# **Characterizing the Chemical Basis for the Illinois Soil Nitrogen Test. (S08-daverede161001-Poster)**

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### Abstract:

The IL soil N test is a simple and rapid technique developed to estimate (NH4 + amino sugar)-N, as a means of detecting sites where there is no yield response by corn to N fertilization. A study was conducted to elucidate the chemical basis of this test and to compare concentrations of four amino sugars (galactosamine, glucosamine, mannosamine, and muramic acid) for soils that differ in crop responsiveness to N fertilization. Soil samples selected to represent a wide range in soil type, IL soil N test level (72-366 mg N/kg), and management practices were hydrolyzed for 8 h at 100-110 C in 6 M HCl (1:20 w/v). The amino sugars in the neutralized hydrolysates were separated and quantified as aldononitrile derivatives by gas liquid chromatography using a capillary column and a flame ionization detector. Glucosamine and galactosamine were found in all soil hydrolysates, the glucosamine/galactosamine ratio averaging 1.6. A high correlation was found between the soil test values and hydrolyzable N detected as the sum of glucosamine and galactosamine.

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