



Proposal for



Implementation of the Grafted Grapevine Standards



20 October 2005



Nimmo-Bell
& COMPANY LTD



The Grafted Grapevine Standard

A new partnership venture

This is your invitation to join in a new partnership initiative.

Our products command premium prices in overseas markets, we are committed to maintaining and improving our reputation for quality, and to build on the success achieved recently by New Zealand wineries at the International Wine Challenge in London.

The New Zealand Winegrowers Board has agreed a process to develop a Grafted Grapevine Standard according to an accreditation/certification/certified item or system framework as detailed in this document. The partnership initiative is the implementation of this Grafted Grapevine Standard.

The process of certification for producing high health plants can be seen as the first step in the 'chain of custody' concept, eventually extending through to the quality of the wine sold.

We are confident that having robust industry agreed standards with transparent third party audit systems, is likely to contribute positively to improving product quality and at the same time reducing future potential liabilities and risks to the industry.

An appropriate Technical Reference Group of New Zealand Winegrowers is being established and resourced, as a decision-support group for the Board. They have the capability to advise on managing past inconsistencies, and ensure the way forward is in accord with the Board approved standards and systems and iterative improvements.

The systems and procedures explained in this report outline the procedures for collection of rootstock and bud wood material, and the testing procedures and quality standards for the grafted material.

New Zealand Winegrowers has engaged Nimmo-Bell & Company Ltd to assist and facilitate the implementation of the Grafted Grapevine Standard and to negotiate the supply of independent 3rd party audits at reasonable cost to the nursery or vineyard.

A workshop will be convened to confirm buy-in to the issues raised, solutions, and timeframes proposed, and to increase the objectivity of the physical standards.

To support these initiatives New Zealand Winegrowers and NZGVIG will undertake a review of the mechanisms for management of the national germplasm collection and

present a comprehensive business plan with recommendations for the resourcing and management of the agreed functions.

1. A Framework for the Future

1.1 Why do we need a “Standard?”

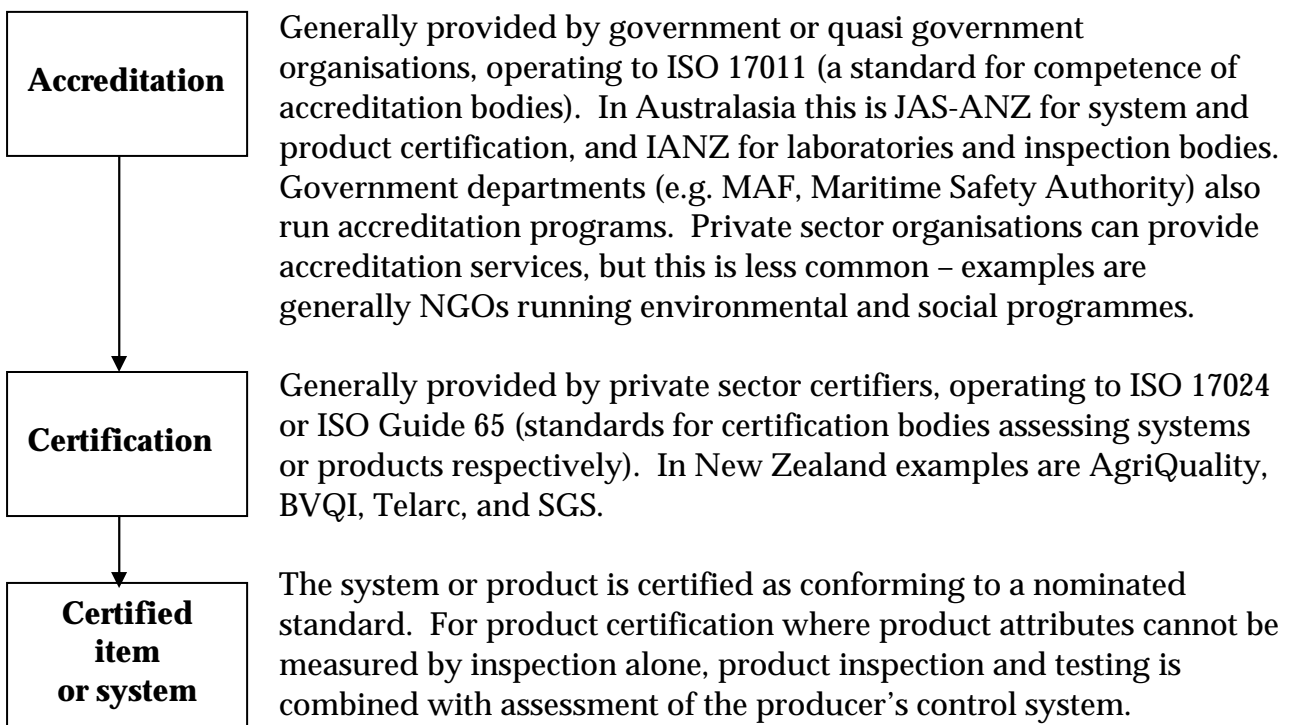
Grapevine leaf roll associated virus type 3 (GLRaV-3) is economically one of the most important and most widespread diseases of wine grapes. It poses a threat to the New Zealand wine industry’s goal of growing quality grapes for premium wine production, as it delays ripening, reduces yield and depresses berry sugar content. This impacts (particularly with Sauvignon Blanc) on the wine-makers’ options and ultimately on the quality of the wine produced.

