

SLTEC® Basic Vineyard Program

Crop nutrient budgeting is critical to improving production efficiencies and to reduce any environmental impacts from the overuse of fertilizers. As part of SLTEC®'s vineyard program, we aim to assist growers to better understand the nutrient requirements of their crop and at which stages of growth, the peak demand for nutrients occurs.

The program shown below is an example based on a 7 - 8 t/ha fruit yield in Northern Victoria. In other regions, other nutrients such as potassium may be required to achieve expected yields due to differing soil conditions.

The final fertilizer program and nutrient budgeting used on an individual crop in any region should be made in consultation with your agronomist after consideration of yield expectations and nutrient removal from previous crops. SLTEC® strongly recommends soil testing prior to planting along with plant tissue testing during the growing season.


Estimated Total Nutrient Elements Removed from the soil by Grapevines (kg / ha / year)												
N	P	K	S	Ca	Mg	Fe	Zn	Mn	Cu	B	Cl	Mo
100	18	85	15	115	20	650	150	120	88	115	235	0.6

White Reisling at 4800 vines per ha, yielding 13 t/ha -
Reference: Christiansen et al 1978 - from Bennett - Nutrient Deficiencies and toxicities of crop plants - 1993

Product Code	Product Name	Product Description	Application Method	Total No. of Applications	Total L/ha Applied for Season	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
						Budburst to the Start of Flowering (EL 4 - 18)	Flowering Period Petiole Sampling (EL 19 - 26)	End of Flowering to Veraison (EL 27 - 33)	Veraison to Harvest (EL 34 - 40)	Post Harvest to Leaf Fall (EL 40 - 47)	Dormancy
GG0009	Baseline Plus™	A complete (12-5-15) liquid combination of 16 nutrients and biostimulants	Fertigation	3	60		20		20	20	
GG0023	Cal Nitrate & Boron™	High calcium with boron and nitrogen	Fertigation	3	60	20	20		20		
GG0095	Vine Recharge™	Complete NPK formulated with calcium and magnesium	Fertigation	2	80					2 x 40	
GG0097	OPTIONAL Nitro QUAD 20™	UAN with 20% QuadSHOT® to improve availability and stimulate rootzone biology	Fertigation	-	-	Apply as required based on petiole testing					Soil test and apply lime/gypsum or other soil ameliorants as recommend
SG0015	OPTIONAL Bio Kelp Guardian™	High analysis kelp with potassium for frost and stress protection	Foliar	-	-	3 to 4 L/ha every 10 to 12 days or 48 hours before or after frost event to aid recovery					
SNPK0053	OPTIONAL MoBo Complex™	High boron and molybdenum	Foliar	1	3				3	Additional applications as required based on petiole testing	

See reverse side for product technical information

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SLTEC® Vineyard Fertilizer Options

