

**Additional File 1: Appendix****A preliminary growth and yield model for *Eucalyptus globoidea* (Blakely) plantations in New Zealand**

Serajis Salekin, Euan G. Mason, Justin Morgenroth, Dean F. Meason

Simplified Lundgren volume equation,  $V_{Alg}$  (Lundgren 1995):

$$V_{Alg} = \frac{\pi \cdot DBH^2 \cdot H^3}{40000 \cdot (H - 1.4)^2} \cdot (0.2134788 \cdot \beta_c + 0.011344)$$

where  $V_{Alg}$  is individual tree volume, DBH is diameter at breast height (1.4m), H is tree height, and  $\beta_c$  is a model parameter, which can be simplified as:

$$\beta_c = \left(1 - \frac{1.4}{H}\right)^{0.280729} - 0.414429 \left(1 - \frac{1.4}{H}\right)^{17.26155}$$

TABLE A1. *Eucalyptus globoidea* PSP database description

ID	Establishment Year	Measurement Numbers	Initial Stocking (Stems ha <sup>-1</sup> )	Thinning		Pruning	
				Age(years)	Residual Stems ha <sup>-1</sup>	Age(years)	Height (m)
1	1990	7	800	-	-	6	4.0
2	1992	-	500	24	475	10	8.4
3	1990	7	800	-	-	6	4.0
4	2003	-	400	13	375	10	7.1
5	1997	-	-	19	325	-	-
6	1995	2	1350	-	-	-	-
7	2003	2	1276	8	600	-	-
8	1997	2	600	8	525	-	-
9	1992	11	1111	7	600	-	-
10	2003	-	-	13	265	-	-
11	1992	11	1111	7	494	-	-
12	2003	-	-	13	229	-	-
13	1992	11	1111	7	441	-	-
14	2003	-	-	13	229	-	-
15	1999	-	-	17	159	-	-
16	1998	-	880	8	480	8	6.7
17	1998	6	700	8	400	8	6.6
18	1998	6	263	18	250	-	-
19	1996	6	1675	-	-	-	-
20	1992	2	1275	-	-	-	-
21	2003	2	1275	-	-	-	-
22	1997	2	600	-	-	-	-
23	1997	2	1500	-	-	-	-
24	1995	2	1275	-	-	-	-
25	2003	2	1275	-	-	-	-
26	2003	2	1111	-	-	-	-
27	1997	2	370	13	260	-	-
28	1992	6	260	13	170	-	-
29	1982	3	1600	-	-	-	-

TABLE A2. Preliminary model's parameter estimates.

Model	Stat.	$\alpha$	$\beta$	$\gamma$	$\delta$
<i>MTH</i>	Estimate	33.27801	0.10493	-	-
	SE	0.59493	0.00488	-	-
	<i>p</i>	<2e-16	<2e-16	-	-
	<i>Sig.</i>	***	***	-	-
<i>G</i>	Estimate		15.4329	-	-
	SE		0.4876	-	-
	<i>p</i>		<2e-16	-	-
	<i>Sig.</i>		***	-	-
<i>Dmax</i>	Estimate	1.34350	2.18374	-	-
	SE	0.09103	0.05533	-	-
	<i>p</i>	<2e-16	<2e-16	-	-
	<i>Sig.</i>	***	***	-	-
<i>SD<sub>D</sub></i>	Estimate	-5.88374	-0.22515	-	-
	SE	1.04224	0.02529	-	-
	<i>p</i>	4.62e-08	< 2e-16	-	-
	<i>Sig.</i>	***	***	-	-
<i>V</i>	Estimate	2.91550	-0.11914	-6.58049	0.32620
	SE	0.45295	0.02559	1.37885	0.07908
	<i>p</i>	2.94e-08	2.02e-05	1.35e-05	0.000124
	<i>Sig.</i>	***	***	***	***

TABLE A3. Height-diameter relationship model

Model	Stat.	$\alpha_0$	$\alpha_1$	$\beta_0$	$\beta_1$
<i>H-D</i>	Estimate	2.814e-01	3.295e-05	9.863e-01	-2.424e+01
	SE	2.751e-02	1.250e-05	4.977e-01	4.841e+00
	<i>p</i>	< 2e-16	0.00884	0.04843	9.38e-07
	<i>Sig.</i>	***	**	*	***