

Strip Tillage Implements Comparable across Single and Twin Row Peanut



The most effective form of conservation tillage to maximize retention of surface residue is no tillage. However, highly weathered Ultisols of the Southeast with low organic matter contents, coarse textures, and poor structure make them susceptible to compaction, which restricts root growth. As a result, many growers use a form of conservation tillage known as strip tillage in the Southeast. The tilled zone is directly underneath the crop row to maximize root growth, but perform minimal disruption across row middles to protect beneficial surface residue.

Numerous strip tillage implements are available through various manufactures, due to the popularity of strip tillage. Although strip tillage has been evaluated for peanut, comparisons across different strip tillage implements have not been examined to determine if consistent implement and peanut performance is possible. We evaluated three different strip tillage implements (KMC, Orthman, Unverferth) (Fig. 1) with and without a rye cover crop across single and twin row peanut (cv. 'Georgia-06G') in Headland, AL and Tifton, GA. Each implement was configured to disturb a zone < 8 in. wide on the soil surface.

Conservation tillage is defined as any tillage or combination of tillage and planting operation that maintains 30% or greater residue cover on the soil surface. However, with more emphasis being placed on cover crops and associated benefits of cover crops, tillage and/or planting operations that exceed the 30% surface



Figure 1. Strip tillage implement, corresponding shanks, and attachments used in the peanut study in Headland, AL and Tifton, GA. Tillage depths were ~13 to 14 inches for implements.



Figure 2. Peanut being dug in Headland, AL.

residue threshold likely would be more desirable in the future. In our experiment, all strip tillage implements exceeded 60% surface residue cover at both locations in the rye treatment. Rye biomass levels averaged ~5500 lb/ac in Headland and ~2300 lb/ac in Tifton over the three growing seasons. The cover crop in Headland was fertilized with 30 lb N/ac in the fall, while the cover crop in Tifton was not fertilized. This difference in biomass production provided the opportunity to examine the implements across high and low residue environments. Strip tillage implement had no effect on any

peanut plant parameters measured. Twin row yields exceeded single row yields by 320 lb/ac in Headland and > 900 lb/ac in Tifton when averaged over all treatment combinations. Peanut quality, indicated by total sound mature kernels (TSMKs), was also improved for twin row peanuts compared to single row peanut at both locations but TSMKs averaged > 72 over all treatments. Strip tillage with a cover crop has been successful across single and twin row peanut (Fig. 2). These results, across 6 site-years, indicate no preference for one strip tillage implement over the other.

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