

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.
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Classification	Forestry > Forest Mensuration
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Available grade	Achieved
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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 2022
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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

Consent and Moderation Requirements (CMR) reference	0173
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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.