THE EFFECT OF CLAY ROOT DIPPING, ON OPEN ROOTED KARRI NURSERY STOCK

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INTRODUCTION

The practise of clay dipping seedling roots for out planting, has been adopted with varying degrees of success for both coniferous and hardwood nursery stock. The objective of this treatment is to reduce root dessication, caused by exposure during the lifting, transporting and planting phases.

Root dessication is a critical factor affecting survival, when planting open rooted karri nursery stock. A trial was therefore established during the winter of 1976, to test the effect clay root dipping had both on survival rate, and subsequent growth rates of karri seedlings.

AIM: To determine the effect of clay root dipping on the survival rate, and height growth, for open rooted karri nursery seedlings.

METHOD: Three plots were established, representing the following days between lifting/clay dipping, and planting viz.

Plot 1 : planted 2 days after lifting

Plot 2 : planted 4 days after lifting

Plot 3 : planted 7 days after lifting

Each plot comprised a control planting which was established 24 hours after lifting, and plantings where roots were treated with either kaolin or bentonite clay slurries.

The two clay dipped treatments were planted in blocks of between 4-5 lines, and were installed alternately down the long axis of each plot. Controls were established between each pair of treatments.

RESULTS: Survival Analysis (sample measured : 100%)

The results tabulated indicate an analysis of plot, treatment and overall survival.

Survival Analysis (sample measured: 100%)

	PLOT 1-2 DAYS			PLOT 2-4 DAYS			PLOT 3-7 DAYS		
Treatment	Planted	Alive	%	Planted	Alive	%	Planted	Alive	%
Kaolin	546	443	81	524	402	77	572	397	69
Bentonite	561	439	78	528	402	76	617	363	59
Control	106	85	80	104	92	88	100	80	80

Height Growth Analysis (sample measured 20%)

	PLOT 1-2 DAYS			PLOT 2-4 DAYS			PLOT 3-7 DAYS		
Row No.	Treat-ment	Live Plants	Aver. Ht. (cm)	Treat-ment	Live Plants	Aver. Ht. (cm)	Treat-ment	Live Plants	Aver. Ht. (cm)
9	K	27	50	B	10	55	K	20	71
10	C	25	50	C	24	50	C	23	72
18	K	26	60	B	20	50	K	5	50
27	K	23	65	B	19	72	K	25	60
36	K	25	53	B	26	67	K	30	84
45	K	21	86	B	25	75	K	25	96

Summary by Treatment - Height Assessment

Treatment	No. Plants	Average Height (cms)
Kaolin	227	69
Bentonite	100	65
Control	72	57

It was not intended to compare height growth between plots, because once survival had been achieved, the clay dipping treatment would have an identical effect on height growth, irrespective of lifting and planting interval.

CONCLUSION

It can be observed from the results, that clay dipping does not confer a significant advantage, in terms of decreased mortality of transplanted seedlings. Plots 2 and 3, which were established 4 and 7 days respectively, after dipping show a significant decrease in survival, when compared to the control planting. Plot 1, which was established 2 days after dipping, appears to closely approximate the survival rate of the controls.

Height growth following root dipping is significantly elevated, when compared to controls. For this experiment, Kaolin and Bentonite treated roots, improved the height growth response by 21% and 14% respectively. Clay dipping however would not be considered a treatment for open rooted karri seedlings to improve height growth, as a greater response can be more readily achieved and controlled using P_2O_5 - N fertilizer, at the time of out planting.

It is therefore concluded that clay root dipping of karri seedlings does not improve field survival, and only confers a marginal advantage in terms of height growth. It is recommended that root treatments of this kind be discontinued on an operational basis.