Turfgrass Nitrate Assimilation Potentials under Field Conditions. (C05-jiang144221-Oral)

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Abstract:

Nitrate assimilation potential (NAP) has been studied in cool-season turfgrasses grown under controlled environments, but few NAP studies have been conducted with turfgrasses grown under field conditions. Data from studies of turfgrass NAP under field conditions would be critical for developing models to forecast turfgrass fertilization needs. The objective of this study was to evaluate leaf NAP of turfgrasses grown in field plots and a home lawn. Clippings were collected from the field, placed on ice, and brought to the laboratory. Leaf NAP was estimated with an in vivo assay of nitrate reductase in fresh leaf blades. Seven weeks after an application of 1.25 g N per sq. m. in April, leaf NAP of 'Jamestown' chewings fescue was similar to that of non-fertilized controls, indicating a need for additional fertilization. Five days after an application of 5 g N per sq. m. in June, leaf NAP of the fescue increased over the turf plots fertilized in April. Tissue nitrate concentration in June-fertilized plots was significantly higher than in April-fertilized plots and non-fertilized controls. Chewings fescue and Kentucky bluegrass in the non-fertilized lawn showed low NAP and tissue nitrate.

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