Australian Vine Accreditation Scheme

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Background
The Australian grape growing industry began a program of clonal selection in the late 1950s, concentrating efforts on increasing yields (Cirami 1986). Vine improvement groups developed a more formalised approach to clonal selection and varietal introductions in the 1970s (McCreanor 1986). Recent estimates are that vine improvement groups now supply between 50% and 90% of planting material (Scholefield 1995, Hamilton 1994).

However, not all material distributed by commercial nurseries is of known clonal identity and disease status. The occurrence of some cutting transmissible vine diseases like leaf roll, crown gall and Australian grapevine yellows (AGY), and the long-term effects of these on vineyard productivity and profitability led to a renewed emphasis on the need for planting material as free from disease as possible. More recently the requirements of accurate wine labelling have emphasised the need to know and to be able to demonstrate accurately the variety of grapes used for winemaking.

In 1992 the then Wine and Brandy Producers’ Association of South Australia called for practical quarantine regulations, certification of grapevine propagating material, accreditation of nurseries and product quality assurance (Murphy 1995). From this initiative a ‘National vine accreditation steering group’ was formed, which appointed three expert working groups and a drafting committee, and subsequently published a discussion paper entitled ‘Australian quality assurance for vine propagation’. This paper outlined the requirements and expectations of the wine and grapegrowing industry for what became known as ‘A national vine accreditation scheme’ (NVAS). The NVAS is a strategy to improve vine planting material by implementing coordinated quality systems.

Administration of the scheme was handed to the Australian Vine Improvement Association (AVIA). Consultants Scholefield Robinson and Weeks Consulting were appointed to further develop this material into guidelines for the implementation and management of the scheme.

Development
Assumptions made in developing procedures for NVAS
• Implementation would be achieved best by a quality assurance (QA) system.
• The QA system should be based on the ISO 9000 series model.
• Guidelines need to be sufficiently definite to provide practical assistance but not be restrictive of local conditions or adoption of improved technology.
• The systems must be dynamic, encouraging continuing improvement.
• Implementation of the scheme should be in two stages namely:
  - Procedures for AVIA and vine improvement groups, and
  - Guidelines for nurseries.

• The NVAS documents should be both a ‘standard’ for what must be done and a ‘guide’ to achieving that standard.
• Customers expect to acquire planting material which is true to variety and label, will grow readily and is free from known pests and diseases.
• Assurance of the quality of planting material can be provided by certification of material which has been produced by accredited bodies using procedures endorsed by AVIA.

Approach taken
The procedures and guidelines developed are consistent with ISO 9002 requirements, with emphasis on elements relating to the more technical aspects of specifications, operating procedures, quality inspection and keeping adequate records.

Implementing the Scheme: Part One

Implementing the Scheme: Part Two

AVIA Certified Material from vine improvement scheme

Private Source Areas (Non Certified)

AVIA Accredited Nursery

Non Certified material

AVIA Certified Material produced in an accredited nursery

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Part 1 of these procedures relates to activities of AVIA and its vine improvement constituent groups; it is relatively prescriptive and comprehensive in detailed procedures. Part 2 addresses the activities of nurseries controlled and operated independently of AVIA, which need to develop detailed procedures adapted to their own local situations and still follow the guidelines administered by AVIA.

Two premises fundamental to quality assurance are that:

- quality is defined in terms of customer expectations and
- quality must be built in, not inspected in.

Thus the guidelines stress the importance of:

- Inputs: purchasing, control of raw materials, suppliers
- Process control: planning, operating procedures, quality monitoring, inspection, keeping adequate records
- Outputs: specifications reflecting customer expectations

The QA systems of both the vine improvement groups and of nurseries need to be audited by a competent external quality auditor to verify their adoption of the required systems and hence their eligibility to be 'accredited'.

Expected outcomes from a QA system
It is expected that the adoption of the procedures of the NVAS will result in:

- Increased confidence that the vine planting material acquired will be exactly as ordered and of superior quality.
- A framework to facilitate the rapid and widespread adoption of improved technology as and when it becomes available.

The adoption of the NVAS systems will not solve all problems nor guarantee perfect quality. Indeed there may be some unrealistic expectations of the scheme at this stage of its development. Some limitations are:

- The selection of the best clone or rootstock-scion combination. While the system will ensure that what is ordered will be delivered, the grower must make his own selection of the planting material which is ordered. Comprehensive lists are published on the clones registered (e.g. Nicholas 1995), but information about the characteristics and relative merits of the various clones is, sadly, less readily available. Further, the total gene pool available in Australia is limited (Smart 1996).

