Comparison of Pruning Regimes for Nine-year-old Eucalyptus nitens

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Objectives:  - to study the effect of:
  • pruning intensity on tree growth and stem diameter over stubs (DOS).
  • initial stocking on crop tree quality.

Trial Location:  In 1992, a Eucalyptus nitens pruning trial was established on farmland at Millers Flat (480 m asl, lat. 46°S) in Central Otago, New Zealand.

Pruning treatments
  • Conservative first prune (at age 4) with 9 cm gauge, thereafter using a 10 cm gauge. (Annual and Biennial)
  • Radical first prune (at age 3) with 6 cm gauge, thereafter using a 7 cm gauge. (Annual and Biennial)

Thinning treatments
  • Initial stocking 300 and 600 stems/ha
  • Thinned to 200 stems/ha by age 4 years, and to 100 stems/ha by ages 5 to 7 years
  • 600 stems/ha initial stocking unthinned, conservative pruning
  • 300 stems/ha initial stocking, thinned to 150 stems/ha age 4 years, and to 100 stems/ha by ages 5 to 7 years 70 stems/ha
  • Final crop stocking 100, 600 and 70 stems/ha

The effects of pruning intensity and frequency on MTH

The effects of pruning intensity and frequency on DBH

The effects of pruning intensity and frequency on DOS

Conclusions - Pruning
  • Conservative pruning resulted in no measurable loss in growth
  • Radical pruning significantly reduced growth
  • Growth rate appeared to recover within a year of pruning
  • Overall, the radical annual treatment lost one year of growth compared with the conservative biennial treatment
  • DOS was significantly reduced by radical annual pruning (11.6 cm) but did not differ among the other pruning treatments (mean 15.0 cm)

Conclusions - Thinning and Stocking
  • No difference in tree size between 300/100 and 600/100 thinning treatments
  • Competition in unthinned plots reduced DBH growth after age 6 years
  • Height growth was increased in unthinned plots
  • Unthinned plots had 6 cm less DBH but 2.5 m greater height than thinned plots at age 9 years