Correlating yield and boron uptake of alfalfa to available soil boron using three soil tests. (S04-shiffler110601-Poster)

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Abstract:

Pressurized hot water (PHW) and DTPA-Sorbitol are soil B extraction methods correlating well with hot water extraction (HW), but no data on yield or nutrient uptake is available. We correlated yield, B tissue concentration and total B uptake of alfalfa to soil test results obtained with three extraction methods on silt loam and sandy soils testing low in hot water extractable B. Eight B rates were applied and soil was sampled from each pot and analyzed before planting. Alfalfa yields, B tissue concentrations and total B removal were measured five times in nine months. There were a few yield responses, but none correlated with the B soil test values. Correlations of the three soil tests with B concentration and total B removal were significant in all harvests--hot water extraction had the highest correlations, while correlations with pressurized hot water and DTPA-Sorbitol extractions were similar, but generally lower (highest r of 0.90, 0.85 and 0.89 for HW, PHW and DTPA-Sorbitol, respectively). Due to their ease and the correlations obtained, the two alternative methods are recommended. Further yield correlations need to be investigated.

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