

NORTH EAST FARM FORESTRY PROGRAM.
INFORMATION SHEET 16

RUTHERGLEN RESEARCH INSTITUTE
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Species trial to evaluate the performance of mixed species. Established 1985.

This trial was established at the Rutherglen Research Institute to evaluate 16 species of eucalypts, casuarina and pine (for details of species see Table 1) and demonstrate agroforestry in the area.

The Site

The trial site has a duplex soil, with a clay loam topsoil over an impeding clay subsoil. The eastern part of the trial has deeper loam topsoil than the western section which has a very shallow clay. The area is also relatively flat and the site poorly drained. Average rainfall is around 600 mm.

Establishment

The trial has an area of 3 ha. Prior to planting the site was ripped along the proposed planting line with a winged tine. No mounding was carried out which could have been beneficial because of the poorly drained nature of the soils.

The eastern half of the trial was paraploughed and limed in autumn prior to planting. The western half was much wetter in autumn and had to be ploughed in spring prior to planting.

Trees were planted at 4m x 4 m spacing to give an initial stocking of 625 stems per hectare. Lime was added six months prior to planting at a rate of 125 kg per hectare.

Weed control was limited to cultivation and fertilizer was not used for establishment and would certainly have assisted initial growth.

Management

Pruning commenced in 1992 with form and lift pruning to 2 m, followed by lift pruning in 1993 to 2.5 m. Pruning of the better formed trees will continue to 6 m.

The stand is yet to be thinned and it appears from tree growth and pasture production that thinning is overdue and after 10 years still remains at the original close spacings of 4mx 4m. Final spacing is undetermined, however thinning will commence over the next two years to remove slow growing and poorly formed trees.

Growth and Productivity

Initially the site was very waterlogged and grazing productivity was very low. The trees have been able to reduce the waterlogging problem however because of the late thinning pasture production is very poor.

Species survival and growth were very different between the two soil types. These are shown in Table 1. *E. sideroxylon* (Red Ironbark) and *C. cunninghamiana* (River sheoak) performing well and have produced good form (see photographs). *P. radiata* (Radiata pine) has shown particularly bad form in this trial but on adjacent areas form is much better and selection of better genetic stock may improve their performance.

Thinning strategies will be employed in future to maximise timber production and provide some grazing.

TABLE 1: Summary of Measurements at Rutherglen Research Institute Species Trial at age 9 years.

| Species | Eastern Section <i>Deep loam</i> | | | Western Section <i>Shallow clay</i> | | |
|--------------------------|-------------------------------------|---------------|-----------------|--|---------------|-----------------|
| | Height (m) | Diam. (cm) | Survival (%) | Height (m) | Diam. (cm) | Survival (%) |
| <i>E. astringens</i> | | | | 8.8 | 12.6 | 92 |
| <i>P. halapensis</i> | | | | 5.0 | 7.3 | 35 |
| <i>E. salmonophloia</i> | 5.4 | 5.6 | 71 | 5.6 | 6.1 | 80 |
| <i>P. torrayana</i> | 4.2 | 6.5 | 12 | | | |
| <i>P. canariensis</i> | 4.6 | 7.0 | 15 | 5.5 | 9.9 | 27 |
| <i>E. gomphocephala</i> | 6.5 | 13.4 | 80 | | | |
| <i>E. melliodora</i> | 8.1 | 12.2 | 82 | 8.2 | 14.1 | 83 |
| <i>E. cladocalyx</i> | 9.7 | 11.3 | 62 | 5.3 | 5.5 | 4 |
| <i>E. polyanthemus</i> | 8.1 | 14.3 | 55 | | | |
| <i>P. radiata</i> | 8.4 | 14.7 | 63 | 6.8 | 10.8 | 24 |
| <i>C. glauca</i> | 10.9 | 13.7 | 93 | 10.2 | 13.4 | 72 |
| <i>E. microcarpa</i> | 9.0 | 15.3 | 88 | 9.2 | 14.6 | 92 |
| <i>E. camaldulensis</i> | 9.7 | 15.8 | 96 | 6.8 | 11.0 | 75 |
| <i>C. cunninghamiana</i> | 10.4 | 16.5 | 89 | 10.3 | 14.9 | 27 |
| <i>E. leucaxylon</i> | 9.8 | 17.3 | 81 | 10.0 | 15.3 | 73 |
| <i>E. sideroxylon</i> | 9.9 | 19.0 | 97 | 8.3 | 17.1 | 90 |