

Supplementary data Tables S1-S3

Table S1 Average total non-structural carbohydrate, starch, sucrose, and glucose and fructose concentrations (% dry weight) of twigs and foliage from 2011, 2010, and 2009 cohorts of Douglas-fir trees with Swiss Needle Cast sampled in mid-June.

Tree ID	Twig NSC (%)			Twig starch (%)			Twig sucrose (%)			Twig gluc/fruc (%)			Foliage NSC (%)			Foliage starch (%)			Foliage sucrose (%)			Foliage gluc/fruc (%)		
	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009
1	5.59	3.50	2.44	3.96	2.29	1.67	0.70	0.66	0.43	0.92	0.55	0.35	4.02	2.72	-	0.70	0.95	-	1.85	0.99	-	1.47	0.79	-
2	7.49	5.40	4.20	5.61	3.62	2.90	0.87	1.03	0.64	1.01	0.75	0.66	9.48	5.11	4.01	5.49	2.11	1.46	2.36	2.09	1.84	1.63	0.91	0.71
3	5.95	3.50	2.53	3.78	2.29	1.74	0.50	0.49	0.36	1.68	0.72	0.43	5.60	3.78	-	2.52	1.71	-	1.28	0.89	-	1.80	1.19	-
4	5.58	5.13	4.10	2.73	3.53	2.92	1.31	0.79	0.74	1.54	0.82	0.44	10.08	5.71	5.70	6.48	3.09	3.49	2.08	1.56	1.78	1.52	1.06	0.43
5	2.74	2.80	2.31	1.60	1.59	1.47	0.58	0.64	0.40	0.55	0.56	0.44	7.08	4.42	-	2.55	1.27	-	2.74	1.92	-	1.80	1.23	-
6	7.30	6.31	5.53	4.18	3.80	3.14	1.20	0.90	0.95	1.92	1.61	1.44	5.61	3.72	-	2.23	1.39	-	2.17	1.47	-	1.22	0.85	-
7	3.97	3.10	2.53	1.80	1.20	0.91	0.37	0.44	0.37	1.80	1.45	1.25	7.67	3.40	-	4.20	1.45	-	1.25	1.06	-	2.21	0.89	-
8	6.58	3.60	-	4.54	2.24	-	1.09	0.63	-	0.95	0.73	-	7.55	3.02	-	3.78	1.03	-	2.14	1.23	-	1.64	0.76	-
9	7.20	5.12	3.93	4.55	3.32	2.67	1.21	1.03	0.64	1.45	0.77	0.61	6.01	2.18	-	2.80	0.70	-	2.26	0.69	-	0.94	0.78	-
10	6.06	4.99	4.47	3.81	2.61	2.20	0.43	0.65	0.29	1.82	1.73	1.98	6.10	4.87	-	2.80	2.29	-	1.47	1.47	-	1.83	1.12	-
11	6.84	4.57	3.83	4.69	3.02	2.61	1.03	0.82	0.72	1.11	0.73	0.50	7.85	6.74	-	3.50	3.64	-	2.56	1.76	-	1.79	1.34	-
12	8.11	4.58	3.38	5.92	3.21	2.49	1.07	0.83	0.57	1.11	0.54	0.32	8.47	4.92	-	4.56	2.55	-	2.12	1.62	-	1.79	0.75	-
13	7.37	3.89	2.59	5.43	2.44	1.41	1.00	0.83	0.67	0.93	0.61	0.51	4.74	-	-	1.38	-	-	1.68	-	-	1.68	-	-
14	4.40	2.69	2.79	2.12	1.10	1.45	1.13	0.85	0.68	1.15	0.74	0.66	3.54	1.49	-	1.25	0.55	-	1.07	0.55	-	1.21	0.40	-
15	6.49	2.82	2.88	4.41	1.58	1.94	1.19	0.74	0.69	0.89	0.50	0.26	3.39	3.05	-	0.87	0.83	-	1.72	1.48	-	0.81	0.74	-

Table S2 Average total non-structural carbohydrate, starch, sucrose, and glucose and fructose concentrations (% dry weight) of twigs and foliage from 2011, 2010, and 2009 cohorts of Douglas-fir trees with Swiss Needle Cast sampled in late July.

