



# AgVita Analytical

## Plant Response<sup>®</sup>

### Sampling Guidelines



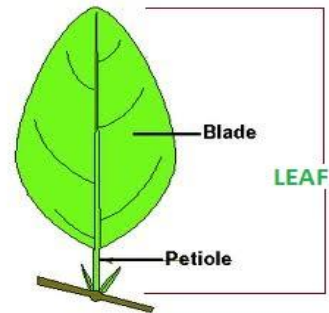
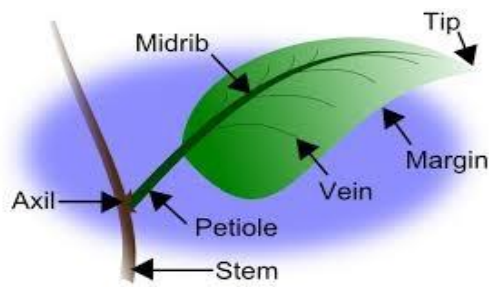
Plant Response report **CROP TYPE** names are shown in **bold** in column 1 below

CROP TYPE	SUGGESTED TIMING	SUGGESTED PLANT PARTS TO SAMPLE	QUANTITY REQUIRED
<b>Almond</b>	Mid to late January	Normal sized leaves from non-fruiting spurs on spur bearing cultivars, or mid-shoot on current season's extension growth on young trees, or non-spur bearing cultivars	2 leaves per tree from 30-40 trees
<b>Apple</b>	Early to mid season	Youngest mature leaf (blade & petiole). Mid portion of the current season's non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 30-40 trees
<b>Apricot</b>	Fruit set	Youngest mature leaf (blade & petiole). Mid portion of the current season's non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 30-40 trees
<b>Asparagus</b>	When in Fern	Upper 30cm of Fern	10-15 ferns
<b>Avocado</b>	Mid to late summer flush	Youngest mature leaf (blade plus petiole). Shoots that are not flushing nor fruiting. Select from the canopy of the trees at shoulder height, and exclude boundary trees.	1 leaf per tree from 30-40 trees
<b>Banana</b>	Sample during periods of active growth from medium sized suckers with broad leaves. Weather conditions may influence the timing	Strips of leaf blade 15-20 cm wide from each side of the mid-rib of the 3rd youngest leaf.	5-10 strips
<b>Barley</b>	Mid to Late Tillering (when the leaves have formed, and the leaf-sheaths are lengthening and becoming erect) - prior to stem extenuation.	Youngest mature leaf blade	50-60 leaf blades
<b>Basil</b>	Summer season during active growth	Youngest mature leaf (blade & petiole).	20-30 leaves
<b>Bean</b> (French, dwarf, snap & runner)	Early flowering (pods <10cm long)	Youngest mature leaf blade (without petiole).	20-30 leaf blades
<b>Beetroot</b>	Early maturing (when the root is 4 - 7.5cm in diameter)	Youngest mature leaf (blade & petiole).	20-30 leaves
<b>Blackberry</b>	During fruit set.	Youngest mature leaf (blade & petiole). Current season's non-fruiting canes.	30-40 leaves
<b>Blackcurrant</b>	During fruit ripening.	Youngest mature leaf (blade & petiole) from the mid third of the current season's extension growth.	30-40 leaves
<b>Blueberry</b>	pre harvest to early harvest	Youngest full-sized leaf (blade & petiole) from current season's fruiting shoots.	40-50 leaves
<b>Boysenberry</b>	During fruit set.	Youngest mature leaf (blade & petiole). Current season's non-fruiting canes.	30-40 leaves
<b>Brassica</b>	Mid-growth, or when the plant is starting to head.	For cabbages and cauliflower beginning to head sample the wrapper leaf. For all others, sample recently matured leaves.	15-20 leaves
<b>Broccoli</b>	Heading	Youngest mature leaf.	15-20 leaves
<b>Brussels Sprout</b>	Mid growth when the plants are beginning to head (heart, 7cm)	Youngest mature upper leaves.	15-20 leaves
<b>Cabbage</b>	Mid growth, as the plant is beginning to head.	Youngest mature wrapper leaf.	15-20 leaves
<b>Canola</b>	Pre-flowering	Youngest mature leaf	40-50 leaves
<b>Capsicum</b>	At flowering or early fruiting.	Youngest mature leaf (blade & petiole).	20-30 leaves
<b>Carrot</b>	Mid-growth	Youngest mature leaf	30-40 leaves
<b>Cauliflower</b>	When the head first appears (buttoning).	Youngest mature wrapper leaf (whole leaf)	15-20 leaves
<b>Celery</b>	When plants are half grown.	Youngest mature leaf (blade & petiole).	20-30 leaves
<b>Cherry</b>	Mid-late season (Jan-Feb)	Youngest mature leaf (blade & petiole). Mid-shoot leaves from the middle of the current season's non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 30-40 trees
<b>Chestnut</b>	Mid season	First fully expanded leaf (blade + petiole) on current seasons wood	2 leaves per tree from 30-40 trees
<b>Chick Pea</b>	Vegetative	Youngest mature leaf (YML)	50-60 leaves
<b>Chinese Cabbage</b>	From mature plants	Youngest mature leaves from new growth	12-15 leaves
<b>Citrus</b>	Sample when leaves are 5-7 months old	Healthy mature leaves (blade & petiole) from the middle of non-fruiting extension growth taken at shoulder height	2 leaves per tree from 20-30 trees
<b>Clover ( Subterranean )</b>	Pre-start flowering	Whole Leaves (leaf blade plus petiole)	approx 100 grams
<b>Clover ( White )</b>	Pre-start flowering	Whole Leaves (leaf blade plus petiole)	approx 100 grams
<b>Cocksfoot</b>	First flowering	Whole shoot above 5cm	50-60 leaves
<b>Coffee</b>	Prior to the rapid vegetative growth phase in Sept-Dec, and after harveting (May-July)	Third or fourth pair of leaves from the tip of actively growing and bearing branches	4 pairs from at least 15 trees
<b>Cotton</b>	Vegetative to flowering (some data collected at 42 DAS)	Youngest mature leaf blade unless stated otherwise	40-60 leaves
<b>Crisp Head Lettuce</b>	Heading	Whole leaf	15-20 leaves
<b>Cucumber</b> (Protected cropping)	Early flowering.	Youngest mature leaf (blade & petiole). 30-45 cm from the growth tip of the plant.	20-30 leaves
<b>Chrysanthemum</b>	Pre-flowering	Young leaves	30-40 leaves
<b>Custard Apple</b>	Unknown	Youngest mature leaf (blade & petiole).	2 leaves per tree from 20-30 trees

