 oz Express 75DF was applied 24 Jan.

Insecticide: Warrior T (3.87 oz /ac) applied with N 13 Feb.

Treatments:

Deep Tillage	Surface Tillage
1. Terra Max (broadcast)	Disk
2. Terra Max (broadcast)	None
3. Subsoil between old corn rows	Disk
4. Subsoil between old corn rows	None
5. None	Disk
6. None	None

Methods: Strip-till corn stubble was mowed and weeds (primarily crabgrass and bermuda grass) were sprayed (killed) with Touchdown prior to tillage and seeding. Deep tillage was performed prior to surface tillage. A five-row sub-soiler was modified such that when the tractor tires lined up between the old corn rows, the shanks were arranged between the existing corn rows, creating a new sub-soiled area 19" from the old sub-soil furrow of the previous corn crop. Terra Max shanks were spaced 12" apart in an attempt to provide broadcast deep tillage. Plots receiving surface tillage were disked twice. Tillage was performed under dry soil conditions in

mid-November. AGS 2000 wheat was planted with a JD no-till grain drill Dec 7. A representative area (7 rows x 60') in each plot was harvested with an Almaco plot combine. Yield samples were weighed on an electronic balance. Test weight was taken by funneling a sub-sample of grain through a Seedburo No. 151 filling hopper and weighing one dry pint of grain on an electronic scale. Grain moisture content was measured with a Burrows DMC-700 moisture meter. All yields were adjusted to 13.5% moisture before analysis.

Analysis: ANOVA, using SAS PROC GLM.
Fisher's protected LSD was used for mean separation ($P=0.05$).

Table 1. Tillage effects on yield and test weight, Blackville, SC 2001-02.

Deep Tillage	Surface Tillage	Yield	Test Weight
Terra Max	Disk	42.5 a	54.2 b
None	Disk	42.0 ab	54.4 ab
Subsoil	Disk	41.8 ab	54.9 ab
None	None	38.4 bc	55.4 a
Subsoil	None	36.9 c	54.7 ab
Terra Max	None	36.7 c	54.9 ab

Yield LSD = 3.9 bu/ac ($P=0.05$);

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Means followed by the same letter are not significantly different, Fisher's protected LSD ($P=0.05$).

AGS 2000 planted 7 Dec 2001