Title	**Optimise conversion of roundwood products**		
Level	**4**	**Credits**	**15**

Purpose	People credited with this unit standard are able to: demonstrate knowledge of the optimisation of roundwood and related safe work practices; assess and process roundwood for optimal use of the product; identify and rectify substandard products; and complete optimisation activities.

Classification	Solid Wood Manufacturing > Pole and Post Manufacturing

Available grade	Achieved

Guidance Information

1 Legislation and references
Health and Safety at Work Act 2015.
Resource Management Act 1991.
NZS 3605:2001 *Timber piles and poles for use in building,* available at http://www.standards.co.nz.
Approved Code of Practice for Safety and Health in Forest Operations (Wellington: WorkSafe, 2012), available at https://worksafe.govt.nz/topic-and-industry/forestry/safety-and-health-in-forest-operations/.
A Guide for Safety with Chainsaws (Wellington: WorkSafe, 2011) available at https://worksafe.govt.nz/topic-and-industry/machinery/saws-and-shears/chainsaws/.

2 Definitions
Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider wood manufacturing industry as examples of best practice.
Large-end diameter (LED) refers to the measurement of the longest diameter through the geometric centre of the log at the large end.
Optimisation refers to the skill of determining the maximum commercial use of roundwood to meet the requirements of production.
Peeling refers to removal of bark and cambium layer by machines fitted with cutter heads, which follow the natural contours and irregularities of the log.
Pole refers to a naturally round tree stem used to support wiring or used in construction that is longer than 3.6 metres.
Roundwood refers to round, and part-round, wooden posts and poles that are shorter than 3.6 metres.
Shaving refers to the removal of bark and cambium layer by machines fitted with cutter heads, which do not follow the natural contours of the roundwood product but do produce a uniform taper.
Small end diameter (SED) refers to the smallest diameter along a pole or roundwood product, usually found at one end.

Sweep refers to the largest deviation from straightness determined using a logger tape or other straight edge along the length of the log.
Workplace procedures refer to documented policies and procedures set by the organisation carrying out the work, and to documented or other directions provided to staff, and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, codes of practice, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the industry sector.

3 Recommended unit standard for entry: Unit 20022, *Grade roundwood products*, or Unit 20023, *Grade wooden poles*.

4 Assessment information
All activities and evidence must meet workplace procedures and accepted industry practice.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the optimisation of roundwood and related safe work practices.

Performance criteria

1.1 The purpose and process of roundwood optimisation is explained.

Range process may include but is not limited to – incoming log product checked against order, log product graded as to appropriate use to maximise commercial output of each roundwood piece, cut, length, taper, peeling, shaving, slabbing, SED, LED;
evidence of SED, length, and a minimum of three other processes is required.

1.2 Factors that affect quality of roundwood products are explained in terms of their impact on end use.

Range factors may include but not limited to – type and number of defects, length of log, SED, LED, sweep of log, decay, insect damage, mechanical damage, broken ends, wobble, kinks, slabbing, knots, bar, whorl;
evidence of a minimum ten factors is required.

1.3 Cutting strategies for cross cutting roundwood are explained in terms of their differences and advantages.

Range strategies may include but are not limited to – quarter rounds, half rounds, full rounds, square products;
evidence of a minimum of three strategies is required.

1.4 Production capabilities of processing equipment are identified in terms of production rate, and the minimum and maximum dimensions are handled.

1.5 Safe work practices are explained and followed.

Range may include but is not limited to – the wearing of appropriate safety equipment, safe use of any related machinery and equipment, emergency stops, isolation procedures, lockouts, machine guards, correct chainsaw use, forklift or loader safety; evidence of wearing appropriate safety equipment and a minimum of three others are required.

Outcome 2

Assess and process roundwood for optimal use of the product.

Performance criteria

2.1 Incoming roundwood is checked to ensure it meets specification and appropriate action taken if required.

Range checks may include but are not limited to – dimensional variations, knots, sweep, insect damage, sapstain, decay; felling date, damage, oversize knots;
evidence of a minimum of six checks is required.

2.2 Optimisation decisions (in terms of grade recovery and production rate) made are explained in terms of the factors considered and the outcome of each decision.

Range factors affecting optimisation decisions may include but are not limited to – SED, lengths, sweep, diameters, tapers, amount of bark and cambium to be removed to maximise product value, grading, defects, knot size;
evidence of a minimum of six factors is required.

2.3 Rate of production is maintained, and any variation is managed.

2.4 Pole, roundwood products, and bi-products are identified, tracked, and recorded.

Range identification of product may include but not is limited to – the use of chalk, paint, labels, burn-branding.

2.5 Customer specifications are checked to verify requirements are met.

Outcome 3

Identify and rectify substandard products.

Performance criteria

3.1 Machine characteristics and operator error that affect roundwood recovery are identified and managed.

3.2 Strategies to minimise defects and maximise roundwood recovery are identified and implemented.

Range strategies may include but not limited to – reworking, regrading, preventative maintenance.

Outcome 4

Complete optimisation activities.

Performance criteria

4.1 Machine and work area are left clean and tidy, and ready for next use.

4.2 Documentation is completed, communicated, and filed.

Range production, maintenance, quality records.

Planned review date	31 December 2024

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 April 2003	31 December 2012
Review	2	18 December 2006	31 December 2012
Review	3	20 October 2011	N/A
Review	4	26 March 2020	N/A

Consent and Moderation Requirements (CMR) reference	0013

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

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.