

Frequently Asked Questions (FAQs)

The FAQs listed below have been collected from winegrape crop forecasting workshops held in previous years by the Victorian Department of Primary Industries. The project team who developed the Winegrape Crop Forecasting Training Module provided answers to guide future deliverers of the training. The questions have been grouped into three categories: Setting up patches, Sampling and Forecasting.

SETTING UP PATCHES

Q In one block I have two pruning structures but they are going to be picked together – should I forecast the whole block or break it in two?

A The software will allow you to combine the two patches into one lot for forecasting but you need to forecast each patch separately if you think there may be a large difference in variation between the two.

Q Is a patch a single variety?

A Yes.

Q In my vineyard my varietal blocks all share the same row and vine spacing, does this mean that I can amalgamate my varietal blocks into one patch?

A Yes, if all of these blocks will be picked as one forecasting unit.

Q When doing a vineyard survey, do you make an allowance for the end of rows? ie. if machine harvesting, you may not pick less fruit at the end of the rows.

A No, harvest efficiency will take into account any fruit left in the vineyard.

Q Does vine space mean vines that are planted?

A A vine space is where a vine is planted or where a vine should have been planted or was planted ie. 'misses' are included.

SAMPLING

- Q **When counting bunches in a segment, do you count bunches on both cordons of vertically divided canopies?**
- A Yes, count everything within the slice of vine row.
- Q **Can you change the end from which you count vine spaces when sampling vines (rather than starting at the same end of the patch each time you count vine spaces)?**
- A You can start counting from either end of the row, the main requirement is to avoid human bias. The only time you may wish to always start at one end is if you want to revisit the same sampling sites throughout the season.
- Q **When counting bunches or picking bunches within segments, what is in and out of the segment?**
- A Only count or pick a bunch if the base of its stalk (ie. where it joins the shoot), is within the segment.
- Q **How do you work out how many segments to count or bunches to pick?**
- A First you need to count or pick a number of bunches in a number of segments to determine the variation in the component you are measuring. Once you have done this and entered the data the best sample size can be determined based on your tolerance of doubt. It is recommended that you start by counting 30 segments or collecting 60 bunches and then determine if you need to increase your sampling.
- Q **Is it possible for the variation in bunch counts to change with two separate counts made in the same patch of vines?**
- A If enough segments have been counted and the sampling is representative and random there should be little change in variation. Counting 20 to 25 segments in a patch of vines is usually adequate to determine variation, unless you have very high variation in your patch.

Q How do you deal with missing vines when sampling?

A *When bunch counting, the segment should be placed where the sampling forms specifies. If there are no bunches in the segment you would record a zero for that bunch count in your sampling form. When bunch sampling, you need to take the nearest bunch to the location specified on your sampling form (even if it is outside the segment).*

Q Does it affect long term data if you change segment length?

A *No, the Grape Forecaster software converts the segment data entered into a per metre measure so you can build up long term data even if you change your segment length from year to year.*

Q Does the computer software select different spots every time you do a bunch count?

A *Yes, the software re-randomises for each sampling event.*

Q Is it necessary to bunch count at harvest?

A *It is recommended that you make another bunch count at harvest to determine if there has been any bunch gain or loss since the bunch count earlier in the season. Otherwise you will have no way of knowing why your forecast was inaccurate. Also, you will not be measuring bunch weight at harvest and, therefore, not collecting historical data that could be used to improve early season bunch weight predictions.*

Q Do we go back to the same vines we used for the early bunch count for harvest bunch counts or do we randomly select another set of vines?

A *The Grape Forecaster software generates a new sampling form with new set of sampling locations (vines) each time. You could return to the same vines for your harvest bunch counts as long as you retained your original sampling form. You would have to make sure that you didn't remove any bunches from those vines between the two bunch counts.*

- Q Would you relax your tolerance of doubt at bunch counting time compared with bunch sampling?**
- A *No, because most of the variation (approx. 60%) in yield from season to season is due to bunch number per vine. Therefore an accurate estimate of bunches/segment is necessary for accurate forecasts.*
- Q What are the advantages and disadvantages to using tagged vines compared to randomly selected vines each time you go out into the vineyard?**
- A *Some people find it quicker and easier to use tagged vines. If using tagged vines, you still need to ensure that the vines are randomly selected and representative of the vine population. Also, if you sample bunches from tagged vines during the season you cannot use these vines for bunch counts at harvest.*
- Q Will the bunch sampling have an effect on bunch counts made earlier?**
- A *No, the number of bunches sampled is negligible compared to the number of bunches in the patch.*
- Q Can you freeze bunches and count berries later?**
- A *Yes, in fact it is easier and quicker to separate berries from the rachis when they are frozen.*
- Q Is the extra time spent counting berries going to produce a more accurate estimate of bunch weight than the bunch weight technique used at veraison?**
- A *Not necessarily, you need to choose which method will suit your needs. If possible you should try both methods and assess your results.*
- Q If we are training a second cordon up but only 50-60% of the top wire is full, should we still enter 4 bearers?**
- A *Use 2 sectors due to the variation across the patch.*

