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## Effectiveness of a zeolite-based fertilizer in reducing nutrient leaching in a recently sodded turfgrass

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### Abstract:

A field study was performed to evaluate the effectiveness of a zeolite-containing fertilizer (Zeotech N) in reducing nutrient leaching in sodded turfgrass. Eighteen plots were established with sod established by a seed mixture comprised of 70% *Lolium perenne* and 30% *Poa pratensis*. The plots were sodded in April 2008 on a USGA sandy substrate amended with 20% peat (v/v). Zeotech N (12N-2.2P-6.7K + 2Fe) was compared with a mix of different conventional fertilizers which, all together, provided the same nutrient content of Zeotech N. The study was conducted in two temporal phases: a) In Study 1, Zeotech N and the conventional fertilizers were applied on 30 April, 28 May and 25 June 2008 at rate of 0 (control), 25 and 50 kg ha<sup>-1</sup> nitrogen (N) as monthly applications of 0, 300 and 600 kg ha<sup>-1</sup> N per year, respectively; b) In Study 2 the same fertilizers were applied on 30 July, 27 August and 24 September 2008 at a rate of 0, 50 and 100 kg ha<sup>-1</sup> N (equivalent to 0, 600 and 1200 kg ha<sup>-1</sup> N per year). Two suction lysimeters were installed in each plot to collect substrate solution at a depth of 40 cm. Turfgrass color was estimated weekly by visual ratings and vertical growth rate was determined by measuring turf height before mowing. Macronutrients leaching were determined through analysis of substrate solution collected by the suction lysimeters. It was found that turf growth and color were positively affected by the increase of fertilization rate. Treatments affected nutrient concentrations in substrate solution only in Study 2. Potassium and NO<sub>3</sub>-N concentrations in the substrate solution were higher at the fertilization rate of 100 kg ha<sup>-1</sup> N per month. Furthermore, at this fertilization rate, NO<sub>3</sub>-N concentration was lower when Zeotech N fertilizer was used.

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