Decomposition and Nitrogen Release of Turfgrass Clippings. (C05-kkopp104845-Poster)

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Abstract:

First-cutting clippings of a cool-season turfgrass were secured in litter bags and placed into the thatch layer of experimental plots. The experiment was arranged as a 2 x 4 factorial in a randomized complete block design with three replicates. Treatments included four rates of N fertilizer (0, 98, 196, and 392 kg N/ha/yr) and two clipping treatments (returned vs. removed). Litter bags were removed after 1, 2, 3, 4, 5, 7, 9, 11, 13, and 16 weeks. Samples were analyzed for biomass, N and C concentrations, and C:N ratio (ash-free basis). Nitrogen loss after 16 weeks ranged from 88.1% to 92.6% depending on N rate and from 85.7% to 93.7% depending on clipping treatment. Carbon loss ranged from 93.7% to 95.4% depending on N rate and from 91.2% to 96.0% depending on clipping treatment. Cumulative N release was higher at the lower N rates than at the higher N rates and was also higher when clippings were returned. Grass clippings decomposed rapidly and released N quickly when returned to turfgrass indicating the need for reduced N fertilization when clippings are returned and also suggesting that the contribution of grass clippings to thatch development is negligible.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 1136

Keywords:

turfgrass, nitrogen, clippings, decomposition