

Tomato (G/H)

Sampling Notes

Leaf analysis is the most effective means to monitor the status of a glasshouse tomato crop. Some potential problems such as unfavourable pH and excessive salts cannot be diagnosed by leaf analysis, and require a soil or media test.

Leaf and soil testing is described in this Crop Guide. However, glasshouse tomatoes are now grown in a variety of media such as bark, peat, as well as hydroponically in pumice and nutrient solutions.

Leaf

Sampling Time: When first fruits mature.

Plant Part: Youngest mature compound leaf (blade plus petiole).

Collect From: 20 cm from the top of the plant.

Quantity per Sample: 20 leaves.

Recommended Tests: Basic Plant (BP), Molybdenum (Mo).

Comments: The recently matured leaves are considered to be the most appropriate leaf to analyse. Being fully mature, the nutrient levels will have stabilised, allowing a reliable assessment to be made. Having only just matured means they will reflect the recent nutrient supply to the plant.

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 plants for analysis as a comparative standard.



Soil

Sampling Time: Prior to crop establishment and then regularly during the growing season.

Core Depth: 15cm.

Collect From: From the rooting zone of the plants.

Quantity per Sample: 12 - 20 cores.

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

Comments: Routine monitoring is recommended to ensure nutrient levels in the soil are maintained at adequate levels, but not so high as to cause salt stress problems. Taking samples for analysis every 4 - 6 will allow certain problems to be identified before they adversely affect production of such a high value crop.

For NFT systems, a 500 mL sample collected from the main reservoir tank is appropriate.

For growing media systems, collect a 1 L sample from the root zone of a representative number of plants. This will be analysed as a Potting Media sample.

For plants grown in pumice (or sawdust) bags, collect a 1 L sample in the same way as for other growing media systems. The pumice is essentially an inert support media and the crop can be regarded as being hydroponically grown. In this instance, the water extraction of the pumice provides a solution for NFT analysis.

Comments

Tomatoes are regarded as gross feeders and will respond to generous fertiliser programmes. However, excessive fertiliser can create problems, such as salt stress and blossom end rot.

Potassium levels are critical for growth control and for the prevention of ripening disorders. Care must be taken, however, that high potash applications do not induce magnesium deficiencies. Soil test levels of magnesium should be at least as high as those of potassium.

Excessive soluble salts can be a problem, especially where regular applications of soluble fertilisers are being applied during the growing season. There are schools of thought, however, that keeping soluble salts high can be beneficial to fruit quality. It is recommended that such management practices be planned with a consultant experienced in glasshouse tomato production.

Deficiencies observed in New Zealand tomato crops include nitrogen, potassium, calcium, magnesium, iron, manganese and boron.

References

Brice, I. 1978. Glasshouse tomato grower short course. Dept of Horticulture and Plant Health Proceedings No. 6.

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.

Weir, R.G. and Cresswell, G.C. 1995. Plant nutrient disorders 3. Vegetable crops. Inkata Press.

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.
