



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 this flower is monitored using soil tests and plant analysis. Monitoring regularly is important to help sustain optimum levels and avoid nutritional disorders. If disorders do occur, rapid diagnosis is necessary to assist correction.

Leaf - Glasshouse

Sampling Time: From bud start to harvest.

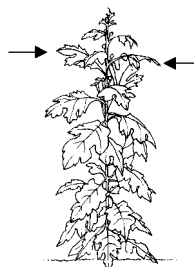
Plant Part: 4th leaf from the tip. Omit unfurled leaves.

Collect From: -

Quantity per Sample: 20-30 leaves.

Recommended Tests: Basic Plant (BP).

Comments: Just prior to flowering or during early flowering is considered to be the appropriate time to sample. However, regular leaf analyses should be obtained through the growing season (e.g. 6 - 8 weekly intervals) in order to monitor the effect of liquid feeding programmes being used.



Soil - Glasshouse

Sampling Time: Prior to crop establishment.

Core Depth: 15 cm.

Collect From: From the rooting zone of the plants.

Quantity per Sample: 12 - 20 cores.

Recommended Tests: Basic Soil (BS), Soluble Salts (SG).

Comments: If a problem is suspected during the growing season, then a sample should be taken from the rooting zone immediately adjacent to the plant. Collecting a second sample from an unaffected area may help identify the cause of the problem.

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 - Glasshouse

<i>Element</i>	<i>Unit</i>	<i>Normal Range</i>
Nitrogen	(%)	3.5 - 5.0
Phosphorus	(%)	0.23 - 0.70
Potassium	(%)	3.5 - 5.0
Sulphur	(%)	0.25 - 0.70
Calcium	(%)	1.20 - 2.50
Magnesium	(%)	0.25 - 1.00
Sodium	(%)	0.00 - 0.10
Iron	(ug/g)	50 - 250
Manganese	(ug/g)	50 - 250
Zinc	(ug/g)	20 - 250
Copper	(ug/g)	6 - 30
Boron	(ug/g)	25 - 75

Soil - Glasshouse

<i>Element</i>	<i>Unit</i>	<i>Normal Range</i>
pH	-	5.7 - 6.5
Olsen P	(ug/ml)	70 - 150
Potassium	(me/100g)	1.50 - 4.00
Calcium	(me/100g)	10.0 - 20.0
Magnesium	(me/100g)	2.00 - 4.00
Sodium	(me/100g)	0.20 - 0.60
CEC	(me/100g)	15.0 - 30.0
Volume Weight	(g/ml)	0.60 - 1.00
Sol.Salts (G/H)	(%)	0.00 - 0.20

Comments:

Ammonia toxicity has been observed in chrysanthemums where ammonium based fertilisers were used on high pH (>7) soils. The free ammonia damages the root hairs, reduces growth rates in the plant, and in severe cases eventually causes death of the plant.

The potassium content declines as the plant matures, especially during flower formation.

Magnesium deficiencies are less common in chrysanthemums than in other major glasshouse crops.

Both manganese deficiency and toxicity can arise in chrysanthemums.

Results for copper, zinc and manganese in leaves sprayed with fungicides will not be reliable due to adhering spray residues on the leaves.

Iron deficiencies have been observed, but symptoms may exist even when leaf levels appear satisfactory. This may be due to the presence of physiologically inactive forms of iron within the tissue. Also, soil contamination of leaves growing near the ground may elevate total iron results.

References

- Cresswell, G.C. and Weir, R.G. 1997. Plant nutrient disorders 5. Ornamental plants and shrubs. Inkata Press.
Scaife, A. and Turner, M. 1983. Diagnosis of mineral disorders in plants. Volume 2, Vegetables. MAFF/ARC London.
Bunt, A.C. 1976. Modern potting compost. George Allen and Unwin, p 129.

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.