ASSESSING CHRISTMAS TREE RESPONSE TO N FERTILIZATION

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Fertilizers are often used in Christmas tree production to increase tree growth and quality. The capacity to detect nutrient deficiencies that constrain tree growth and quality is an important component of an effective Christmas tree management program. Ammonium nitrate (AN) and chicken manure compost (CMC) were applied to five Christmas tree species commonly grown in New York State at 11 sites in the spring of 2003. Foliage was collected the following fall and analyzed for total nitrogen (N) and needle mass. Basal diameter current annual increment (CAI) was used as a response variable. Across all sites, AN treated trees had significant increases in CAI and needle N concentration relative to controls. There was no significant effect of CMC on growth in the first season following fertilization for any of the species. Vector analysis results corresponded with first year growth response approximately 65% of the time. However, there were distinct differences between species with correspondence rates ranging from 83% to 44%. Based on these first year results, it appears that tree response to fertilizer application can potentially be diagnosed with the use of vector analysis. Longer-term response assessment will clarify the overall usefulness of vector analysis in making fertilizer recommendations for Christmas tree production.