



Australian Government

Department of Education, Employment and Workplace Relations

FPIHAR3220 Harvest trees manually (intermediate)

Release: 1

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Modification History

Version	Detail
1	Unit replaces FPIHAR3202A Harvest trees manually (intermediate)

Unit Descriptor

This unit specifies the outcomes required to assess, plan and safely carry out manual tree-felling operations using a chainsaw in a commercial harvesting environment. This unit covers the felling procedures for trees with a level of complexity that requires significant tree assessment and practical felling skills. Persons competent in this unit should be able to effectively fell most trees with the exception of the very large, and those with significant defects and/or characteristics causing excessive complexity. Techniques for trees with a diameter greater than the bar length would generally be regarded as within the scope of this unit.

Application of the Unit

This unit involves felling trees in a commercial harvesting operation in a forest environment producing forest products.

These skills and knowledge are to be used within the scope of the person's job and authority.

Licensing/Regulatory Information

Compliance with licensing, legislative, regulatory or certification requirements may be required in various jurisdictions.

Pre-Requisites

Not applicable

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 harvesting requirements	<p>1.1 Identify and comply with applicable <i>occupational health and safety</i> (OHS), environmental, <i>legislative</i> and <i>organisational requirements</i> relevant to harvesting <i>trees</i></p> <p>1.2 Identify and adhere to site <i>environmental protection measures</i> according to <i>harvesting plan</i> and relevant legislation and regulations</p> <p>1.3 Review <i>job requirements</i> and check as required with <i>appropriate personnel</i></p> <p>1.4 Identify <i>log extraction method</i> and requirements</p> <p>1.5 Identify <i>requirements for product quality</i></p> <p>1.6 Determine harvesting requirements, and plan tree felling sequence and general falling directions</p> <p>1.7 Establish and maintain <i>communication</i> with others according to OHS requirements</p>
2. Assess harvest site	<p>2.1 Assess location and stability of harvest site for conditions likely to affect harvesting activities</p> <p>2.2 Identify and assess <i>environmental conditions</i> according to harvest plan</p> <p>2.3 Identify trees to be felled according to harvest plan</p> <p>2.4 Assess factors affecting harvesting requirements and detect and control specific forest or site risks and <i>hazards</i></p> <p>2.5 Note and monitor other personnel working on the site and modify activity where required</p>
3. Visually assess trees and plan felling	<p>3.1 Locate and visually assess trees for felling characteristics</p> <p>3.2 Check planned falling direction and propose deviation if required</p> <p>3.3 Select cutting pattern to optimise time and manageable removal of sections</p> <p>3.4 Plan sequence of cuts to fell tree according to standard felling procedures and log quality requirements</p> <p>3.5 Identify <i>trees considered outside own skill</i> level and seek assistance from appropriate personnel</p> <p>3.6 Select suitable escape route</p> <p>3.7 Clear work site and escape route of growth and debris according to environmental care principles and statutory</p>

ELEMENT	PERFORMANCE CRITERIA
	requirements
4. Prepare equipment	<p>4.1 Select <i>tools and equipment</i> appropriate to work requirements and check them for operational effectiveness according to manufacturer recommendations</p> <p>4.2 Sharpen and adjust chainsaw or change components according to manufacturer recommendations</p> <p>4.3 Carry out pre start-up checks on equipment according to felling requirements</p>
5. Fell trees	<p>5.1 Fell individual trees using selected <i>cutting techniques</i> according to OHS and job requirements</p> <p>5.2 Adjust cutting technique in response to movement and condition of tree</p> <p>5.3 Use planned escape route when tree starts to fall</p> <p>5.4 Monitor fall and movement of tree on ground until determined stable</p> <p>5.5 Fell trees to meet production levels, log extraction methods and site requirements</p> <p>5.6 Identify and implement procedures for removal of trees that are hung-up</p>
6. Maintain equipment	<p>6.1 Inspect equipment on completion of harvesting activities</p> <p>6.2 Identify damaged saws and cutting attachments for repair or replacement according to organisational requirements and manufacturer recommendations</p> <p>6.3 Remove, clean, adjust or replace chain and other components according to manufacturer recommendations</p> <p>6.4 Maintain tools and equipment according to OHS requirements and manufacturer recommendations</p>

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- Technical skills to:
 - use and maintain relevant tools and equipment
 - safely operate and maintain a chainsaw
 - assess, plan and carry out tree-felling operations appropriate to site conditions
- Communication skills to:
 - use appropriate communication and interpersonal techniques and methods with colleagues and others
 - use hand signals with other operators to maintain effective and safe tree felling
- Literacy skills to:
 - locate and report information
 - interpret, apply and convey information in written, diagrammatic and/or verbal form
- Numeracy skills to:
 - estimate tree height
 - calculate product mass and determine tree fall zone
 - measure tree length and diameter
- Problem-solving skills to:
 - review and identify work requirements
 - recognise own limitations in conditions and trees for felling
 - identify problems and equipment faults and demonstrate appropriate response procedures
 - apply safe work practices, including using personal protective equipment (PPE) and controlling hazards
 - comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for felling trees manually
- Planning and organising skills to work to site requirements and extraction methods

Required knowledge:

- Basic knowledge of applicable federal, state or territory legislation, regulations, standards and codes of practice relevant to the full range of processes for felling trees manually
- Environmental protection requirements, including the safe disposal of waste material
- Organisational and site standards, requirements, policies and procedures for harvesting trees manually
- Types of tools and equipment for harvesting trees manually, and the procedures for their safe use, operation and maintenance
- Problem identification and resolution strategies and common fault-finding

techniques

- Established communication channels and protocols
- Identification and evaluation of structural defects in trees
- Types and purposes of a range of cuts to fell trees
- Operational principles and limitations of a chainsaw
- Procedures for recording and reporting workplace information
- Site production requirements
- Fire protocols

