

Appendix

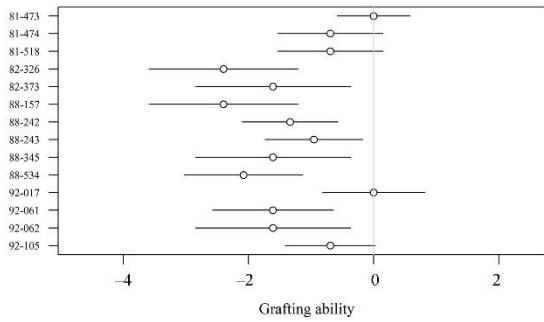


Fig. S1 Effect sizes and their confidence intervals of interstock genotypes for the subset C (Male archive 2022) on survival and grafting ability in 2022. Interstock genotypes are represented on the y-axis.

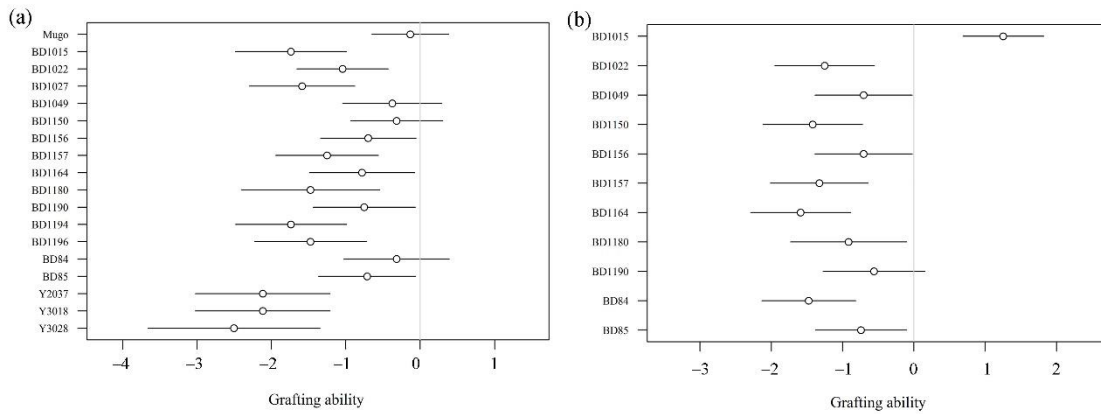


Fig. S2 Effect of sizes of interstock genotypes for subsets F (a: Female archive, grafting year 2017) and H (b: Female archive, grafting year 2020) on survival and grafting ability in 2022. Interstock genotypes are represented on the y-axis.

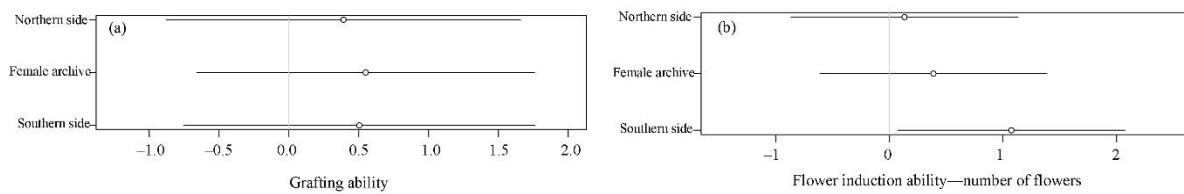


Fig. S3 Effect sizes of mixed model fitted with the main effect of position within the crown

Table S1 List of unique topgraft and interstock clones

Interstock genotypes in female archive	Topgraft genotypes in female archive – grafted in 2017	
1176 1156 85 1190 1196 84 1180 1049	Donor tree age $\approx$ 20 years	Donor tree age $\approx$ 45 years
1157 Y2037 1015 Y3028 Y3018 1150		Genotypes selected in 2016 (16-xx): 16-119–16-125; 16-127–16-143
1027 1031 1164 1022 1194 1195		Genotypes selected in 2010 (10-xx): 10-013, 10-015, 10-016
Mugo		Genotypes selected in 2010 (11-xx): 11-002, 11-003
		Genotypes selected in 1986 (86-xx): 86-023, 86-064, 86-519, 86-126, 86-612, 86-621, 86-267, 86-640, 86-285
		Genotypes selected in 1982 (82-xx): 82-009 82-081 82-012
		Genotypes selected in 1988 (88-xx): 88-704 88-773
		Y1001 AC-07 Y3088 Z2064
Topgraft genotypes in female archive – grafted in 2020		
1150 1015 1164 1156 1157 84 85 1190	Donor tree age $\approx$ 20 years	Donor tree age $\approx$ 48 years
1180 1049 1022	Genotypes selected in 2019 (19-xx): 19-001–19-008; 19-010–19-102; 19-104–19-121	Genotypes selected in 2016 (16-xx): 16-128, 16-135, 16-137, 16-140–16-142
	Genotypes selected in 2018 (18-xx): 18-144–18-149; 18-152; 18-155; 18-157–18-161; 18-163	Genotypes selected in 1988 (88-xx): 88-704
		Genotypes selected in 1986 (86-xx): 86-023
		Genotypes selected in 2010 (10-xx): 10-015
		Genotypes selected in 2011 (11-xx): 11-003
		Z2064

