



Australian Government

FWPHAR3221 Harvest trees manually (advanced)

Release: 2

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Modification History

Release	Comments
Release 2	This version released with FWP Forest and Wood Products Training Package Version 3.0.
Release 1	This version released with FWP Forest and Wood Products Training Package Version 2.0.

Application

This unit of competency describes the outcomes required to assess harvest sites and trees to be harvested and to plan and safely harvest trees using a chainsaw.

This unit covers the felling procedures for trees with a level of complexity that requires significant tree assessment and advanced practical felling skills.

Persons competent in this unit should be able to effectively fell trees of any size, species and condition, including those with significant defects and characteristics that cause excessive felling complexity, that are deemed safe to fell.

Trees typical to the scope of this unit including the following characteristics:

- lean and weight distribution which adds significant complexity yet can be assessed and adapted to site requirements
- larger dimensions relative to local forest size distribution
- substantial lean
- damage and/or defect that requires complex felling techniques
- multi legged, hollow butts, culls, stags
- species prone to free splitting and adverse reactions during falling
- single or complex multi stems
- diameter of tree greater than chainsaw bar length
- grown on terrain and slope that can add significant complexity to the operation

The unit applies to those felling trees in a commercial harvesting operation within a forest environment, producing forest products.

Licensing, legislative, regulatory, or certification requirements apply to this unit in some states & territories at the time of publication, and may differ according to jurisdiction

Pre-requisite Unit

Nil

Unit Sector

Harvesting and Haulage

Elements and Performance Criteria

Element <i>Elements describe the essential outcomes.</i>	Performance Criteria <i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.</i>
1. Prepare for felling	1.1 Identify and comply with applicable work health and safety (WHS), environmental, legislative and organisational requirements relevant to harvesting trees 1.2 Identify and adhere to site environmental protection measures and harvest plan according to relevant legislation and regulations 1.3 Review and check job requirements with appropriate personnel 1.4 Select tools and equipment appropriate to work requirements and check for operational effectiveness according to manufacturer recommendations 1.5 Sharpen and adjust chainsaw or change components according to manufacturer recommendations 1.6 Assess tree and determine felling requirements 1.7 Identify and control potential and existing risks and hazards in the work area 1.8 Identify trees to be felled and retained and establish general falling direction 1.9 Identify log extraction method and requirements 1.10 Determine requirements for product quality 1.11 Establish and maintain communication with others according to WHS requirements
2. Assess conditions and surroundings	2.1 Identify and comply with site environmental concerns according to relevant federal, state or territory legislation and local regulations 2.2 Identify and assess environmental conditions according to harvesting plan 2.3 Assess general factors affecting felling requirements and detect and control specific forest or site risks and hazards
3. Assess tree and plan felling	3.1 Locate and visually assess tree for felling characteristics 3.2 Confirm tree is safe to fell

	3.3 Assess and check required falling direction and possible deviation 3.4 Plan sequence of cuts to fell tree according to standard felling procedures and log quality requirements 3.5 Select suitable escape route and clear of growth and other obstacles according to environmental care principles and statutory requirements 3.6 Assess limitations of own skills in safely felling trees, identify trees considered outside own skill level and seek assistance from appropriate personnel where required 3.7 Note and monitor location and activity of other personnel in the work area and modify activity where required
4. Fell trees of any size, species and condition	4.1 Fell individual trees using planned cutting techniques according to site conditions, extraction method and at a safe distance from other personnel in the work area 4.2 Adjust cutting technique in response to movement and condition of tree 4.3 Use planned escape route when tree starts to fall and monitor the fall and movement of tree on ground until determined stable 4.4 Delay movement back into the felling area until all tree material, including from adjacent tree crowns, has fallen, and identify any dangerous tree branches that hang-up 4.5 Identify and implement procedures for removal of trees that are hung-up 4.6 Fell trees to meet production levels, log extraction methods and site requirements 4.7 Dispose of waste materials in line with environmental and operational requirements
5. Maintain equipment	5.1 Detect, rectify and report blunt or damaged saw chain according to workplace procedures 5.2 Monitor chainsaw for operational effectiveness and record and report faults, malfunctions and problems according to workplace procedures

Foundation Skills

This section describes those core and employment skills that are essential to performance and are not explicit in the performance criteria.

Numeracy skills to:	- estimate and measure tree dimensions, including height, length and diameter and volume - plan time efficient cutting patterns and sequences - report on size, length, diameter and grade of felled trees. - calculate product mass of individual trees and determine fall zone.
Oral communication skills to:	- select and use appropriate spoken communication strategies with work colleagues and other personnel on site when felling trees - interpret hand signals with other operators to ensure safe tree felling - ask questions to clarify contents of coupe plans.
Reading skills to:	- interpret: - workplace health and safety, industry standards and regulations for felling trees and other relevant tree felling procedures - work orders and coupe plans - manufacturers' maintenance recommendations.
Writing skills to:	- complete forms to record WHS considerations for felling trees - report equipment faults and request maintenance of equipment. - complete log book requirements.
Planning and organising skills to:	- identify an unsafe tree. - efficiently and logically sequence the stages of preparation for and felling of trees using work order to guide activities.
Problem solving skills to:	- plan and apply the hierarchy of risk control - review and identify work requirements - recognise own limitations in conditions and trees for felling - identify problems and equipment faults and demonstrate appropriate response procedures.

