

**ANNUAL FOLIAGE RESULTS -  
REMAINING COOPERATIVE TRIALS**

Compiled by

A.T. Sims

REPORT NO. 18

NOVEMBER 1987

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Fertilising Cooperative Program  
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Amendment to Cooperative report 13, Sept. 1987.

All methods used for these analyses were standard FRI procedures (Nicholson, 1984). N, P, K, Ca and Mg results are expressed as % OD weight; all other elements are expressed as ppm OD weight. Critical foliage levels are based on FRI Bulletin No. 97.

### Acknowledgements

I wish to thank Jean Prince for analysing the samples and writing up the two trials WN 356 and AK 1024; Carolyn Dixon and June Watkins for preparing the samples for analysis.

**TRIAL** AK 1024  
Uniformity trial

**FOREST** Te Kao - CHI Forests (Northland)

**PLANTED** 1985

**OBJECTIVES** To assess the effect of fertiliser at establishment on *P. radiata* uniformity on northern podsolised sand during the establishment phase and up to age 4.

**FOLIAGE SAMPLES** Collected by D. Graham, February 1987,  
Analysis by J. Prince, August 1987

**REF. LOG NUMBER** F10705-F10824

This trial was established to examine the effects of fertiliser on the uniformity of growth. If it can be established that uniform growth can be obtained along with greater survival, fewer trees and less fertiliser may be needed at planting. It had been noted from a previous establishment trial in Northland (SP4/136) that fertiliser application reduced variability. The control in that case had 1.5 times the variability of the best fertiliser treatment (as measured by the coefficient of variation) but the sample size in the trial was inadequate to test any significance.

To give adequate precision, trial AK1024 has 200 trees per treatment arranged in 40, 5-tree plots.

This report is a summary of the nitrogen and phosphorus status of the trees and therefore is only a small part of the trial record.

#### TREATMENTS

1. Control
2. 140 kg/ha P
3. 13 kg N/ha and 13 kg P/ha

All fertiliser was applied at establishment.

A total of 120 samples was collected; one from each plot. The samples were dried, ground and analysed for N and P. All results are expressed on an oven dry basis.

TABLE OF FOLIAGE ANALYSIS RESULTS

1(a) Summary of results

Treatment	Foliage N (%)		Foliar P (%)	
	Average	Range	Average	Range
1 Control	1.39	1.20-1.69	.10	.06-.14
2 P	1.39	1.20-1.58	.12	.08-.15
3 N/P	1.33	1.08-1.60	.15	.13-.18

DISCUSSION

- Phosphate levels are lowest in the control. Treatment 2 and 3 phosphate levels are satisfactory for tree growth
- Nitrogen results average almost the same for each treatment. All treatments have levels ranging from deficient to satisfactory. (FRI Bulletin 97)
- As this trial is designed to monitor tree uniformity and the foliage results are of interest only as an observation of tree nutrition, consideration should be given to bulkng samples in future collections.

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Regime : BOARD

Planted : 190

Trial : AK1024/0 Species : Radiata pine (P.RAD)

Forest : No Forest name (TKAO) Cpt : 0

Land Preparation : RIP +

Rotation : 1

Date Collected : 3/87

Date Analysed : 8/87

Fertiliser history

Log no.	Blk	Plt	Tre	Mat	El.1	Yr Cum.	El.2	Yr Cum.	N	P
F10705	1	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.3331	.091
F10706	1	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.204	.080
F10707	1	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.082	.123
F10708	2	1		1YRFOL NC 0	00000 00	00000		00000 00	00000 1.234	.097
F10709	2	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.301	.098
F10710	2	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.214	.165
F10711	3	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.443	.115
F10712	3	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.440	.128
F10713	3	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.195	.154
F10714	4	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.532	.105
F10715	4	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.163	.105
F10716	4	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.312	.162
F10717	5	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.278	.109
F10718	5	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.329	.093
F10719	5	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.297	.147
F10720	6	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.401	.110
F10721	6	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.204	.120
F10722	6	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.364	.146
F10723	7	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.391	.096
F10724	7	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.273	.096
F10725	7	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.318	.137
F10726	8	1		1YRFOL NC	00000 00	00000		00000 00	00000 1.394	.085
F10727	8	2		1YRFOL YC P	0140 85	0140		00000 00	00000 1.436	.151
F10728	8	3		1YRFOL YC N	0013 85	0013 P	0022	85	0022 1.318	.127

F10729	9	1	1YRFOL NC	0000 00 0000	0000 00 0000	1.458 .080
F10730	9	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.255 .122	
F10731	9	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.427 .163		
F10732	10	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10733	10	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.318 .119	
F10734	10	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.357 .144		
F10735	11	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10736	11	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.255 .091	
F10737	11	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.321 .144		
F10738	12	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10739	12	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.584 .145	
F10740	12	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.174 .143		
F10741	13	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10742	13	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.267 .117	
F10743	13	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.193 .153		
F10744	14	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10745	14	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.394 .145	
F10746	14	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.255 .138		
F10747	15	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10748	15	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.467 .127	
F10749	15	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.388 .161		
F10750	16	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10751	16	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.546 .138	
F10752	16	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.446 .152		
F10753	17	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10754	17	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.391 .116	
F10755	17	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.454 .140		
F10756	18	1	1YRFOL NC	0000 00 0000	0000 00 0000	
F10757	18	2	1YRFOL YC P 0140 85 0140	0000 00 0000	1.392 .134	
F10758	18	3	1YRFOL YC N 0013 85 0013 P 0022 85 0022	1.277 .180		
F10759	19	1	1YRFOL NC	0000 00 0000	0000 00 0000	