1.2 What will the Standard achieve?

As a component of the strategy to combat GLRaV-3 New Zealand Winegrowers has developed and seeks to implement this Grafted Grapevine Standard (GGS). The outcome sought is to provide assurance to viticulturalists, winemakers, and other stakeholders including consumers, that grafted grape vines have been tested for and shown not to have Grape Vine Leafroll Virus 3, that they conform to specific physical specifications, and that they are true to type.

1.3 Generic Assurance Programmes

Assurance programmes, irrespective of what is being assured generally have a framework incorporating three elements:





1.4 The first step in the “Chain of Custody” concept

The certification of the process for producing high health plants is the first step in the “chain of custody” concept extending from the management of the national germplasm collection through to the quality of the wine sold. Other modules for the management of the germplasm, the vineyard, the winery, and wholesaling of wine can be added later, but are essential if the industry needs to ensure traceability for consumers in the future.

With the Grafted Grapevine Standard, and seeking to certify that plants comply with a standard, it is necessary to certify the production facility’s management systems, and to have the production facility certified that the plants meet set physical standards – being standards which are capable of objective measurement.

Consideration is given to physical attributes and production facilities and processes that are used to produce grafted grapevines. The emphasis is on describing **outcomes** rather than prescribing **inputs** too closely or how the operator is expected to achieve the outcomes sought. The operator determines how to achieve the outcome, and by doing so can innovate, reduce costs or improve efficiency, and can gain competitive advantage from continually improving their processes.

Clear and objective descriptions are required of:

- What the standard seeks to achieve
- The attributes of the specimen – in this case the grafted grapevine
- The physical characteristics
- The production methods - which will include:
 - Traceability
 - Hygiene
 - Laboratory tests
 - Inspections

Staff qualifications (e.g. training, education, experience, and eye sight)

In developing procedures to assess the health of living plants essential components are the sampling and testing procedures and here the important concepts are “confidence” and “probability”.

1.5 The Year Three Goal

Currently the Standard operates at two levels – certifying grafted plants as either “Premium” or “Standard”. It is proposed that in view of the critical importance for the industry of high health plants that by Year Three (2007) only plants achieving “Premium” status will be available for sale.



1.6 Implementation Methodology

It is envisaged that in implementing the Standard there will be the following stages:

Stages	Actions and Outcomes
Industry sub-committee of Philip Manson, Ian Miller and Rod Bonfiglioli	Meet with Nimmo-Bell team to agree scope and confirm the process.
Communication to all nurseries and vineyards	Nimmo-Bell prepares a communication on the implementation of the Standard and post to all nurseries and vineyards.
Meeting of Technical Reference Group	Established and resourced by New Zealand Winegrowers this group will have the ability to advise on past inconsistencies and ensure the way forward is in accord with the Board's approved standards and systems and iterative improvements over time.
Workshop for nursery operators and others producing materials for grafting	Facilitated by Nimmo-Bell this will cover details of timing and all related arrangements and provide opportunity for discussion and resolution of any questions users might have.
Implementation	Nimmo-Bell will have addressed all matters necessary for the full implementation in Year 1 and subsequently. This will include the <ul style="list-style-type: none"> ▪ development of worksheets for nurseries; ▪ identification of 3rd party auditors; ▪ schemes for the integration of nursery and vineyard audit requirements; ▪ labelling provisions; and ▪ programme for the following years.

