

Supplementary files

Abiotic and biotic factors controlling fine root biomass, carbon and nutrients in closed-canopy hybrid poplar stands on post-agricultural land. Julien Fortier, Benoit Truax, Daniel Gagnon and France Lambert.

Table S1. P-values for the Season effect and interaction effects (according to MANOVA) on fine root and soil variables measured during the growing season in hybrid poplar plantations.

Variables	Season	Season × Environment	Season × Genotype	Season × Genotype × Environment
Fine root biomass (kg/ha)				
Live fine root biomass	0.58	0.24	0.78	0.53
Dead fine root biomass	0.03	0.35	0.13	0.98
Live Fine root nutrient concentration (%)				
C	0.007	0.48	0.81	0.85
N	<0.0001	0.14	0.44	0.70
P	0.002	0.001	0.68	0.22
K	<0.0001	<0.0001	0.10	0.55
Ca	0.03	0.17	0.55	0.36
Mg	0.03	0.21	0.86	0.51
Live fine root nutrient content (kg/ha)				
C	0.46	0.26	0.81	0.52
N	0.20	0.03	0.76	0.36
P	0.16	0.05	0.90	0.84
K	0.0006	0.002	0.47	0.88
Ca	0.54	0.38	0.77	0.55
Mg	0.36	0.13	0.90	0.43
Dead fine root nutrient content (kg/ha)				
C	0.03	0.35	0.13	0.98
N	0.03	0.36	0.15	0.98
P	0.04	0.37	0.12	0.96
K	0.03	0.44	0.19	0.99
Ca	0.03	0.39	0.12	0.98
Mg	0.04	0.34	0.11	0.98
Soil nutrient supply rate (µg/10cm²/42d)				
NO ₃ (ln transformed)	<0.0001	0.05	0.57	0.64
NH ₄	0.0005	0.01	0.34	0.43
P	0.02	0.15	0.6	0.26
K	0.004	0.21	0.05	0.58
Ca	0.03	0.65	0.62	0.37
Mg	0.03	0.03	0.07	0.11

Table S2. P-value for the main effects (Environment and Genotype) and interaction effects (according to two-way ANOVA) on fine root and soil variables measured during the growing season in hybrid poplar plantations.

Variables	Environment	Genotype	Genotype × Environment
Fine root biomass (kg/ha)			
Live fine root biomass (mean across 3 seasons)	0.003	0.003	0.05
Live fine root biomass (spring)	0.001	0.002	0.06
Live fine root biomass (summer)	0.01	0.10	0.11
Live fine root biomass (fall)	0.31	0.06	0.42
Dead fine root biomass (mean across 3 seasons)	0.0002	0.01	0.03
Dead fine root biomass (spring)	0.15	0.02	0.57
Dead fine root biomass (summer)	0.0007	0.37	0.18
Dead fine root biomass (fall)	0.003	0.05	0.08
Live fine root nutrient concentration (%)			
C	<0.0001	0.34	0.30
N	0.32	0.003	0.14
P	<0.0001	0.20	0.07
K	0.06	0.0002	0.26
Ca	0.04	0.002	0.20
Mg	0.05	0.006	0.53
Dead fine root nutrient concentration (%)			
C	0.0002	0.96	0.74
N	0.68	0.53	0.27
P	<0.0001	0.12	0.07
K	0.78	0.01	0.90
Ca	0.13	0.0003	0.19
Mg	0.001	0.69	0.17
Live fine root nutrient content (kg/ha)			
C	0.002	0.004	0.06
N	0.004	0.007	0.05
P	0.20	0.007	0.06
K	0.17	0.42	0.38
Ca	0.0005	0.0002	0.04
Mg	0.07	0.11	0.15
Dead fine root nutrient content (kg/ha)			
C	0.0003	0.01	0.03
N	<0.0001	0.01	0.02
P	0.0005	0.02	0.06
K	0.0002	0.15	0.03
Ca	<0.0001	0.002	0.005
Mg	0.004	0.02	0.13
Aboveground woody biomass			
Sampled trees for fine root biomass (kg/tree)	0.41	0.0001	0.56
Stand level (t/ha)	0.17	0.002	0.66
Soil nutrient supply rate (µg/10cm²/42d)			
NO ₃ (ln transformed)	<0.0001	0.61	0.88
NH ₄	0.0003	0.25	0.75
P	0.007	0.47	0.57
K	0.05	0.36	0.28
Ca	0.01	0.56	0.43
Mg	0.0002	0.76	0.79
Soil characteristics			
Bulk density (g/cm ³)	<0.0001	0.71	0.96
pH	<0.0001	0.63	0.57
Organic matter (%)	<0.0001	0.51	0.13
C (mg/g)	0.0005	0.76	0.77
N (mg/g)	0.009	0.44	0.55
C/N	<0.0001	0.45	0.84
CEC (meq/100g)	0.01	0.91	0.91
Base saturation (%)	<0.0001	0.81	0.58

Figure S1. Season $\times$ Environment interaction effect on live fine root P ($p=0.001$) and K ($p<0.0001$) concentrations in hybrid poplar plantations.

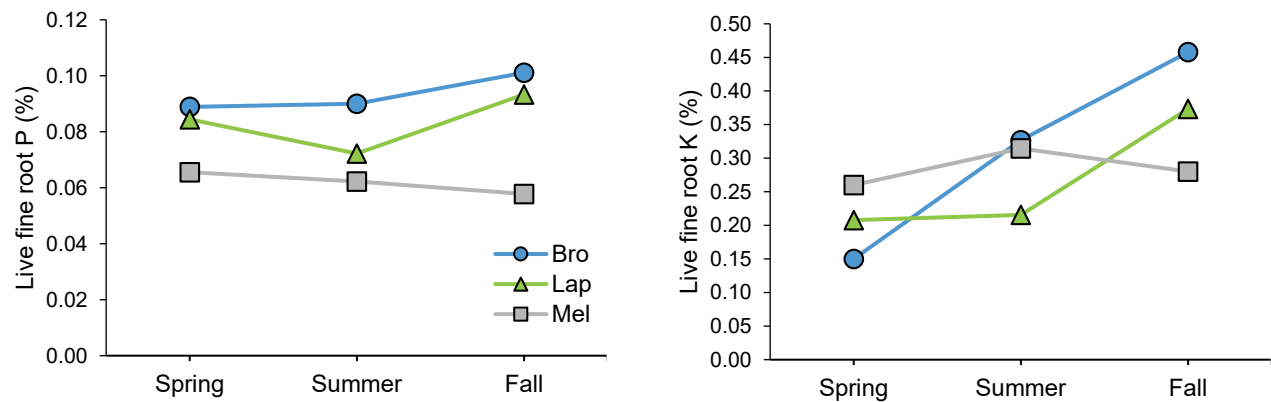


Figure S2. Season $\times$ Environment interaction effect on live fine root N ($p=0.03$), P ($p=0.05$) and K ($p=0.002$) contents in hybrid poplar plantations.

