Nutrient Loss via Runoff and Percolate from Turfgrass. (C05-easton115527-Poster)

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Abstract:

Nutrients in surface and ground water have a detrimental impact on organisms that rely on water for consumption and habitat. A mass balance study was initiated to determine the effect of nutrient source on surface and ground water quality. Treatments consisted of three natural organic and two synthetic organic nutrient sources applied at rates of 49 and 98 kg N ha-1 and an unfertilized control. Runoff water collected from 33 natural precipitation events was analyzed for NO3-, PO43-, and NH4+. Nutrient levels were highest for the 20-week period following turfgrass establishment. The NO3and NH4+ concentrations declined significantly once cover was established, but PO43- levels increased during the study. Overall, concentrations in runoff were below EPA MCL for drinking water. Leachate nutrient concentrations followed the same general trend as runoff, however, the NO3- concentrations were 10.98, 3.91 and 1.51 mg L-1 for the synthetic organic, natural organic and control treatments respectively. In many cases, the control treatment receiving no fertilization had the highest losses due to high runoff losses. Turfgrass shoot density, soil infiltration rate, soil moisture levels, precipitation intensity and duration all affected the transport of nutrients to water.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002 Presentation Time: 9:00-11:00 am Poster Board Number: 1042

Keywords:

Nutrient Runoff and Percolate, Turfgrass