1.7 Apportionment of accountabilities and costs

New Zealand Winegrowers has accepted the need for the implementation of the “Chain of Custody” to ensure maintenance of top quality wine capable of retaining the premium prices achieved by the exported products.

Consultation with nurseries producing grafted grapevines, facilitated by Nimmo-Bell earlier in 2005, derived the details of the components of the Standard which was accepted by the Board of New Zealand Winegrowers and signed off for implementation.

The Board has asked Nimmo-Bell to assist with the implementation by managing the process for at least the next three years in order to achieve consistent implementation with the opportunity to meet new demands, which can be expected to arise.



From the process outlined in the methodology there will be the requirement for consistent and effective labelling to position the grafted grapevines in the market and to show that wine produced from these plants meets the requirements of the “Chain of Custody”. These will be accountabilities accepted and funded by New Zealand Winegrowers.

It is agreed that certification be carried out by an accredited Certification body, of which there are a number operating in New Zealand with capability and experience in auditing systems. Technical input would be required from an expert with experience in Australia and New Zealand and the agency or agencies performing the audits would operate under the Joint Accreditation System for Australia and New Zealand (JAS-ANZ) and according to the requirements of ISO/IEC 17021. This sets out the general requirements for bodies operating assessment and certification/registration of management systems.

Because vineyards and wineries are currently audited for a number of reasons it will be important to explore opportunities for achieving efficiencies without compromising the integrity of the specific audit process. It will be necessary, depending on the state of development of the organisation’s current audit process to determine what would be required at the commencement of the process, and what would take place in subsequent years. The subsequent schedule could be influenced by whether problems or issues were found in subsequent visits.

These issues will be addressed in the implementation by Nimmo-Bell with New Zealand Winegrowers agreeing the rules and specifications for the tender process to identify the auditor or auditors.

The cost of the audits should be met by the laboratories, nurseries, or vineyards as appropriate.

At this stage it is envisaged that the initial visit would require up to 2 person days each for an auditor and a technical reviewer. A second visit in the first year would be by the auditor (one day) alone.

The frequency of subsequent visits could be dependent on issues found but we would expect this could be 3 person days. If a six monthly visit is required (often called a surveillance visit) this can be done by the auditor on their own in less than one day.

1.8 The “Standard’s contribution to the “Chain of Custody”

The components of the “Chain of Custody” provide the basis for the “Standard” and the initial implementation of the Standard will address those in the shaded boxes.

The Grafted Grapevine Standard's contribution to the "Chain of Custody"

Trueness to Type

Specific and complete documentation of original germplasm
Ampelography and DNA testing to varietal level
Records of propagation – both rootstock and budwood

Virus Testing

Both rootstock and budwood sources tested for GLRaV-1 and GLRaV-3
by ELISA and viruses not found to be present at time of testing
If required, "end of process" ELISA testing of grafted plant

Physical Specifications

Grafted grapevine meets the physical specifications for the specified
grade.

Traceability

Germplasm collection and management able to be audited
Processes with rootstock and budwood collection able to be audited
Laboratory processes and procedures meet required standards
Nursery processes and procedures meet required standards.

Quality of Grapes delivered to the Winery

High quality grapes of known provenance supplied to the winery
Winery processes and procedures meet required standards

Quality of Wine provided for the Consumers

High quality wine of known provenance supplied to the
wholesaler/retailer/consumer
Distribution systems meet required standards



2. Details of Components 1 – 4 of the “Standard”

2.1 Trueness to Type

Trueness to Type

Concepts:

- Specific and complete documentation of original germplasm
- Ampelography and DNA testing to the varietal level
- Records of propagation – both rootstock and budwood

Specifications:

Certified records of importation from official agency in country of origin.
Certified records from agency importing plant material into New Zealand.

Specifications have been documented for DNA certification to varietal level –
(these would be set by University of California Davis, or Waite Diagnostics.)
Records confirm DNA certification to extent required by the “Standard”.

Ampelography standards set by Organisation Internationale de la Vigne et du
Vin (OIV).

Vines certified by an ampelographer who is either certified by OIV or has
equivalent NZ industry acceptance as agreed by NZ Winegrowers.

Fully traceable records available of both rootstock and scion used for the grafted
plant.

Measures:

Documentary evidence of the source of the material, its importation, and
vineyard maps showing subsequent planting.

Documentary evidence from the laboratories of DNA certification to the varietal
level, where appropriate.

Documentary evidence from ampelographer consistent with and supporting the
laboratory records.

Full documentation of rootstock and scion sources used to produce grafted
plant.