F10760	19	2	1YRFOL	YC	P	0140	85	0140	0000	00	0000	1.277	.114	
F10761	19	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.305	.150
F10762	20	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.224	.085
F10763	20	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.309	.079
F10764	20	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.362	.144
F10765	21	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.434	.111
F10766	21	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.509	.125
F10767	21	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.351	.134
F10768	22	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.371	.127
F10769	22	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.513	.119
F10770	22	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.385	.118
F10771	23	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.458	.126
F10772	23	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.434	.112
F10773	23	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.242	.130
F10774	24	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.414	.085
F10775	24	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.478	.117
F10776	24	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.304	.159
F10777	25	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.401	.119
F10778	25	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.457	.115
F10779	25	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.422	.147
F10780	26	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.452	.087
F10781	26	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.413	.115
F10782	26	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.294	.150
F10783	27	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.318	.099
F10784	27	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.389	.123
F10785	27	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.224	.134
F10786	28	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.201	.057
F10787	28	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.290	.079
F10788	28	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.404	.142
F10789	29	1	1YRFOL	NC		0000	00	0000		0000	00	0000	1.288	.085
F10790	29	2	1YRFOL	YC	P	0140	85	0140		0000	00	0000	1.395	.118
F10791	29	3	1YRFOL	YC	N	0013	85	0013	P	0022	85	0022	1.181	.132

F10792	30	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.206 .072
F10793	30	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.359 .099
F10794	30	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.422	.150
F10795	31	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.277 .101
F10796	31	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.509 .109
F10797	31	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.438	.142
F10798	32	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.364 .109
F10799	32	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.453 .127
F10800	32	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.312	.153
F10801	33	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.405 .115
F10802	33	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.395 .146
F10803	33	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.379	.182
F10804	34	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.357 .140
F10805	34	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.552 .133
F10806	34	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.599	.138
F10807	35	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.386 .093
F10808	35	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.434 .132
F10809	35	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.532	.145
F10810	36	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.328 .098
F10811	36	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.405 .119
F10812	36	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.469	.157
F10813	37	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.457 .106
F10814	37	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.438 .126
F10815	37	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.236	.151
F10816	38	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.418 .111
F10817	38	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.354 .116
F10818	38	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.340	.143
F10819	39	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.690 .129
F10820	39	2	1YRFOL YC P 0140	85 0140	0000 00 0000	0000 00 0000	1.539 .141
F10821	39	3	1YRFOL YC N 0013	85 0013	P 0022 85	0022 1.409	.143
F10822	40	1	1YRFOL NC	0000 00 0000	0000 00 0000	0000 00 0000	1.503 .089

F10823 40 2 1YRFOL YC P 0140 85 0140 0000 00 0000 1.402 .117  
F10824 40 3 1YRFOL YC N 0013 85 0013 P 0022 85 0022 1.283 .139

<b>TRIAL</b>	WD 274
	Lotus site preparation trial
<b>FOREST</b>	Nemona
<b>PLANTED</b>	1984
<b>TRIAL ESTABLISHED</b>	1983
<b>OBJECTIVES</b>	To assess (1) the effectiveness of broadcast rock P and superphosphate on Lotus 'Maku' sown 12 months prior to planting radiata pine (2) the suppression of indigenous or weed growth prior to planting (3) radiata growth response to starter fertiliser and a legume.
<b>FOLIAGE SAMPLES</b>	Collected by South Island Silviculture, February 1987 Analysed by A.T. Sims, October 1987
<b>REF. LOG NUMBER</b>	F12701-F12736

Lotus was sown and rock P broadcast in 1983 after root raking. This poorly drained gley soil was V-bladed and radiata planted in 1984. Fertiliser tablets of 80 g DAP was applied to each plus starter half plot.

Foliage samples were collected from the plus and minus starter halves of each of the 6 treatments replicated in 3 blocks. The samples were dried, ground, and analysed for N, P, K, Ca, Mg, B, Cu - The results were statistically analysed using GENSTAT.

#### TREATMENTS

1. Control
2. - lotus, + rock P
3. + lotus, - P
4. + lotus, + rock P
5. + lotus, + super P
6. + lotus, + rock P/super P

## RESULTS

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

#### 1(a) Summary of selected foliage analysis results

Treatment	Foliar N (%)		Foliar P (%)		Foliar Ca (%)		Foliar Cu (%)	
	Starter		Starter		Starter		Starter	
	-	+	-	+	-	+	-	+
1	1.65	1.46	.08	.11	.14	.17	8.0	8.2
2	1.46	1.48	.11	.13	.16	.18	7.4	6.8
3	1.55	1.46	.10	.10	.13	.15	8.5	8.0
4	1.57	1.47	.10	.11	.16	.17	7.3	6.3
5	1.60	1.50	.10	.11	.14	.18	6.9	6.3
6	1.69	1.56	.10	.11	.16	.17	7.9	7.2

## DISCUSSION

Observation of results and statistical analysis shows:

- N Foliar N is significantly lower in the + starter half plots although this is not as marked as 1986 results. Levels are 'adequate'.
- P Foliar P is significantly higher in the + starter half plots, and treatments 1 and 3 significantly lower than the others. The treatment with P only (no lotus) has the highest foliar P level. All results are about 20% lower than in 1986 and are now 'deficient'.
- K Although there is no difference in foliar levels between treatments or starter fertiliser the levels have dropped on average 20% from 1986 and are still 'adequate'.
- Ca Foliar K is significantly higher in the + starter half plots. Some levels are 'marginal' with treatment 3 (+ lotus, - P) being significantly lower.
- Mg All levels 'marginal'.

B All 'deficient'.

Cu Foliar Cu is lower in the + starter half plots, and treatments 4 and 5 significantly lower than the rest.

