Title	**Calculate log scaling volume**		
Level	**5**	**Credits**	**6**

Purpose	People credited with this unit standard are able to: describe log scaling methods and applications; describe features of scaling volume calculations; and calculate log volumes from scaling data.

Classification	Forestry > Forest Mensuration

Available grade	Achieved

Guidance Information

Definition
Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.

Outcomes and performance criteria

Outcome 1

Describe log scaling methods and applications.

Performance criteria

1.1 Purposes of log scaling methods and applications are explained in accordance with accepted industry practice.

Range volume calculations, conversion factors, woodflow, wood quality.

1.2 Processes involved in the derivation of conversion factors are described in terms of measurement by weight of log loads, sampling process, and expression of conversion factor in cubic metres/tonne.

1.3 Weights and measurement terms associated with log scaling are explained in accordance with accepted industry practice.

Range cubic metre, tonne, 2D, 3D, JHD, Japanese Agricultural Standard, length, diameter, moisture content, bark measurement.

1.4 Factors causing variation in conversion factor derivation are described in accordance with accepted industry practice.

Range species, age of stand, season, density, log size, log position in tree length, bark on or bark removed, time since felling, tree health, small end defect.

1.5 Log scaling methods for domestic or export use are described in terms of measurement procedures.

Range Japanese Agricultural Standard, 3D.

1.6 Log scaling methods are described in terms of their applications and limitations.

Range methods - sectional measurement, 3D, 2D, mid girth, piece count, truck count, weight, weighbridge, load cells, weight scaling.

Outcome 2

Explain features of scaling volume calculations.

Performance criteria

2.1 Uses of data for stock inventories and export volumes are explained in accordance with accepted industry practice.

2.2 Setting up, sampling for weight and/or volume conversion and piece counts, are explained for random sampling methods and 100% measurement.

2.3 Relationship between scaling and ongoing use of scaling data is explained.

2.4 Effects of changing inputs on conversion factors through faulty equipment and truck tare weights are explained.

Outcome 3

Calculate log volumes from scaling data

Performance criteria

3.1 A computer and scaling formula are used to calculate volumes.

Range sectional, 3D, 2D, mid-girth, conversion factor, piece count, truck count.

3.2 Use ‘look-up’ tables to derive volumes from diameters and lengths.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 November 1996	31 December 2017
Revision	2	19 June 1998	31 December 2017
Review	3	5 December 2000	31 December 2017
Review	4	10 December 2015	31 December 2022
Review	5	27 February 2020	31 December 2022

Consent and Moderation Requirements (CMR) reference	0173

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.