Monitoring Soil Nitrate Bioavailability on Golf Courses and Sod Farms. (C05-jiang145106-Poster)

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Abstract:

Soil nitrate-N bioavailability data at a particular location can be helpful to the sod producer or the golf course manager when applying N fertilizers and minimizing risk of nitrate pollution. Conventional methods, such as soil core analysis, cannot produce critical information as to N fate and nitrate absorption by the grass roots prior to sampling. In a 3-yr study, we used an ion exchange resin capsule system to continuously monitor soil nitrate-N fluxes at selected sod farms and golf course greens. Four capsules were placed in the root zone at each site and retrieved at intervals coinciding with management and meteorological events to determine nitrate ion accumulation. The grand mean of nitrate-N flux based on analyses of 636 capsules was 0.76 lbs N per 1000 sq. ft. per yr. Two golf greens appeared to have relatively high N flux rates, with mean N flux of 2-3 lbs N per 1000 sq. ft. per yr. Three sod farms also showed elevated levels of N fluxes, with mean N flux slightly above 1 lbs N per 1000 sq. ft. per yr. There was significant interaction between sampling date and study site, indicating that turfgrass management affected seasonal variation in soil N flux and potential N loss.

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