Relationship of Phosphorus in Mehlich 3 Extracts between ICP and Colorimetric Analyses. (S08-pittman103604-Oral)

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Abstract:

A difference between ICP and colorimetric measured Mehlich 3 phosphorous (M3P) has been observed. However, the factors contributing to this difference have not been well characterized. Despite the observed difference fertilizer recommendations, calibrated with colorimetric P determination, are commonly made using ICP M3P measurements. This study was conducted to determine the factor(s) contributing to the difference in colorimetric and ICP M3P. Collections of soils from locations through out Oklahoma and the U.S. were analyzed for ICP and colorimetric M3P. The soils were also analyzed for additional chemical as well as physical properties. Colorimetric and ICP M3P of over 2000 Oklahoma soils were highly correlated, (Colorimetric-P = 0.79xICP-P - 16, correlation coefficient=0.88), and means from each of the two methods were significantly different, ($p<0.0001$, alpha= 0.05). Filter paper pore size, and soil pH were observed as contributing to the difference in P measurements. Additional factors potentially contributing to the P detection differences will also be presented.

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