



Australian Government

AHCPHT506A Manage a wine making process

Release 1

AHCPHT506A Manage a wine making process

Modification History

Release	TP Version	Comments
1	AHC10v5	Initial release. New unit based on NSW accredited unit NSWTVIT502A Manage and evaluate wine production

Unit Descriptor

This unit of competency covers the process of acquiring grapes for processing and the preparation for, and production of, a variety of wine types and styles.

Application of the Unit

This unit applies to vineyard managers who also have a role in the wine making process.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine type and style of wine to be produced and winemaking process to be followed	1.1 The type and style of wine to be produced from the crop is determined according to variety and characteristics of the grapes, winemaking factors, consumer preferences, client requirements and industry trends 1.2 The winemaking process to be followed is determined according to type and style of wine to be produced, quality and quantity of grapes available, and availability of required equipment and personnel
2. Acquire, deliver and prepare grapes for fermentation	2.1 Grapes are harvested and handled in accordance with standard vineyard practices and quality criteria 2.2 Grapes meeting the desired variety and quality parameters are acquired and delivered to the winery 2.3 Grapes are prepared for fermentation, and must or juice is delivered to fermentation vessels to meet the desired wine type and style requirements
3. Initiate a ferment	3.1 Yeast types/strains are selected to produce a given wine type and style 3.2 Fermentation vessels are prepared and must or juice is transferred according to wine type and style requirements 3.3 Yeast culture is prepared according to specifications 3.4 Yeast is added to fermentation vessels according to specified instructions
4. Manage primary fermentation	4.1 Physical characteristics of ferment are monitored and adjusted 4.2 Chemical characteristics of ferment are monitored and adjusted 4.3 Potential fermentation problems are predicted 4.4 The presence of undesirable fermentation characteristics is detected 4.5 Steps to rectify fermentation problems are outlined 4.6 Gross lees or pressings are racked off into appropriate vessels at a determined time 4.7 Records of additions and adjustments are maintained
5. Manage secondary fermentation	5.1 Oak barrels are obtained and checked for serviceability for use if required 5.2 Wine is inoculated with selected malolactic fermentation bacteria 5.3 Malolactic fermentation is managed to the predetermined end point

ELEMENT	PERFORMANCE CRITERIA
6. Mature wine in storage vessels	6.1 Suitable maturation <i>storage vessels</i> to produce a given wine style are selected, obtained and checked for serviceability and use 6.2 Wine is transferred into the selected vessels according to determined wine style characteristics 6.3 Condition of wine in storage is monitored 6.4 Wine is bottled and sealed 6.5 Records are made and maintained

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Ability to:

- calculate the cost and logistical requirements of components of the wine production
- plan processes that may be used to maximise production of grapes that meet winery quality requirements
- operate the range of equipment required to process grapes from winery receipt point to the fermentation tank
- perform must handling processes
- make additions and finings as required
- operate the filtration and bottling processes
- identify, establish, supervise and monitor daily cellar work practices

Required knowledge

Knowledge of:

- vineyard practices relevant to the production of grapes that meet the requirements of the winery
- changes to the physical characteristics of grapes during ripening including size, hardness and colour
- changes to the chemical characteristics of grapes during ripening including acid, sugar and flavour
- processes involved in handling grapes from the vineyard to the winery in order to produce wine
- the range of equipment and the ability to use this equipment to process grapes and must in a winery
- factors involved in the initiation and management of primary, secondary and malolactic fermentation processes
- routine winemaking and cellar operation procedures
- cleaning procedures and processes, including:
 - cleaning and sanitising agents
 - cleaning systems and equipment
 - waste disposal
 - wastewater removal
- must and marc handling procedures
- equipment and processes for filtration of wine
- ideal Australian cellaring conditions
- varieties of wine grapes in Australia
- types and styles of wine produced in Australia
- 'balance' in relation to wine type and style

- climatic and physical features of wine grape growing areas and wine styles produced

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following: • acquire and process grapes for wine production • initiate and manage the fermentation process • perform chemical analyses necessary for the winemaking process • organise and undertake routine cellar operations • identify and recommend improvements to viticultural practices that will contribute to enhanced wine quality in the next season.
Context of and specific resources for assessment	Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.
Method of assessment	• Assessment methods must satisfy the endorsed Assessment Guidelines of the AHC10 Training Package and can be assessed holistically with other units • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of required knowledge • Assessment must be by direct observation of tasks, with questioning on required knowledge and it must also reinforce the integration of employability skills • Assessment methods must confirm the ability to access, interpret and apply the required knowledge • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be

	transferred to other circumstances • The assessment environment should not disadvantage the candidate • Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English • Where the participant has a disability, reasonable adjustment may be applied during assessment • Language and literacy demands of the assessment task should not be higher than those of the work role
Guidance information for assessment	To ensure consistency of performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Wine types and styles

