

NOTE

**PRUNING EFFECT ON INCIDENCE AND SEVERITY
OF *SEIRIDIUM* CYPRESS CANKER IN A STAND OF
*CUPRESSUS LUSITANICA***

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INTRODUCTION

Seiridium unicorne (Cooke & Ellis) Sutton and *S. cardinale* (Wagener) Sutton & Gibson, the causal agents of cypress canker, gain entry through cracks in the bark or through wounds (Birch 1933; Fuller & Newhook 1954). Pruning of cypresses is a common practice in New Zealand and the work described in this Note was carried out to see whether pruning led to an increase in incidence and severity of cypress canker.

METHOD

A trial to evaluate the effect of pruning on the incidence and severity of canker caused by *Seiridium* spp. was established in Cpt 128, Tairua Forest. This stand of *Cupressus lusitanica* Mill. had a history of cypress canker (NZ FRI unpubl. data). It was planted in 1981 at an initial stocking density of 2000 stems/ha and was unthinned.

In 1984, when the stand was 3 years old, four rectangular plots of 200 trees each were established. Each plot was divided into two, one half being randomly selected for pruning and the other half serving as an unpruned control. Pruning was to half height and was carried out in two lifts at ages 3 and 4 years.

Measurements and Assessments

At the times of pruning and at age 7, the following measurements and assessments were carried out on all trees:

- (1) Measurements of diameter at breast height (dbh) (mm)
- (2) Assessment of crown health on a scale of 1–4
 - 1 = healthy
 - 2 = occasional dead branch

3 = up to 50% crown dead

4 = \geq 50% crown dead.

- (3) Assessment of number and severity of cankers. Individual cankers were counted and measured as either small (<25% stem girdled), medium (25–50% stem girdled), or large (>50% stem girdled). An overall indication of severity of cankering was obtained by assigning a value of 1 to small cankers, 2 to medium cankers, and 3 to large cankers, then using these weighted values to give an overall value.

Values for dbh, crown health, and number and severity of cankers in pruned and unpruned areas were compared by t-tests performed on plot means.

RESULTS AND DISCUSSION

Results of the measurements and assessments made at age 7 are given in Table 1. There was no significant difference in the incidence of canker between the pruned and unpruned plots but the number of trees with heavy cankering and trunk malformation was significantly higher in the pruned plots. This probably resulted from the increased stress induced by pruning reducing the ability of the more susceptible trees to resist the extension of the pathogen within them.

TABLE 1—Effect of pruning on incidence and severity of cankering on 7-year-old *Cupressus lusitanica*

	Pruned trees	Unpruned trees	Significance
Mean dbh (mm)	81.3	83.4	N.S.
Stem symptoms			
Trees with no canker (%)	53	61	N.S.
Trees with slight canker† (%)	26	21	N.S.
Trees with moderate canker‡ (%)	6	6	N.S.
Trees with heavy canker§ (%)	15	12	*
Crown symptoms			
Trees with no crown dieback (%)	83	89	N.S.
Trees with light or moderate crown dieback (Class 1+2) (%)	11	8	N.S.
Trees with severe crown dieback (Class 3+4) (%)	6	3	*

* Difference significant at 0.05% level of probability

† Small (<25% stem girdled)

‡ Medium (25–50% stem girdled)

§ Large (>50% stem girdled)

In both pruned and unpruned plots, over half the number of trees were completely free from canker (Table 2). Only 17% of the pruned and 11% of the unpruned trees had cankers severe enough to cause crown dieback. With an initial stocking of 2000 stems/ha and a scheduled final stocking of 400 stems/ha, there should be no difficulty in selecting uncankered trees for the final crop in this particular stand. This trial does, however, indicate the need to maintain a sufficiently high initial stocking in cypress stands to allow selection of uncankered trees, and the need to select uncankered trees for pruning.

TABLE 2—Mean percentage of trees with no cankering

	Pruned	Unpruned	Significance
Age 7	53.0	61.0	N.S.
Age 4	73.3	74.5	N.S.
Age 3*	83.0	77.8	N.S.

* Assessments made at time of first pruning lift (i.e., before treatment)

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