



Australian Government

Department of Education, Employment and Workplace Relations

FPIFGM5218A Undertake carbon storage sampling of forests and plantations

Release: 1

FPIFGM5218A Undertake carbon storage sampling of forests and plantations

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to assess forests and plantations for current and future carbon storage, including the use of growth modelling techniques to estimate future storage

General workplace legislative and regulatory requirements apply to this unit. Subject to enterprise requirements specific licences/certification may be required in the following areas:

- Forest Sustainability Certification
- Chain of Custody Certification

Application of the Unit

Application of the unit

The unit involves assessing forests and plantations for current and future carbon storage in a variety of work settings including:

- native forest environment
- hardwood or softwood plantation
- agroforestry and farm forestry

The skills and knowledge required for competent workplace performance are to be used within the scope of the person's job and authority

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills 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. Plan for carbon storage sampling activities	1.1. Applicable Occupational Health and Safety (OHS), environmental, legislative and organisational requirements relevant to planning and managing a carbon storage sampling activity are identified and followed 1.2. Purpose, objectives and scope of sample collection activity is confirmed from discussions with stakeholders 1.3. Desktop study of existing forests and plantations is conducted 1.4. Assessment program is designed 1.5. Sampling site locations are confirmed and where required, approval obtained for site access 1.6. Characteristics of sites are assessed for impact on sampling and testing 1.7. Human and physical resource requirements are determined and arranged
2. Prepare for carbon storage sampling activities	2.1. Surveying activity and contractors are arranged 2.2. Forests and plantations are located using site maps and plans 2.3. Areas of forests and plantations for sampling are identified 2.4. OHS hazards are identified and risks assessed and the controls implemented are reported 2.5. All administrative requirements are completed and approvals obtained
3. Conduct carbon storage sampling collection	3.1. Safe working environment is established and monitored throughout sampling activities 3.2. Sampling activities are coordinated at sites prior to commencement of and during, the work activity 3.3. Sampling equipment is inspected and tested to ensure functionality, safety and compliance with manufacturer's instructions 3.4. Surveys and sampling are conducted in line with site and legislative requirements 3.5. Hazards and emergency situations are recognised and responded to in line with site and legislative requirements 3.6. Results of samples and surveys are recorded in line with sampling plan 3.7. Sampling activities are monitored on a regular basis against sampling plan and any required modifications or improvements implemented

ELEMENT	PERFORMANCE CRITERIA
4. Interpret results	4.1. Sampling data is analysed 4.2. Assessment is reviewed against assessment program and organisational requirements 4.3. Information and data is analysed to determine effectiveness of assessment and improvements to future programs 4.4. Recommendations for future programs are prepared based on findings of analysis and consultation conducted 4.5. Assessment processes are recorded and reported to appropriate personnel
5. Use growth models to predict biomass and carbon storage	5.1. Information and data from assessments is used in growth models to predict biomass growth and carbon storage 5.2. Predicted data using growth models are regularly checked against new assessment data 5.3. Growth models are modified to better represent the forests or plantations being assessed

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Technical skills sufficient to select sampling techniques and create sampling designs; identify species growing in the target area; identify components of the forest/plantation that contain carbon stocks
- Communication skills sufficient to use appropriate consultative, communication and interpersonal techniques with colleagues and others; present written and oral information to a wide range of individuals and groups
- Literacy skills sufficient to analyse qualitative and quantitative information and data; prepare site maps and plans; accurately prepare a range of reports, documentation and submissions where precise meaning is required
- Numeracy skills sufficient to use growth models to predict growth; use and adapt complex maps and diagrams
- Problem solving skills sufficient to demonstrate time and project management

Required knowledge

- Applicable Commonwealth, State or Territory legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of

REQUIRED SKILLS AND KNOWLEDGE

- processes for undertaking carbon storage sampling of forests and plantations
- Environmental protection requirements, including the safe disposal of waste material
- Organisational, site and management standards, requirements, policies and processes for undertaking carbon storage sampling of forests and plantations
- Environmental risks and hazards
- Minimising environmental impact
- Using energy effectively and efficiently
- Using material effectively and efficiently
- Procedures for the development and implementation of a range of environmental management strategies
- Data collection and analysis methods
- Map and plan preparation techniques
- Characteristics and growth habits of local vegetation
- Soil characteristics and topography of local area
- Use and application of appropriate survey and assessment equipment
- Statistical analysis techniques applicable to biomass and carbon assessments
- Sampling techniques applicable to biomass and carbon assessments
- Use and application of growth models
- Established communication channels and protocols
- Problem identification and resolution
- Types of tools and equipment, and procedures for their safe use and maintenance
- Appropriate mathematical procedures for estimation and measurement
- Procedures for the recording, reporting and maintenance of workplace records and information

