

Results from spotted gum provenance and ripping trials in south west Victoria

By Belinda Measki, Melanie Waters and Rod Bird — Pastoral and Veterinary Institute, Hamilton

Spotted gum (*Corymbia maculata*) is an adaptable species that exhibits excellent form with little lean, even in exposed situations. It has considerable potential as a timber species, with many uses from boat building, furniture, flooring, tool handles, treated poles to heavy construction. CSIRO have rated the timber as good for engineering veneer, sawn appearance, sawn engineering and pulp or paper. One factor which may limit planting of this species is its susceptibility to frost. However, frosted seedlings do recover by coppicing.

Very little information is available on the susceptibility of spotted gum provenances (seed sources) to frost. As a result, in 1995 some sites were established in south west Victoria to compare ten provenances of spotted gum in order to select provenances that exhibit the best growth and form. These trials will also examine the effect of different ripping treatments, using a D4 bulldozer and/or farm tractor. Results have recently become available for two sites on basalt soil near Hamilton, one at Buckley Swamp and the other at Hensley Park.

Hensley Park

The site contained not only ten provenances of spotted gum but also manna gum (*Eucalyptus viminalis*), mountain grey gum (*Eucalyptus cypellocarpa*) and Sydney blue gum (*Eucalyptus saligna*). Ripping treatments for the site consisted of no ripping, single ripping, double ripping (two rips 60 cm apart), winged ripping (D4) and these combined with cross ripping. Heights and diameters were measured when the trees were 29 months old. Results show that:

Ripping treatment (Table 1)

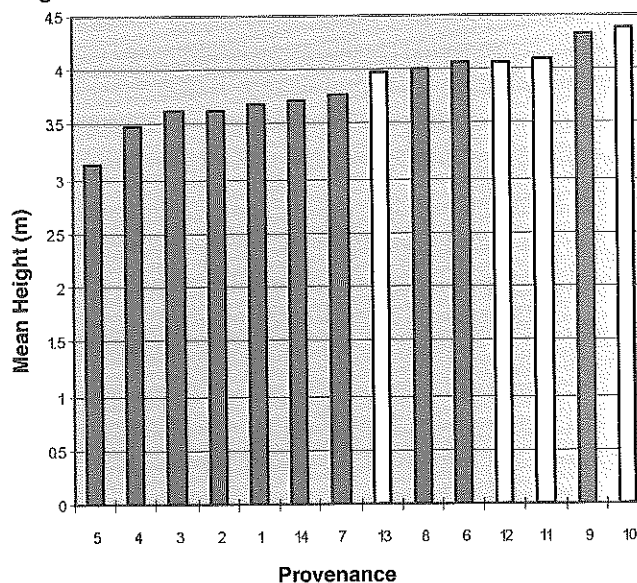
- * There was no significant difference between ripping treatments.

Table 1: Spotted gum ripping and provenance trial — mean height (m) for different ripping treatments

| Treatment | Buckley Swamp (16 months) | Hensley Park (29 months) |
|-----------------------|------------------------------|-----------------------------|
| No rip | 1.90 | - |
| No rip + crossrip | 1.94 | - |
| Single rip | 1.97 | 3.86 |
| Single rip + crossrip | 1.93 | 3.91 |
| Double rip | 1.96 | 3.86 |
| Double rip + crossrip | 2.00 | 3.82 |
| Winged rip | 3.86 | 3.86 |
| Winged rip + crossrip | - | 3.82 |
| | l.s.d 0.51 | l.s.d 0.2 |

Provenance difference (Figure 1)

Figure 1: Spotted gum provenance trial at Hensley Park — mean height at 29 months



- * Of all species and provenances Sydney blue gum from Termeil had the greatest mean height, but was not statistically greater than spotted gum from Orbost, Bodalla, Batemans Bay, or Sydney blue gum from Armidale, manna gum from Braidwood, or mountain grey gum from Erica.
- * Spotted gum from Orbost had a significantly higher growth rate than all other spotted gum provenances except those from Bodalla and Batemans Bay.
- * All provenances of spotted gum and also other species planted were statistically better than spotted gum from Ewingar and Dalby.

