Introduction

Landings (also called a deck, skid or skid site) are an integral part of forest harvesting operations, yet very little information can be found about either design, sizing or layout.

A ‘landing’ is not a well defined term. In general it is a designated area in the forest used during times of harvest to further process stems or trees extracted from the forest, store them, and then load for transportation to a market. It is usually cleared of obstacles such as trees and or stumps, and can vary in size depending on the processing, storage and loading out requirements.

Central processing yard (CPY): is the largest landing type, whereby stems are transported there by either off-road or on-road trucks and will typically process more than 1500 m³ per day. CPY’s are normally located close to a mill, port or railway head. CPY’s are also characterised by more automated, or sophisticated, processing to optimise value recovery. CPY’s are still relatively rare with just a few in use around NZ.

Methods

Landings visited in 6 different regions of NZ, including new, in-use and used landings. This study did not include any CPY’s, with the main focus on just standard skid sites. The perimeter of each landing was mapped with a Garmin GPSmap 60 CSx. A minimum of 30 points were recorded for each landings as tests showed the landing size error to be less than 2%. For each landing the forest manager provided:

- type of operation (ground base or hauler),
- type of processing (manual or mechanical),
- type of log loader used (front-end or knuckle-boom),
- number of log sorts,
- approximate daily productivity (tonnes/day),
- duration of the harvesting operation (weeks).

During the visits of active landings, the type, number and tasks of all machines were noted, as well as the number of the crew and the tasks of its members. At the same time, sketches were produced describing the wood flow through the landing.

Results

142 landings measured, with 131 landings captured in 2009, the remainder in 2010. 12 were new (un-used), 38 were in operations and 93 were recently completed. Other summary data include:

- 63 % of the landings were ground-based, 37% were cable settings
- 47% had manual processing, 53% mechanized processing
- 79% used knuckle-boom type loaders for loading out, 21% used front-end loaders

Landing Age: Old landings are 900m2 larger than new, suggestion that during harvesting the crews will enlarge their operating area over time.

Manual vs Mechanized Processing: On average the manual processing crews will operate one week longer at a single landing and cut 13 log sorts. Their productivity is only just 26 tonnes per day less than a mechanised processing crew. The landing shape is the same.

Regression analyses: The best regression equation for the data is:

\[ \text{Landing Size (m²)} = 390 + 560 \times \text{LandingAge} + 173 \times \# \text{LogSort} + 3.5 \times \text{DailyProd} \]

Whereby \( \text{LandingAge} = 0 \) when new; \( =1 \) when in use; and \( =2 \) when complete.