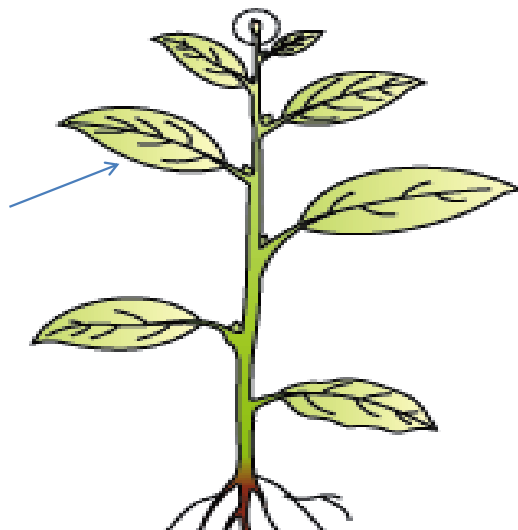
<b>Eggplant</b> (Protected cropping)	When in full bloom at a mid growth stage.	Youngest mature blade, minus petiole.	30-40 leaves
<b>Eucalyptus Globulus</b> (Tas Blue Gum)	Juvenile plants	Youngest mature foilage	Collect 2 leaves per plant from 30-40 trees
<b>SHINING GUM</b> ( <i>Eucalyptus Nitens</i> )	Juvenile plants	Youngest mature foilage	Collect 2 leaves per plant from 30-40 trees
<b>Faba Bean</b>	Early flowering	Youngest mature leaf	50-60 leaves
<b>Feijoa</b>	Late summer	Youngest mature leaf (blade & petiole). Mid portion of the current season's non-fruiting laterals (extension growth), taken at shoulder height.	30-40 leaves
<b>Field Pea</b>	Pre-flowering	Youngest mature leaf (blade + petiole)	40-50 leaves
<b>Fig</b>	Mid summer	First full-sized basal leaf from moderately vigorous shoots	Collect approx 50 leaves (1-2 per tree) for analysis.
<b>Fodder Beet</b>	50-80 days after sowing	Youngest mature leaf.	20-30 leaves
<b>Garlic</b>	Bulbing.	Youngest matured leaves (without the white).	15-20 leaves
<b>Ginger</b>	2-3 months after planting	Leaf blade (excluding sheath or petiole). Published standards refer to upper leaf blade only	10-15 leaves
<b>Gooseberry</b>	During fruit set.	Youngest mature leaf (blade & petiole). Current season's non-fruiting canes.	30-40 leaves
<b>Grape</b>	When the majority of vines are flowering	Petioles (leaf stalk) of a basal leaf opposite a bunch cluster. Remove petioles immediately after sampling.	40-50 petioles
<b>Grapefruit</b>	Late summer	5 -7 month old leaf (blade & petiole). Spring flush growth from non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Hazelnut</b>	Late summer	Leaf with petiole. Mid-shoot leaves from current seasons growth.	2 leaves per tree from 20-30 trees
<b>Hemp</b>	Summer	10cm base section plus 10cm section 1 metre from growing tip	total of 10 plants (20 pieces)
<b>Honeydew Melon</b>	Mid-growth	Youngest mature leaf	15-20 leaves
<b>Hops</b>	Mid-season.	Youngest mature leaf	20-30 leaves
<b>Hydrangea</b>	Mature	Youngest mature leaf blade (no petiole).	20-30 leaf blades
<b>Kale (Forage)</b>	At mid-growth.	Youngest mature leaf.	20-30 leaves
<b>Kiwifruit - Gold (PR early)</b>	September-October (Before fruit set)	Leaf & petiole of youngest mature leaf	2 leaves each from 20 vines
<b>Kiwifruit - Gold (PR late)</b>	November-January & February-March seasons	Leaf & petiole. Second leaf past the final fruit cluster on the fruiting lateral	2 leaves each from 20 vines
<b>Kiwifruit - Green (PR early)</b>	October-November (Before fruit set)	Leaf & petiole of youngest mature leaf	2 leaves each from 20 vines
<b>Kiwifruit - Green (PR late)</b>	Summer (Dec - Feb) & Autumn (March-April)	Leaf & petiole. Second leaf past the final fruit cluster from non-terminated female vines	2 leaves each from 20 vines
