Nitrogen Mineralization Rates when Legume Green Manures are Amended with Composted Swine Manure. (S04-rusk190541-Poster)

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Abstract:

Organic crop rotations in the Midwest often include corn grown after forage legumes. These legumes provide significant amounts of nitrogen for corn, but often do not supply enough N to meet crop needs. This study examined the N mineralization rates of red clover and alfalfa green manures (established for one yr) with and without composted swine manure under conventional tillage. Four weeks after planting (WAP), mineralization rates of red clover were 51% higher than alfalfa while composted manure decreased mineralization rates of red clover by 22% and increased alfalfa mineralization by 35%. Six WAP, nitrate values were slightly higher in red clover compared to alfalfa and in composted plots compared to plots with no compost. Over the entire growing season red clover mineralized 15% more N than alfalfa while the addition of compost had little effect on total mineralization. Fall stalk nitrate readings of corn were far greater following red clover than alfalfa and compost readings were higher than plots with no compost amendments. Final corn yields following red clover were 25% greater than yields following alfalfa and plots with compost yielded 31% higher than plots without compost.

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