

COMPARISON OF CONTINUOUS WHEAT TILLAGE SYSTEMS IN A GRAZED AND UNGRAZED ENVIRONMENT

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RATIONALE

Erosion by wind and water is a serious economic and environmental problem in the southern plains. The predominance of conventional tillage systems leaves ground exposed to the natural elements and readily available to erosion.

OBJECTIVES

A conservation-tillage field study was initiated to evaluate different tillage systems under dryland continuous wheat production which includes a grazing component on a Tillman loam.

METHODS

The effect of no-till (NT), reduced-till (RT), and conventional-till (CT) systems on continuous dryland wheat are being studied at a site near Vernon, TX. Each tillage system was either grazed or left ungrazed to determine the impact of a cattle grazing on wheat stand establishment and grain yield.

RESULTS

In 2000, wheat planting was delayed until the first week of December weather related problems. Percent residue and cone penetrometer measurements were delayed until after planting. Percent residue cover doubled from the grazed to ungrazed environment within a tillage system. Cone index values indicated more compaction was present in the first 15 cm in the NT-grazed system than in the other systems. At 15 to 30 cm, there were no differences in soil compaction across the different systems.

CONCLUSION

Compaction problems from grazing animals may limit implementation of a true no-till system in dual-purpose wheat production (grazing plus grain).