Outcomes:

High level of confidence that the provenance (i.e. origin and history) of the plant
is known and is accurate.

2.2 Virus Testing

Virus Testing

Concepts:

- Initially both rootstock and scion sources tested for GLRaV-1 and GLRaV-3 by ELISA and viruses not found to be present at time of testing.
- Moving to appropriate use of Polymerase Chain Reaction (PCR) testing for the broad spectrum of major grapevine viruses.
- If required, “end of process” ELISA testing of grafted plant.

Specifications:

Initially -

100 percent of all mother vines for rootstock and scion Elisa tested and GLRaV-1 and GLRaV-3 found not to be present for at least two years. (Note: Except for agreed exclusions such as Chardonnay Mendoza.)

If no evidence of virus found in Year Two the preferred strategy is that all vines are tested each year.

A minimal strategy is single bay composite testing (5 or 6 vines) carried out on vines in Year Three and subsequent years. The frequency and type of testing needs to be based on good science, probabilities, and the level of confidence desired, to ensure that blocks continue 100 percent clean status.

To remain “100 percent clean” the block must be at least 100 metres away from any infected block.

Rootstock samples to be dormant cane only, scion samples may be either leaf or dormant cane.

Sampling protocols as set by accredited Elisa testing laboratories (e.g. Linnaeus and HortResearch). Nurseries carrying out own testing must have validated both their procedures and facilities with the appropriate authorities.

By Year Three -

All source vines PCR tested for 3 successive seasons and none of the following were found:

- GLRaV types 1, 2, 3, 4, 5, 7, and 9.
- Rupestris Stem Pitting types 1 and 2
- Grapevine Vitivirus types A and B
- Grapevine Fleck Virus types A and B – only applies to Rootstocks

Virus Testing (continued)

Virused vines:

All virused vines are treated so that the whole plant (including roots) is dead. They can then be removed. Replacements vines must be from certified scions and rootstocks.

Accurate and adequate records kept of removal and destruction of affected vines.

Accurate and adequate records kept of confirmation testing (by specific bay and vine) in the event that a consolidated test produces a positive result – and records kept of subsequent actions taken.

Measures:

Documentation of sampling procedures undertaken, especially if all vines not tested in that year.

Documentary evidence from the laboratories of Elisa and/or PCR testing.

Documentation of follow up procedures taken as required by any positive results.

Documentation of details of risk management programme (such as Hazards Analysis of Critical Control Points [HACCP] or AS/NZS 4360) to manage key factors such as traceability of testing results and product.

Follow-up measures:

All grafted plants inspected in the field prior to despatch and any suspect plants submitted for “end of process” Elisa testing.

Outcomes:

High level of confidence that plants have been grafted from rootstock and scion

2.3 Physical Specifications

Physical Specifications

Concept:

- Grafted grapevine meets the physical specifications for the specified grade.

Specifications:

Graft Union graft union must be healthy and strong – able to withstand the stress/bend test with medium pressure being applied to the union in two directions.

Callus must be fully mature with no visible damage such as holes or cracks or green tissue around the graft union.

Healthy field tested plants.

Size Length 330 – 430 mm preferably strong and straight.

Thickness – 5 – 7 mm at or below the region of graft and 3 – 5 mm at the first visible viable bud – measured on the wider diagonal in the case of oval stock.

Curvature – maximum of 15 degrees from the perpendicular – or between 11 and 1 o'clock.

Buds At least 3 or 4 visible dormant buds.

Roots Healthy and evenly distributed in proportion to the variety and the vine.
Normally expect a minimum of 3 strong roots, at least one in each of the 120 degrees of the circle formed by the roots.
Usually of the order of 5 – 10 roots per plant.
Root diameter to be 2.5 mm at 10 mm from the base of the trunk, and roots to be visually healthy and of normal colour for the variety.

Physical Specifications (continued)

Physical defects Nil – no breakages, cracks or evidence of wire/machine damage.

Extraneous matter No soil or other plant material.

Tolerance Tolerance of up to a total of 1.5% deviation from physical specifications permitted over the total range of physical specifications – not 1.5% for each category.

Labelling All vines bundled and labelled as to grade conformity including variety, clone (rootstock and scion) TK or Ms Number and virus testing status. No tolerance on this category.

