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FERTILISER USE IN 1986

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USE OF FERTILISERS IN NEW ZEALAND PLANTATION FORESTS IN 1986

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INTRODUCTION

Previous surveys of the types and quantities of fertilisers used in New Zealand's forests were made in 1975, 1980 and 1983. Large annual increases than began just prior to 1975 were continued through to 1980. The last survey in 1983 showed a reduced rate of increase in the amount of phosphate fertiliser used and a sharp decrease in the amount of nitrogen fertiliser used. Overall use of fertiliser in agriculture in New Zealand has shown a dramatic decline in the last few years. While forestry use is but a very small component of total use, another survey was carried out at the end of 1986 to compare forestry use with current trends in agriculture which is the major user of fertiliser.

RESULTS OF 1986 SURVEY

Nitrogen and phosphorus fertilisers

The graphs in Fig. 1 show the annual use of fertiliser in forestry since fertiliser applications became part of forest management in the 1950's.

It should be noted that the use of 1360 tonnes of elemental phosphorus equivalent in 1986 continues the increasing annual use trend which has been relatively consistent for the last 15 years. By comparison the use of nitrogen has fallen to 730 tonnes little more than one third of the amount used in 1980.

It appears that forest managers see the use of phosphate fertilisers as an essential part of achieving an economic level of productivity on many soils - particularly in the Auckland region. It should be noted that slight increase in tonnes of P applied is in fact a substantial

increase in area treated. Over recent years accurate flying has allowed the application to be reduced. Frequency of application is also less than previously.

In contrast, nitrogen, in most situations, is seen as a means of achieving even higher productivity rather than correcting or preventing a serious deficiency. Under present day economic conditions forest managers have not been able to justify the use of nitrogen fertilisers in these circumstances.

Table 1 gives a break down of the types of nitrogen and phosphorus fertilisers used over the last surveys. A very interesting feature is the change in the types of phosphate fertilisers.

The proportions of urea, diammonium phosphate (DAP) and other nitrogen fertilisers used in 1986 are very similar to those of 1983. On the other hand quite large changes have occurred in the proportions of phosphorus fertilisers. Use of superphosphate has continued to decline and it now makes up a very small part of total use. DAP continues to be an important fertiliser in situations where both N and P are needed. The big change has been the fall off in the use of triple super and the introduction of PARR (partially acidulated reactive rock). Triple super was the recommended fertiliser in 1983 because of its high analysis and good granulation. Although PARR has a slightly lower %P it is equally well granulated and has the distinct advantage of a slow release component. Several fertilisers equivalent to PARR are now available in New Zealand.

Boron fertilisers

In 1975 28 tonnes of boron were applied to forests in fertilisers; in 1980 this quantity had about halved. Although not documented the rate is thought to have continued at this rate or slightly less through the early 1980s. In 1986 15 tonnes were applied.

While the annual rate of application of boron may have stayed about the same, large changes have taken place in the type of fertiliser used. In 1975 all boron was applied as Dehybor or similar highly soluble sodium

borates. There followed a period when finely ground Colemanite, a relatively insoluble calcium borate, made up a major part of the fertilisers used. In the last three years there has been an almost complete shift to the use of Ulexite, a sodium-calcium borate which has sufficient solubility to be applied as coarse 2-5 mm chips.

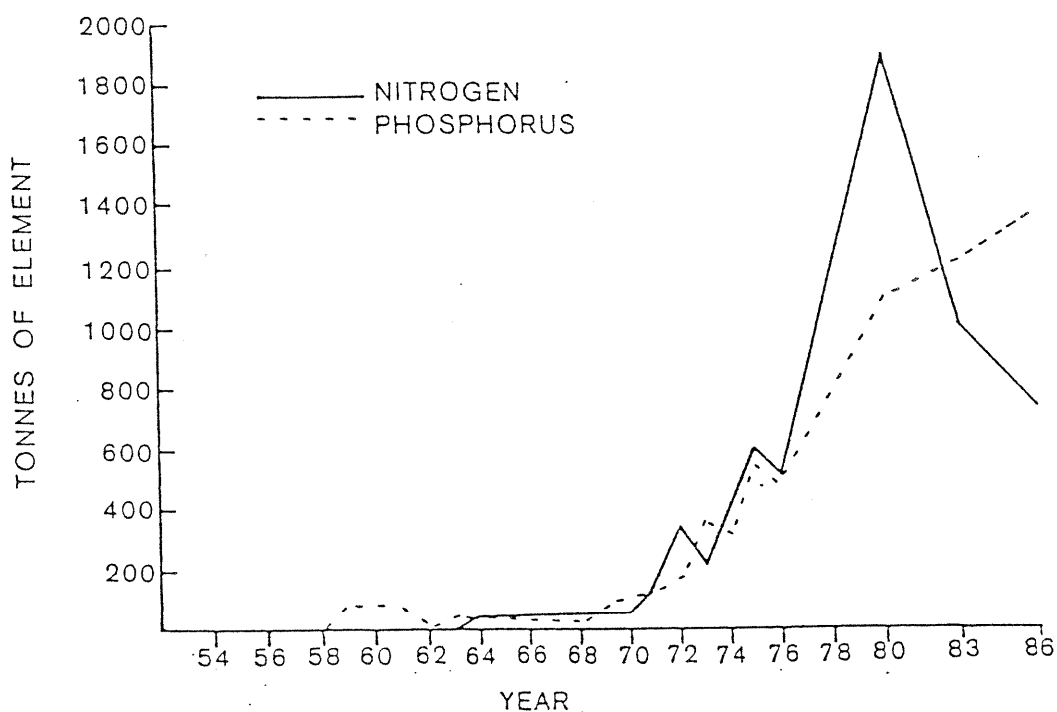


Fig. 1 - Quantities of Nitrogen and Phosphorus applied annually in New Zealand forests (1954-86)

TABLE 1: Types of fertilisers used in New Zealand forestry in 1975, 1980, 1983, and 1986 (%)

Source		1975	1980	1983	1986
Nitrogen					
Urea	46% N	82	71	36	38
DAP	18% N	7	12	47	42
Others		11	17	17	20
Phosphorus					
Super	9% P	88	67	14	4
DAP	20% P	8	23	45	30
Triple Super	20% P	0	0	36	9
PARR	17% P	0	0	0	45
Rock P	13% P	0	0	0	4
Others (mainly N.P.K fertilisers)		4	10	5	8