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Experiment Foliar Analysis Results

Trial : WD274/0 Species : Radiata pine (P.RAD)

Forest : NEMONA (NEMO)

Cpt : 59

Land Preparation : RRAK + VBLD

Planted : 1984 Rotation : 1 Regime : BOARD  
Date Collected : 2/87 Date Analysed : 10/87

Fertiliser history

Log no.	B	T	S	P	Mat	El.1	Yr Cum.	El.2 Yr Cum.	N	P	K	Ca	Mg	B	Cu	TREATMENT
F12701	1	1	1	2	LYRFOL NF	00000	00 0000	00000 00 0000	1.685	.084	.685	.137	.066	7	7.9	1 control
F12702	2	1	1	12	LYRFOL NF	00000	00 0000	00000 00 0000	1.691	.093	.737	.124	.073	8	9.0	2 - lotus, + rockP
F12703	3	1	1	14	LYRFOL NF	00000	00 0000	00000 00 0000	1.564	.076	.665	.154	.073	9	7.2	3 + lotus, - P
F12704	1	1	2	2	LYRFOL YF N	0011	84 0011	P 0011	1.504	.109	.559	.173	.077	8	8.6	4 + lotus, + rockP 5 + lotus, + superP 6 + lotus, + rock/superP (fert at 37 kgP/ha)
F12705	2	1	2	12	LYRFOL YF N	0011	84 0011	P 0011	1.443	.108	.625	.169	.080	8	8.4	STARTER
F12706	3	1	2	14	LYRFOL YF N	0011	84 0011	P 0011	1.418	.106	.654	.163	.089	8	7.7	1 no starter 2 DAP (80g pellet)
F12707	1	2	1	4	LYRFOL YF	00000	00 0000	P 0037	1.488	.121	.614	.188	.094	9	6.3	
F12708	2	2	1	9	LYRFOL YF	00000	00 0000	P 0037	1.359	.115	.612	.161	.072	9	8.1	
F12709	3	2	1	17	LYRFOL YF	00000	00 0000	P 0037	1.520	.104	.715	.130	.069	6	7.8	
F12710	1	2	2	4	LYRFOL YF N	0011	84 0011	P 0048	1.450	.133	.646	.216	.091	10	6.5	
F12711	2	2	9	1	LYRFOL YF N	0011	84 0011	P 0048	1.526	.128	.575	.167	.078	9	7.1	
F12712	3	2	2	17	LYRFOL YF N	0011	84 0011	P 0048	1.475	.114	.749	.165	.077	7	6.8	
F12713	1	3	1	16	LYRFOL NF N	00000	00 0000	P 00000	1.581	.111	.710	.136	.077	7	8.5	
F12714	2	3	1	8	LYRFOL YF N	0011	84 0011	P 0048	1.443	.091	.598	.113	.080	7	8.4	
F12715	3	3	1	13	LYRFOL NF N	00000	00 0000	P 00000	1.617	.090	.722	.127	.068	8	8.7	
F12716	1	3	2	6	LYRFOL YF N	0011	84 0011	P 0011	1.475	.102	.636	.147	.076	7	7.9	
F12717	2	3	2	8	LYRFOL YF N	00000	00 0000	P 0037	1.784	.112	.786	.171	.080	8	7.7	
F12718	3	3	2	13	LYRFOL YF N	0011	84 0011	P 0011	1.497	.105	.545	.149	.081	7	8.6	
F12719	1	4	1	3	LYRFOL YF N	00000	00 0000	P 0037	1.434	.090	.653	.165	.087	8	7.0	
F12720	2	4	1	11	LYRFOL YF N	00000	00 0000	P 0037	1.481	.092	.742	.151	.081	7	7.3	
F12721	3	4	1	16	LYRFOL YF N	00000	00 0000	P 0037	1.466	.109	.634	.185	.078	7	6.9	
F12722	1	4	2	3	LYRFOL YF N	0011	84 0011	P 0048	1.466	.109	.634	.185	.078	7	6.9	

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Trial : WD274/0 Species : Radiata pine (P.RAD) Planted : 1984 Rotation : 1 Regime : BOARD  
 Forest : NEMONA (NEMO) Cpt : 59 Date Collected : 2/87 Date Analysed : 10/87

Land Preparation : RRAK + VBLD

Fertiliser history

Log no.	B	T	S	P	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P	K	Ca	Mg	B	Cu
F12723	2	4	2	11	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.504	.116	.770	.178	.079	8	5.9
F12724	3	4	2	16	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.427	.109	.674	.142	.074	8	6.2
F12725	1	5	1	1	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.642	.101	.785	.146	.073	6	6.3
F12726	2	5	1	7	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.581	.100	.667	.146	.075	7	6.7
F12727	3	5	1	15	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.571	.102	.705	.137	.072	7	7.8
F12728	1	5	2	1	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.623	.115	.798	.194	.073	8	6.0
F12729	2	5	2	7	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.526	.104	.719	.181	.079	8	6.6
F12730	3	5	2	15	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.362	.106	.701	.173	.075	7	6.2
F12731	1	6	1	5	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.750	.114	.754	.157	.069	7	8.4
F12732	2	6	1	10	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.672	.110	.757	.146	.070	7	7.4
F12733	3	6	1	18	1YRFOL YF N 0000 00 0000 P 0037 84 0037					1.652	.080	.667	.168	.082	9	7.9
F12734	1	6	2	5	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.629	.120	.854	.171	.064	7	8.2
F12735	2	6	2	10	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.632	.103	.641	.170	.071	7	6.4
F12736	3	6	2	18	1YRFOL YF N 0011 84 0011 P 0048 84 0048					1.415	.105	.641	.163	.092	8	7.0

**TRIAL** WD 407  
 Potassium rates  
**FOREST** Mokihinui  
**PLANTED** 1980  
**TRIAL ESTABLISHED** 1983 (estimate)  
**OBJECTIVES** To determine the optimum rate of potassium for the growth of radiata pine  
**FOLIAGE SAMPLES** Collected by South Island Silviculture, March 1987  
 Analysed by A.T. Sims, October, 1987  
**REF. LOG NUMBERS** F12815-F12829

Foliage samples were collected from each of the 5 treatments replicated in 3 blocks. The samples were dried, ground, and analysed for N, P, K, Ca, Mg, and statistically analysed using GENSTAT.

## **RESULTS**

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

#### **1a Summary of selected foliage analysis results**

Treatment		Foliar N (%)	Foliar P (%)	Foliar K (%)
1	KO	1.01	.11	.40
2	K1	1.01	.11	.58
3	K2	1.10	.11	.66
4	K1 + K1 (1987)	0.95	.12	.69
5	K1 + micro	0.96	.12	.62

## **DISCUSSION**

Observations of results and statistical analysis shows:

- Foliar N, P and although 'deficient' appear to increase with the increasing rate of K applied.

