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Nitrate Reductase Activity in Tall Fescue

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A G R O N O M Y A B S T R A C T S

1976 Annual Meetings

**AMERICAN SOCIETY OF AGRONOMY
CROP SCIENCE SOCIETY OF AMERICA
SOIL SCIENCE SOCIETY OF AMERICA**

Nitrate Reductase Activity in Tall Fescue. D. D. Randall*, W. W. Wilhelm, R. F. Feuers and C. J. Nelson, University of Missouri, Columbia.

An In vitro assay for tall fescue leaf nitrate reductase activity (NRA) was established that required either 0.5% casein or polyvinylpyrrolidone in the extraction medium for maximal activity. Leaf NRA was proportional to light intensity and fertility levels. Mature tissue and high temperature decreased NRA. NRA showed significant genetic variability in broadly based genotypes and genotypes selected for photosynthetic rates and forage yields. However, progeny of the latter did not show significant genetic variability. High coefficients of variation (30-50%) among the heterogeneous progeny may have masked true genetic differences. No significant correlations were found between NRA and photosynthesis or yield in the parents.