



Australian Government

FWPFRM5011 Quality assure forestry data acquisition by unmanned aerial vehicle (UAV)

Release: 1

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Modification History

Release	Comments
Release 1	This version released with FWP Forest and Wood Products Training Package Version 7.0.

Application

This unit of competency describes the skills and knowledge required to quality assure forestry data acquisition by unmanned aerial vehicle (UAV). This includes establishing quality criteria for UAV data acquisition, conducting pre-flight and post-flight quality assurance checks of UAV data acquisition and preparing a UAV data acquisition quality assurance report.

The unit applies to individuals whose work involves planning UAV collection of forestry data in a forest or plantation setting.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Forest Resource Management (FRM)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish quality criteria for UAV forestry data acquisition	1.1 Confirm UAV forestry data acquisition workflow according to workplace and end-user requirements 1.2 Identify common problems in UAV forestry data acquisition 1.3 Confirm quality assurance checkpoints and associated quality criteria for UAV data acquisition

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
2. Check UAV forestry data acquisition against quality criteria	2.1 Confirm UAV forestry data collection requirements and proposed UAV data collection method 2.2 Conduct pre-flight checks, including flight plan, sensor settings and ground control plan, before the flight, and rectify non-compliances according to workplace procedures 2.3 Conduct post-flight quality assurance checks of UAV data acquisition, including standard data and UAV data specific checks, and identify measures to address non-compliances according to workplace procedures 2.4 Produce initial compliance and quality assurance report on UAV forestry data, highlighting areas of non-compliance, required remedial actions, and arrangements for repeating quality assurance checks according to workplace procedures
3. Prepare UAV forestry data acquisition quality assurance report	3.1 Produce final compliance and quality assurance report to validate that UAV forestry data is accurate, reliable and fit for use according to workplace procedures 3.2 Forward forestry data files for processing according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Read complex text in print and electronic format
Writing	Complete complex forms using routine and non-routine text
Oral communication	Ask questions to clarify instructions, feedback or information
Numeracy	- Recognise metric units of measurement - Perform routine mathematical calculations related to time, speed, orientation, weight and distance - Interpret graphical information related to time, speed, orientation, weight and distance

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FWPFRM5011 Quality assure forestry data acquisition by unmanned aerial vehicle (UAV)	Not applicable	The unit has been created to address a skill or task required by industry that is not covered by an existing unit	Newly created

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

Assessment Requirements for FWPFRM5011 Quality assure forestry data acquisition by unmanned aerial vehicle (UAV)

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has planned, conducted and reported on pre-flight and post-flight quality assurance checks of forestry data acquisition for three unmanned aerial vehicle (UAV) flights.

In undertaking this activity, the individual has:

- confirmed quality assurance checkpoints and associated quality criteria for UAV forestry data acquisition
- checked UAV forestry data acquisition against quality criteria
- produced final compliance and quality assurance report to validate that UAV forestry data is accurate, reliable and fit for use
- forwarded forestry data files for processing.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- problems associated with UAV data acquisition:
 - equipment and sensor
 - data
 - data collection
 - data management
- UAV project plan checks:
 - flight plan
 - sensor settings
 - ground control plan
- standard UAV data checks:
 - delivery completeness and file corruption

- file naming, attributes and coordinate system
- form comparison
- classification statistics
- accuracy of control network
- UAV data specific checks:
 - imagery resolution and overlap
 - image quality
 - imagery-survey control alignment
 - point cloud quality assessment and vertical accuracy
 - DSM quality assessment and accuracy
 - existence of data
 - data extent and coverage
 - internal voids
- file formats
- compliance and quality assurance report:
 - format
 - procedures
- workflow for UAV data acquisition.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a forest work environment or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - computer hardware and software
 - internet access
 - UAV data
- specifications:
 - work order or instruction detailing requirements for planning, conducting and reporting on pre-flight and post-flight quality assurance checks of UAV data acquisition
 - workplace policies and procedures that cover current Work Health and Safety Acts or Occupation Health and Safety Acts, regulations and related industry standards and codes of practice applicable to UAV operations
 - workplace policies and procedures that cover current Environment Protection Acts, regulations and related industry standards and codes of practice applicable to UAV operations
 - workplace safety and environmental protection plans

- user manual and technical instructions for UAV equipment and related software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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