

Effects of the VH-Mulcher on early tree growth



Figure 1
– VH
Mulcher
spot
cultivator
operating
in
cutover

INTRODUCTION

The VH Mulcher is an excavator mounted rotary cultivator for spot cultivation prior to planting (Figure 1). The VH Mulcher loosens the soil and creates a small mound (Hall, 1997). It leaves slash distributed around the mounds.

In 1997 Liro, in co-operation with Wenita Forest Products Limited, established a trial examining the effects of the VH Mulcher on early tree growth and survival. The trial was established on a poorly drained site in Otago Coast Forest. The treatments in the trial included the current standard treatment (windrowing) along with three other treatments; windrowing + fertiliser, VH Mulcher, VH Mulcher + fertiliser.

This report presents the results of the trial at age two.

RESULTS

Table 1 - Annual measurement results, tree growth

Treatment	Root Collar Diameter	Diameter Increment	Height	Height Increment
Windrow	18 b	8 b	0.97 b	0.56 b
Windrow + fert	20 b	10 b	1.02 b	0.56 b
VH Mulcher	24 a	13 a	1.14 a	0.68 a
VH Mulcher +fert	25 a	14 a	1.14 a	0.66 a

NB: Numbers in a column followed by the same letter are **not** significantly different (P0.05). Numbers in a column followed by different letters **are** significantly different.

Table 2 – Annual measurement results, tree assessment

Treatment	Survival	Health	Form	Basal Area m ² per ha	Volume m ³ per ha
Windrow	91 a	1.8 a	1.5 a	0.192 a	0.062 a
Windrow + fert	92 a	1.7 ab	1.6 a	0.241 a	0.080 a
VH Mulcher	94 a	1.6 bc	1.6 a	0.354 b	0.135 b
VH Mulcher +fert	94 a	1.5 c	1.6 a	0.384 b	0.146 b

NB #2; For health and form a **lower** score indicates superior performance.

SUMMARY

For all diameter and height variables the VH Mulcher treatment gave superior growth when compared to the uncultivated (windrowed) treatments (Table 1). The addition of fertiliser did not improve tree growth but did improve health (Table 2).

There were no significant effects on survival between treatments. However, the tree health scores indicated that the VH Mulcher treatments were healthier than the windrowed site with no fertiliser. Where there was a difference in health between treatments it is likely that any growth differences will be continued in the next years measurement as trees with poorer health are likely to continue to perform poorly. The significant differences in diameter and height, when combined with the survival percentages, gave significant differences in basal area and volume, per hectare (Table 2, Figure 2).

Overall the VH Mulcher has improved tree growth and health over the windrowing. At this stage it is too early to tell if the growth trends are divergent and whether the additional cost of using the VH Mulcher is justified.

Volume (m³ per hectare) by treatment

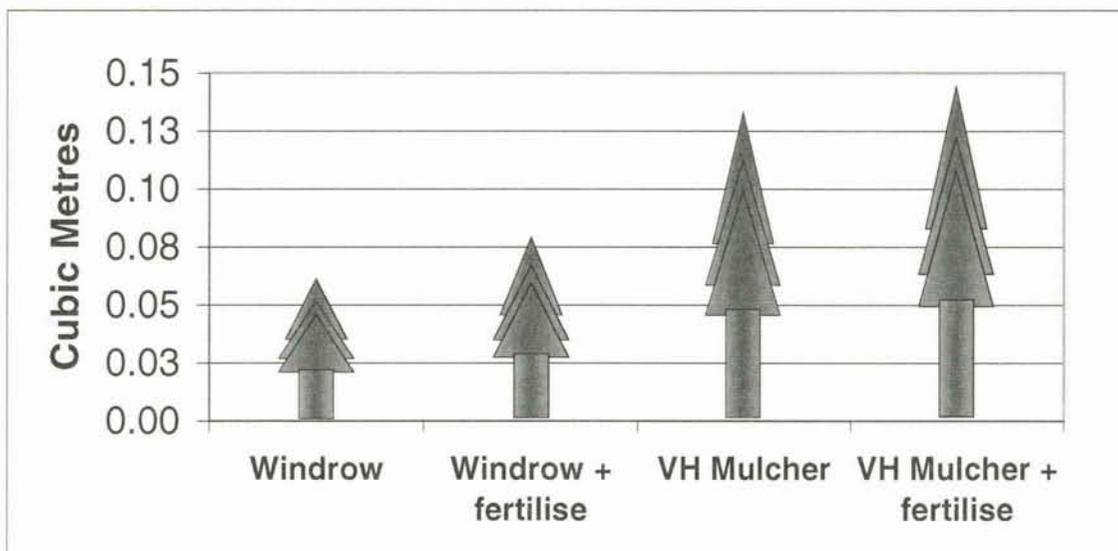


Figure 2 – Effect of treatment on volume (m³ per hectare)

REFERENCES

Hall P (1997): The VH Mulcher spot cultivator moulder. Liro Report Vol. 22 No. 4.

Acknowledgments

Liro acknowledges the assistance of Wenita Forest Products Limited and Peter Kealy Contracting Limited with this trial.