A FERTILIZER TRIAL ON 3-YEAR-OLD *Pinus radiata* ON A MIXED MARRI/KARRI SITE

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The planted area was approximately 8 ha on Connolly's Brook, Dombakup Block, map ref. HV 62 Pemberton 80. Soils were yellow-brown sandy loams, which originally carried MK to KM type forest. This area had been cut-over and cleared for conversion to pine. After planting there was evidence of poor drainage on some sections, although this was not obvious while the area was under natural forest. By 1969, 3 years after planting, growth of pine was very patchy, ranging from less than 30 cms to 180 cms total height on the better sections, i.e. an average of 60 cms/annum for the best plants.

It was decided to try a range of fertiliser treatments that could possibly be used to bring the area to a better standard.

Treatments were applied in spring 1969 as follows:

1 - control, no treatment;
2 - superphosphate 500 kg/ha;
3 - superphosphate, copper, zinc 500 kg/ha;
4 - superphosphate 500 kg/ha + urea 125 kg/ha, + urea 125 kg/ha applied 12 months later;
5 - Nutrifert 500 kg/ha.

Forty-five plots were selected for treatments and these were divided into Strata A, B and C by height growth, thus each treatment was replicated 3 times on 3 different strata. Plots were 20 metres square and 10 trees in the centre of each treatment square were marked for subsequent remeasurement. Measurements of height growth were made in 1969, 1970, 1971 and 1974, by which time trees were large enough for diameter measurement.

In the early measurements of height growth, variability between plots was too great to show responses to different treatments. A prelminiary analysis of 1974 height growth did show a response in stratum B that suggested that either

super, copper and zinc or super and urea had a beneficial effect, although this did not show in either Strata A or C. To have a more sensitive test, it was decided to use the five largest diameters in each plot and apply a preliminary analysis. The results of this showed a response in Stratum A to super, super and urea and to Nutrifert, although strangely not to super, copper and zinc. In stratum B a response was found to all fertilizer treatments. Stratum B figures also suggested that the super and urea treatment was much better than either of the others. In stratum C no treatment was found to be markedly superior to the control.

It is difficult to draw any firm conclusions from these trials but several trends do seem to show. Stratum C negative results suggest that unfavourable site drainage is more limiting than lack of nutrients. Stratum B results suggest that, providing drainage is adequate, N and P could appreciably increase growth. There is the possibility that this would also apply in stratum A, but the results may have been masked by ash-bed effects in plots in this stratum, which could have been one reason for the initial superior height growth.