

New Developments in Steep Terrain Harvesting

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Abstract

New Zealand, like many other countries, is attempting to further mechanise harvesting operations on steep terrain to both improve the cost-effectiveness and reduce risk to forest workers. A number of initiatives are being developed that include using tethered felling and bunching machines to extend the range of operations of ground-based machines, as well as more automated grapple carriage systems for cable yarders to reduce the dependence on choker-setters. This paper presents data and concepts from a number of recently completed studies. For the ground-based systems it includes information relating to the capture of slope data on a range of mechanised operations on steep terrain and the link back to the actual terrain slope, through to studies of operational efficiency associated with the new systems. For the motorised grapple carriages it includes direct comparison with both mechanical grapple and standard choker-based carriage systems.

Keywords: Ergonomics, mechanisation, slope measurement, tethered harvesting machines.