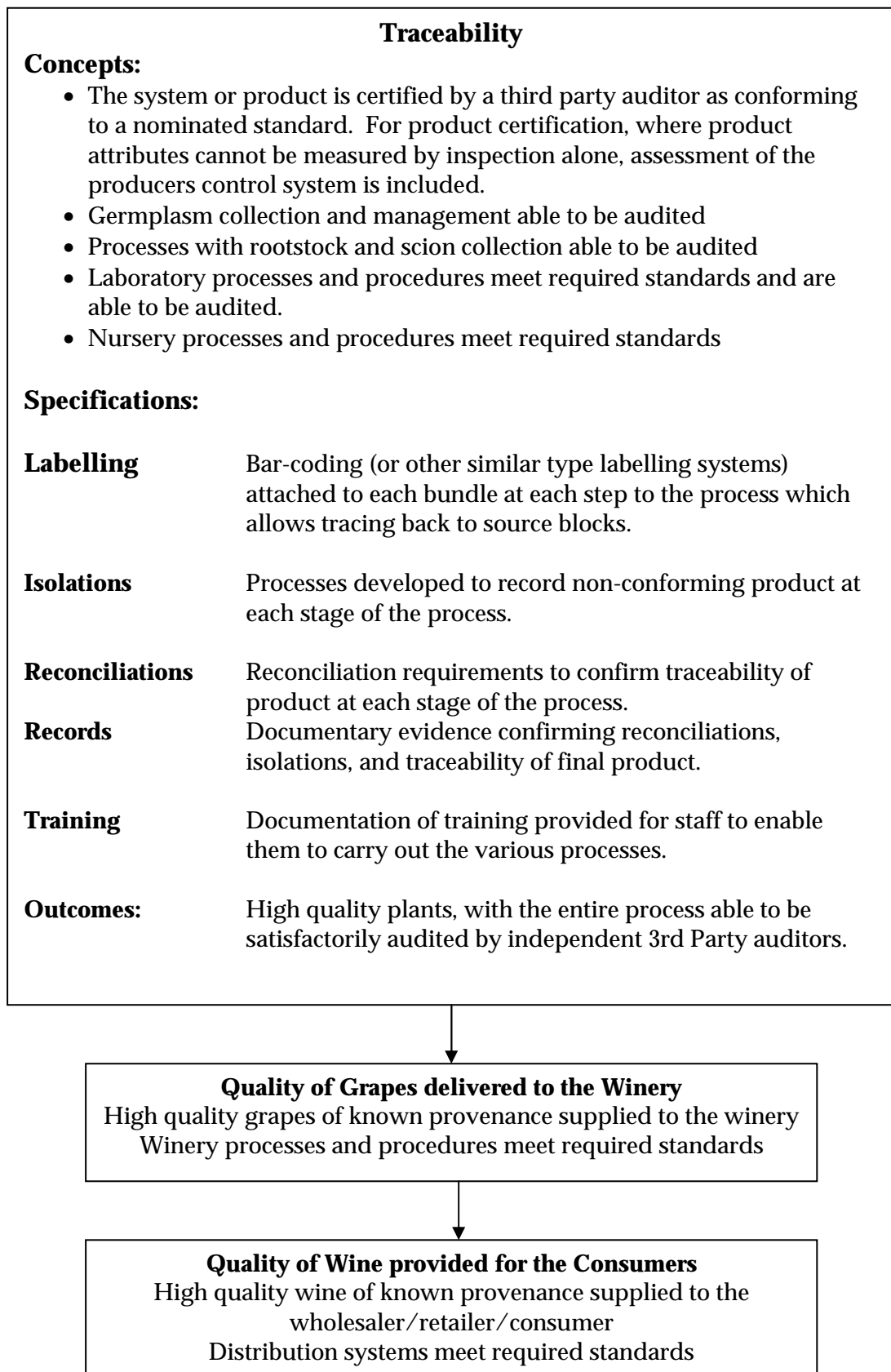
Measures: Standard ruler and visual inspection. Nurseries are encouraged to have photographs of examples of the standards required.

All plants being offered for sale are inspected in the field in February –March of the year following grafting. Any suspect plants are Elisa tested and if positive, or not true to type are rogued and destroyed. Criteria are – not showing comparable vigour, any disease symptoms, or any physical injury.

Outcomes: Strong, healthy plants of known provenance available for purchase by vineyard managers.

For the nursery manager – field tested plants available for sale in a particular year that meet the Premium criteria are greater than 75% of all plants grafted the previous season.

2.4 Traceability and Audit Processes





Appendix One: New Zealand Wine Industry Organisations

