

Fertilizer placement considerations for corn and soybean grown in conservation tillage systems. (S04-wolkowski875455-poster)

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Abstract:

Crop production in the upper Midwest conducted in minimum tillage systems is often beset with slower early season growth and is more responsive to fertilization. A study was conducted on a silt loam soil in southern Wisconsin in continuous corn and corn and soybean rotations to examine the effectiveness various fertilizer placement options for different tillage intensities. Tillage treatments include a fall chisel system, fall strip-till, and no-till. Fertilizer treatments included none, fall broadcast, fall deep (strip-till only), and in-row with the planter. Rotation and tillage treatments created a range of surface crop residue. Early season dry matter accumulation was greater in first-year corn following soybean. Dry matter accumulation was greater in the chisel and strip-till treatments compared to no-till and was greatest in the planter-applied fertilizer treatment. Early season uptake of K was lowest in the no-till treatment and was highest where fertilizer was applied with the planter. Incremental soil samples showed lower K in the upper 5 cm in the corn/soybean rotation compared to continuous corn. The yield response to corn to fertilization was greatest in the no-till system and tended to be greater in corn following soybean. These results show the importance of maintaining K fertility in high residue systems and the greater responsiveness of first-year corn following soybean.

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