Establishing broadleaf hardwood species on farms

At the NZIAF Conference '92 Nick Ledgard of the NZ Forest Research Institute Ltd, Rangiora presented a paper entitled "Determining the most practical methods for establishing deciduous timber species on Canterbury farms". His paper covered the results after one year of a two-year trial – this journal hopes to publish formal results sometime in 1994.

The trial's overall goal is to determine the most practical techniques for integrating deciduous timber trees into Canterbury plains farming systems, so that farmers are encouraged (and have the best chance possible of succeeding) to establish a resource of quality timber. The initial emphasis is on:

- growing the basis of a butt log – straight, defect free, minimum length 3 m – as quickly as possible;
- achieving fast diameter growth. Once the straight lower stem objective has been reached, top growth will be left largely unrestricted to encourage maximum diameter growth;
- using simple techniques which require minimum grower input.

There are 16 hardwood species (including four natives) in the trial and two softwoods (*Pinus radiata* and *Cupressus macrocarpa*) for comparative purposes.

The species established are: Hybrid Algerian Oak (*Quercus canariensis*), Turkey Oak (*Quercus cerris*), Sessile Oak (*Q. petraea*), Sycamore (*Acer pseudoplatanus*), Sweet Chestnut (*Castanea Sativa*), American ash (*Fraxinus americana*), English ash (*F. excelsior*), Wild cherry (*Prunus avium*), Paulownia (*Paulownia fortunei*), False acacia (*Robinia pseudoacacia*), Black Beech (*Nothofagus solandri* var *solandri*), Kahikatea (*Dacrycarpus dacrydioides*), Kanuka (*Kunzea ericoides*), Totara (*Podocarpus totara*), Radiata pine (*Pinus radiata*), Macrocarpa (*Cupressus macrocarpa*). Nine silvicultural treatments are under test – control (no pruning), form pruning, coppicing, grafting and five treatments involving the use of tree guards or shelters.

After one season's growth, form pruning markedly improved stem form but did not affect height growth. Tree guards promoted better survival (especially of smaller stock) and significantly increased height growth of all species except *Robinia pseudoacacia* and *Dacrycarpus dacrydioides* (kahikatea). Diameter growth just above ground level was generally suppressed by tree guards relative to control trees. Coppicing and grafting treatments were applied at the start of the second season.

Visitors to the trial have been impressed with the fast growth of the broadleaf species. There is every chance that some of the treatments will promote the target bole height of 3 m to be achieved in two years. However, the trial will not be complete until the crucial question is answered: "Will these trees remain windfirm and maintain their advantage to maturity?"

***Quercus canariensis* at the end of the first season.**

***Acer pseudoplatanus* (sycamore) at the end of the first season.**