Hill Laboratories
BETTER TESTING BETTER RESULTS

Crop Guide
Olive

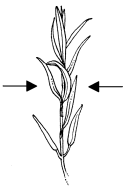
KB Item: 3476v2

Sampling Notes

The nutritional status of olives 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:	January and February.
Plant Part	Youngest mature leaf (blade & petiole).
Collect From:	Mid portion of the current season's non-fruiting laterals (extension growth), taken at shoulder height.
Quantity per Sample:	4 representative leaves from the periphery of each of 15 - 25 trees.
Recommended 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	15cm.
Collect From:	From the drip zone of the trees.
Quantity per Sample:	12 - 20 cores.
Recommended Tests:	Basic Soil (BS), Boron (B), Available Nitrogen (AN)
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 15 - 40 cm depth sample should also be taken, primarily to check the sub-soil pH.

CROP GUIDE OLIVE

Interpretation

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

Leaf

Analyte	Unit	Range
Nitrogen	%	1.5 - 2.0
Phosphorus	%	0.10 - 0.30
Potassium	%	0.80 - 1.2
Sulphur	%	0.10 - 0.25
Calcium	%	1.0 - 2.0
Magnesium	%	0.10 - 0.35
Sodium	%	0.0 - 0.20
Iron	mg/kg	50 - 200
Manganese	mg/kg	20 - 200
Zinc	mg/kg	10 - 30
Copper	mg/kg	4.0 - 25
Boron	mg/kg	19 - 150

Soil

Analyte	Unit	Range
pH	pH	6.0 - 6.5
Olsen Phosphorus	mg/L	15 - 30
Potassium	me/100	0.50 - 1.0
Calcium	me/100	6.0 - 12
Magnesium	me/100	1.0 - 3.0
Sodium	me/100	0.0 - 0.50
CEC	me/100	12 - 25
Volume Weight	g/mL	0.60 - 1.0
Available Nitrogen	kg/ha	150 - 250
Boron	mg/kg	1.0 - 2.0

Comments

Symptoms described below have been induced under research conditions. In practice, nitrogen, potassium and boron are the only likely deficiencies to be observed.

Nitrogen deficiency shows as small, yellow leaves, with heavy defoliation. Shoots tend to be less than 20 cm. Fewer, but normal looking fruit will be present.

Potassium deficiency symptoms are light green leaves, tip burn and dead areas in the tree. Leaf yellowing is more obvious in the basal leaves than in the terminal ones. Fruit appear normal. Leaf internodes will be characteristically short.

Terminal leaves curling, yellowing and eventual necrosis of their leaf tips are symptomatic of calcium deficiency. Fruit production tends to be reduced.

Magnesium deficiency causes basal leaves to become chlorotic and drop, while terminal leaves remain normal in size and colour. Just before leaf drop, banding develops as the tips and base of leaves become yellow while the mid section remains greener.

Low iron levels cause small whitish leaves, particularly the terminal ones.

Zinc deficiency is not common, but if present, young leaves will be lighter than older leaves. Fruit may also mature earlier than normal.

Boron deficiency results in deformed fruit known as "Monkey Face". New growth will be short and branched, with limb dieback and rough bark. Leaves may be small with some tip dieback.

References

Freeman,M., Uriu,K. and Hartmann,H.T. 1994. The olive tree and fruit. Diagnosing and correcting nutrient problems. From Olive Production Manual. Ferguson, L., Sibbett, G.S. and Martin, G.C. (eds). University of California Publication 3353.

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