

GROWTH RESPONSE OF CLONAL *PINUS TAEDA* FOLLOWING FERTILIZATION IN THE VIRGINIA PIEDMONT

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Clonal forestry offers the opportunity to increase yields, enhance uniformity and improve wood characteristics. Intensive silvicultural practices, including fertilization, will be required to capture the growth potential of plantations. However, variation in nutrient use efficiency that exists among clones could affect growth responses of clones. Our research objective was to determine the range of growth response to fertilization in clones of *Pinus taeda*. Our site was located on the upper Piedmont in Patrick County, Virginia, (36° 40' N, 80° 10' W). A split plot experimental design was used with the whole plots being two levels of fertilization (with or without) and the split plot factor being 25 clones. Whole plot treatments were blocked and replicated four times. Trees were planted in May 2003, with the fertilizer (224 kg ha⁻¹ DAP and 184 kg ha⁻¹ ammonium nitrate) being applied by hand in a banded application in May 2004 and again in May 2006. Four years after planting, a repeated measures analysis indicated that the fertilizer by time and clone by time interactions had significantly affected both height and tree volume development. Although there were no fertilizer by clone interactions in this trial across all 25 clones, the response to the fertilizer varied, with 40 % of the clones showing an improvement in volume at 3.5 years of less than 3% and 20 % of the clones showing an improvement greater than 15%. Our results suggest that a rapid screening technique for clonal response to fertilization is necessary given the wide range of fertilizer responses found between clones in this field trial and the large numbers of clones being developed by forest industry.

Theme Area: Fertility and tree nutrition

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