

Yield Estimation by Nick Hoskins

Yield estimation – In the current climate, wine companies and vineyard owners are demanding accurate yield estimates. As vineyard managers, we need to articulate whatever procedure is in place and ensure that the owner and winemaker understand it, since a number of critical decisions hinge on the yield estimate. Estimates involve judgment and opinion, but they should gain accuracy as the season progresses. Yield estimates require constant updating, right up to (and in fact during) harvest, to ensure we have the data and the means to improve our estimates in the next season.

Counting vines or bays – You need to count as many vines or bays as are required for accuracy. If historically your yield estimates have been inaccurate (as mine have in some blocks), then you need to count a larger sample or adjust the sample selection of vines to reflect variability within the vineyard. Some growers count bays, others count individual vines: the latter method ensures that samples can be spread over a wider area.

The manual for yield forecasting in Sauvignon Blanc (produced by the Marlborough Focus Vineyard Committee and available at www.nzwine.com/focus) recommends sampling single vines trunk to trunk rather than trying to identify which vine is producing the shoot. The manual also recommends a sample size of around 40: roughly four passes through the block counting five vines on the left side and five on the right. The sample can be increased if vine vigour is uneven and perhaps decreased for smaller regular blocks. Vines should be marked and recorded so that subsequent counts and measurements are carried out on the same vines. An accurate vine count per block is necessary for the calculations.

Bunch weights – While bunch numbers change from year to year, they are predetermined in the previous spring. Bunch weights, however, are anything but stable and are influenced by the weather at flowering. A few days of cold weather can make a significant impact. Bunch weights are also influenced by the amount of water available. Growers typically try to measure bunch weights at veraison and again at harvest to

work out a relationship between the two measurements. This is not as easy as it sounds and requires experience and data from previous vintages to gain any sort of accuracy.

Historical data are required because the relationship between veraison and harvest bunch weights can vary markedly between varieties, sites and clones.

If this is your first yield estimate, try using a low and a high factor (say 1.5 versus 2) when calculating the increase in bunch weights. This will give you a theoretical minimum and maximum:

- 70gm at veraison x 1.5 = 105gm at harvest, vs.
- 70gm at veraison x 2 = 140gm at harvest.
- At 20 bunches per vine, this could result in a difference of 1.75 tonnes per hectare.

How often to calculate – A target yield should be established with the wine company before pruning. It then becomes the vineyard manager's job to determine the best way of achieving it. That requires more number crunching. How many buds should be retained, leaving enough options to accommodate a poor fruit set, yet still achieve the target yield?

1. After pruning, count buds on the wire plus replacement spurs retained per vine x 2 bunches per shoot x average bunch weight x number of vines.
2. After fruit set (when it is apparent how successful flowering has been), count the number of clusters or bunches (often referred to as inflorescences) per vine x average bunch weight x number of vines.
3. At veraison, count the number of bunches per vine x calculated bunch weight (weigh 50 bunches x the historical increase of 1.5 to 2) x number of vines. Some managers count at the start of veraison, and others begin at 50% or 80% – whatever stage is used, it needs to be the same each year.
4. Two weeks before harvest, weigh another 50 bunches, and recalculate the yield using that bunch weight. Fruit thinning can be carried

out at stages 2, 3 and 4, but remember to recount and calculate after thinning.

Harvest data – This is one of the most important measurements of all, yet it's often the one that gets missed. Just prior to harvest, cut and count all bunches from the sample vines into a bin. Weigh the bin and divide by the count to calculate the average bunch

weight for the year. (At this point, it's also worth taking a random 100-berry sample to weigh and calculate an average berry weight.)

Now for a reality check. Compare your calculation to the total received at the winery. That will tell you whether your sampling method is effective or still needs some tweaking for the next season.

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