

SW Victorian ALRTIG progeny trials/seed orchards

Tim Jackson, Email: tim.jackson@dpi.vic.gov.au

In 2000-2003 the Victorian Department of Primary Industries (DPI), the Forest Science Centre (FSC, now University of Melbourne) and private organisations established a number of valuable eucalypt trials through the Australian Low Rainfall Tree Improvement Group (ALRTIG). This poster looks at four of the progeny trial/seedling seed orchards (Table 1) established by DPI in SW Victoria.

Each trial tests a range of families of a diverse range of provenances (Table 1), a few seedlots coming from seed orchards (SSO), seed production areas (SPA) or planted stands (no seedlot code). Each trial has 4 replicates and the family units are 5-tree line-plots. Trials were assessed for diameter (DBH), height (Ht), stem straightness (Str) and forking (Fk). Provenance means are presented in Table 1. Stem straightness is shown on a scale of 1 (poor) - 4 (good). The height of the first fork was assessed on a scale of 1 (ground level) - 6 (no fork).

In general, provenance rankings support findings from other work. *C. maculata* Mottle Range performed well. In *E. cladocalyx* Flinders Chase had good growth while Wirrabara and Wilmington had better form. The *E. tricarpa* provenance represented clearly outperformed all *E. sideroxylon* provenances. Mt Nowa Nowa also did well in an *E. tricarpa* progeny trial at Huntly (Stackpole 2006).

SPA and planted-stand material also performed very well in *E. cladocalyx* where more such material is available. *C. maculata* Barclays SSO also performed well.

Differences among families within provenances (not presented) were also evident and the progeny trials provide an excellent basis for breeding and production of improved seed. Management of select Victorian sites as seed orchards will commence in the next year with culling of inferior seedlots and individuals. Subsequent flowering will initiate improved seed production in order to make improved material available for forestry in low-medium rainfall areas of southern Australia.



Table 1: Provenance growth and form in four SW Victorian ALRTIG progeny trials

Seedlot No.	Source	#fam	DBH (cm)	Ht (m)	Str (1-4)	Fk (1-6)
2001 <i>C. maculata</i>, Hamilton, duplex basalt soil, MAR 670 mm, 1250 tr/ha, 108 families, measured at 3.5 yrs, survival 96%						
NN157	Mottle Range	1	10.3	7.3	2.3	3.0
ATSC 19421	Mumbula SF	5	10.0	7.1	2.4	2.5
ATSC 19308	Kiola SF	9	9.9	6.7	2.2	2.4
ATSC 19382	Mottle Range	5	9.8	6.8	2.1	2.9
ATSC 19263	Wingello	1	9.5	7.1	2.9	2.5
Various	Barclays SSO	17	9.5	6.8	2.6	2.9
ATSC 19102	Bodalla SF	4	9.1	6.7	2.5	2.7
CEH501	Wando Heights	1	9.1	6.2	1.6	2.4
ATSC 19481	Nelligen	10	9.0	6.4	2.5	2.3
ATSC 19751	Yarrat SF	2	9.0	6.6	2.3	2.8
ATSC 19752	Yarrat SF	7	8.8	6.4	2.7	2.8
ATSC 20150	Curryall SF	11	8.8	6.3	2.6	2.7
ATSC 20397	Curryall SF	9	8.7	6.2	2.7	2.6
ATSC 20324	Wingello	11	8.7	6.6	2.3	2.9
ATSC 19663	Curryall SF	9	8.6	6.1	2.7	2.5
ATSC 19422	Bodalla SF	6	8.4	6.1	2.2	2.6
2001 <i>E. cladocalyx</i>, Hamilton, duplex basalt soil, MAR 670 mm, 1250 tr/ha, 96 families, measured at 3.7 yrs, survival 96%						
-	Majorca	5	9.5	6.6	2.2	3.5
-	Mt Burr	5	9.3	6.4	2.1	3.2
ATSC 16022	Flinders Chase	2	9.3	6.4	1.9	2.9
-	Kersbrook SPA	13	9.2	6.6	2.7	3.8
-	Wail	3	9.2	6.3	2.1	3.7
ATSC 20267	Flinders Chase NP	11	9.1	6.6	1.9	2.6
ATSC 20414	Wirrabara SF	5	8.9	6.3	2.1	3.6
-	Lismore	1	8.8	6.3	1.8	3.0
ATSC 19717	Flinders Chase NP	8	8.7	6.2	1.9	2.3
ATSC 20268	Wirrabara SF	10	8.7	6.2	2.1	3.4
ATSC 20266	Cygnat River	3	8.7	6.5	1.7	2.8
ATSC 20265	American River	5	8.5	6.4	2.1	3.1
ATSC 16089	Wilmington	5	8.4	5.9	2.4	3.2
ATSC 20388	Mt Remarkable	16	8.1	5.9	2.4	3.5
ATSC 19348	Wilmington	4	7.8	5.8	2.4	3.4