Tree ID	Twig NSC (%)			Twig starch (%)			Twig sucrose (%)			Twig gluc/fruc (%)			Foliage NSC (%)			Foliage starch (%)			Foliage sucrose (%)			Foliage gluc/fruc (%)		
	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009
1	3.20	2.60	2.25	1.10	1.07	1.14	1.00	0.93	0.51	1.10	0.60	0.60	4.64	3.26	-	0.70	0.53	-	1.98	1.58	-	1.96	1.16	-
2	4.85	3.44	2.32	1.81	1.35	0.81	1.30	0.93	0.79	1.75	1.16	0.72	7.16	5.20	-	1.99	1.11	-	2.46	2.42	-	2.72	1.67	-
3	3.34	3.21	1.91	0.21	0.62	0.31	1.44	1.37	0.86	1.69	1.21	0.75	3.78	3.75	-	0.36	0.87	-	1.69	1.04	-	1.74	1.84	-
4	6.50	4.29	3.52	1.41	0.85	0.84	2.09	1.76	1.31	3.00	1.69	1.37	5.36	4.16	3.35	0.61	0.50	0.42	2.61	2.33	2.01	2.15	1.33	0.92
5	4.62	3.23	2.75	0.93	0.70	0.71	1.36	1.11	0.79	2.33	1.41	1.25	6.49	3.45	-	1.87	0.59	-	2.22	1.87	-	2.40	0.99	-
6	6.03	4.69	4.17	1.21	1.52	1.94	2.53	1.85	1.32	2.30	1.33	0.90	6.22	5.13	-	1.77	1.53	-	2.36	2.26	-	2.09	1.34	-
7	5.11	3.68	2.59	0.54	0.28	0.24	1.33	1.91	0.71	3.25	1.49	1.64	7.00	5.94	-	2.16	2.18	-	2.46	2.49	-	2.38	1.27	-
8	4.83	3.47	3.27	1.45	1.23	1.68	1.39	1.01	0.73	1.99	1.23	0.86	4.02	3.16	-	0.88	0.73	-	1.51	1.14	-	1.63	1.30	-
9	5.44	3.88	2.73	2.12	1.33	1.53	1.55	1.26	0.60	1.77	1.29	0.60	4.66	2.35	-	0.54	0.44	-	2.41	1.10	-	1.72	0.81	-
10	6.85	5.21	4.17	2.85	2.56	1.90	0.85	0.49	0.46	3.15	2.15	1.81	6.75	5.57	-	2.20	1.80	-	1.70	1.28	-	2.85	2.49	-
11	6.41	6.11	4.85	1.93	2.57	2.46	1.22	1.40	1.26	3.26	2.13	1.13	4.92	4.71	-	0.82	0.69	-	1.85	2.07	-	2.25	1.96	-
12	4.55	3.36	2.19	2.07	1.23	0.68	1.24	1.21	0.77	1.24	0.92	0.73	5.31	4.17	3.74	1.00	0.67	0.85	2.28	2.21	1.67	2.03	1.29	1.22
13	3.59	2.93	2.36	1.45	1.39	1.35	1.19	0.99	0.56	0.95	0.55	0.45	3.86	3.84	-	0.55	0.57	-	1.87	1.90	-	1.44	1.37	-
14	4.02	2.06	2.12	0.90	0.36	0.78	0.77	0.79	0.68	2.36	0.91	0.67	5.31	2.82	-	1.24	0.73	-	2.00	1.27	-	2.07	0.82	-
15	2.45	1.71	1.54	0.15	0.08	0.13	1.03	0.87	0.60	1.27	0.76	0.81	4.30	2.78	-	0.47	0.57	-	2.23	1.20	-	1.61	1.01	-

Table S3 Average total non-structural carbohydrate, starch, sucrose, and glucose and fructose concentrations (% dry weight) of twigs and foliage from 2011, 2010, and 2009 cohorts of Douglas-fir trees with Swiss Needle Cast sampled in early September.

