THE KAINGAROA GROWTH MODEL FOR RADIATA PINE AND ITS IMPLICATIONS FOR MAXIMUM VOLUME PRODUCTION

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ABSTRACT

The continuing controversy with regard to the relative merits of heavy-early non-commercial thinning, and the more conventional regimes employing one or more productive thinnings, has been based predominantly on economic argument. Little consideration has been given to their relative performance in terms of yield. This is due to the absence of extended measurement of severely thinned stands and to the restricted relevance of currently available growth models.

The paper describes the work being undertaken to derive a growth model for radiata pine from Kaingaroa growth plot data. While this study has not yet been completed an interim growth model has been derived. Preliminary checking has shown it to be reasonably accurate and unbiased when applied to a wide range of management practice and it has been used to derive criteria for the production of maximum yield.

Analysis of stand simulations has shown that in stands with low initial stockings, or in heavily thinned stands, short rotations will sacrifice volume production and that this loss is increased as site index decreases. It demonstrates that the reaction directly attributable to a thinning is relatively small, and that a wide range of management practice results in very little variation in total volume production. To obtain optimum yield, low initial stocking or very early thinning to waste is required on good sites (where Mean Top Height at age 20 exceeds 30 metres). On poorer sites and for short rotations (less than 30 years) pulpwood regimes with high stockings producing small piece size may be most productive, while a series of very light production thinnings may produce optimum total volume production on poor sites.

The above abstract is for the paper tabled at the meeting. However, the paper is presently under revision, and the editor expects it will appear in the subsequent issue (Volume 6, number 3) of this Journal.