References: Stackpole (2006) Trial Measurement 2005-06: A report for the Department of Primary Industries, Bendigo. Sylvaere PL.

Seedlot No.	Source	#fam	DBH (cm)	Ht (m)	Str (1-4)	Fk (1-6)
2001 <i>E. occidentalis</i>, Dunkeld, duplex basalt soil, winter flooding, MAR 650 mm, 1250 trees/ha, 114 families, measured at 5.0 yrs, survival 91%						
ATSC 13636	Porongorup	1	6.6	4.5	1.9	1.8
ATSC 13642	Ravensthorpe	1	6.0	4.6	2.3	2.6
ATSC 15390	Gordon River	1	5.8	4.7	2.1	2.4
ATSC 20222	Ongerup	5	5.7	4.8	2.8	2.6
ATSC 15395	Dumbleyung Lake	8	5.6	4.4	2.7	2.3
ATSC 99050	Red Lake	12	5.6	4.9	2.5	2.8
-	Bundaleer SPA	10	5.5	4.5	2.4	2.5
ATSC 13634	Broomehill	4	5.4	4.3	2.5	2.2
ATSC 19412	Jerramungup	6	5.4	4.2	2.0	2.1
-	Redhill SPA	15	5.4	4.3	2.3	2.3
ATSC 15377	Katanning	8	5.3	4.1	2.2	2.0
ATSC 19923	Lake Magenta Rd	2	5.2	4.1	2.3	2.5
ATSC 13646	Gibson	2	5.2	4.0	2.0	2.1
ATSC 15416	Truslove	7	5.2	4.3	2.1	2.4
ATSC 19924	Old Newgate Rd	4	5.2	4.1	1.9	2.1
ATSC 99052	Grass Patch	5	5.0	4.4	2.5	2.5
ATSC 19925	Jerdacuttup River	4	4.9	4.0	2.0	2.0
ATSC 19922	Beaufort River	5	4.8	3.9	2.4	2.3
ATSC 99075	Jerramungup	12	4.8	4.0	2.2	2.2
ATSC 13637	Stirling Ra	1	4.5	3.8	2.2	2.5
2002 <i>E. sideroxylon</i>, Hensley Park, duplex lateritic sediments, 5 slope, MAR 650 mm, 1000 trees/ha, 63 families, measured at 4.2 yrs, survival 89%						
ATSC 20455	(<i>E. tricarpa</i>) Mt Nowa Nowa	2	7.6	5.4	2.7	2.1
ATSC 15199	Wagga Wagga	8	6.1	4.0	2.5	2.7
ATSC 20316	Glen Alice	4	5.8	3.9	2.2	1.9
ATSC 20566	Blow Clear	6	5.8	4.3	2.7	3.1
ATSC 20567	Nymagee	4	5.6	4.0	2.0	2.7
ATSC 19677	West Wyalong	8	5.5	4.1	2.4	2.7
ATSC 20394	Uralla	7	5.4	3.8	2.6	2.6
ATSC 20568	Jimberoo	2	5.2	4.1	2.3	2.9
ATSC 20053	Chiltern	7	5.1	3.7	2.4	2.8
ATSC 19557	Gilgandra	9	5.0	3.7	2.3	2.4
ATSC 20490	Gwabegar	6	4.6	3.6	2.4	2.3
ATSC 19558	(<i>E. crebra</i>) Baradine	1	3.4	3.1	2.2	2.2