SAUVIGNON BLANC LEAF NUTRIENT RANGES

In 2005, Sauvignon Blanc wine production was 45% of the New Zealand vintage, substantially more than any other wine-grape variety. Leaf (petiole and blade) nutrient analysis is widely used to assist with fertiliser programming. Interpretation criteria used to date are published data from the USA[2] which are based on Thompson-seedless table grape variety grown in California. Hill Laboratories data indicated that these criteria were not always appropriate and this observation prompted further investigation. The aim was to identify any adjustments needed to leaf nutrient test interpretation criteria specifically for grapes grown in New Zealand.

Utilising accumulated Laboratory data

Data from grape leaf and petiole samples received from 2002 to 2006 by Hill Laboratories was grouped by variety and statistically analysed. Significant differences were observed between varieties and also with the USA interpretation criteria. Consequently, we have developed varietal specific interpretation criteria for leaf petiole and blade tests. After consultation with industry, new medium ranges were adopted to reflect the typical leaf nutrient composition of Sauvignon Blanc grown in New Zealand.

The underlying premise was that the average nutritional status of Sauvignon Blanc grapes grown in New Zealand is good (as evidenced by the consistent high quality of NZ Sauvignon Blanc wines) and that analytical testing is used to identify unusual or atypical nutrient levels. The regional distribution of data for Sauvignon Blanc reflects where most of this variety is grown, i.e. a strong representation from the Marlborough region. Effects of rootstock variety, region, soil type and seasonal differences will influence vine nutrient levels and could not be evaluated during this investigation. These factors together with vine performance and yield should be considered when interpreting nutrient test results.

Even though this approach (i.e. the setting of normal ranges based on observed levels only) is not ideal, Hill Laboratories believed this exercise was warranted given the significant differences between leaf nutrient levels found in New Zealand and the Californian criteria.

Observed and proposed ranges

Figure 1 illustrates the differences between observed test data for nitrogen (N) and potassium (K) and the interpretation ranges based on the USA data. The USA ranges for N and K in the blade and petiole at flowering were generally lower than the observed ranges shown in Figure 1. New medium ranges (Figure 2) were set wider than the observed upper and lower quartile (ULQ) ranges, therefore covering more than the centre 50 % of the data, resulting in safe and robust ranges. Most of the nutrients evaluated required adjustment of the Californian interpretation criteria.

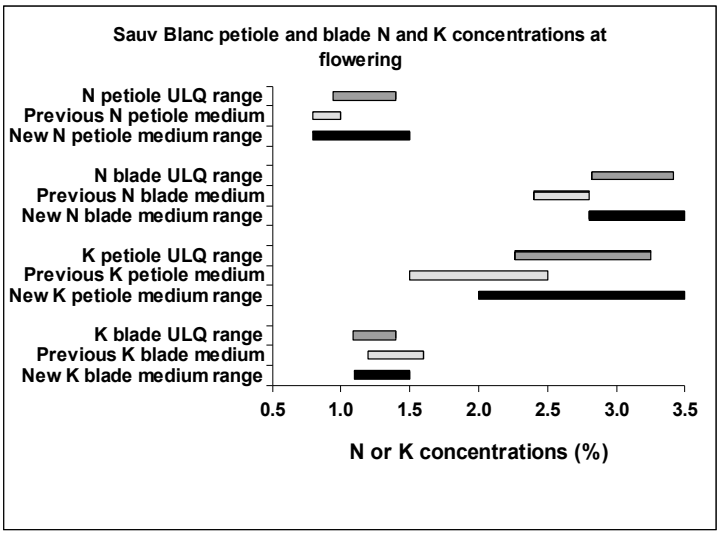

Fig 1. Observed ULQ ranges, previous medium ranges and new medium ranges for Sauvignon Blanc petiole and blade at flowering. (ULQ range = Observed range between the upper and lower quartile values)

New medium ranges for Sauvignon Blanc at flowering

Nutrient	Blade		Petiole	
	Old range	New range	Old range	New range
Nitrogen (%)	2.4 - 2.8	2.8 - 3.4	0.8 - 1.0	0.8 - 1.5
Nitrate – N (mg/kg)	-	-	570 - 1750	400 - 1600
Phosphorus (%)	0.25 - 0.60	0.22 - 0.35	0.21 - 0.50	0.18 - 0.45
Potassium (%)	1.2 - 1.6	1.1 - 1.5	1.5 - 2.5	2.0 - 3.5
Sulphur (%)	0.2 - 0.4	0.35 - 0.50	0.21 - 0.50	0.13 - 0.25
Calcium (%)	1.5 - 2.5	1.2 - 2.0	1.4 - 2.5	1.3 - 2.1
Magnesium (%)	0.25 - 0.6	0.2 - 0.4	0.31 - 0.80	0.3 - 0.6
Sodium (%)	0 - 0.15	0 - 0.10	0.02 - 0.50	0 - 0.15
Boron (mg/kg)	35 - 60	30 - 55	31 - 50	28 - 40
Copper (mg/kg)	6 - 12	6 - 12	5 - 20	5 - 20
Iron (mg/kg)	40 - 100	40 - 150	31 - 100	20 - 50
Manganese (mg/kg)	40 - 100	40 - 200	25 - 200	25 - 140
Zinc (mg/kg)	35 - 70	30 - 80	25 - 50	25 - 60

Fig 2. New versus old blade and petiole criteria for sauvignon blanc at flowering.

Adjustment of medium ranges is a continuous process

Hill Laboratories will continue to accumulate nutrient test data and other information provided with samples for analysis. Further refinement of interpretation criteria will be an ongoing process. Leaf tissue submitted in the future will need to clearly specify the variety grown, so that appropriate interpretation criteria are selected for reporting of results.

Varietal interpretive ranges have also been defined at Hill Laboratories for Cabernet Franc, Cabernet Sauvignon, Chardonnay, Merlot, Pinot Gris, Pinot Noir, Riesling and Syrah. These ranges are used when generating the standard histogram reports.

References

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