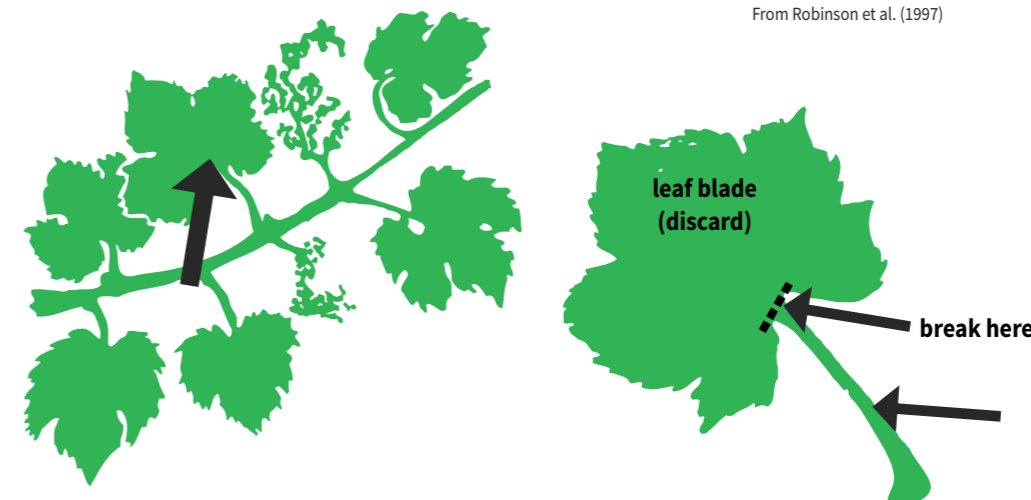
Growth Stage Considerations

Product Technical Information										
Product Code	Name	N% (w/v)	P% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Specific Gravity (kg/L)	pH Range	Typical Application Rates	
									Fertigation	Foliar <small>Use at least 100 L/ha water</small>
GG0009	Baseline Plus™ N as NO ₃ 0.02%, N as Urea 11.7%, P as PO ₄ 4.9%, Mg 0.2%, Mn 0.01%, Zn 0.01%, Cu 0.005%, Mo 0.005%, B 0.02%, Fe 0.01%, Fulvic Acid 0.01%, Fish Emulsion 0.4%, Humic Acid 0.3%, Kelp 0.4%, Molasses 0.4%	11.7	4.9	13.6	2.0	-	1.30 - 1.31	7.5 - 8.5	10 - 80 L/ha	2 - 15 L/ha
GG0023	Cal Nitrate & Boron™ N as NO ₃ 12.5%, B 0.2%	12.5	-	-	-	17.9	1.49 - 1.50	2.0 - 4.0	10 - 100 L/ha	5 - 10 L/ha
GG0095	Vine Recharge™ N as NO ₃ 4.9%, N as NH ₄ 1.6%, P as PO ₄ 1.4%, Mg 0.3%	6.5	1.4	5.8	-	1.3	1.19 - 1.20	< 1.0	10 - 200 L/ha	1 - 5 L/ha
GG0097	Nitro QUAD 20 N as NO ₃ 8.5%, N as NH ₄ 8.5%, N as Urea 17.1%, P as PO ₄ 0.5%, Fe 0.006%, Fulvic Acid 0.05%, Fish Emulsion 1.6%, Humic Acid 1.3%, Kelp 1.6%, Molasses 1.6%	34.2	0.5	0.6	-	-	1.30 - 1.31	4.0 - 6.0	10 - 80 L/ha	10 - 40 L/ha
SG0015	Bio Kelp Guardian™	0.1	2.9	9.2	0.5	-	1.16 - 1.17	9.4 - 9.8	5 - 20 L/ha	2 - 10 L/ha
SNPK0053	MoBo Complex™ Mo 0.3%, B 14.7%	6.0	-	-	-	-	1.38 - 1.39	7.0 - 8.0	5 - 10 L/ha	1 - 3 L/ha

Suggested Optimum Nutrient Levels in Petioles

Grapevine Petiole Analysis Standards Sampled at Flowering					
Nutrient	Deficient	Marginal	Adequate	High	Toxic
Nitrogen (%)			0.8 - 1.1		
NO₃ - N (mg/kg)	< 340	340 - 499	500 - 1200	> 1200	
Phosphorus (%)	< 0.2	0.2 - 0.24	0.25 - 0.50	> 0.50	
Potassium (%)	< 1.0	1.0 - 1.7	1.8 - 3.0		
Calcium (%)			1.2 - 1.5		
Magnesium (%)	< 0.3	0.3 - 0.39	> 0.4		
Sodium (%)					> 0.5
Chloride (%)					> 1.0 - 1.5
Iron (mg/kg)			> 30		
Copper (mg/kg)	< 3.0	3.5 - 5.0	6.0 - 11		
Zinc (mg/kg)	< 15	16 - 25	> 26		
Manganese (mg/kg)	< 20	20 - 29	30 - 60		> 500
Boron (mg/kg)	< 25	26 - 34	35 - 70	71 - 100	> 100

From Robinson et al. (1997)



Plant tissue analysis

Plant tissue analysis provides an estimate of vine nutrient status which can reflect uptake from the soil. This makes plant tissue analysis a useful tool to quantify the nutrient status of vines, verify any suspected deficiencies/toxicities in the vines and for problem diagnosis.

The timing of sampling for tissue analysis

Samples for grapevine tissue analysis are usually taken on an annual basis because vines can generally integrate the nutrient supply for the whole season. A well defined phenological growth stage provides a means of standardising sampling time. Samples for petiole tissue analysis are usually taken at 80% flowering. For sampling later in the season, standards also exist for leaf blades sampled at veraison.

For more information see - http://www.awri.com.au/wp-content/uploads/5_nutrition_petiole_analysis.pdf