Tree ID	Twig NSC			Twig starch			Twig sucrose			Twig gluc/fruc			Foliage NSC			Foliage starch			Foliage sucrose			Foliage gluc/fruc		
	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009	2011	2010	2009
1	2.05	1.66	1.07	0.48	0.25	0.27	0.57	0.66	0.40	1.01	0.76	0.40	4.20	2.70	-	0.70	0.61	-	1.82	1.10	-	1.68	0.99	-
2	6.96	4.96	3.48	3.19	1.96	1.07	1.89	1.42	1.23	1.87	1.59	1.17	6.60	4.30	3.97	1.29	0.61	0.57	3.04	2.40	2.29	2.27	1.29	1.11
3	2.72	2.51	1.57	0.22	0.41	0.37	0.63	0.73	0.43	1.88	1.37	0.77	3.08	3.05	-	0.48	1.05	-	1.44	0.78	-	1.15	1.22	-
4	2.86	1.94	1.58	0.62	0.29	0.34	0.90	0.62	0.55	1.35	1.03	0.68	5.41	4.49	3.51	0.86	0.70	0.64	2.57	2.34	1.83	1.98	1.45	1.05
5	2.09	1.31	0.73	0.39	0.23	0.16	0.77	0.51	0.37	0.93	0.57	0.20	5.96	3.75	-	1.34	0.77	-	2.64	1.87	-	1.98	1.11	-
6	2.57	2.34	1.43	0.37	0.53	0.36	1.27	1.08	0.70	0.93	0.73	0.36	3.93	3.77	-	0.25	0.54	-	2.64	2.32	-	1.05	0.91	-
7	3.27	2.25	1.60	0.51	0.47	0.21	1.43	0.74	0.67	1.34	1.03	0.71	3.66	2.65	-	0.43	0.23	-	2.25	2.01	-	0.98	0.41	-
8	3.57	2.55	2.01	0.65	0.73	0.47	1.13	0.82	0.82	1.79	1.00	0.72	3.91	3.72	-	0.45	0.31	-	2.03	2.10	-	1.43	1.31	-
9	3.43	2.26	1.40	0.35	0.34	0.47	1.39	0.92	0.51	1.68	1.00	0.42	3.65	2.58	-	0.33	0.62	-	2.15	1.04	-	1.17	0.93	-
10	4.31	3.67	2.63	0.65	0.76	0.60	1.83	1.56	1.06	1.82	1.35	0.97	5.03	3.88	-	0.21	0.32	-	3.42	2.54	-	1.41	1.02	-
11	4.59	4.34	3.42	1.04	1.54	1.77	1.90	1.54	1.05	1.66	1.26	0.60	4.85	4.62	3.06	0.52	0.45	0.42	2.65	2.83	1.88	1.68	1.34	0.76
12	3.47	2.59	1.92	0.72	0.35	0.35	1.45	1.14	0.47	1.30	1.09	1.09	4.41	3.43	2.56	0.37	0.28	0.37	2.61	2.23	1.51	1.43	0.92	0.68
13	2.36	1.55	1.16	0.65	0.52	0.38	0.88	0.54	0.44	0.83	0.49	0.34	3.06	-	-	0.45	-	-	1.49	-	-	1.12	-	-
14	2.06	1.11	0.92	0.61	0.34	0.22	0.69	0.42	0.33	0.76	0.36	0.37	4.74	3.31	-	0.58	0.13	-	2.09	2.19	-	2.07	1.00	-
15	2.06	1.18	1.00	0.20	0.09	0.10	0.87	0.53	0.41	0.98	0.57	0.50	4.30	2.98	-	0.01	0.14	-	2.76	2.00	-	1.71	0.87	-