DRY TISSUE SAMPLING GUIDE

JULY 2022

ww.novumlifesciences.com.au

(07) 41 325 000

ADDRESS: 1/5 SCOTLAND ST
BUNDABERG EAST
QLD 4670

POST SAMPLES TO: LOCKED BAG 3901
BUNDABERG
QLD 4670

NOVUM™ LIFESCIENCES
Naturally Innovative

HORTUS
Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
African violet	Mature plants of flowering size	B, M	Most recent mature leaf	M	25
Alfalfa	Prior to early bloom	E, M	Most recent mature trifoliate leaves from the top (6") of plants	T	30
Almond	Mid shoot on current seasons extension growth of young trees	M	Normal size leaves on non-fruiting spurs	M	30-40
Apple	5 to 10 weeks after full bloom	M	Most recent mature leaf from mid shoot, leaves near base of current year's growth, or leaves from spur's; 4-8 leaves per plant	M	50
	(mid- June to mid- July)		from 20-30 plants		
Asparagus	Mid - summer	E	Top 4 - 6" of most recent fronds	M	20-30
	Late - summer	M	Top 18" of most recent fronds	M	
Avocado	Recent summer flush	M	Recently expanded, mature and healthy leaves. Non - fruiting terminals	M	4 - 8 leaves each, from 20 random trees
Azelea	Prior to flowering	E	Most recent mature leaf	M	75-100
Bahiagrass	see Grass (Forage& Pasture)				
Banana	Actively growing suckers. Should be able to reach leaf from the ground.	E	3rd fully expanded leaf. 20cm wide strips from each side of the mid - rib to the leaf margins (in the centre section)	E	select from 5 trees

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Barley	see Small Grain				
Beans	Seedlings (less that 12")	S	All above - ground portion	W	20-30
	Prior to, or during initial bloom	E, B	Most recent mature leaf	M	
Beet	Early to mid - growth	E, B	Most recent mature leaf		20-30
Begonia (Rieger elatior)	Prior to heavy flower formation	E, B	Most recent mature leaf (1st leaf from top that is 2" wide of greater)	M	20
Bentgrass	see Grass (Turf)				
Bermuda, coastal (hybrid)	see Grass (Forage & Pasture)				
Bermudagrass (turf)	see Grass (Turf)				
Blackberry	Postharvest	M	Most recent mature leaf on primocane (nonfruiting laterals)	M	20-40
Blueberry	Early or during bloom	E, B	Growth	M	50-60
Bluegrass	see Grass (Forage & Pasture)				
Bluestem, big	see Grass (Forage & Pasture)				
Boxwood	Summer	M	2 - 3" cuttings from terminal growth	M	20 cuttings
Broccoli	Early of prior to head formation	E, B	Most recent mature leaf	M	25-30
Bromegrass	see Grass (Forage & Pasture)				
Cabbage	Early to mid growth	E	Undamaged leaf		
Cabbage, Chinese	8 leaf stage	E	Oldest undamaged leaf	M	25-30

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Camellia	Summer	M	Most recent mature leaf	M	25-30
Caneberries	see Blackberry or Raspberry				
Canola	Prior to bloom	E	Most recent mature leaf	M	
Cantaloupe	see Melons				
Capsicum	Flowering - early fruiting	E	Young mature leaf with petiole	M	30
Carnation	Unpinched Plants	E	4th or 5th leaf pair from base of plant	M	20-30
	Pinched Plants	B, F, M	5th or 6th leaf pair from to of primary laterals	M	
Carrot	Early growth (60 days after seeding)	E	Most mature leaf	M	20-30
Cauliflower	Early or prior to head formation	E	Most mature leaf	M	25-30
Centipede	see Grass (Turf)				
Celery	Plant half grown	E	Youngest mature leaf blade	M	30
Cherry	5 to 10 weeks after full bloom	M	Leaves near base of current year's growth or from spurs; 4 - 8 leaves per plant from 20 - 30 plants	M	50-100
Chia	New flush	M	Most recent mature leaf	M	50-60
Chillies	Flowering - early fruiting	E	Young mature leaf with petiole	M	30
Chinese cabbage (heading types)	8 leaf stage	E	Oldest undamaged leaf	M	25-30
Chrysanthemum	Prior to or at flowering	E, B, F	Most recent mature leaf from top of plant or upper leaves on flowering stem	M	20-30

