Distribution of Low and Marginal Levels of Available Zinc in Soils of Northern North Dakota. (S05-wu162656-Poster)

Authors:

- W.A.Norvell USDA-ARS
- M.G.Ulmer *NRCS*
- J.Wu Cornell University
- R.M.Welch USDA-ARS
- D.B.Smith USGS
- D.G.Hopkins *NDSU*

Abstract:

Maps of the distribution of available Zn in soils of the 18 counties of northern North Dakota were developed from data for DTPA-extractable Zn, pH, and organic carbon (OC). DTPA-Zn at 843 sites varied widely from 0.1 to > 10 mg kg-1, with a mean of 1.04 and median of 0.78 mg kg-1. Variography analysis showed spatial dependency for DTPA-Zn, pH, and OC, and spatial co-variability between DTPA-Zn and pH or OC, suggesting that predictions of DTPA-Zn could be improved with aide of auxiliary data for pH and OC. Thus, we incorporated pH data for an additional 111 sites and OC data for another 225 sites to develop a map for DTPA-Zn by cokriging. The map showed the geographic distribution of areas with low and marginal levels of available Zinc in soils. Using probability kriging, we also developed probability maps at low and marginal levels of DTPA-Zn. These maps should be useful in estimating generalized needs for zinc fertilization to assist with soil management, fertilizer marketing, etc. We also examined the relationships between available Zn and major soil and environmental attributes.

Corresponding Author Information:

J. Wu Cornell University US Plant, Soil, and Nutrition Lab. Ithaca, NY 14853 phone: (607)255-5708 fax: (607)255-1132 e-mail: jw67@cornell.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002 Presentation Time: 4:00-6:00 pm Poster Board Number: 1905

Keywords:

Indicator Kriging, Zn Availability, Zn Deficiency, Mapping