Relevant wine types include:

- dry white table wine
- dry red table wine
- sweet white table wine
- sparkling wine
- fortified wine
- blended wines

Grape varieties

The major grape varieties used in the production of wine in Australia include:

- major red varieties:
 - Shiraz
 - Cabernet Sauvignon
 - Merlot
 - Pinot Noir
- major white varieties:
 - Chardonnay
 - Semillon
 - Riesling
 - Sauvignon Blanc
 - Sultana

The minor and newer wine varieties in Australia include:

- red varieties:
 - Cabernet Franc
 - Malbec
 - Grenache
 - Chambourcin
 - Italian varieties
- white varieties:
 - Chenin Blanc
 - Marsanne
 - Verdelho
 - Italian varieties

Winemaking processes,
operations and equipment
include:

- handling operations:
 - heading down
 - pumping over
 - racking
 - transfer
 - blending
 - cooling and temperature control
 - cold stabilisation
 - filtering
 - making additions
 - preparing for bottling
 - cleaning and
 - a consideration of reasons for each operation, procedures involved and problems occurring in wine handling

Specific processes for still white and red wine production include:

- fermentation methods
- open
- closed
- skin contact techniques
- plunging
- header boards
- pumping over
- pressing process
- free run/pressings
- use of oak, including the different types of oak available and their application to the wine making process including French, American and others
- methods of addition
- barrel types and size (relationship between surface area/volume to flavour)
- chips
- beads
- staves
- clarification and stabilising techniques
- techniques
- methods
- bottling process

Plant and equipment used in wine making operations include:

- Crushers, de-stemmers, presses

Grape selection criteria and winemaking factors include:	• types of grapes used • ripeness of grapes • fermentation techniques • maturation • additions
Grape preparation operations include:	• sulphur dioxide application • crushing • de-stemming • pressing
Types of yeast	Factors to be considered in relation to types of yeast used in wine production include: • the fermentation process • yeast types (commercial, wild) and their effects on characteristics of wine • chemical changes due to fermentation • killer yeasts
Primary fermentation procedures	Factors to be managed and monitored in relation to the process of fermentation include: • initiation • yeast selection • must preparation • yeast inoculum preparation • yeast addition techniques • chemical/physical characteristics • problems (stuck fermentation, off flavours/aromas) • racking off gross lees • timing
Secondary fermentation procedures include:	• selection of oak barrels if required • malolactic fermentation and its effect in wine production • initiation and monitoring • timing • identification of sensory changes due to malolactic fermentation
Storage vessels include:	• stainless steel tanks • barrels • plastic/nylon pallet containers • bottles and casks
Equipment	Equipment used in post-crush must and wine handling include: • pumps, hoses, pipes, fittings

	• filters • tanks • barrels
Cellar operations include:	• daily procedures; planning, monitoring, adjustments to wine in storage • staff instruction; communication and evaluation of performance
Chemical analyses include:	• pH • sugar • titratable acid (TA) • sulphur dioxide • alcohol • malic/lactic acid
Additives and fining agents include:	• bentonite • PVPP • egg albumin • casein • gelatine • copper Reasons for using additives and finings include: • moderating tannins • moderating phenolic content • reducing colour • reducing protein content Trials to determine requirements include: • setting up • evaluation Addition of additives/fining agents include: • calculation of additions to bulk wine • addition procedures
Hygienic working environment	The elements of winery hygiene include: • hygienic working environment • key areas and equipment, including: • tanks • barrels • hoses and pipes • presses • crushers/destemmers • receival area

	• floors • drains
Characteristics of wine include:	• wine type and style • age • chemical components • packaging
Winemaking techniques include:	• fermentation techniques • wood fermentation and maturation techniques • processing techniques including crushing, skin contact, pressing, filtration, fining, blending • ageing techniques including: • effect on style of wine • effect on composition of wine • effect on quality of wine • sparkling wine production techniques: • Methode Champenoise • transfer systems • Charmat • carbonation • fortified wine production techniques
Faults in wine	Wine faults include: • common wine faults • origin of wine faults • effect of wine faults on wine • sensory description of wine faults • bottle age versus wine faults
Site characteristics and viticultural practices	• Site characteristics include: • climate • aspect • topography • soil • Vineyard practices relevant to wine quality include: • trellis types • pruning; timing and methods • bunch thinning • shoot thinning • de-suckering • shoot positioning • leaf plucking

	• canopy management • irrigation • pest and disease control
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Unit Sector(s)

Production Horticulture