Growth 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 full growth potential of clonal plantations. However, variation in nutrient use efficiency that exists among clones could affect growth responses. Our research objective was to determine the range of growth response and biomass partitioning due to fertilization in clones of *Pinus taeda*. 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 fertilizer (224 kg / ha DAP and 184 kg / ha ammonium nitrate) applied in May 2004 and May 2006. Four years after planting, a repeated measures analysis showed fertilizer by time and clone by time interactions significantly affected volume. Although there were no fertilizer by clone interactions in this trial across all 25 clones, the response to fertilizer varied, with 40 % of the clones showing a volume improvement at 3.5 years of < 3 % while 20 % showed improvement > 15 %. Our results suggest that a screening technique for clonal response to silvicultural treatments such as fertilization may be necessary given the wide range of fertilizer responses found among clones in this field trial and the large numbers of clones being developed by forest industry.

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