

National recommendations for *Botrytis* control and fungicide resistance management

A national *Botrytis* Monitoring Service was offered to the Australian grape industry for the first time during the 1994/95 growing season. For a fee, samples were not only tested for the level of *Botrytis* infection but also for the degree of fungicide resistance in the population. The Service was provided by the Cooperative Research Centre for Viticulture with support from NSW Agriculture and Rhône-Poulenc. Over 160 growers submitted samples during the first season of operation.

Some users suggested that a *Botrytis* control strategy should be provided with the test results. This created a problem, as recommendations provided by Departments of Agriculture, wine companies and The Australian Wine Research Institute sometimes differed because of a requirement to control effectively the disease while also minimising the risk of chemical residues in the grapes and wine. This problem was resolved at a recent meeting between representatives of the Cooperative Research Centre for Viticulture, The Australian Wine Research Institute, CropCare, Rhône-Poulenc, AgrEvo and the Avcare Fungicide Resistance Management Committee.

The meeting came up with two strategies for the control of *Botrytis*, one for those growers who monitor for the disease, and one for those who do not. The successful control of *Botrytis* is more certain if the inoculum potential and degree of fungicide resistance in the vineyard is known before any control measures are taken. Growers in high risk areas are therefore strongly encouraged to make use of the *Botrytis* Monitoring Service. For those producers who use the Service, each step of the management strategy is described in easy to follow tables, with specific recommendations on when to sample for monitoring, when to spray, and what fungicide to use.

The recommendations are still being refined, but should be available in early June. For further information call Alex Sas at The Australian Wine Research Institute. Details of the *Botrytis* Monitoring Service may be obtained from Dr Tan Nair or Ms Stacey Carpenter, ph.: (02) 683 9777 or fax: (02) 683 9868.

An alternative to flood irrigated vineyards

Since 1989, the CSIRO Division of Horticulture, with support from the Dried Fruits Research and Development Council, has been developing a low pressure, sub-surface irrigation system suitable for vineyards that have been traditionally flood or furrow irrigated.

The irrigation system consists of a 65 mm drainage pipe, buried to 150 mm, which is connected to the existing water supply. Preliminary results suggest that water use may be less than a half of that used by a vineyard irrigated with a twin furrow. Other benefits include:

- low installation and running costs compared to pressurised systems
- suited to unfiltered channel water
- control of leaching and losses as drainage water
- eliminates cultivation and furrowing out (no cultivation for five years)
- capability to furrow irrigate to establish cover crops or for leaching
- access to the vineyard for spray application is easier
- vine vigour, especially of grafted vines, can be managed using deficit irrigation techniques

For further information, contact Mr Peter Clingeleffer at the CSIRO Division of Horticulture, Merbein, Victoria, on 050 513 100.

High yields in 1996?

The low yields experienced in most Australian viticultural regions this year has stimulated interest in techniques to forecast yield before budburst has occurred. Unfortunately, there is no way to accurately predict final yield at this early stage as events that occur after budburst, such as frost, poor conditions at flowering, and disease, make the task too difficult. It is possible, however, to estimate the number of potential bunches before the start of the season.

During the 1950s, the CSIRO perfected methods to predict the fruitfulness of dormant buds without waiting for budburst in spring. For many years, Sultana growers in the Sunraysia district were provided with fruitfulness information each autumn, just prior to pruning. They then used this information to adjust the severity of pruning in order to maintain a consistent cropping level. The CSIRO was also able to forecast the potential Sultana crop for the Sunraysia district by establishing a correlation between the proportion of fruitful buds and the vineyard yield. This time-consuming correlation was prepared only with Sultana vines, therefore, there is no tested way of predicting the yield of other cultivars this early in the season. An estimate of the potential number of bunches, however, can be made by forcing the growth of dormant, single-node cuttings to reveal any inflorescences.

Estimating fruitfulness by forcing growth

1. Take a single-node cutting from the part of the cane that corresponds with the pruning method used. For spur pruned vines, cut off a typical spur so that the basal buds are included. The spur can then be cut again, above the second bud, to provide another cutting for evaluation (two cuttings per spur = one sample). If the vine is cane-pruned, take a cutting from each of bud positions 4, 9, and 14 (that is, three cuttings per cane = one sample).
2. A good estimate of fruitfulness should be obtained by taking 250 samples for each representative variety/management unit combination. Take one sample per vine.
3. Plant the cuttings in moist perlite (or coarse sand) in a well drained tray.
4. To force the buds, place the tray in a room held at approximately 25°C. Light conditions are not critical. If you take the cuttings when the buds are in 'organic dormancy' (see below) it may be necessary to treat them with a dormancy breaking agent such as hydrogen cyanamide (Dormex[®]). Use the low rate of this product. Dipping the cuttings for 2h in water at 50°C may also stimulate budburst. It is not necessary to treat the cuttings if they are taken in winter when the buds are in 'enforced dormancy'. If only half of the buds burst in the time available, a good estimate of fruitfulness can still be made.
5. Once the bud has burst, and the shoot extends, it should be possible to count the number of bunches.

Bud dormancy

In the vineyard, the time taken for the dormant buds to burst will vary according to their state of dormancy. During the period from mid-summer to early autumn, buds are in a phase of deep rest, known as 'organic dormancy'. When cuttings are taken after this phase, there is a slow progressive decrease in the time required for budburst. Budburst during this stage can take up to two months, even under favourable conditions. Once organic dormancy has been broken the buds enter a final phase of rest known as 'enforced dormancy'. At this stage, the only factor that prevents budburst is the low temperature in the vineyard, and budburst can take between one and three weeks.

References

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