Use of rye as a catch crop in a corn/soybean rotation: rye nitrogen uptake and soybean yield. (A08-ruffo092200-Poster)

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Abstract:

There is some evidence that rye can reduce yields of soybean (SB) when used as winter cover crop (WCC) in a corn-SB rotation. Our objectives were to asses rye as a catch crop in a corn-SB rotation. A two-year field experiment was conducted in two locations in IL during 2000 and 2001 in a RCBD with a split-plot arrangement of treatments. Main plots were WCC rotation (rye, hairy vetch, their mixture and fallow) drilled before corn planting, and split plots consisted of four nitrogen (N) rates (0, 90 180 and 270 kg N/ha) applied to corn. After corn harvest, rye was no-till drilled. Rye was killed with glyphosate one week before soybean planting. There was a significant locationXrotationXN interaction for residual soil nitrates and a significant rotationXN interaction for rye biomass and N content at killing. In addition, there was a N effect on rye N recovery (rye N content/soil nitrates). Rye N recovery fell from 92% for the 0 kg N/ha rate to 40% for the 270 kg N/ha. Soybean yield was not affected by any treatment. Rye shows the potential to provide environmental services without decreasing SB yield.

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