Crop Guide KB Item 62058v1

Kiwifruit/Red

Sampling Notes

Leaf analysis provides a more accurate and reliable assessment of the nutrient status of the kiwifruit plant than does soil testing. Greater emphasis, therefore, should be placed on the plant tissue results. Four sampling options are described below, but the actual growth stage (phenology) of the vine may differ to these suggested sampling times according to a range of factors e.g. local climate, rootstock, winter-drilling, management or other environmental conditions.
This crop guide is written for the Red19 variety. The newer Red80 variety is likely to have a later growing season (phenology) and sampling periods may align more with Gold3. Data is available for optimum levels for virtually the whole growing season, from September to April.

Leaf (1) - Early Spring

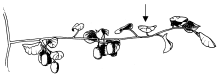
Sampling Time: September (At least 4 weeks after budbreak)
Plant Part Leaf & petiole
Collect From: Youngest mature leaf
Quantity per Sample: 2-4 leaves from each of 20 vines
Recommended Tests: Basic Plant (BP), Chloride (Cl)
Comments: Diagnosing deficiencies at this early stage may allow time to correct them for the current season's crop, whereas sampling after November is considered too late for this. These deficiencies will be more pronounced than later in the season, when the plants will have adapted to their growing conditions.

Leaf (2) - Spring (Flowering)

Sampling Time: October
Plant Part Leaf & petiole
Collect From: Youngest mature leaf
Quantity per Sample: 2-4 leaves from each of 20 vines
Recommended Tests: Basic Plant (BP), Chloride (Cl)
Comments: Diagnosing deficiencies at this early stage may allow time to correct them for the current season's crop, whereas sampling after November is considered too late for this. These deficiencies will be more pronounced than later in the season, when the plants will have adapted to their growing conditions.

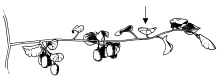
Leaf (3) - Summer (Fruit Set)

Sampling Time: November-December
Plant Part Leaf & petiole
Collect From: Youngest mature leaf
Quantity per Sample: 2-4 leaves from each of 20 vines
Recommended Tests: Basic Plant (BP), Chloride (Cl)
Comments: Autumn is regarded as the standard sampling time because nutrient levels will have stabilised. These mid-season samples will help guide the fertiliser programme decisions, given other ideal growing conditions are met.



Leaf (4) - Autumn (Fruit Growth)

Sampling Time: January-March
Plant Part Leaf & petiole
Collect From: Youngest mature leaf
Quantity per Sample: 2-4 leaves from each of 20 vines
Recommended Tests: Basic Plant (BP), Chloride (Cl)
Comments: Autumn is regarded as the standard sampling time because nutrient levels will have stabilised. These late-season samples should reflect the effectiveness of the fertiliser programme adopted, given other ideal growing conditions are met.



Soil

Sampling Time: Prior to crop establishment and annually during autumn and early winter

Core Depth 15cm

Collect From: From the root zone of the vines

Quantity per Sample: 15 - 20 cores

Recommended Tests: Basic Soil (BS), 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 root zone of the vines. Where fertiliser has been banded, samples should only be taken from areas under the vines 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.

Expanded soil tests to monitor soil health e.g. Organic Matter and Hot Water Extractable Carbon as requestable in the soil health package, along with Total Copper, are also recommended on a semi-regular basis to support sustainability objectives.

Comments

As the rootstock of many Red and Gold vines are the same as for Green kiwifruit, similar nutrition problems may occur. For further information on these problems, see Crop Guide: Kiwifruit/Green.

The earlier maturing of Red19 kiwifruit, together with different leaf levels observed for this variety (by way of recent statistical analysis of the results database), means that specific medium range criteria can be used for interpretation.

In general, the Red19 kiwifruit vine is more vigorous compared to Green, and although fruit yields are somewhat lower, Red19 matures quickly and is considered a higher-value (premium) crop.

Red19 kiwifruit leaf samples tend to have slightly lower or similar nutrient levels to Gold3, but interpretive ranges will evolve as more data or trial results become available.

Interpretation of early-season leaf samples for Red19 should consider that soil temperature would have an effect on root activity i.e. a low K level in the leaf may only be a reflection of the plant's ability to acquire this element (rather than inadequate soil levels).

Irrigation water should be monitored to avoid excessive salt (sodium) loading or boron application.

Fruit quality issues are more common with Red19 than Green. Vine management, plant nutrition, environmental factors and post-harvest handling will all influence fruit quality.

Note that sampling times for the newly released Red80 variety may differ, as this variety has a later phenology than Red19.

References

Smith, G.S.; Asher, C.J. and Clark, C.J. 1985. Kiwifruit nutrition. Diagnosis of nutritional disorders. AgPress Communications Ltd, Wellington.

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.

Clark, C. and Edwards, C. 2001. Seasonal analyses of Hort16A leaves reveal intriguing differences from Hayward. NZ Kiwifruit Journal, Sept/Oct.

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.