- Foliar K is significantly lower in the control, which is marginal, and increases with the increasing rate of K applied
- There is no significant difference in foliar Ca and Mg between treatments. Levels are marginal.

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Experiment Foliar Analysis Results

Trial : WD407/0 Species : Radiata Pine (P.RAD)

Forest : MOKIHINUI (MHIN) Cpt : 13

Land Preparation : BURN + VBLD

Planted : 1980      Regime : BOARD  
 Date Collected : 3/87      Rotation : 1  
 Date Analysed : 10/87

## Fertiliser history

Log no.	Blk	Tre	Plt	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P	K	Ca	Mg	TREATMENT
F12815	1	1	4	1YRFOL NF	0000 00	0000 00	0000 00	0000 00	.922	.107	.375	.140	.083	1 K 0
F12816	2	1	10	1YRFOL NF	0000 00	0000 00	0000 00	0000 00	1.076	.107	.381	.125	.083	2 K 1
F12817	3	1	15	1YRFOL NF	0000 00	0000 00	0000 00	0000 00	1.029	.114	.445	.142	.091	3 K 2 4 K 1 + K 1 (1987) 5 K 1 + micro
F12818	1	2	1	1YRFOL YF K	0028 85	0028	0000 00	0000 00	1.046	.111	.575	.159	.081	
F12819	2	2	9	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.972	.120	.648	.126	.084	
F12820	3	2	14	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.992	.104	.501	.126	.074	
F12821	1	3	5	1YRFOL YF K	0056 85	0056	0000 00	0000 00	1.181	.115	.654	.130	.071	
F12822	2	3	6	1YRFOL YF K	0056 85	0056	0000 00	0000 00	1.140	.122	.732	.130	.078	
F12823	3	13	1YRFOL YF K	0056 85	0056	0000 00	0000 00	0000 00	.992	.101	.605	.134	.070	
F12824	1	4	2	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.952	.123	.592	.126	.084	
F12825	2	4	7	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.899	.131	.763	.111	.085	
F12826	3	4	12	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.995	.117	.711	.136	.076	
F12827	1	5	3	1YRFOL YF K	0028 85	0028	0000 00	0000 00	1.069	.118	.583	.131	.089	
F12828	2	5	8	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.912	.121	.633	.102	.076	
F12829	3	5	11	1YRFOL YF K	0028 85	0028	0000 00	0000 00	.912	.124	.639	.131	.093	

<b>TRIAL</b>	WD416
	Pelleted rock P/conventional DAP split application comparison
<b>FOREST</b>	Nemona
<b>PLANTED</b>	1983
<b>TRIAL ESTABLISHED</b>	1983
<b>OBJECTIVES</b>	To examine the effectiveness of pelleted rockphosphate fertiliser for the early growth of radiata pine - to provide large demonstration areas of radiata pine treated with rockphosphate for comparison with the traditional prescription (soluble fertiliser)
<b>FOLIAGE SAMPLES</b>	Collected by South Island Silviculture, February 1987 Analysed by A.T. Sims, October 1987
<b>REF. LOG NUMBERS</b>	F12813-F12814

A series of trials was established on P deficient soils, in North Auckland, Auckland and Westland. Foliage samples were collected from each of the two treatments of this Westland site. The samples were dried, ground and analysed for N, P, K, Ca and Mg.

## **RESULTS**

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

## **DISCUSSION**

Foliar P has dropped by .01% in the rock P treatment since 1986 and is now deficient; N, K and Mg are marginal in both treatments, P and Ca are marginal in the DAP treatment, although foliar P has increased due to refertilising.

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Experiment Foliage Analysis Results

Trial : WD416/0 Species : Radiata pine (P.RAD)

Forest : NEMONA (NEMO)

Land Preparation : VBLD +

Planted : 1983 Rotation : 1 Regime : BOARD  
Cpt : 0 Date Collected : 2/87 Date Analysed : 10/87

Fertiliser history

Log no.	Tre	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P	K	Ca	Mg	TREATMENT
F12813	1	1YRFOL YF	0000 00	0000 0	0130 83	0130	1.315	.085	.349	.169	.081	1 tonne rock-P/ha (broadcast)
F12814	2	1YRFOL YF	N 0022	83 0022	P 0022	83 0022	1.278	.125	.456	.120	.086	DAP 80g/tree (slit application)

<b>TRIAL</b>	WD 425
	Lotus 'Maku'/rock phosphate
<b>FOREST</b>	Nemona
<b>PLANTED</b>	1984
<b>TRIAL ESTABLISHED</b>	1984
<b>OBJECTIVES</b>	To assess <i>P. radiata</i> growth to a basal rock P application and tree release spray to (1) timing of lotus sowing (2) ± tree starter fertiliser tablet
<b>FOLIAGE SAMPLES</b>	Collected by South Island Silviculture, February 1987
	Analysed by A.T. Sims, 1978
<b>REF. LOG NUMBERS</b>	F12788-F12797

The trial site is a poorly-drained gley podzol. The area was V-bladed and planted in May 1984, with Christmas/Nauru rock phosphate broadcast over all plots at 125 kg P/ha. Lotus 'Maku' seed was sown at 5 kg/ha at different times and each half-plot received a starter fertiliser application of an 80 g DAP pellet/tree. Foliage samples were collected from each half of the 5 plots, dried, ground, and analysed for N, P, K, Ca, and Mg. Statistical analysis was not possible as treatments were not replicated.

#### **PLOT**

37. Lotus 'Maku' broadcast over the total plot - May 1984 (simulate aerial application)
38. Lotus 'Maku' sown on mound and soil platform - February 1985
39. Lotus 'Maku' sown on mound and soil platform - September 1985
40. Lotus 'Maku' sown on platform - February 1985
41. Lotus 'Maku' sown on platform - September 1985.

#### **RESULTS**

##### 1. TABLE OF FOLIAGE RESULTS

#### **DISCUSSION**

Observation of results shows that all foliar levels have declined slightly since 1986. Foliar N and Mg are marginal, P, K and Ca satisfactory. It appears as if P is higher in the - starter half-plots.