<b>Lemon</b>	Late summer (February to March)	5 -7 month old leaf (blade & petiole). Spring flush growth from non-fruiting laterals (extension growth), taken at shoulder height	2 leaves per tree from 20-30 trees
<b>Lentil</b>	As required	Whole side stems	25-30 stems
<b>Lettuce</b> (Protected cropping)	When the head has reached half size.	Wrapper leaf.	15-20 leaves
<b>Lillium</b>	Unknown	Most recently mature leaves	40-50 leaves
<b>Linseed</b>	Pre-flowering	Youngest mature leaf (blade + petiole)	40-50 leaves
<b>Lucerne</b>	At early flowering (10% of crop)	Mid-stem leaves	100+ leaves
<b>Lupin</b>	Pre-flowering	Youngest mature leaf (Data refers to <i>L. angustifolius</i> unless otherwise stated).	30-40 leaves
<b>Lychee</b>	Sample leaves behind flower clusters 1-2 weeks after panicle emergence during May-July (in SE Qld)	Most recently matured leaf behind the fruiting panicle or behind the flush in non-bearing trees. Avoid insect damaged trees.	Collect 4 pairs of leaves from each of 20 trees.
<b>Macadamia</b>	Summer flush leaves should be sampled in Spring when leaf nutrients are more stable and leaves are 6-7 months old (and before new growth from terminal buds exceed 1cm in length)	Mature Leaf (with petiole) from second or third whorl of current seasons growth.	2 leaves per tree from 20-30 trees
<b>Maize</b>	From Tasselling to initial Silk	Whole leaf from the ear node (ear leaf)	15-20 leaves
<b>Mandarin</b>	Late summer	5 -7 month old leaf (blade & petiole). Spring flush growth from non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Mango</b>	Sampling recommended after flowering	Collect leaves from non-bearing branches.	2 leaves per tree from 20-30 trees
<b>Nashi</b>	Mid season (January and February).	Youngest mature leaf (blade & petiole). Mid portion of the current season's non-fruiting laterals (ext growth) taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Navy Bean</b>	Not stated	Youngest mature leaf (blade + petiole)	30-40 leaves
<b>Nectarine</b>	Mid season (January and February).	Youngest mature leaf (blade & petiole). Mid portion of the current season's non-fruiting laterals (ext growth) taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Oat</b>	Mid to late tillering. Just prior to stem extension.	Youngest mature leaf blade	50-60 leaves
<b>Oak</b>	Summer	Youngest mature leaves from new growth	15-20 leaves
<b>Okra</b>	15 weeks	Youngest mature leaves from new growth	10-15 leaves
<b>Olive</b>	Mid-summer (January)	Fully expanded basal to mid-shoot leaves	40-50 leaves
<b>Onion</b>	Mid-growth	Youngest mature leaf blade	30-40 leaf blades
<b>Orange</b>	Late summer	5 -7 month old leaf (blade & petiole). Spring flush growth from non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Pak-choi</b>	Summer	leaf blades from fully expanded leaves	15 leaf blades

