

## LAND PREPARATION AND TRAFFIC PATTERNS

Tillage can greatly affect wheat yields. Alabama, Georgia and South Carolina research have consistently shown increased wheat yield with deep tillage. Deeper tillage allows for easier root penetration, burial of diseased debris, possible dilution of root pathogens and improved water infiltration. In wet years, low soil-oxygen conditions are enhanced by compacted, dense soils. This condition will reduce yield of most small grains due to the detrimental effects of poor root production and nutrient uptake.

No-till is not used much in wheat production due to poorer yield production. Yield reductions range from 5-20%. Disking is a common tillage practice in wheat production. It can provide an excellent seedbed but may lead to the formation of a compacted layer of soil. The weight of the implement is concentrated in a very small area at the tip of the disk and when disking is repeated several times a hardpan can form. As far as wheat yields are concerned, deep tillage (bottom or paraplowing) is the best tillage option available. It is slower and more costly than disking, but the yield increase is usually cost effective. In situations where double-cropping makes it impractical to deep till, chiseling or subsoiling may be an acceptable alternative.

Establishing a row traffic pattern for all post-emergence field traffic can have merit for reducing injury to wheat and allowing for the crop following wheat to be planted no-till without stunting. No-tilling the crop after wheat can increase yield and soil/water conservation of the secondary crop.

Traffic patterns or tramlines can be established by closing one or more openings in the drill when planting the crop. This can be done by mechanically retrofitting the drill with clutches attached to the metering cup so as to close the opening to leave unplanted rows designed to fit the wheel spacing of your sprayer or tractor. Devices for drills can be purchased to establish tramlines on any tractor width in any multiple of drill widths.

Tramlines may also be formed after the crop has emerged by chemically killing the rows that match the width of the implement used to apply fertilizer or pesticides. Precision agriculture tools such as light bars and GPS guidance systems can help reduce the error of overlapping when attempting to chemically kill rows to produce a tramline.

Using tramlines in intensively managed wheat makes applying uniform sprays of nutrients and pesticides much easier. They improve the precision of applications. They can be used as guides for repeated applications and save on the cost of aerial applications. They reduce the chance of disease development when compared to plants that are crushed by running over standing wheat. Studies have shown that the border plants will compensate for yield losses whereas plants damaged by tires rarely produce good grain.