Decomposition Patterns of Managed Rye Residue and their Effects on Soil Nutrient Dynamics. (A08-bollero150631-Poster)

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Abstract:

Spring desiccation time of rye (Secale cereale L.) used as a winter cover crop (WCC) may affect residue quality and carbon (C) and nitrogen (N) contributions to the soil in a typical maize (Zea mays L.) and soybean ((Glycine max. (L.) Merrill) rotation in Illinois. Our objectives in this study were to determine the effects of kill date and N fertilizer application timing on residue quality and likewise, decomposition of rye residues and C and N cycling under field conditions. The study was a split plot arrangement in a randomized complete block design with 4 replications. Rye was drilled in the fall after soybean. Treatments included three spring kill dates and six N application strategies. After each kill date, WCC residue was placed on the soil surface in mesh bags and retrieved at 2, 3, 5, 7, 10, and 15 weeks. At retrieval, residue was dried, weighed, and ground for C and N analysis. Decomposition was analyzed using non-linear regression. Residue quality, decomposition, and C and N release trends will be presented and discussed.

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