Table S2 Interstock genotypes from the female archive

Genotype	Location name	Latitude	Longitude	Altitude, m.a.s.l.
BD1015	Björkberget	67,02	21,26	290
BD1022	Mattisberget	66,18	20,42	300
BD1027	Leveävaara	66,85	23,14	200
BD1031	Heikka	66,42	17,97	450
BD1049	Kilvokielinen	67,02	21,29	300
BD1150	Vaimatsjön	66,5	19,65	330
BD1156	Telejaure	66,12	19,69	360
BD1157	Sarkasvägen	66,09	19,74	355
BD1164	Harrejokk	66,95	18,63	410
BD1176	Taulakielinen	66,98	21,26	295
BD1180	Rödingträsk	66,02	20,79	180
BD1190	Auravare	66,09	19,24	445
BD1194	Spadnovarevägen	66,02	20,16	235
BD1195	Runtomakojan	67,38	21,45	360
BD1196	Puollamvare	67,87	19,31	490
BD84	Abisko	68,33	19	660
BD85	Abisko	68,33	19	660
Y2037	Seltjärn	63,57	17,94	155
Y3018	Loitavaara	64,37	15,69	400
Y3028	Ulfvik,	63,88	16,62	300
	Stuguvattentjälen			

Table S3 Interstock genotypes from the male archive

Genotype	Location name	Latitude	Longitude	Altitude, m.a.s.l.
81-365	Munkflohögen	63,6	14,9	430
81-366	Munkflohögen	63,6	14,9	430
81-419	Älgsjöskogen	64,2	17,7	410
81-420	Älgsjöskogen	64,2	17,7	410
81-473	Brånaberget	64,9	17,4	500

81-474	Brånaberget	64,9	17,4	500
81-518	Ullisjaure	65,2	16,5	440
82-326	Ledfat	65,6	18,4	510
82-372	Långberget	65,6	15,9	550
82-373	Långberget	65,6	15,9	550
88-156	Östra Uddjaure	66,1	18	450
88-157	Östra Uddjaure	66,1	18	450
88-242	Garvikberget	66,3	17,2	460
88-243	Garvikberget	66,3	17,2	460
88-344	Krp. Sörberget	65,5	17,1	500
88-345	Krp. Sörberget	65,5	17,1	500
88-407	Lillvarpudden	66	18	430
88-408	Lillvarpudden	66	18	430
88-533	Kuoute, Daitavare	66,2	18,8	510
88-534	Kuoute, Daitavare	66,2	18,8	510
92-017	Granselliden	65,1	18,4	500
92-061	Abborrsjöberget	62,8	13,4	610
92-062	Torsborg	62,8	13,5	500
92-105	Tallsjö, Barakullen	64,2	17,9	530

Table S4 Summary on estimates of main effects in the model applied to the subset C

Main effect	Estimate	Std. Error	z-value	Pr (> z)
81-473	-0.000	0.577	0.000	1.000
81-474	-0.693	0.842	-0.824	0.410
81-518	-0.693	0.842	-0.824	0.410
82-326	-2.398	1.193	-2.010	0.044*
82-373	-1.609	1.238	-1.300	0.193
88-157	-2.398	1.193	-2.010	0.044 *
88-242	-1.335	0.766	-1.744	0.081
88-243	-0.955	0.781	-1.223	0.221
88-345	-1.609	1.238	-1.300	0.193
88-534	-2.079	0.946	-2.197	0.028 *
92-017	0.000	0.816	0.000	1.000
92-061	-1.609	0.966	-1.666	0.095
92-062	-1.609	1.238	-1.300	0.193
92-105	-0.693	0.722	-0.960	0.336

Table S5 Summary on estimates of main effects in the model applied to the subset F

Main effect	Estimate	Std. Error	z-value	Pr (> z)
Mugo	-0.133	0.517	-0.258	0.796
1015	-1.738	0.745	-2.331	0.019 *
1022	-1.045	0.613	-1.703	0.088
1027	-1.589	0.709	-2.240	0.025 *
1049	-0.377	0.667	-0.565	0.571
1150	-0.318	0.620	-0.513	0.607
1156	-0.699	0.641	-1.090	0.275
1157	-1.252	0.690	-1.815	0.069
1164	-0.782	0.707	-1.106	0.268
1180	-1.475	0.931	-1.584	0.113
1190	-0.753	0.685	-1.100	0.271
1194	-1.738	0.745	-2.331	0.019 *
1196	-1.475	0.753	-1.959	0.050
84	-0.318	0.708	-0.450	0.653
85	-0.713	0.653	-1.093	0.274
Y2037	-2.117	0.905	-2.338	0.019*

Y3018	−2.117	0.905	−2.338	0.019*
Y3028	−2.505	1.157	−2.165	0.030 *

Table S6 Summary on estimates of main effects in the model applied to the subset H

Main effect	Estimate Std.	Std. Error	z-value	Pr (> z)
1015	1.252	0.566	2.210	0.027 *
1022	−1.252	0.698	−1.793	0.072
1049	−0.706	0.681	−1.036	0.300
1150	−1.41	0.699	−2.030	0.042 *
1156	−0.706	0.681	−1.036	0.300
1157	−1.3269	0.685	−1.936	0.052
1164	−1.589	0.702	−2.264	0.023 *
1180	−0.916	0.815	−1.124	0.260
1190	−0.559	0.713	−0.784	0.432
84	−1.475	0.658	−2.241	0.025 *
85	−0.741	0.640	−1.158	0.246