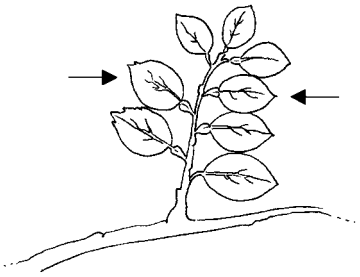
Crop Guide Citrus

R J Hill Laboratories Ltd
1 Clyde St, Private Bag 3205, HAMILTON
tel: 07 8582000
fax: 07 8582001
email: S&P@hill-labs.co.nz
internet: www.hill-labs.co.nz

Sampling

The nutritional status of citrus is monitored using soil tests and plant analysis. Annual monitoring is important to help sustain optimum levels and avoid nutritional disorders. If disorders do occur, rapid diagnosis is necessary to assist correction.

Leaf



Sampling Time: February to March.

Plant Part: 5 -7 month old leaves (blade & petiole).

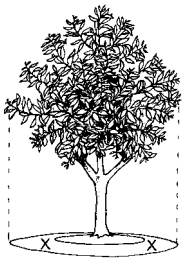
Collect From: Spring flush growth from non-fruiting laterals (extension growth), taken at shoulder height.

Quantity per Sample: 40-60 leaves from trees selected at random from throughout the block.

ecommended Tests: Basic Plant (BP).

Comments: To help diagnose an obvious problem, leaves showing the first signs of the distinctive symptoms should be collected as soon as abnormalities appear. If sampling outside the normal sampling time it is useful to take a second sample of similar, healthy leaves from nearby unaffected trees for analysis as a comparative standard.

Soil



Sampling Time: Prior to crop establishment and annually at any time of the year, although autumn to early winter is recommended.

Core Depth: 15 cm.

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.

ecommended Tests: Basic Soil (BS).

Comments: Separate samples should be taken from blocks that differ in age, cultivar types, tree performance, soil types, topography and fertiliser history.

Where fertiliser has been broadcast, sample from the drip zone of the trees. Where fertiliser has been banded, samples should only be taken from areas under the drip zone which have previously received fertiliser.

If the orchard has herbicide treated strips, then it is best if these are sampled separately from the grassed areas between rows. Quite different nutrient levels may exist between these two areas.

When sampling prior to orchard establishment, a 20 - 40 cm depth sample should also be taken, primarily to check the sub-soil pH.

Interpretation

Interpretation of the laboratory's results is possible by comparison with normal levels expected for the crop in question. The interpretation given here are based on the best information available and relate specifically to the sampling instructions given.

Leaf

Element	*Unit*	*Normal Range*
Nitrogen	(%)	2.4 - 2.6
Phosphorus	(%)	0.12 - 0.16
Potassium	(%)	0.7 - 1.1
Sulphur	(%)	0.20 - 0.30
Calcium	(%)	3.00 - 5.50
Magnesium	(%)	0.26 - 0.60
Sodium	(%)	0.00 - 0.16
Iron	(ug/g)	60 - 120
Manganese	(ug/g)	25 - 200
Zinc	(ug/g)	25 - 100
Copper	(ug/g)	5 - 16
Boron	(ug/g)	31 - 100

Soil

Element	*Unit*	*Normal Range*
pH	-	5.5 - 6.5
Olsen P	(ug/ml)	30 - 50
Potassium	(me/100g)	0.60 - 1.20
Calcium	(me/100g)	5.0 - 12.0
Magnesium	(me/100g)	1.00 - 3.00
Sodium	(me/100g)	0.00 - 0.50
CEC	(me/100g)	12.0 - 25.0
Volume Weight	(g/ml)	0.60 - 1.00

Comments:

The most common nutrient disorders in citrus in New Zealand are nitrogen, phosphorus, magnesium, manganese and zinc deficiencies:

Nitrogen deficiencies may become evident just prior to or during flower and fruit set. Treatment with excess nitrogen, as well as high phosphorus and potassium levels, may adversely affects fruit quality.

Phosphorus deficiency symptoms are usually only evident in poor fruit quality. Excessive rates of phosphorus fertiliser may suppress the uptake of zinc.

Potassium in the soil and foliage is often high in New Zealand orchards, especially if they have been established from old kiwifruit orchards.

Magnesium deficiencies occur occasionally, particularly during years of heavy crops. It may be induced by high rates of potassium fertiliser on soils with marginal magnesium levels.

Manganese and zinc deficiencies often occur together and tend to occur in soils with a pH higher than 6.5, particularly for the most common citrus root stock grown in New Zealand, Poncirus trifoliata.

Lemons have a higher potassium requirement than most other citrus crops.

References

Embleton,T.W. and Jones,W.W.; Platt,R.G. 1978. Leaf analysis as a guide to citrus fertilisation. In Reisenauer,H.M. (Ed) (1978): Soil and Plant-Tissue Testing in California. Division of Agricultural Science, University of California.

Blackmore, L.C; Searle, P.L and Daly, B.K. 1987. Methods for chemical analysis of soils. NZ Soil Bureau Scientific Report 80. NZ Soil Bureau, DSIR.

Fertiliser recommendation for horticultural crops. HortResearch HortNET, 1997.

Leece, D.R. 1976. Journal of the Australian Institute of Agricultural Science, March, pp 3-19.

Disclaimer:

Normal Range levels quotes relate specifically to the sampling procedure given. The Normal Range levels and Comments provided are the most up to date levels 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.