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Citrus	SA & VIC (3 - 6 months old); NSW & QLD (5 - 7 months old)	E	Healthy and mature leaves from the middle of non - fruiting terminals from the previous spring flush	M	40 - 60
Clover	Prior to bloom	E	Top 4 - 6" of the plant	T	40 - 50
Collards	Early	E	Oldest undamaged leaf	M	25 - 30
Conifers	Summer	E	Terminal shoot from upper 1/3 of tree; do not sample from leader or top whorl	M	20 - 40
Corn, field	Seedlings (less then 4")	S	Entire top of plant cut 1" above the soil	W	10 - 15
	Early (4 - 12")	E	Entire top of plant cut 1" above the soil	W	
	Prior to tasselling (>12")	E	First fully developed leaf below the whorl; This leaf should be totally unrolled and have developed a sheath (collar) on the stalk	M	
	Tasselling and shooting to silking	B, F	Leaf opposite and below the uppermost developing ear	E	
	Maturity	M	Leaf opposite and below the uppermost developing ear	M	
	Sampling after silking is not recommended	----	--------	----	
Corn stalk (end of season)	1 - 3 weeks after black layer has formed on 80% of the kernels of most ears	M	8" segment collected at 6 - 14" above the soil line	H	15
Corn, sweet	Prior to tasselling	E	First fully developed leaf below the whorl; This leaf should be totally unrolled and have developed a sheath (collar) on the stalk	M	15 - 20
	At tasselling	E		E	

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Cotton	Seedling: 4 weeks following emergence of 2 - 3 true leaves	S Weeks 1,2,3,4	Most recent mature leaf and petioles. Separate petioles in the field	M	25 - 30
	Early: 4 weeks following seeding (S) stage, includes pinhead square formation	E Weeks 1,2,3,4			
	Bloom: Begins when plants have at least 5 open blooms per 25 row feet	B Weeks 1,2,3,4			
	Fruit: Begins 5th week after beginning of bloom	F Weeks 1,2,3,4			
	Mature	M			
Cucumber	Early to early bloom	E, B	Most recent mature leaf (generally 4 - 5 leaf from a growing point)	M	15 - 20
Cucumber, greenhouse	Early to early bloom	E, B	Most recent mature leaf (generally 4 - 5 leaf from a growing point)	M	8 - 10
Date Palm	Early in the potted form	E	Most recent mature leaf	M	1 whole leaf
Fescue	see Grass (Turf or Forage & Pasture)				
Fir	During dormancy (~Sept - Dec)	M	Two or three shoots from the upper $^1/_3$ or $^1/_2$ of 8 - 12 trees.	M	15 - 30 shoots
Daisy, gerber	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Gammagrass	see Grass (Forage & Pasture)				
Gardenia	Summer	B	Most recent mature leaf	M	25

