

SUBSOILING NO-TILLAGE CORN

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Abstract

Currently, over half of the corn in Kentucky is no-till planted. Many fields have received little tillage in the last 10 to 20 years. Many producers wonder if soil compaction increases with time on these long term no-till fields due to annual trafficking with heavy equipment. Subsoiling implements are available that allow subsurface tillage while preserving the surface mulch layer. This allows for continued no-till planting while introducing some tillage into the cropping system. Some producers are subsoiling every second fall after soybean harvest in a corn-wheat-soybean rotation. This study tested 3 long term no-till fields for the benefits of subsoiling. Except for a small, low, wet area in one field, the fields had only a small amount of compaction as indicated by soil penetrometer measurements. Plant stands were about 5% higher, on the average, when subsoiling was used. However, there was no significant increase in the yield for the subsoiling treatment. There was a small trend of 1.3 bu/ac in favor of the subsoiling treatment when all replications were averaged across the 3 fields. This increase was not significant and is not sufficient to cover the costs of the subsoiling operation. The yields, in the small compacted area of field 1, were increased by 4.2 bu/ac. Subsoiling would only be marginally profitable on this compacted area of the field. Subsoiling is expected to be profitable only on fields or areas of fields where significant compaction can be found to exist. Long term no-tillage of fields was not found to be sufficient grounds on which to base a subsoiling decision.

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