

Is it possible to manipulate root anchorage in young trees?

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“Specific root length (m^{-1})” should be “Specific
root length (m^{-2})”

Table 2 “Specific root surface (m^{-2})” should be
“Specific root surface (m^{-1})”

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Table 2 Mean root growth parameters \pm standard error for the 76 cuttings and trees with (+) or without (–) tap roots

Growth parameter	Treatment			<i>P</i>
	Cutting	(–) Tap root	(+) Tap root	
RPC (%)	0.20 \pm 0.08	0.20 \pm 0.09	0.18 \pm 0.11	0.209
Total root volume (m ³)	0.009 \pm 0.001 ^a	0.014 \pm 0.002 ^b	0.018 \pm 0.003 ^b	0.003
Total root length (m)	9.7 \pm 1.0 ^a	19.9 \pm 1.0 ^b	22.7 \pm 2.0 ^b	<0.001
Specific root surface (m ⁻¹)	360 \pm 20 ^a	430 \pm 30 ^b	400 \pm 30 ^{a,b}	<0.001
Specific root length (m ⁻²)	16000 \pm 2000 ^a	24000 \pm 3000 ^b	20000 \pm 3000 ^{a,b}	<0.001
Maximal radial distance (m)	1.4 \pm 0.8 ^a	1.5 \pm 0.8 ^{a,b}	1.6 \pm 1.0 ^b	0.124
Maximal depth (m)	0.7 \pm 0.2	0.7 \pm 0.3	0.7 \pm 0.2	0.216
Tap root length (m)	0.8 \pm 0.3	0.8 \pm 0.5	0.8 \pm 0.4	0.792
Relative root number (number/DBH (m))	389.9 \pm 16.2 ^a	578.0 \pm 39.1 ^b	564.7 \pm 22.7 ^b	<0.001
Mean number of lateral roots on stump	8.8 \pm 0.6 ^a	20.5 \pm 1.2 ^b	19.6 \pm 1.4 ^b	<0.001
Mean basal diameter of lateral roots on stump (mm)	17.0 \pm 0.1 ^a	13.1 \pm 0.1 ^b	14.7 \pm 0.1 ^{a,b}	0.031
Mean inter-lateral length along tap root (mm)	51.6 \pm 3.9 ^a	29.3 \pm 3.1 ^b	27.1 \pm 2.1 ^b	<0.001
Proportion of stump volume (%)	49.3 \pm 1.6	49.6 \pm 1.3	46.5 \pm 1.1	0.128
Root wood density (kg/m ³)	422.8 \pm 7.7 ^a	454.9 \pm 19.5 ^b	456.7 \pm 7.6 ^b	0.050
Shallow soil layer (all root segments) (%)	69.0 \pm 2.9	65.6 \pm 4.7	61.8 \pm 2.8	0.33
Intermediate soil layer (all root segments) (%)	29.9 \pm 2.7	31.7 \pm 4.3	35.9 \pm 2.6	0.41
Deep soil layer (all root segments) (%)	1.1 \pm 0.3	2.1 \pm 0.6	1.9 \pm 0.5	0.12
<i>Proportion of root volume (%) between different compartments (with stump removed)</i>				
Horizontal shallow segments within ZRT	17.1 \pm 2.0	15.8 \pm 2.0	15.8 \pm 1.6	0.86
Intermediate roots	6.2 \pm 1.8	5.1 \pm 2.2	4.3 \pm 1.1	0.76
Oblique roots	12.4 \pm 2.4 ^a	4.6 \pm 1.6 ^b	9.1 \pm 1.9 ^{a,b}	0.09
Deep roots	0.37 \pm 0.14	0.42 \pm 0.21	0.56 \pm 0.17	0.74
Tap root	27.8 \pm 2.2	26.1 \pm 3.1	22.8 \pm 2.4	0.24
Sinker roots beneath ZRT	11.2 \pm 1.9 ^a	18.1 \pm 2.4 ^b	17.5 \pm 2.6 ^b	0.06
Sinker roots beyond ZRT	0.5 \pm 0.4	0.6 \pm 0.3	0.4 \pm 0.2	0.56
Horizontal shallow segments beyond ZRT	25.2 \pm 2.4	30.0 \pm 3.2	31.1 \pm 2.1	0.22

Where letters in superscript differ, differences are significant between treatments using a Fisher LSD test ($P < 0.05$). In the Probability (P) column, P values (significant P values are in bold) are given for the comparison of all three treatments together using ANOVA (with DBH as covariate). Non-proportional data were log-transformed and proportional data were arcsine square root transformed before analysis, although mean values of raw data are given here for ease of reading

Legend of Fig. 2 should read:

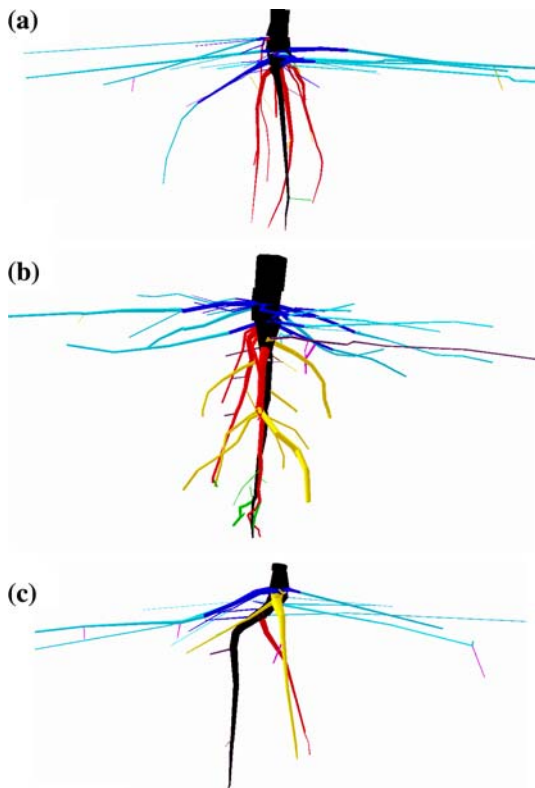


Fig. 2 Reconstruction with AMAPmod of root systems coloured as a function of compartment type in **(a)** trees with pruned tap roots, **(b)** control trees with undamaged tap roots, and **(c)** cuttings. The root systems are at the same scale with a maximal rooting depth of -0.75 , -0.9 , and -0.8 m, respectively. Side view, left is North West