

## WHAT DO RECENT PLANT TISSUE ANALYSIS SURVEYS IN SOYBEAN AND ALFALFA TELL US?

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### Abstract

Plant tissue analysis surveys were conducted for soybean in 2011 and 2012 and alfalfa in 2010 and 2011. Seventy-three random alfalfa fields throughout Wisconsin were sampled at bud to first flower prior to first or second cutting. For alfalfa, 49% of samples were low in potassium (K) based on sufficiency levels, and results were related to soil test K level and amount of K applied. Sulfur (S) was low in 62% of all alfalfa samples. This result was surprising, as only 18% of the fields were considered abnormal in appearance and no specific nutrient deficiency symptoms were observed. Reduced atmospheric deposition of S in the Upper Midwest may be the cause of low tissue S levels. These results suggest that alfalfa growers should pay more attention to K and S management as they try to improve alfalfa yield. The soybean survey was conducted by sampling the upper fully most developed trifoliolate and petiole at R1 and R3 from five varieties at 10 locations in the Wisconsin Soybean Variety Trials. When possible, the same five varieties were sampled at different locations. Soil samples were also collected at each location at R1. Results revealed that variability in nutrient content existed among varieties grown at a given location. In addition, when the same variety was grown at multiple locations the nutrient content varied between locations and was often related to variability in soil test levels. At all locations, every variety had an R1 S concentration that was less than the sufficiency level of 0.38% S that is currently used in Wisconsin. There were no nutrient deficiency symptoms present at any location and yields were generally very good. These data suggest that research is needed on correlating plant analysis results to yield response in modern hybrids for plant analysis to be a reliable tool in diagnosing yield-limiting factors.

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