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Garlic	Early growth prior to root/ bulb enlargement	E	Centre mature leaves	M	20 - 30
Geranium	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Ginger	2 - 3 months	E	3rd fully expanded leaf from the top of the plant (ignore rolled leaves at the top)	M	40- 50
Grape, muscadine (Vitris rotundifolia)	Mid to late summer but prior to final swelling of fruit (end of bloom through Aug); Best Time June to early July	B, F	Most recent mature leaf opposite fruit clusters from well-exposed shoots (generally the 1st or 2nd fruit cluster from the base of the shoot)	M	60- 80
Grape, vinidera (Vitis aestivalis, labrusca & vinifera)	Full bloom through veraison (ripening of fruit)	B, F	PETIOLES ONLY from Most recent mature leaf opposite fruit clusters from well-exposed shoots (generally the 1st or 2nd fruit cluster from the base of the shoot)	P	80- 100
Grass (Forage & Pasture)	Tiltering (Less than 6" tall)	S	Entire top of plant cut $^1/_2$" above soil	T	2 handfuls
	Greater than 6" tall and prior to seed head formation (after tiltering to before boot stage)	E	Top 6" of the plant ot the upper half of the plant (top 4 leaves)	T	20 tops
	After seed head formation (recommended only when troubleshooting)	F	Most recent mature leaf (leaf below seed head)	M	20 - 30
Grass (Turf)	During normal growing season; at 2 days growth	M	2 handfuls of freshly mowed grass (with trash removed)	T	2 handfuls
Holly	Summer	M	Most recent mature leaf	M	30- 50

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Hydrangea	Early summer	M	Most recent mature leaf	M	30- 50
Impatients	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Kale	Early or during bloom	E, B	Most recent mature leaf	M	25 - 50
Lettuce	Anytime during growing season	E	Outermost undamaged leaf	M	10 - 20
Lettuce (leaf), greenhouse	Anytime during growing season	E	Outermost undamaged leaf	M	10 - 20
Leucaena	Juvenille	E	Leaves + Petiole	M	40- 50
Lima bean	see Bean				
Lychee	1 - 2 weeks after flower panicle emergence	E	1st healthy leaf bunch from under panicle	M	4 pairs of leaves from 20 different trees
Macadamia	6 - 7 month old leaves from the 2nd whorl of the previous summer flush dominant terminals (no growth evident)	M	Leaf & Petiole	M	2 - 3 leaves from 30 random trees
Maize	30 - 40 days after emergence	M	Youngest, mature leaf	M	20 - 25
Mango	Nth QLD during peak flowering period; SE QLD just prior to flowering	M	Youngest, mature leaf	M	20 - 30
Marigold	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Melons (watermelon, muskmelon)	Prior to or during bloom; prior to fruit set	E, B	Most recent mature leaves (generally the 5th leaf from the growing tip)	M	12 - 30
Millet	see Grass (Forage & Pasture)				

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Milo	see Sorghum				
Mung Bean	see Bean				
Muskmelon	see Melon				
Mustard greens	Early or during bloom	E, B	Most recent mature leaf	M	25 - 30
Oats	see Small Grain				
Onion	Early growth prior to root/ bulb enlargement	E	Centre mature leaves	M	20 - 30
Orchardgrass	see Grass (Forage & Pasture)				
Ornamental shrubs & trees (not conifers)	During active growth	M	Most recent mature leaf on current year's growth	M	30 - 100
Pansy	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Passionfruit	Well developed, prior to active vegetative growth and fertiliser application	M	Youngest, fully expanded, recently matured leaf. Behind a recent flush of growth	M	30 - 40
Pasture	Grazing height, vegetative growth stage	M	Vegetative growth	M	500g
Paw Paw	Most recent mature leaf	M	Whole leaf	M	1 whole leaf
Peach	Mid - season; 12 to 14 weeks after bloom	F, M	Leaves near base of current year's growth; 4 - 8 leaves per plant/20 - 30 plants	M	50 - 100
Peanut	Prior to, or at bloom	E or B	Most recent mature tetrafoliate leaves (about 3rd to 5th leaf from growing point)	M	25 - 30

