

Table 1. Commonly used architectural parameters

<i>Parameter</i>	<i>Definition</i>
<i>Root volume</i>	Volume of tree root system in the soil
<i>Root length</i>	Total sum of root length
<i>Horizontal spread</i>	Maximum horizontal distance
<i>Rooting depth</i>	Depth of the deepest root in a root system
<i>Cross-sectional area</i>	Area of cross-section (calculated from root diameter)
<i>Allocation ratio (q)</i>	Average ratio of the cross-sectional area of larger branch to the total cross-sectional area of all branch (if q is 1, herringbone and if q is 0.5, dichotomous)
<i>Proportionality index (p)</i>	Area ratio of before and after branching ($\text{Area}_{\text{parent}}/\text{Area}_{\text{children}}$)
<i>Branching angle</i>	Angle between parent root and children root
<i>Root order or Generation number</i>	Branching order of each root segment
<i>Root fork number or Total bifurcation number</i>	Total number of root bifurcations

Table 2. Bulk properties for model tree roots

Symbol	Lovell1	Lovell 2	Lovell 3	Lovell 4	Marianna 1	Marianna 2	Marianna 3	Myrobalan 1	Myrobalan 2	Myrobalan 3
<i>Species</i>	Lovell	Lovell	Lovell	Lovell	Marianna	Marianna	Marianna	Myrobalan	Myrobalan	Myrobalan
<i>Peak Pullout Capacity (kN)</i>	5.7	7.5	4.3	4.8	8.0	9.9	6.5	10.7	16.4	12.9
<i>Total Volume (cm³)^a</i>	3268	3446	2378	3411	4673	4082	1983	4018	3756	2219
<i>Total Surface Area (cm²)^a</i>	6861	9058	5043	5770	9807	6804	4994	9021	6512	6730
<i>Total length (cm)^b</i>	1871	3100	1274	1279	2462	1415	1112	1969	1463	1378
<i>Trunk diameter (cm)^c</i>	8.2	8.6	7.4	8.3	8.2	8.2	7.2	6.3	7.6	6.6
<i>Buried depth (cm)</i>	58	39	35	61	36	52	58	38	65	63
<i>Maximum hemisphere radius (cm)^d</i>	110	110	120	110	110	120	90	100	110	100
<i>Number of generation</i>	7	6	7	9	10	12	7	7	8	6
<i>Fractal dimension for volume</i>	1.27	1.09	1.11	1.33	1.53	1.19	1.17	1.35	1.37	1.06
<i>Fractal dimension for area</i>	2.03	1.92	1.73	1.69	1.76	1.42	2.16	1.61	1.61	1.66

Note. ^a Volume and surface area are calculated from STL format. ^b Total length is calculated from the skeletons. ^c The trunk diameter is estimated from the diameter of the maximum inscribed sphere. ^d Maximum hemisphere radius is equivalent to the distance from the trunk center at the ground surface.

Table 3. Summary of local thickness

Symbol	Lovell 1	Lovell2	Lovell3	Lovell4	Marianna 1	Marianna 2	Marianna 3	Myrobalan 1	Myrobalan 2	Myrobalan 3
LT10	5.5	5.5	6.5	7.5	6.5	8.5	5.5	7.5	7.5	3.5
LT30	12.5	9.5	11.5	17.5	11.5	17.5	9.5	11.5	11.5	8.5
LT50	21.5	14.5	19.5	33.5	19.5	25.5	14.5	16.5	16.5	14.5
LT60	30.5	20.5	27.5	39.5	27.5	33.5	22.5	20.5	20.5	17.5
LT90	79.5	85.5	68.5	78.5	69.5	57.5	70.5	38.5	38.5	32.5
Cu^a	5.55	3.73	4.23	5.27	4.23	3.94	4.09	2.73	2.73	5

Note: ^a The coefficient of uniformity in root thickness Cu is defined as LT60/LT10, which represents the variability in thickness. The Cu value of 1 indicates that the root thickness is uniform. Greater Cu indicates greater variation of root thickness.