- While the disease status of certified vines may be documented, this does not mean they are disease free. Not all clones have been fully indexed for viruses or other transmissible diseases. Where diseases like AGY are of concern, treatments must be applied which minimise the risk of spreading these diseases; such treatments are included in the AVIA procedures. Where treatments outlined in the NVAS guidelines are shown subsequently to require modi-

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**Figure 2. Hazards analysis for vine planting material**

<table>
<thead>
<tr>
<th>Process</th>
<th>Hazard</th>
<th>Critical control</th>
<th>Monitor method</th>
<th>Action if deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquisition of superior clone</td>
<td>Inferior or diseased germplasm</td>
<td>Initial selection characterisation</td>
<td>Confirm ID, disease testing</td>
<td>Use alternative source of germplasm</td>
</tr>
<tr>
<td>Source area establishment, maintenance</td>
<td>Incorrectly identified clonal material</td>
<td>Aquire and plant correct material</td>
<td>Vine inspection, disease status</td>
<td>Replace off vines or revoke certified status</td>
</tr>
<tr>
<td>Order and supply</td>
<td>Supply not meeting demand</td>
<td>Acurate order and forecast</td>
<td>Reconcile numbers</td>
<td>Reallocation</td>
</tr>
<tr>
<td>Harvesting cuttings</td>
<td>Cut wrong clone</td>
<td>Identity of source area vines</td>
<td>Verify location, field plan</td>
<td>Relabel correctly, discard suspect cutting</td>
</tr>
<tr>
<td></td>
<td>Non viable cuttings</td>
<td>Select viable cuttings</td>
<td>Field inspections of cuttings</td>
<td>Discard non viable cuttings</td>
</tr>
<tr>
<td>Treatment</td>
<td>Non viable cuttings</td>
<td>Correct method, temp, concentration of chloride</td>
<td>Check process, verify</td>
<td>Rework; correct the process</td>
</tr>
<tr>
<td></td>
<td>Spread crown gall from cutting board</td>
<td>Enough chlorine</td>
<td>Check (Cl)</td>
<td>Top up to 10ppm</td>
</tr>
<tr>
<td>Grading</td>
<td>Out of spec. in terms of length, diam., buds</td>
<td>Correct job by sorters</td>
<td>On line inspections</td>
<td>Rework faulty batches, Reject</td>
</tr>
<tr>
<td>Packing</td>
<td>Wrong identity</td>
<td>Acurate labels Counters</td>
<td>On line check</td>
<td>Relabel, reject if doubt</td>
</tr>
<tr>
<td></td>
<td>Wrong number</td>
<td></td>
<td>Check at end</td>
<td>Rework</td>
</tr>
<tr>
<td>Store</td>
<td>Freeze or buds shoot</td>
<td>Right temp.</td>
<td>Check temp.</td>
<td>Adjust cool room</td>
</tr>
<tr>
<td>Despatch</td>
<td>Contents wrong</td>
<td>Use accurate information Proper method at packing</td>
<td>Check despatches against orders Pre-despatch check</td>
<td>Match contents to order and address, Re-label, if identity is doubtful, discard</td>
</tr>
</tbody>
</table>

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fication, there is a mechanism in place to amend guidelines and implement the new procedure. For some diseases no totally reliable disease control treatments are known.

**Role of AVIA in the accreditation process**

The standard and guidelines described here have been adopted as the framework for a National Vine A accreditation Scheme and are published by AVIA in two volumes, namely:

- Part 1. 'Standard Operating Procedures—source area maintenance and vine multiplication'
- Part 2. 'Guidelines for Nurseries—propagation of vine planting material'.

AVIA will implement the scheme by:

- acting as the administrative body engaging auditors, authorising accreditation, maintaining a register of accredited nurseries and maintaining and controlling the accreditation scheme documents, and
- providing advisory and training programs for nurseries and by providing a source of technical reference material.

Thus AVIA will have the responsibility to monitor industry trends and to implement improved procedures as they become available. Currently AVIA is compiling a catalogue of existing preferred clones, listing their characteristics and relative merits.

**Implementation by vine improvement groups**

State vine improvement groups, the South Australian Vine Improvement Committee (SAVIC) and 7 regional committees, the South Australian Vine Improvement Society (MIAVIS), and the Western Australia (VAMVVIA), Murrumbidgee Irrigation Area Vine Improvement group in the documented manner will bear the 'AVIA Certified' label. This material is labelled clearly and traceable to its origin.

Independent inspection of source areas has been implemented 'AVIA Certified' material. This material may be handled concurrently. This material however will not be eligible to carry the AVIA Certified label, and must be isolated from certified material at all times. Effective product identification procedures and records will verify the status of planting material. The customer will receive a product in good condition, clearly labelled and traceable to the origin of scion and/or rootstock.

**Nursery accreditation process**

1. An initial registration and application fee will be charged. The nursery identity and characteristics will be recorded in the nursery database for all future correspondence and forwarding of updated reference manuals. A copy of the guidelines will be issued to the nursery.
2. When the nursery has implemented procedures to comply with the scheme, an initial inspection is arranged. This will be carried out by an independent quality systems auditor, accompanied by technical representation from AVIA.
3. Following inspection, the nursery's application will be tabled before a review committee which will recommend accreditation, or require certain changes before final approval.
4. Successful applicants will be issued a certificate of accreditation and a nursery registration number. The number will provide authenticity of registration when used for promotional purposes. The accreditation will permit display of the certificate on the premises, and use of the logo when supplying 'AVIA Certified' material.
5. Surveillance audits will be conducted twice yearly to assist nurseries in their operations and maintain a consistent level of quality assurance.

**Anticipated benefits**

The quality and performance of the vine planting material will improve with knowledge of the degree of certainty of trueness to variety, inspection for disease and general condition; these may be verified by a product identity trail to the origin of material and procedures used and test results. A accreditation will give customers (who may have no prior knowledge of the supplier) confidence in the product delivered. Quality will be unaffected by location or supply and demand conditions.

Nurseries involved will be rewarded for their efforts in maintaining effective systems to produce a superior product.

**References**