Trial : WD425/0 Species : Radiata pine (P.RAD) Planted : 1984 Rotation : 1 Regime : BOARD  
 Forest : NEMONA (NEMO) Cpt : 35 Date Collected : 2/87 Date Analysed : 10/87

Land Preparation : BURN + VBLD

Fertiliser history

Log no.	St	Plt	Mat	El.1	Yr Cum.	El.2	Yr Cum.	N	P	K	Ca	Mg
F12788	1	37	1YRFOL	YF	0000 00 0000	P 0125	84 0125	1.244	.150	.603	.208	.089
F12789	2	37	1YRFOL	YF N	0022 84 0022	P 0145	84 0145	1.283	.149	.572	.224	.100
F12790	1	38	1YRFOL	YF	0000 00 0000	P 0125	84 0125	1.392	.144	.437	.255	.101
F12791	2	38	1YRFOL	YF N	0022 84 0022	P 0145	84 0145	1.319	.137	.446	.229	.104
F12792	1	39	1YRFOL	YF	0000 00 0000	P 0125	84 0125	1.456	.176	.455	.258	.109
F12793	2	39	1YRFOL	YF N	0022 84 0022	P 0145	84 0145	1.385	.165	.421	.258	.109
F12794	1	40	1YRFOL	YF	0000 00 0000	P 0125	84 0125	1.326	.141	.381	.230	.104
F12795	2	40	1YRFOL	YF N	0022 84 0022	P 0145	84 0145	1.377	.157	.437	.290	.114
F12796	1	41	1YRFOL	YF	0000 00 0000	P 0125	84 0125	1.451	.160	.485	.257	.110
F12797	2	41	1YRFOL	YF N	0022 84 0022	P 0145	84 0145	1.388	.135	.461	.239	.106

PLOT

- 37 LOTUS SOWN MAY 1984 - broadcast before V-blading
- 38 LOTUS SOWN MARCH 1985 - mound, platform, drain
- 39 LOTUS SOWN SEPT 1985 - mound, platform, drain
- 40 LOTUS SOWN MARCH 1985 - platform only
- 41 LOTUS SOWN SEPT 1985 - platform only

STARTER  
1 no starter  
2 NP tablet

FERTILISER  
125 kgP/ha Xmas/Nauru rock  
broadcast over all plots 1984

**TRIAL** WD420/8  
*A. glutinosa*, Pilot fertiliser trial  
**FOREST** Nemona  
**PLANTED** 1984  
**TRIAL ESTABLISHED** 1984  
**OBJECTIVES** To study the response of *A. glutinosa* to N and P fertiliser on a V-bladed Flagstaff soil  
**FOLIAGE SAMPLES** Collected by South Island Silviculture, February 1987  
Analysed by A. Sims, October 1987  
**REF. LOG NUMBER** F12798-F12812

This trial is established on a poorly-drained V-bladed gley podzol. Foliage samples were collected from each of the 5 treatments replicated in 3 blocks. The samples were dried, ground and analysed for N and P. The results were statistically analysed using GENSTAT.

## RESULTS

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

#### 1a Summary table of results

Treatment	Foliar N (%)	Foliar P (%)
1. N <sub>0</sub> P <sub>0</sub>	2.4	.10
2. N <sub>1</sub> P <sub>0</sub>	2.5	.11
3. N <sub>0</sub> P <sub>1</sub>	2.6	.14
4. N <sub>1</sub> P <sub>1</sub>	2.4	.13
5. N <sub>1</sub> P <sub>1</sub> +	2.6	.12

+ includes K, Ca, Mg, B, Zn, Cu, Fe standard minor element mix

## RESULTS

Observation of results and statistical analysis shows:

N There is no significant difference in foliar N between treatments

P The P<sub>0</sub> treatments (except for treatment 5) are significantly lower in foliar P

Trial : WD420/8 Species : Black alder (ANGLU)  
 Forest : NEMONA (NEMO) Cpt : 59 Planted : 1984  
 Land Preparation : WROW + VBLD Date Collected : 2/87  
 Rotation : 1 Date Analysed : 10/87

Fertiliser history

Log no.	Blk	Tre	Plt	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P
F12798	1	1	3	1YRFOL NF	0000 00 0000	0000 00 0000			2.479	.104
F12799	2	1	10	1YRFOL NF	0000 00 0000	0000 00 0000			2.497	.102
F12800	3	1	14	1YRFOL NF	0000 00 0000	0000 00 0000			2.318	.103
F12801	1	2	2	1YRFOL YF N	0011 84 0011	0000 00 0000			2.311	.094
F12802	2	2	6	1YRFOL YF N	0011 84 0011	0000 00 0000			2.707	.119
F12803	3	2	13	1YRFOL YF N	0011 84 0011	0000 00 0000			2.446	.114
F12804	1	3	5	1YRFOL YF	0000 00 0000	P 0022 84	0022		2.711	.133
F12805	2	3	8	1YRFOL YF	0000 00 0000	P 0022 84	0022		2.573	.133
F12806	3	3	11	1YRFOL YF	0000 00 0000	P 0022 84	0022		2.631	.152
F12807	1	4	4	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.410	.129
F12808	2	4	9	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.428	.133
F12809	3	4	12	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.457	.133
F12810	1	5	1	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.678	.135
F12811	2	5	7	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.414	.106
F12812	3	5	15	1YRFOL YF N	0011 84 0011	P 0022 84	0022		2.674	.123

TREATMENT				
1	Control			
2	119 N/ha	+ Mo		
3	22g P/ha	+Mo		
4	119 N + 22g P/ha	+ Mo		
5	119 N + 22g P/ha	+ micro + Mo		

FERTILISER  
 N - 32g ammonium sulphate/tree  
 P - 188g flowmaster super/tree  
 Mo - 0.2g sodium molybdate/tree  
 micro - std minor element mix  
 (K, Ca, Mg, B, Zn, Cu, Fe)

**TRIAL** WD 446  
**Fertiliser/thinning trial**  
**FOREST** Nemona  
**PLANTED** 1983  
**TRIAL ESTABLISHED** 1985  
**OBJECTIVES** To assess *P. radiata* growth response on differing fertiliser and thinning regimes commencing in a 2-year-old stand that will have received an initial starter fertiliser of 80 g DAP/tree.  
**FOLIAGE SAMPLES** Collected by South Island Silviculture, February 1987  
Analysed by A.T. Sims, October 1987  
**REF. LOG NUMBERS** F12737-F12763

This trial was established on a V-bladed gley podzol with 2-year-old radiata (1100 stems/ha). Thinning was undertaken at age 2. A starter fertiliser of 80 g DAP/tree was applied at establishment to all treatments. Foliage samples were collected from each of the 9 treatments randomly replicated 3 times. The samples were dried, ground and analysed for N, P, K, Ca, Mg and B and the results statistically analysed using GENSTAT.