- Q If we are asking growers to do Baume testing from the start of veraison, couldn't we get growers to use the 'veraison bunch weight' technique to forecast yield at 8-9 baume?**
- A No, this is too late. By the time berries are at 8 baume, they are already into a rapid growth phase.**
- Q Will the variation around the number of berries/bunch change if we go out and do extra samples?**
- A No, you can't reduce variation by increasing sample size but you will reduce the level of doubt around the average number berries/bunch.**
- Q If I go out and do extra bunch counts during the season in 'suspicious' blocks, can I just add these figures to the bottom of my earlier bunch counts?**
- A No, you generate another sample each time you count bunches so you would need to enter the counts as separate samples in Grape Forecaster.**
- Q Will you reduce variation and be more accurate if you did bunch counts after flowering or at veraison compared with 6 weeks after budburst?**
- A Not necessarily because it is more difficult (and time consuming) to get an accurate count later in the season due to canopy congestion, you may not see all of the bunches that are there.**
- Q If you have a vertically divided canopy with less bunches on the bottom cordon compared with the top cordon, should I still use bearers for bunch sampling?**
- A No, you should treat each half of the vine as a bearer ie. same as sectors.**
- Q I didn't count bunches just prior to harvest but we machine picked so could I go through the block and count rachises and substitute this for a bunch count?**
- A No, some - rachises are removed during mechanical harvesting.**

FORECASTING

Q Does making a forecast earlier assume no major disasters, such as frost or hail damage, between forecast and harvest?

A Yes.

Q How to you take rachis weight into account?

A *The bunch weight used in the forecast includes the weight of the bunch rachis. If the forecasting unit will be hand-picked, the rachis will be weighed in the harvested fruit. If machine harvested, the berries are removed and the rachis is left on the vine. The rachis comprises approximately 5% of the total bunch weight. Thus, entering a value of 0.95 for harvest efficiency can accommodate the weight loss due to the rachis removal. Further reducing the harvest efficiency can also accommodate further losses, such as fruit left around trellis posts or at the end of the vine row. Examples of harvest efficiency can be found in the Appendix of your manual.*

Q What are reasons for bunch gain from counts made earlier in the season compared with final bunch counts near harvest?

A *Bunches can emerge after counting time. Unburst buds containing bunches may burst or second crop may form on lateral shoots. Bunch gain can also occur if counters miss bunches early in the season. Near harvest, these bunches are easier to see, particularly in red varieties.*

Q Is there an average for harvest efficiency?

A *You can see some examples of harvest efficiency in the Appendix of your manual. Harvest efficiency will be different for different patches, depending on things like harvester operation and type, distance from the vineyard to the winery, grape variety and maturity at harvest.*

Q Would you change your tolerance of doubt as you make forecasts throughout the season?

A *This decision is up to the forecaster.*

Q How much do small bunches contribute to overall yield and average bunch weight?

A *Small bunches or tendril bunches do not contribute significantly to overall yield but when estimating an average bunch weight you need to include them otherwise you will over-estimate bunch weight. The main reason that the definition of a bunch in this forecasting system is ‘any stalk with one or more berries’ is to enhance operational efficiencies and maintain consistency in the sampling process. By using this definition, identifying a bunch is a quick and simple process. The term, ‘small bunch’, is ambiguous and could lead to sampling inconsistencies (and therefore errors in bunch weight determinations) particularly with changes to sampling personnel.*

Q What causes berry loss from early in the season compared to harvest?

A *Abscission of berries, berries naturally fall off during the season. Berry loss is usually worse in cooler climates than warm/hot regions. Environmental factors such as bird damage or hail can also cause berry loss.*

Q How accurate are crop forecasts made a couple of weeks before harvest?

A *The closer to harvest you get, the more accurate the forecast will be because you have less factors to predict (only harvest efficiency).*

Q Which forecast (bunch count vs berry counting) is the most accurate?

A *Berry counting, because you have refined your estimate of bunch weight with average berry number per bunch.*

Q Why is there a difference between bunch weight and berry counting forecasts?

A *Because there are different factors to predict in each forecast. The bunch weight technique requires you to predict how much bigger you expect the bunches to weigh at harvest compared with veraison. The berry counting technique requires a prediction of final berry weight and berry loss.*

Q If I'm going to crop thin, where do I take that into account in my formula?

A *You can use the bunch gain or loss value to account for crop thinning. For example, if you were going to remove 20% of bunches you would use a bunch gain or loss value of 0.8 ie. 80% of fruit would remain after thinning.*

Q Earlier forecasts seem inaccurate – why is it necessary to do them?

A *You can choose to do your forecasts whenever it suits you. However many wineries request yield forecasts in November and January for intake planning.*