INTRODUCTION AND METHODS

Reasons for planting native trees include the enhancement of plant and animal biodiversity for conservation, establishment of a native cover on erosion-prone sites, improvement of water quality by revegetation of riparian areas and management for production of high quality timber. Significant areas of the New Zealand landscape, both urban and rural, are being re-vegetated using native species. Many such plantings are on open sites where the aim is to quickly achieve canopy closure and often includes the planting of a mixture of shrubs and tree species concurrently. Previously, data have been presented showing the potential above- and below-ground growth performance of eleven native plant species considered typical early colonisers of bare ground, particularly in riparian areas (http://icm.landcareresearch.co.nz/research/land/Trial1results.asp). In this current series of posters we present data on the growth performance of six native conifer (kauri, rimu, totara, matai, miro, kahikatea) and two broadleaved hardwood (puriri, titoki) species most likely to succeed the early colonising species to become a major component in mature stands of indigenous forest (http://icm.landcareresearch.co.nz/research/land/Trial2.asp). Data on the potential above- and below-ground early growth performance of colonising shrubby species together with that of conifer and broadleaved species will help land managers and community groups involved in re-vegetation projects in deciding the plant spacing and species mix most appropriate for the scale of planting and best suited to site conditions.

Data are from a trial established in 2006 to assess the relative growth performance of native conifer and broadleaved hardwood tree species. Ten plants were extracted each year for 5 years following establishment and their above- and below-ground growth parameters measured.

RESULTS

DISTRIBUTION AND SITE PREFERENCES

| Occurrence | Northland and northern Coromandel, southward to Taranaki on the west and Mahia on the east |
| Local occurrence | Lowland and coastal forests in warm temperate areas |
| Preferred soils | Fertile, well-drained hill and floodplain alluvial soils |
| Moisture | Tolerates wide range of moisture conditions including summer drought |
| Properties | Prone to frost damage and possum browsing |

SUMMARY OF GROWTH CHARACTERISTICS AT AGE 5

- Mean Height: 2.39 m
- Mean canopy: 1.56 m
- Mean root spread: 2.54 m
- Mean max. root depth: 0.34 m
- Mean above-ground biomass: 3.03 kg
- Mean below-ground biomass: 1.26 kg
- Root:shoot ratio: 0.53

Notes: One of the fastest growing native tree species in early years after establishment. Multiple stems form from the base of the plant. Lowland and coastal forests produce trees up to 20 m high and 1.5 m in diameter. Timber is black, heavy, hard, strong and durable. Coppices readily.

REFERENCES


ACKNOWLEDGEMENTS

This research was funded by Foundation for Research Science & Technology Contract CO9X0305 “Integrated Catchment Management: Ridge Tops to the Sea”. The authors acknowledge the assistance with field extraction and processing of plants by interns Maria Borlinghaus (Germany), Claire Butty (France), Sandra Viel (Germany), and Kaisa Valkonen (Finland), and Landcare Research staff Alex Watson, Richard Hemming, and Suzanne Lambie. Graphics by Nicolette Faville and edited by Anne Austin of Landcare Research.