Treatment	Stocking	Age fertiliser applied (other than starter)
1	1100	0
2	1100	age 2 & 4 - 1985, 87
3	1100	age 3 - 1986
4	550	0
5	550	age 2 & 4 - 1985, 87
6	550	age 3 - 1986
7	250	0
8	250	age 2 & 4 - 1985, 87
9	250	age 3 - 1986

Age	Fertiliser	Rate/tree
2	DAP KCl	100 g 25 g
3	DAP KC1	150 g 35 g
4	DAP KC1	250 g 60 g

## RESULTS

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

#### 1a Table of selected results

Treatment	Foliage concentrations (%)			
	N	P	K	Ca
1	1.31	.07	.47	.11
2	1.53	.10	.41	.13
3	1.37	.13	.54	.13
4	1.27	.07	.51	.12
5	1.19	.10	.52	.15
6	1.27	.12	.47	.14
7	1.25	.09	.51	.13
8	1.20	.10	.55	.15
9	1.29	.12	.56	.14

## **DISCUSSION**

Observation of results and statistical analysis shows:

Foliar P levels have declined since 1986 in all but the most recently fertilised treatments (3, 6, 9). There is a significant difference in foliar P between the different timing of fertiliser applications; no ferstiliser being the lowest (deficient) and those fertilised last year the highest (marginal).

Foliar N, K, Ca and Mg levels are all marginal, and average 1.26, 0.5, .13, and .79% respectively.

Foliar B levels have increased since 1986 and are adequate.

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## Experiment Foliage Analysis Results

Trial : WD446/0 Species : Radiata pine (P.RAD)

Forest : NEMONA (NEMO) Cpt : 39

Land Preparation : BURN + VBLD

Planted : 1983 Rotation : 1 Regime : BOARD

Date Collected : 2/87 Date Analysed : 10/87

## Fertiliser history

Log no.	Blk	Tre	Plt	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P	K	Ca	Mg	B
F12737	1	1	2	1YRFOL NF	00000 00 00000	00000 00 00000	1.389	.068	.502	.115	.077	22		
F12738	2	1	12	1YRFOL NF	00000 00 00000	00000 00 00000	1.231	.066	.416	.116	.080	15		
F12739	3	1	23	1YRFOL NF	00000 00 00000	00000 00 00000	1.307	.071	.485	.113	.079	19		
F12740	1	2	5	1YRFOL YF N	0022 85 0022	P 0020 85 0020	1.166	.098	.396	.145	.079	19		
F12741	2	2	18	1YRFOL YF N	0022 85 0022	P 0020 85 0020	1.166	.107	.438	.135	.088	18		
F12742	3	2	21	1YRFOL YF N	0022 85 0022	P 0020 85 0020	1.127	.093	.385	.118	.080	21		
F12743	1	3	8	1YRFOL YF N	0055 86 0055	P 0050 86 0050	1.339	.133	.439	.138	.078	19		
F12744	2	3	16	1YRFOL YF N	0055 86 0055	P 0050 86 0050	1.446	.135	.563	.104	.062	25		
F12745	3	3	25	1YRFOL YF N	0055 86 0055	P 0050 86 0050	1.323	.130	.606	.155	.079	22		
F12746	1	4	9	1YRFOL NF	00000 00 00000	00000 00 00000	1.342	.069	.474	.110	.066	22		
F12747	2	4	17	1YRFOL NF	00000 00 00000	00000 00 00000	1.240	.086	.523	.114	.074	16		
F12748	3	4	27	1YRFOL NF	00000 00 00000	00000 00 00000	1.224	.069	.533	.139	.079	18		
F12749	1	5	3	1YRFOL YF N	0011 85 0011	P 0010 85 0010	1.157	.095	.551	.140	.084	19		
F12750	2	5	11	1YRFOL YF N	0011 85 0011	P 0010 85 0010	1.212	.102	.504	.157	.090	16		
F12751	3	5	24	1YRFOL YF N	0011 85 0011	P 0010 85 0010	1.200	.100	.505	.152	.083	15		
F12752	1	6	6	1YRFOL YF N	0027 86 0027	P 0025 86 0025	1.224	.119	.473	.138	.082	17		
F12753	2	6	14	1YRFOL YF N	0027 86 0027	P 0025 86 0025	1.257	.126	.463	.154	.085	21		
F12754	3	6	19	1YRFOL YF N	0027 86 0027	P 0025 86 0025	1.327	.119	.465	.117	.074	18		
F12755	1	7	4	1YRFOL NF	00000 00 00000	00000 00 00000	1.218	.080	.542	.117	.069	16		
F12756	2	7	10	1YRFOL NF	00000 00 00000	00000 00 00000	1.258	.086	.501	.143	.081	20		
F12757	3	7	20	1YRFOL NF	00000 00 00000	00000 00 00000	1.286	.097	.501	.120	.082	20		
F12758	1	8	7	1YRFOL YF N	0005 85 0005	P 0005 85 0005	1.191	.099	.498	.152	.080	19		

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Experiment Foliage Analysis Results

Trial : WD446/0 Species : Radiata pine (P.RAD)

Forest : NEMONA (NEMO)

Cpt : 39

Land Preparation : BURN + VBLD

Planted : 1983 Rotation : 1 Regime : BOARD  
Date Collected : 2/87 Date Analysed : 10/87

