



CROP GUIDE - Pinus Radiata

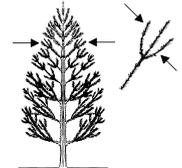
Sampling Notes

KB Item: 3486v3

The information in this Guide is derived mostly from Australian and New Zealand research. The interpretive data is for mature trees.

Leaf

Sampling Time:	February to March.
Plant Part	Youngest mature foliage.
Collect From:	Second order new growth on second order branches from the top third of the crown.
Quantity per Sample:	Two branches from each of 15 - 20 trees.
Recommended Tests:	Basic Plant (BP).



Comments: The recommended sampling time is during maximum stress and when nutrient levels are relatively stable.

Ensure samples are taken from sections of the trees that are not inhibited by shade or space from adjacent trees.

Samples should be taken from dominant or co-dominant trees.

Although the recommended sampling technique can be difficult, the interpretive information available for it is more consistent.

Soil

Sampling Time:	Prior to crop establishment and annually at any time of the year.
Core Depth	15cm.
Collect From:	From the drip zone of the trees.
Quantity per Sample:	12 - 20 cores from under trees selected at random from throughout the block.
Recommended Tests:	Basic Soil (BS), Sulphate Sulphur, Boron, Available N
Comments:	Soil testing for plant available nutrients is of limited value for such a deep rooting crop with a life span of 20 - 30 years, except when soil test are used for seedling production. For mature trees, consideration should also be given to measuring the soil's capacity to supply nutrients long term.

Comments

Symptoms of soil nutrient deficiency usually show evenly in a cluster of trees, rather than in individual trees. If an individual tree shows symptoms, suspect other causes such as animal or mechanical damage, or disease. Similarly, deficiency symptoms should be distributed in regular patterns within the trees.

Nitrogen deficiency shows as uniform chlorosis over the whole tree, with shorter than normal needles.

Chlorosis of the current season's needle tips is symptomatic of phosphorus deficiency.

Golden chlorosis of the previous season's needle tips are indicative of magnesium deficiency.

Potassium deficiency symptoms are similar to those of magnesium, except that they show earlier in the year. Needles are yellow, rather than golden.

Deficiencies of phosphorus, copper and boron may cause fused needle symptoms.

Copper, and to a some extent potassium and boron deficiencies may cause branch twisting.

Boron deficiency causes shoot and bud dieback. This symptom has also been induced experimentally by low calcium, but at levels unlikely to occur in the field.

If manganese and iron deficiencies are present, these are most likely to be induced by high soil pH.

Nitrogen responses may be limited to the availability of sulphur.

References

Reuter, D. J. and Robinson, J. B. (Eds) 1997. Plant analysis. An interpretation manual. Second edition.
Will, G. 1985. Nutrient deficiencies and fertiliser use in New Zealand exotic forests. FRI Bulletin No. 97.

Disclaimer

Normal Range levels shown as histograms in test reports relate specifically to the sampling procedure provided in this crop guide. The Normal Range levels in test reports and Comments provided in this Crop Guide are the most up to date available, but may be altered without notification. Such alterations are implemented immediately in the laboratory histogram reports. It is recommended that a consultant or crop specialist be involved with interpretations and recommendations.