<b>Parsley</b>	Summer	mature leaves from new growth	15 leaves
<b>Parsnip</b>	Mid growth when the root is 1 - 3 cm in diameter.	Youngest mature leaf.	20-30 leaves
<b>Passionfruit</b>	May to August, prior to active vegetative growth	Youngest fully expanded leaf (blade & petiole)	20-30 leaves
<b>Pawpaw</b>	Spring	Petiole of the youngest fully expanded leaf subtending to the most recently opened flower	1 petiole per tree from 10-15 trees
<b>Pea</b>	Mid-growth	Leaflet of the youngest mature compound leaf	30-40 leaflets
<b>Peach</b>	Summer (January or February)	Leaves from the middle of current season's extension growth	2 leaves per tree from 20-30 trees
<b>Peanut</b>	Pre-flowering to flowering	Youngest mature leaf blade	40-50 leaves
<b>Pear</b>	Late January to mid February	Entire leaf (blade & petiole) from a mid shoot position on the current season's non-fruiting laterals (extension growth), taken at shoulder height.	2 leaves per tree from 20-30 trees
<b>Pecan</b>	Shell hardening to early kernel development	Pairs of leaflets from midway along youngest fully expanded leaf on fruiting wood. Select from branches up to 2m above ground.	10 leaflets from each of 10 trees to represent a planting
<b>Perennial Rye Grass</b>	At a vegetative growth stage, usually late spring or autumn flush.	Leaf blades. Cut at grazing height.	approx 100 grams
<b>Persimmon</b>	Anthesis	Youngest mature leaf (blade & petiole) from non-fruiting shoots.	2 leaves per tree from 20-30 trees
<b>Phalaris</b>	Vegetative, 3-5 weeks re-growth	Youngest mature leaf blade	80-100 leaf blades
<b>Pineapple</b>	Prior to flower induction	During vegetative growth, sample the YFEL (known as the D leaf) and retain the bottom 150mm (the basal white tissue)	Collect at least 10 leaves from throughout the area tested
<b>PINE SEEDLING (Radiata)</b>	Seedling	Whole plant above ground unless otherwise noted	10-20 seedlings
<b>PINE MATURE (Radiata)</b>	Plantation trees in summer	Needles from 10-15 terminal cuttings	10-15 terminal cuttings
<b>Pistachio</b>	During a one month period prior to harvest	Single leaflets selected from the terminal or 2 opposite sub-terminal leaflets of leaves located in the middle of non-bearing branches	Select at least 6 leaflets from 5 trees chosen to represent a management area.
<b>Plum</b>	Mid to late Summer	Leaves from the middle of current season's extension growth	2 leaves per tree from 20-30 trees
<b>Pomegranate</b>	Spring to summer	Collect average sized, undamaged leaves from mature, non-fruiting branches of healthy trees	Collect 75-100 youngest fully matured leaves (blade + petiole)
<b>Poppy</b>	At Hook stage	Whole leaf	20-30 leaves
<b>Potato</b>	Early flowering unless stated	Youngest mature leaf (blade & petiole).	20-30 leaves
<b>Pumpkin</b>	Early fruiting	Youngest mature leaf (blade & petiole) - 9th node	15-20 leaves
<b>Radish</b>	When the root is half grown	Youngest mature leaf (blade & petiole).	30-40 leaves
<b>Raspberry</b>	Two to three weeks after the final pick.	5th to 12th leaves from the terminal 15 cm of the primocane	30-40 leaves
<b>Rice</b>	3-5 (Feeke's Scale) which is mid to late tillering (tiller formation to leaf sheaths strongly erected).	Youngest emerged leaf blade.	40-50 leaves
