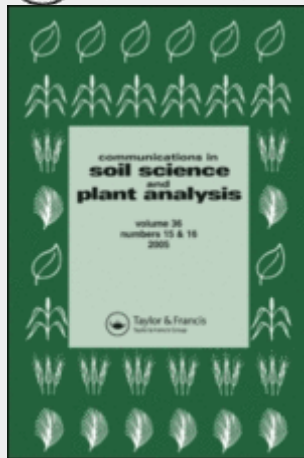




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Wheat Grain Nitrogen Uptake, as Affected by Soil Total and Mineral Nitrogen, for the Determination of Optimum Nitrogen Fertilizer Rates for Wheat Production

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Abstract

Determination of appropriate nitrogen (N) fertilization for wheat (*Triticum aestivum* L.) production with respect to the available resources can result in the enhanced efficiency of agricultural systems and ecosystem health. Hence, a 3-year field experiment was conducted to determine (1) the effects of soil total N and soil mineral N (including nitrate, NO₃-N, and ammonium, NH₄-N) measured at seeding and postseeding for wet and dry soil samples at 0- to 30 cm and 0- to 60-cm depths on wheat grain N uptake and (2) the regression equations that can best explain the variation in wheat grain N uptake by N fertilizer and soil total and mineral N. Determination of wheat grain N uptake as affected by soil NO₃-N in areas with reasonable amounts of organic matter can also be used as a very useful tool for determination of appropriate N fertilization, which is of great agricultural and environmental implications.

Keywords: Grain N uptake; optimum N fertilization; regression equations; soil total and mineral N; seeding and postseeding sampling; soil depth; wet and dry samples; wheat (*Triticum aestivum* L.) yield

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