A STATISTICAL EVALUATION OF THE COLORMETRIC TRUOG METHOD OF pH DETERMINATION

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Soil Scientists in Illinois commonly use the colorimetric Truog method of determining the reaction of soils in the field. The laboratory method normally used in measuring the pH of soil samples is the 1:1 soil-water paste, glass electrode method. There are discrepancies of as much as 1.0 pH unit between the field and laboratory pH readings on samples from the same soil horizon. The purpose of this study is to evaluate the relationships between soil pH measurements determined in the field with the colorimetric Truog Kit and those in the laboratory by the glass electrode method.

E. Truog states in the instructions for the kit that if the Truog Soil Reaction Test is properly conducted, it is accurate within 0.1 to 0.2 pH of the glass electrode method.

The pH readings from field descriptions and accompanying lab. data of 189 horizons from 28 soil profiles from uplands of eight counties in central and southern Illinois were selected for testing. Seventeen Soil Scientists from the Soil Conservation Service and from the University of Illinois were involved in the writing of the profile descriptions. The glass electrode pH measurements were by the SCS laboratory at Lincoln, Nebraska or by the Agronomy Department laboratory at the University of Illinois.

REGRESSION ANALYSIS

The linear relationship of the results of the Truog field kit and glass electrode methods is evaluated by the standard regression analysis. A perfect linear relationship results in a regression coefficient of 1.0.