Evidence Guide

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

A person who demonstrates competency in this unit must be able to provide evidence and demonstrate that they can plan and oversee an assessment of forests and plantations for carbon storage and interpret the results for use in growth models to predict carbon storage

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:

- following applicable Commonwealth, State or Territory legislative and regulatory requirements and codes of practice relevant to planning, implementing, monitoring and reviewing an assessment of forests and plantations for carbon storage, and using growth models to predict carbon storage growth
- following organisational policies and procedures relevant to planning, implementing, monitoring and reviewing an assessment of forests and plantations for carbon storage, and using growth models to predict carbon storage growth
- planning an assessment program using consultative processes with colleagues and stakeholders to obtain inputs, and ensuring efficient and safe processes and timelines
- safely implementing an assessment program in line with documented plan and budget, and making adjustments to program as required
- monitoring the conduct of the sampling collection
- interpreting the results of the sampling program and preparing and presenting a detailed report including an analysis of the findings of the program
- using data from assessments to predict biomass growth and carbon storage
- checking predicted data against new assessment data to modify growth models to better represent the forests or plantations being assessed
- Competency is to be assessed in the workplace or realistically simulated workplace

Context of and specific resources for

EVIDENCE GUIDE

assessment

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of required knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to follow relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to undertaking work applicable to this unit
 - specifications and work instructions

Method of assessment

- Assessment 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 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 and correctly 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
- 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

EVIDENCE GUIDE

task should not be higher than those of the work role

Range Statement

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.

OHS requirements:

are to be in line with applicable Commonwealth, State or Territory legislation and regulations, and organisational safety policies and procedures, and may include:

- personal protective equipment and clothing
- safety equipment
- first aid equipment
- fire fighting equipment
- hazard and risk control
- fatigue management
- elimination of hazardous materials and substances
- safe forest practices including required actions relating to forest fire
- manual handling including shifting, lifting and carrying

Environmental requirements:

may relate to:

- hygiene of the area
- Commonwealth, State or Territory and local legislation and regulations

and may include consideration of:

- ground growth
- canopy
- general forest health
- wind speed and direction
- fallen trees
- density of trees

RANGE STATEMENT

- ground slope
- soil and water protection
- ground hazards and obstacles
- contingencies for modifying operations during wet or other adverse weather conditions

RANGE STATEMENT

Legislative requirements:

are to be in line with applicable Commonwealth, State or Territory legislation, regulations, certification requirements and codes of practice and may include:

- award and enterprise agreements
- industrial relations
- Australian Standards
- confidentiality and privacy
- OHS
- the environment
- equal opportunity
- anti-discrimination
- relevant industry codes of practice
- duty of care

Organisational requirements may include:

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

Assessment program

is used to calculate current and expected biomass and carbon stocks of:

- trees (above and below ground)
- other vegetation
- litter layer
- soil
- wood products

and may include:

- putting a monitoring process in place to enable reporting against marketing, strategic and

RANGE STATEMENT

- business plans
- incorporating the use of growth models to predict biomass growth and carbon storage growth

RANGE STATEMENT

Approvals may be required by:

- environmental bodies
- local, State, Territory and Commonwealth government bodies and agencies

and may include:

- long-term budget approvals

and authorisations such as:

- permits
- licences relating to neighbouring sites or properties, hours of operation, use and application of chemicals, the environment

Characteristics of sites may include:

- range of operations
- conditions
- hazards
- difficult/sensitive environments

Resources requirements may include:

- people
- materials and equipment
- tools, including geographic information systems and aerial photography

Records may include:

- difficulties or issues faced during planning and implementation of the assessment program
- recommendations for future work
- results, costs, data analysis

and may be:

- manual
- using a computer-based system or other appropriate communication system

Assessment may include checking:

- compliance with OHS, organisational, legislative and environmental regulations, procedures, practices and precautions
- adherence to site environmental imperatives
- specifications, quality, performance targets,
- documentation is completed and submitted as required

Information relates to:

- the sample area

and may include:

- previous surveys and assessments
- aerial photography, geographic information systems data
- previous reports

RANGE STATEMENT

- management information systems data, marketing, strategic
- business plans and associated implementation plans

Sampling techniques

- relate to measurement and survey

and may include:

- use of geographic information systems
- interpretation of aerial photography

Unit Sector(s)

Not Applicable

Competency field**Competency field**

Forest Growing and Management