The Fate of Nitrogen Fertilizer in a Perennial Ryegrass Seed Field and Adjacent Grass Riparian Zone. (S03-davis144249-Poster)

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Abstract:

Intense management of grass seed production fields in seasonally wet soils has led to interest in the ability of these systems, and associated riparian areas, to retain N. We studied the differential biogeochemical processing of NH4 and NO3 in a ryegrass seed field and adjacent poorly drained grass riparian area. 15N was applied to plots using either 15NH4NO3 or NH415NO3. During the first year of applied label, the two year old ryegrass field recovered 62 and 75% of 15NO3 and 15NH4, respectively, while the riparian vegetation only recovered 42 and 26% of 15NO3 and 15NH4, respectively. Reduced 15N recovery in riparian vegetation may have resulted from lower plant biomass and N uptake induced by prolong flooding. Although there was no difference in the amount of 15NO3 versus 15NH4 found in the plant biomass, label partitioning patterns were different. The grass seed crop contained a higher portion of the label in the shoots, while the riparian vegetation contained more in the roots. These data indicate that riparian and adjacent grass seed fields of similar soil, process NH4 and NO3 differently.

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