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Pear	5 - 10 weeks after full bloom	M	Leaves near base of current year's growth or leaves from spurs; 4 - 8 leaves per plant from 20 - 30 plants	M	20 - 30
Peas (English, southern)	Prior to, or during initial flowering	E, B	Most recent mature leaf (about 3rd set of leaf from the growing point)	M	30 - 60
Pecan	6 - 8 weeks after bloom; 8 - 12 weeks after catkin fall (July 7 to August 7)	M	Middle pairs of leaflets from a compound leaf on a terminal shoot	M	30 - 45
Pepper (bell, hot, banana)	Prior to bloom	E	Most recent mature leaf	M	20 - 30
Petunia	All growth stages	E, B, F, M	Most recent mature leaf	M	25 - 50
Pine	Summer	M	Needles from upper 1/3 crown; select dominant trees	M	200 needles
Pineapple	During vegetative growth	M	Most recent mature leaf, generally 4th leaf from the apex (D leaf)	M	10 - 15
Poinsettia	Prior to, or at bloom	E, B	Most recent mature leaf	M	15 - 20
Potato, Irish	Prior to, or during early bloom	E, B	Most recent mature leaf (3rd to 6th leaf from the growing tip)	M	20 - 30
	Early flowering to half - grown tubers	M	Most recent mature leaf (3rd to 6th leaf from the growing tip)	M	
Raspberry	Postharvest (10 - 14 days after final harvest	M	Youngest mature leaves on primocane (no - fruiting laterals)	M	20 - 40

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Rhododendron	Summer	M	Most recent mature leaf	M	20 - 30
Rose	During flower production	F	Upper leaves on the flowering stem or 5-leaflet leaf below bud	M	20 - 30
Rye	see Small Grain				
Ryegrass	see Grass (Forage & Pasture)				
Small Grain	Seedling stage to early jointing; GS 3 - 6 (Feekes) or GS 26 - 31 (Zadoks)	S	Entire top of plant cut 1/2" above the soil	W	2 handfuls
	Early jointing to just prior to heading (ie just prior to boot); GS 7 - 9 (Feekes) or GS 32 - 39 (Zadoks)	E	Cut 2 - 4 uppermost leaves (Top 4 - 6")	T	30 - 40
	Just prior to heading (boot stage); GS 10 - 11 (Feekes) or GS 45 - 100 (Zadoks)[sampling after heading is not recommended]	B	Flag leaf	M	30 - 40
Snap Bean	see Bean				
Sorghum (Milo, Grain, sorghum)	Early or bloom	E, B	If E, 1st leaf out of the whorl; if B 2nd leaf from whorl	M	20
Sorghum - Sudan	Early or bloom	E, B	Top 4" to 6" of plant	T	15 - 20 plants
Soybean	Seedlings (less than 12")	S	Entire top of plant cut 1/2" above the soil	W	2 handfuls
	Prior to, or during initial bloom; before pod set [sampling after pods begin to set is not recommended]	E, B, F	Most recent mature leaf	M	20 - 30

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Spinach	Mid - growth	M	Most recent mature leaf	M	20
Spinach, greenhouse	All growth stages	M	Most recent mature leaf	M	20
Spruce	Mid - season to late summer	M	2 - 3" terminal cuttings	M	25 cuttings
Squash	Summer	B, F, M	Most recent mature leaf (about 5th leaf from the growing point	M	15 - 20
Strawberry, field	Early	E Weeks 1 - 8	Most recent mature leaf and petioles. Separate petiole in the field	M	20 - 25
	Bloom/Fruit: Initiated when there are 5 - 10 blooms on >75% of the plants or 2 - 3 blooms on most plants; Harvest usually begins at B/F week 5 or 6	B/F Weeks 1 - 12	Most recent mature leaf and petioles. Separate petiole in the field		
	Mature	M Weeks 1 - 4	Most recent mature leaf and petioles. Separate petiole in the field		
Strawberry, high tunnel	All growth stages	E, B, F, M	Most recent mature leaf and petioles. Separate petiole in the field	M	20 - 25
Strawberry, greenhouse	All growth stages	E, B, F, M	Most recent mature leaf and petioles. Separate petiole in the field	M	20 - 25
Sugarcane	Active growing season	E, M	Top visible dewlap (TVD) leaf - 20cm cross section of leaf (minus midrib) measured from true centre of leaf towards base	M	20 - 30