Buckley Swamp

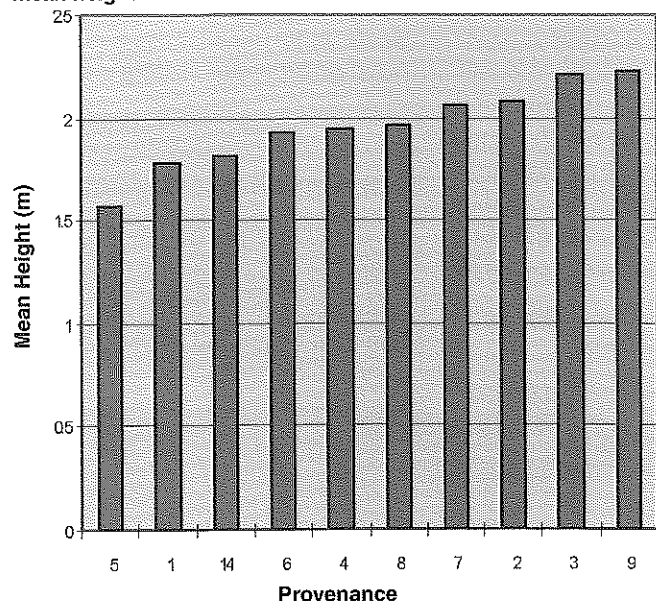
The site contains only ten spotted gum provenances and was measured when the trees were 16 months. Results show that:

Ripping treatment (Table 1)

- * There were no significant differences among ripping treatments.

| Species | Provenance |
|---------------------------|-------------------------------|
| 1 <i>C. maculata</i> | 18 km NW of Monto, QLD |
| 2 <i>C. maculata</i> | SW of Warwick, QLD |
| 3 <i>C. maculata</i> | Nth Molton, NSW |
| 4 <i>C. maculata</i> | Ewingar State Forest, NSW |
| 5 <i>C. maculata</i> | 45 km West of Dalby, QLD |
| 6 <i>C. maculata</i> | Bodalla State Forest, NSW |
| 7 <i>C. henryi</i> | Sth of Grafton, NSW |
| 8 <i>C. maculata</i> | 20 km NW of Batemans Bay, NSW |
| 9 <i>C. maculata</i> | 20 km NW of Orbost, VIC |
| 10 <i>E. saligna</i> | Termeil, NSW |
| 11 <i>E. saligna</i> | Armidale, NSW |
| 12 <i>E. viminalis</i> | S of Braidwood, NSW |
| 13 <i>E. cypellocarpa</i> | N of Erica, VIC |
| 14 <i>C. maculata</i> | Poolajelo, VIC |

Figure 2: Spotted gum provenance trial at Buckley Swamp — mean height at 16 months



Provenance difference (Figure 2)

- * Spotted gum from Orbost had the highest mean and was statistically greater than all provenances except those from Warwick, Molton, Batemans Bay and large leaved spotted gum (*Corymbia henryi*) from Grafton.
- * Spotted gums from Dalby had the lowest mean height which was significantly lower than all provenances except Molton and the collection from a planted stand at Poolajelo.



Don Jowett beside 30 month old Spotted Gums at Hensley Park.

These results provide no evidence to support the ripping of basalt soils with a farm tractor or D4 dozer as a way of improving tree growth. However, the depth of ripping achieved was only 35-45 cm at Buckley Swamp and 40-50 cm at Hensley Park. This was probably insufficient to penetrate the buck-shot clay layer. Ripping with a bulldozer to 65 cm on a site nearby resulted in a significant effect on growth of blue gums (see *Agroforestry News Dec 1997*).

Selection of provenances when planting spotted gum is important as growth rates vary significantly between provenances. Growth rates in South West Victoria of various spotted gum provenances are comparable to those of Sydney blue gum. There is ample evidence from previous plantings by PVI in 1985 and by farmers over the years, that spotted gum performs well in the South West, particularly where the sites chosen were not subject to severe frost (avoid frost hollows). This information together with the favoured sawing and drying properties of spotted gum (as indicated by CSIRO), make it a species which has great potential for planting in the region. It is one eucalypt that could be the focus of a sound farm forestry clearwood industry.

Contact: Melanie Waters, SWAN, Hamilton.
Phone: (03) 5573 0900