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to provide evidence that they can assess, plan and safely and efficiently operate chainsaw equipment to manually harvest trees at the intermediate level in a forest environment

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 and satisfy all of the requirements of the elements of this unit and include demonstration of:

- compliance with applicable federal, state or territory legislative and regulatory requirements and codes of practice including OHS, environmental and organisational policies and procedures relevant to harvesting trees at an intermediate level
- compliance with licensing or certification requirements relevant to harvesting trees at an intermediate level
- communicating and working safely with others in the work area
- assessing, planning and safely felling trees without damage to personnel, equipment and surrounding environment
- planning felling sequence and preparing surroundings for harvesting operations
- preparing, operating and maintaining chainsaw equipment and other felling equipment
- applying appropriate extraction methods
- applying specifications as outlined in harvesting plan

Context of and specific resources for assessment

- Competency is to be assessed in the workplace or a realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory requirements and Australian standards

The following resources should be made available:

- workplace location or simulated workplace
- materials and equipment relevant to undertaking work applicable to this units
- work instructions specific to tree felling

Method of assessment

- Assessment methods must satisfy the endorsed Assessment Guidelines of the FPI11 Training Package
- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of employability skills
- Assessment methods must confirm the ability to access, interpret and apply the essential underpinning 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
- Assessment may be in conjunction with assessment of other units of competency
- 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

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 in the Performance Criteria is detailed below.

OHS requirements:

- are to be in accordance with applicable federal, state or territory legislation and regulations, and organisational safety policies and procedures, and may include:
 - PPE and clothing
 - safety equipment
 - first aid equipment
 - firefighting equipment
 - hazard and risk control
 - fatigue management
 - appropriate signage
 - elimination of hazardous materials and substances
 - safe forest practices, including required actions relating to forest fire
 - techniques for manual handling, including shifting, lifting and carrying

Legislative requirements:

- are to be in accordance with applicable federal, state or territory legislation, regulations, certification requirements and codes of practice and may include:
 - award and organisational agreements
 - industrial relations
 - Australian standards
 - confidentiality and privacy
 - OHS
 - the environment
 - native vegetation
 - equal employment opportunity
 - anti-discrimination
 - relevant industry codes of practice
 - duty of care

Organisational requirements may

- legal compliance documentation
- organisational and site guidelines

include:

- policies and procedures relating to own role and responsibility
- procedural manuals
- quality and continuous improvement processes and standards
- OHS, emergency and evacuation procedures
- ethical standards
- recording and reporting requirements
- equipment use, maintenance and storage requirements
- environmental management requirements, including waste disposal, recycling and re-use guidelines

Trees typical to the scope of this unit may include the following characteristics:

- lean and weight distribution that can be assessed and readily adapted to falling direction with the use of wedges and/or control with hinge-wood
- various dimensions relative to local forest size distribution
- limited visible damage and/or defect
- species prone to free splitting and adverse reactions during felling
- a crown that contains dead or broken material, entanglement or malformation and is visible for assessment and monitoring
- single or multi-stems
- diameter of tree greater than chainsaw bar length
- grown on terrain and slope that can add complexity to the operation

Environmental protection measures may include action to limit the impact to:

- native vegetation
- soil and water
- heritage and archeological artefacts
- flora and fauna
- geomorphologic features
- landscape
- external site pollution
- recreational opportunities
- regeneration opportunities

Harvesting plan:

- is a formal document that outlines the operational requirements of the work site, which may include:
 - extraction plan

- traffic plan
- environmental requirements
- restricted areas
- identified hazards
- harvesting prescription
- product volumes
- while site plan document may be named differently between jurisdictions and regions, its common terms may include:
 - coupe plan
 - forest practices plan
 - site or logging plan

Job requirements may include:

- information and instructions relevant to tree-felling operations, including:
 - processing location details
 - trees to be felled and retained
 - general environmental requirements
 - site plan and environmental features

Appropriate personnel may include:

- supervisors
- clients
- colleagues
- managers

Log extraction methods may include:

- skidding
- forwarding
- using cable
- shovel logging

Requirements for product quality may include:

- product specifications
- stump shatter
- butt splitting
- log breakage
- stump height

Communication may include:

- verbal and non-verbal language
- hand or other agreed signals

- eye contact with other operators or personnel
- active listening and questioning to clarify and confirm understanding
- electronic communication devices

Environmental conditions may relate to:

- ground growth
- canopy
- general forest lean
- ground slope
- ground hazards
- wind speed and direction

Hazards may include:

- uneven and unstable terrain
- unsafe trees
- fires
- overhead and underground services
- excavations
- traffic
- structures
- hazardous materials
- insects and animals
- other personnel and machinery

Trees considered outside own skill level include:

- trees that contain hazards and are deemed unsafe
- trees that are considered to be in the advanced category
- trees where cuts made may lead to loss of control of tree in felling

Tools and equipment may include:

- warning signs
- chainsaw and components
- PPE and clothing
- first aid equipment
- maintenance requirements
- support tools

Cutting techniques:

- will include:
 - scarf cutting
 - back cutting to provide hinge-wood and maintain

- control of tree
- and may include:
 - use of wedges to assist in controlling falling direction

Unit Sector(s)

Harvesting and Haulage

Competency field

Competency Field n/a