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Sweetpotato	Midgrowth; prior to root enlargement	E	Most recent mature leaf (generally the 4th to 5th leaf)	M	20 - 30
Tobacco, burley	Seedling	S	Entire top of plant cut 1" above the soil	W	8 - 12
	Prior to bloom	E	Most recent mature leaf (about 4th leaf from growing point)	M	
	During bloom	B, F		M	
	Maturity	M		M	
Tobacco, flue - cured	Seedling (greenhouse transplant)	S	Entire top of plant cut 1" above the soil	M	1 tray
	Prior to bloom	E	Most recent mature leaf (about 4th leaf from growing point)	M	8 - 12
	During early bloom	B			
	During late bloom	F			
	Mature	M			
	Harvest leaf	M	Upper leaves (tips) (Position U) (~21st to 30th nodes from the bottom)	H	
	Harvest leaf	M	Middle leaves (smoking) (Position M) (~11th to 20th nodes from the bottom)		
	Harvest leaf	M	Lower leaves (lugs & cutters) (Position L) (~1st to 10th nodes from the bottom)		
Tomato, field	Early growth (5 leaf stage through first flower	S, E	Most recent mature leaf (4th to 5th compound leaf back from the growing point)	M	8 - 10
	Early flower through first fruit set (golf ball sized fruit)	B			
	First fruit set through harvest	F, M			

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

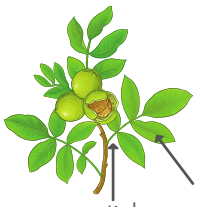
GUIDE

HORTUS Analytical Solutions

DRY TISSUE SAMPLING GUIDE

HORTUS Analytical Solutions	Growth Stage [1]		Plant Part [2]		Leaves: # to collect
	When to collect samples	Code	Plant part to collect (Indicator plant part)	Code	
Tomato, greenhouse	Early growth through first fruit set	S, E, B	Most recent mature leaf (4th to 5th compound leaf from the growing point)	M	8 - 10
	First fruit set through harvest	F, M			
Triticale	see Small grains				
Turnip greens	Early or during bloom	E, B	Most recent mature leaf	M	25 - 30
Walnut	6 - 8 weeks after bloom	M	Middle pairs of leaflets from a compound leaf on a mature shoot	M	30 - 35
Watermelon	see Melons				
Wheat	see Small grains				
Zucchini	see Squash				

Information sourced from: NCDA & CS Plant Tissue Analysis Guide - Updated May 2014, Plant/Waste/Solution/Media Analysis Section Agronomic Division, N.C Dept. of Agriculture & Consumer Services



petiole

(MRML) trifoliate leaf: one leaf w/ 3 leaflets

ear

ear leaf

petiole

most recent mature leaf (MRML) blade

outermost undamaged leaf

DRY TISSUE SAMPLING GUIDE

Indicator Plant		Example crops
Code	Description	
M	Most recent mature leaf (MRML)	Most plants, including cotton & strawberry
W	Whole plant (cut 1/2 - 1" above soil surface)	Seedling or young plants
T	Top 3 - 6" or top 2 - 4 leaves	Turf; forage grass and small grains prior to reproductive growth stages
E	Ear leaf (opposite and below ear)	Corn (from tasseling through silking)
P	Petiole only	Vinifera grape
O	Outermost undamaged leaf	Lettuce and other leafy vegetables
H	Harvest leaf	Tobacco

NOVUM LIFESCIENCES™ Naturally Innovative

Growth - stage codes: S = Seedling, E = Early, B = Bloom (prior to first fruit) F = Fruiting, M = Mature

Plant - part codes: W = Whole plant, T = Top, E = Ear leaf, M = Most mature leaf (MRML), O = Outermost undamaged leaf, P = Petiole, H = Harvest leaf

HORTUS Analytical Solutions