<b>Rockmelon</b>	At harvest	Youngest mature leaf blade	20-30 leaf blades
<b>Rose (Greenhouse)</b>	From when buds are approximately pea size till the petals begin colouring.	Five leaf leaflets, including petioles, from flowering shoots.	15-20 leaflets
<b>Silverbeet</b>	When half grown and the base of the plant is 4 - 6 cm in diameter.	Youngest mature leaf. One leaf per plant	20-30 leaves
<b>Sorghum</b>	Vegetative & early flowering	3rd Leaf Blade below Head	20-30 leaf blades
<b>Soy Bean</b>	At flowering	Upper most mature leaf blade (ie third and fourth leaf blade below apex)	30-40 leaves
<b>Spinach</b>	4-6 weeks old (30 to 50 days after sowing).	Youngest mature leaf (blade & petiole).	40-50 leaves
<b>Strawberry - generic</b>	During growth	Leaf blades (excluding or including petioles) from youngest mature leaves.	30-40 leaf blades
<b>Sugar Beet</b>	50-80 days after sowing	Youngest mature leaf.	20-30 leaves
<b>Sugar Cane</b>	During rapid growth	20 cm section of the top visible dewlap leaf	approx 10 leaf sections
<b>Swede</b>	Bulb development to when bulb is half	Youngest mature leaf.	20-30 leaves
<b>Sweet Corn</b>	80% of crop in silk	Whole leaf from the ear node.	15-20 leaves
<b>Sweet Potato</b>	28 days after transplanting	Youngest mature leaf blade	20-30 leaf blades
<b>Tall Fescue</b>	Cut in summer	Whole shoot	40-60 shoots
<b>Tea</b>	At maximum growth (plucking)	Youngest mature leaf.	40-60 leaves
<b>Tomato (Greenhouse)</b>	When first fruits mature.	Youngest mature compound leaf (blade plus petiole). 20 cm from the top of the plant.	20-30 compound leaves
<b>Tomato - generic</b>	Flowering at 2nd Node	Youngest mature compound leaf (blade plus petiole).	20-30 compound leaves
<b>Triticale</b>	Late tillering. When the leaves have formed, and the leaf-sheaths are lengthening and becoming erect (just prior to extension).	Whole above ground portion of the plant. Random sites throughout the sampling area.	20-30 plants
<b>Turf</b>	Undefined	Whole leaf (no roots). Cuttings are okay	100 grams of leaf material
<b>Turnip</b>	When the root is half grown.	Youngest mature leaf.	20-30 leaves
<b>Walnut</b>	Summer - December to January.	Leaf with petiole. Terminal leaflet of basal leaves from shoots of average vigour.	2 leaves per tree from 20-30 trees
<b>Watercress</b>	Middle of growing season	Youngest mature leaves from new growth	30-40 leaves
<b>Watermelon - generic</b>	Mid-growth	Youngest mature leaf	15-20 leaves
<b>Wheat</b>	Mid to Late Tillering	Youngest mature leaf blade	50-60 leaves
<b>Zucchini</b>	Early flowering.	Youngest mature leaf (blade & petiole).	15-20 leaves

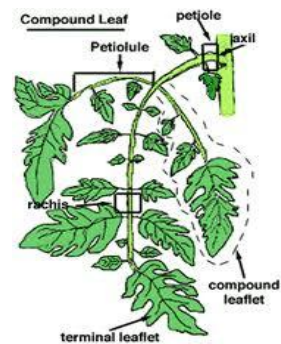
### Definition of Terms and Abbreviations used:



Youngest Mature Leaf, also known as Youngest Fully Expanded Leaf (YFEL). Normally the 4<sup>th</sup> or 5<sup>th</sup> leaf down from the growing tip



Compound leaf on Tomato plant



PLEASE USE THE CROP TYPE NAMES LISTED IN BOLD IN COLUMN 'A' WHEN COMPLETING AGVITA'S SAMPLE SUBMISSION FORMS, OR WHEN YOU HAVE TROUBLE WITH A PLANT RESPONSE REPORT NOT RECOGNISING A CROP NAME.



[www.agvita.com.au](http://www.agvita.com.au)