Title	**Carry out pre-harvest inventory to obtain information for planning forest harvesting operations**		
Level	**5**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: explain the purpose of establishing sample plots for data collection and describe sampling methods; plan a pre-harvest inventory and collect data using sample plots; and process plot data and produce reports.

Classification	Forestry > Forest Mensuration

Available grade	Achieved

Guidance Information

1 Legislation relevant to this unit standard includes Resource Management Act 1991 (RMA), Conservation Act 1987, Heritage New Zealand Pouhere Taonga Act 2014, and their subsequent amendments.

2 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

Explain the purpose of establishing sample plots for data collection and describe sampling methods used in accordance with accepted industry practice.

Performance criteria

1.1 Reason for sampling as opposed to 100% measurement is explained.

Range cost, time, practicality for management decisions.

1.2 Types of inventory undertaken in forest management are described; the particular features of pre-harvest inventory are listed.

Range pre-assessment, quality control, mid rotation, pre-harvest.

1.3 Plot configurations are described and compared.

Range circular, square/diamond, transect, bounded and unbounded, horizontal line, single stem plots.

1.4 Methods of sampling are described.

Range random, systematic, cluster, double, stratified sampling.

1.5 Sources of inaccuracy and imprecision in inventories are described.

Range plot shape, plot size, sampling method, sampling intensity, bias.

1.6 Statistical terminology used to describe the accuracy and precision of estimates is explained.

Range variance, mean, range, total, standard deviation, standard error, probable limits of error.

1.7 Types of growth models are explained in relation to pre-harvest inventory.

Range stand based, single tree.

1.8 Maps are interpreted prior to fieldwork.

Range scale, bearings, scale distances.

Outcome 2

Plan a pre-harvest inventory and collect data using sample plots.

Performance criteria

2.1 An inventory plan is prepared in accordance with accepted industry practice.

Range definition of objectives, critical data, level of accuracy and precision, equipment, manpower, maps, plot sheets, assessment techniques, data processing requirements, reporting requirements, quality assurance.

2.2 Planning determines the number of plots and their shape, size, location and measurements necessary to achieve inventory purpose.

Range bounded and unbounded plots, sample size, population/stratum boundaries.

2.3 Plot locations are planned on maps or aerial photographs and located on the ground without bias.

Range stand gaps, edge plots, plot demarcation.

2.4 Stem architecture is described in relation to quality assessment in accordance with accepted industry practice.

Range annual shoots, branch clusters, internode characteristics, multiple leaders, diameter reductions, broken tops, abnormal taper.

2.5 Stem assessment parameters are derived in relation to log product specifications in accordance with accepted industry practice.

Range branch size classes, branch angle, sweep, visual defects, out of round.

2.6 Plot measurements are undertaken to the required standard without bias.

Range stem structure, shape, size, branching, defects.

Outcome 3

Process plot data and product reports.

Performance criteria

3.1 Function set required for analysis is determined, in accordance with accepted industry practice.

Range volume and taper, height/diameter relationship, stem breakage, height and basal area growth, branch size, wood density.

3.2 Cutting strategy is determined to achieve log product requirements.

3.3 Data is introduced to the system, in accordance with accepted industry practice.

Range manual entry, field computer import.

3.4 Reports are produced and interpreted, in accordance with accepted industry practice.

Range precision statements, per stem and per hectare parameters.

3.5 Re-analysis of inventory is undertaken, in accordance with accepted industry practice.

Range sensitivity analysis, changing cutting strategies, post stratification.

3.6 Storage and transfer of yield information is described, in accordance with accepted industry practice.

Range Geographical Information System (GIS), spreadsheet, database.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 November 2003	31 December 2017
Review	2	10 December 2015	N/A
Rollover and Revision	3	28 May 2020	N/A
Rollover	4	26 April 2024	N/A

Consent and Moderation Requirements (CMR) reference	0173

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

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.