The Relationship Between Soil Extractable Boron and Tissue Concentrations in Rosaceae Shrubs in Utah. (S04-carter104441-Poster)

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Abstract:

Soil boron (B) tests have been used often to characterize the supply of B to cultivated crop species; however such tests have never been correlated with B concentrations in native species. This study was designed to determine (a) the effectiveness of three soil B extraction procedures in predicting tissue B concentrations in three native Rosaceae shrubs of Utah, (b) the effects of other soil factors on availability of soil B to these species and (c) if tissue sorbitol concentrations are related to tissue B concentrations. We found that soil extraction methods predicted tissue B concentrations in the native species equally, but that B concentrations of mature leaf, new twig, and flower alone, correlated poorly with extractable soil B ($R2 < 0.28$). Inclusion of soil pH, organic matter, clay content, and extractable B in multiple regression analyses to predict plant B concentrations improved predictions ($R2 < 0.72$). A relationship between sorbitol content and B concentration in tissues was seen in the two native species that are high sorbitol producers. Boron seemed to be more efficiently translocated in high than in low sorbitol producing species.

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