

2007-2009 Study in Blacklands of Texas to Measure Differences in Soil Quality Characteristics with Three Tillage Systems and Three Cropping Rotations

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First, Yield Results with Corn.....

This year (2008) Orthman Manufacturing, Inc. and USDA – Natural Resources Conservation Service (USDA-NRCS) in cooperation with Texas A&M Stiles Research Center near Thrall, Texas, scientists added to the information collected in 2007. We collected specific soil quality measurements to better comprehend the soil quality changes in continued conservation tillage system applications. It is all three groups’ intentions to inform folks of the changes rarely measured in adopting practices that will help growers significantly reduce erosional issues but gain soil capacity to yield better.

The major portions of the soils on the Stiles Farm and the field sized plots are Burleson clay. This is an expansive clay textured soil that can be difficult to manage in even the best of moisture conditions.

With this being the second year of a three year study/research project, we are seeing a trend in what and how the soils respond to less tillage. The porosity continues to improve in the No-Till and Strip-Till compared to the full width tillage system named conventional. Soils drink the water and provide it deeper in the root zone for the crops. It bears watching but it is true clayey soils respond more slowly to less tillage type systems, but the farm is slowly improving the surface layer organic matter. Visually we saw more leaf chewing insects, red and brown wiggler earthworms that usually have burrowed deep to escape the coming heat.

In this report we are depicting the naturally rainfed corn yields from 2007 and 2008. When we obtain the full cotton and grain sorghum yields we will add those to this report and reissue. Below is the table of the corn yields. Last year(2007) rain was more plentiful, this year after May 21st, 2008 the faucet was turned off. Yields depict that kind of concern.

Table 1.
Long Term Rotational Studies [Cotton, Corn, Grain Sorghum] Stiles Farm Foundation
reported by Archie Abrameit, Research Manager

Rotation	Year	Yield (bu/ac)			Yield (kg/ha)		
		ST	NT	ConvT	ST	NT	ConvT
Corn/Corn	2007	123	121	119	7721.0	7595.9	7470.3
Corn/Corn	2008	73	63.5	98	4582.6	3986.3	6152.0
Cotton-Corn	2007	123	118	106	7721.4	7407.6	6654.3
Cotton-Corn	2008	97	83	98	6089.3	5210.4	6152.0

Soils: Burleson silty clay 55% clay, 12% sand, 23% silt

Note: ST – Strip-till with Orthman 1tRIPr prior to planting

NT - Direct Seeded with Dbl disc planter

ConvT – Conventional full width tillage tools – 4 passes before seeded