Fertiliser history

Log no.	Blk	Tre	Plt	Mat	E1.1	Yr Cum.	E1.2	Yr Cum.	N	P	K	Ca	Mg	B			
F12759	2	8	15	1YRFOL YF N	0005	85	0005	85	0005	85	0005	1.247	.105	.556	.133	.080	17
F12760	3	8	26	1YRFOL YF N	0005	85	0005	85	0005	85	0005	1.172	.097	.581	.158	.085	21
F12761	1	9	1	1YRFOL YF N	0014	86	0014	P	0012	86	0012	1.257	.119	.545	.128	.072	21
F12762	2	9	13	1YRFOL YF N	0014	86	0014	P	0012	86	0012	1.269	.118	.542	.145	.080	26
F12763	3	9	22	1YRFOL YF N	0014	86	0014	P	0012	86	0012	1.357	.128	.612	.143	.081	22

TREATMENT

1	1100 stems/ha	NO FERT	AGE 2 & 4
2	1100 stems/ha	FERT AGE 2 & 4	
3	1100 stems/ha	FERT AGE 3	
4	550 stems/ha	NO FERT	
5	550 stems/ha	FERT AGE 2 & 4	
6	550 stems/ha	FERT AGE 3	
7	250 stems/ha	NO FERT	
8	250 stems/ha	FERT AGE 2 & 4	
9	250 stems/ha	FERT AGE 3	

FERTILISER

AGE 2	100g DAP + 25g KCl/tree
AGE 3	150g DAP + 35g KCl/tree
AGE 4	250g DAP + 60g KCl/tree

**TRIAL** WN 356  
**FOREST** Rock phosphate rates trial  
**PLANTED** Wellington Regional Council-Valley View  
**1983**  
**OBJECTIVES**  
- To determine the minimum quantity of phosphorus, broadcast as PARR phosphate, required at establishment to maintain adequate tree growth and nutrition through the establishment years  
- To monitor the supply of native inorganic nitrogen through the establishment years in an attempt to define both potentially available nitrogen and the effect of phosphorus on nitrogen supply  
**FOLIAGE SAMPLES**  
Collected by E. Robertson, February 1987  
Analysed by J. Prince, September 1987  
**REF LOG NUMBERS** F11364-F11411

A series of trials has been established on a range of soil types in New Zealand. This site is on Kaitoke clay with low levels of available phosphorus.

Forty-eight foliage samples were collected from 12 treatments replicated in 4 blocks.

1. Control
2. 25 kg/ha P
3. 56 kg/ha P
4. 125 kg/ha P
5. 280 kg/ha P
6. 15 g N and 15 g P slit application per tree

The samples were dried, ground and analysed for N, P and K. content. All results are expressed on an oven dry basis.

Results were analysed statistically using GENSTAT.

## RESULTS

### 1. TABLE OF FOLIAGE ANALYSIS RESULTS

#### 1a Summary of selected results

Treatment	Foliar P (%)	
	Not refertilised	Refertilised
1. Control	.149	.163
2. 25 kg P/ha	.146	.160
3. 56 kg P/ha	.151	.167
4. 125 kg P/ha	.153	.155
5. 280 kg P/ha	.157	.167
6. DAP/tree	.155	.170

## DISCUSSION

Observation of results and statistical analysis shows:

- All refertilised plots show a significant increase in the three elements tested. This was to be expected as the fertiliser was only applied last spring.
- The difference between treatments is insignificant although it appears that foliar P levels increase with increasing rate of P applied in the plots not refertilised. All treatments have adequate N, P and K levels.

Trial : WN356/0 Species : Radiata pine (P.RAD)

Forest : PRIVATE (PVTE)

Planted : 1983

Rotation : 1 Regime : BOARD

Cpt : 0

Date Collected : 2/87

Date Analysed : 9/87

Fertiliser history

Log no.	B lk	R ef	T re	M att	E l. 1	Yr	Cum.	E l. 2	Yr	Cum.	N	P	K
F11364	1	1	1	1 YR FOL NF	P	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 6 3 8	.1 4 3	.8 0 2	
F11410	1	2	1	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 0 0	8 6	0 1 0 0	1 6 5 1
F11365	1	1	2	1 YR FOL YF	P	0 0 2 5	8 4	0 0 2 5	0 0 0 0	8 6	0 0 0 0	1 6 1 4	.1 4 6
F11366	1	2	2	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 2 5	8 6	0 1 2 5	1 7 4 1
F11411	1	1	3	1 YR FOL YF		0 0 0 0	0 0	0 0 0 0	P	0 0 5 6	8 4	0 0 5 6	1 6 0 0
F11367	1	2	3	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 5 6	8 6	0 1 5 6	1 6 5 7
F11368	1	1	4	1 YR FOL YF		0 0 0 0	8 6	0 0 0 0	P	0 1 2 5	8 4	0 1 2 5	1 6 1 1
F11369	1	2	4	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 2 2 5	8 6	0 2 2 5	1 6 4 1
F11370	1	1	5	1 YR FOL YF		0 0 0 0	8 6	0 0 0 0	P	0 2 8 0	8 4	0 2 8 0	1 6 8 7
F11371	1	2	5	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 3 8 0	8 6	0 3 8 0	1 6 8 1
F11372	1	1	6	1 YR FOL YF	N	0 0 1 8	8 4	0 0 1 8	P	0 0 2 0	8 4	0 0 2 0	1 7 1 8
F11373	1	2	6	1 YR FOL YF	N	0 1 0 8	8 6	0 1 0 8	P	0 1 2 0	8 6	0 1 2 0	1 6 6 4
F11374	2	1	1	1 YR FOL NF		0 0 0 0	0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 6 4 7	.1 6 0	.6 7 9
F11375	2	2	1	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 0 0	8 6	0 1 0 0	1 7 4 1
F11376	2	1	2	1 YR FOL YF		0 0 0 0	0 0	0 0 0 0	P	0 0 2 5	8 4	0 0 2 5	1 5 3 2
F11377	2	2	2	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 2 5	8 6	0 1 2 5	1 7 1 4
F11378	2	1	3	1 YR FOL YF		0 0 0 0	0 0	0 0 0 0	P	0 0 5 6	8 4	0 0 5 6	1 8 2 9
F11379	2	2	3	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 1 5 6	8 6	0 1 5 6	1 6 9 1
F11380	2	1	4	1 YR FOL YF	N	0 0 0 0	0 0	0 0 0 0	P	0 1 2 5	8 4	0 1 2 5	1 6 8 7
F11381	2	2	4	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 2 2 5	8 6	0 2 2 5	1 7 1 4
F11382	2	1	5	1 YR FOL YF		0 0 0 0	0 0	0 0 0 0	P	0 2 8 0	8 4	0 2 8 0	1 5 2 5
F11383	2	2	5	1 YR FOL YF	N	0 0 9 0	8 6	0 0 9 0	P	0 3 8 0	8 6	0 3 8 0	1 6 2 1
F11384	2	1	6	1 YR FOL YF	N	0 0 1 8	8 4	0 0 1 8	P	0 0 2 0	8 4	0 0 2 0	1 6 3 1
F11385	2	2	6	1 YR FOL YF	N	0 1 0 8	8 6	0 1 0 8	P	0 1 2 0	8 6	0 1 2 0	1 9 1 7
F11386	3	1	1	1 YR FOL NF		0 0 0 0	0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 6 4 4	.1 4 6	.6 7 5