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FWPHAR3221 Harvest trees manually (advanced) Release 2	FPIHAR3221 Harvest trees manually (advanced) Release 1	Minor typographical errors corrected	Equivalent

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

Assessment Requirements for FWPHAR3221 Harvest trees manually (advanced)

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Performance Evidence

A person demonstrating competency in this unit must satisfy all of the elements, performance criteria and foundation skills of this unit. If a specific volume or frequency is not stated below, then evidence must be provided that the following requirements have been performed on at least one occasion:

- comply with applicable federal, state or territory legislative and regulatory requirements and codes of practice including WHS, environmental and organisational policies and procedures relevant to harvesting trees at an advanced level
- comply with applicable licensing or certification requirements relevant to harvesting trees at an advanced level
- effectively communicate and use safe working practices, including maintaining an awareness of other personnel activity in the work area
- assess site conditions, by applying environmental protection measures, detecting hazards and own skill level for harvesting trees at an advanced level
- conduct a tree assessment
- Identify structural defects and stresses in trees and the impact on felling, including exclusion of trees from hand felling due to hazardous and difficult situations for assessment, monitoring and safe falling including a crown that contains dead or broken material, entanglement or malformation
- plan a felling sequence for individual trees and preparing surroundings including escape route
- harvest advanced trees using appropriate cuts safely and without causing damage to personnel, equipment and surrounding environment
- identify trees that are hung up
- select, prepare and maintain chainsaw equipment including recognising faults, problems and malfunctions
- assess, plan and safely operate chainsaw equipment to manually harvest trees at an advanced level

- use tree felling techniques including scarf cutting and back cutting to provide hinge-wood, and the use of wedges to assist in controlling falling direction
- apply appropriate extraction methods
- apply specifications as outlined in harvesting plan

Knowledge Evidence

A person competent in this unit must be able to demonstrate knowledge of:

- workplace health and safety requirements including:
 - PPE and clothing
 - safety equipment
 - first aid equipment
 - firefighting equipment
 - hazard and risk control procedures
 - fatigue management procedures
 - appropriate signage
 - elimination of hazardous materials and substances procedures
 - safe forest practices, including required actions relating to fire
 - techniques for manual handling, including shifting, lifting and carrying
- types and purposes of cuts to fell trees, including scarf cutting and back cutting to provide hinge-wood and maintain control of tree
- typical tree defects and how these affect tree felling activities:
 - shakes
 - insect defects
 - knots and resin pockets
 - pipe
 - drysides
- Identifying trees:
 - that contain hazards and are deemed unsafe to fell
 - considered outside own skill level
 - trees where cuts made may lead to loss of control of tree in felling
- hazards and related risks and the impact on felling trees of:
 - uneven and unstable terrain
 - unsafe trees
 - fires
 - overhead and underground services
 - excavations
 - traffic
 - structures
 - hazardous materials

- insects and animals
- other personnel and machinery
- methods used to remove trees that are hung up and procedures for removal
- methods for assessing chain condition
- cutting patterns used to optimise time to fell trees
- environmental protection measures to follow when felling trees related to:
 - native vegetation
 - soil and water
 - heritage and archaeological artefacts
 - flora and fauna
 - geomorphologic features
 - landscape
 - external site pollution
 - recreational opportunities
 - regeneration opportunities
 - cleaning plant, tools and equipment
 - disposing of, recycling and reusing timber and other waste
- key features of these varying environmental conditions and their effects on advanced tree felling and harvesting activities:
 - general forest lean
 - ground growth
 - ground hazards and obstacles
 - ground slope
 - gullies
 - presence and density of seed and habitat trees
 - water courses
 - wet and adverse weather conditions
 - wind speed and direction
- the use of types of tools and equipment for harvesting trees manually, and the procedures for their safe use, operation and maintenance including:
 - warning signs
 - chainsaw and components
 - PPE and clothing
 - first aid equipment
 - maintenance requirements
 - support tools
- components of a harvesting plan including an extraction plan, a traffic plan, environmental requirements, restricted areas, identified hazards and product volumes
- log extraction methods including skidding, forwarding, using cable or shovel logging and following the harvest plan when felling trees
- work order information regarding:

- tree felling requirements
- requirements for product quality
- harvesting plan
- risk assessments for tree-felling including:
 - ground and environmental conditions likely to affect harvesting activities including ground stability, ground slope, forest lean and weather conditions
 - underground and overhead services
 - forest fire
 - position and movement of personnel working on the harvesting site
 - traffic management
 - safety signage warning of harvesting operations in the area.
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Assessment Conditions

The following resources must be made available:

- workplace location or simulated workplace of a forest environment with trees typical to the scope of this unit
- PPE and clothing including:
 - Safety helmet
 - Safety gloves
 - Protective footwear
 - Eye protection
 - Hearing protection
 - High visibility clothing
 - Leg protection (trousers or chaps)
- materials and equipment including:
 - warning signs
 - chainsaw and components
 - first aid equipment
 - maintenance tools and equipment
 - support tools
 - manufacturers' instructions for use and maintenance of equipment
 - radio or communication device
 - fire fighting equipment (if prescribed)
- specifications and work instructions, including:
 - coupe plans
 - information and instructions relevant to tree-felling operations, including processing location details and trees to be felled and retained
 - policy and procedures for work health and safety (WHS)
 - risk assessment plan

- general and specific environmental requirements
- applicable state or territory logging code of practice
- emergency and evacuation procedures
- fire protocols
- relevant personnel for the purposes of communicating information.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessor requirements

Assessors must:

- hold the appropriate assessor competency standards as outlined in regulations; and
- be able to demonstrate vocational competencies at least to the level being assessed; and
- be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and assessor competence.
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