FOREST RESEARCH INSTITUTE  
Soils and Site Amendment  
LABORATORY REPORT  
Experiment Foliage Analysis Results

Trial : WN356/0 Species : Radiata pine (P.RAD)  
Forest : PRIVATE (PVTE) CPT : 0  
Planted : 1983 Date Collected : 2/87 Rotation : 1  
Regime : BOARD

Fertiliser history

Log no.	Blk Ref	Tre Mat	El.1 Yr Cum.	El.2 Yr Cum.	N	P	K
F11387	3 2	1 1YRFOL YF N 0090 86 0090 P 0100 86 0100 1.744 .168					.831
F11388	3 1	2 1YRFOL YF 0000 00 0000 P 0025 84 0025 1.641 .157					.695
F11389	3 2	2 1YRFOL YF N 0090 86 0090 P 0125 86 0125 1.778 .158					.677
F11390	3 1	3 1YRFOL YF 0000 00 0000 P 0056 84 0056 1.598 .147					.658
F11391	3 2	3 1YRFOL YF N 0090 86 0090 P 0156 86 0156 1.695 .165					.757
F11392	3 1	4 1YRFOL YF 0000 00 0000 P 0125 84 0125 1.550 .164					.667
F11393	3 2	4 1YRFOL YF N 0090 86 0090 P 0225 86 0225 1.595 .159					.761
F11394	3 1	5 1YRFOL YF 0000 00 0000 P 0280 84 0280 1.630 .163					.715
F11395	3 2	5 1YRFOL YF N 0090 86 0090 P 0380 86 0380 1.760 .201					.765
F11396	3 1	6 1YRFOL YF N 0018 84 0018 P 0020 84 0020 1.662 .156					.600
F11397	3 2	6 1YRFOL YF N 0108 86 0108 P 0120 86 0120 1.640 .163					.745
F11398	4 1	1 1YRFOL NF 0000 00 0000 00 0000 00 0000 1.678 .147					.764
F11399	4 2	1 1YRFOL YF N 0090 86 0090 P 0100 86 0100 1.730 .154					.712
F11400	4 1	2 1YRFOL YF 0000 00 0000 P 0025 84 0025 1.643 .145					.656
F11401	4 2	2 1YRFOL YF N 0090 86 0090 P 0125 86 0125 1.665 .158					.727
F11402	4 1	3 1YRFOL YF 0000 00 0000 P 0056 84 0056 1.588 .143					.763
F11403	4 2	3 1YRFOL YF N 0090 86 0090 P 0156 86 0156 1.730 .170					.889
F11404	4 1	4 1YRFOL YF 0000 00 0000 P 0125 84 0125 1.659 .151					.738
F11405	4 2	4 1YRFOL YF N 0090 86 0090 P 0225 86 0225 1.630 .163					.783
F11406	4 1	5 1YRFOL YF 0000 00 0000 P 0280 84 0280 1.547 .151					.569
F11407	4 2	5 1YRFOL YF N 0090 86 0090 P 0380 86 0380 1.717 .144					.637
F11408	4 1	6 1YRFOL YF N 0018 84 0018 P 0020 84 0020 1.617 .150					.818
F11409	4 2	6 1YRFOL YF N 0108 86 0108 P 0120 86 0120 1.761 .174					.874

**WD 423 SERIES - FERTILISER PELLETS AT ESTABLISHMENT**

Foliage results from this series will be combined with the growth data and written as a final report for the series

**AMENDMENT TO COOPERATIVE REPORT 13, SEPTEMBER 1987 -  
ANNUAL FOLIAGE RESULTS FROM COOPERATIVE TRIALS**

An error in the inputting of sample data from RO 2002/2 (Waimihia - Mg rates as dolomite, and Mg sources at one rate) onto the computer system, has resulted in the following changes:

1. The first sentence under Discussion should read:

It appears that unpruned trees may have a higher Mg concentration than pruned trees ...

2. The correct sample data is given in the attached results sheets.

**FOREST RESEARCH INSTITUTE  
Soils and Site Amendment  
LABORATORY REPORT  
Experiment Foliar Analysis Results**

Species : Radiata pine (P.RAD)

Forecast : WAIMIHA (WATIM) Cont : 615

Land Preparation : BURN +

Planted : 1977      Rotation : 2      Regime : FRAME

Date Collected : 2/8/7 Date Analysed : 4/8/7

Fertiliser history

# FOREST RESEARCH INSTITUTE Soils and Site Amendment LABORATORY REPORT Experiment Foliage Analysis Results

Species : Radiata Pine (P.RAD)

Forest : WAIMIHA (WAIN)

Fertiliser history

F10824

40 3 1YRFOL YC N 0013 85 0013 P 0022 85 0022 1.283 .139