

Online Material

Supplementary Table SI. Comparative characteristics of the studied populations. Seed classification follows current legislation: selected (stands for seed production), qualified and tested seed (seed orchards, SO). Regions of provenance follow current delimitation by the Forestry Services in Portugal and ‘external’ denotes seed sources localized outside the limits of provenance regions. T = annual mean temperature ($^{\circ}\text{C}$); P = annual cumulative precipitation (mm). Emberger’s pluviothermal index $Q_3 = 3.43 P/(M - m)$ and bioclimatic classification, where M = mean maximal temperature for the hottest month and m = mean minimal temperature for the coldest month ($^{\circ}\text{C}$). Climatic data represent 30-year means.

Population code	Seed collection sites (and seed classification, if known)	Altitude (m)	Region of provenance (Portugal)	T ($^{\circ}\text{C}$)	P (mm)	Q3
Corsica	Porto Vecchio/Corsica	–	–	15.7	545.7	102.8 Subhumid
Cuenca	Boniches/Cuenca	800	–	12.6	507.0	55.4 Semiarid
D1097	Australia – Mullaloo (tested, SO)	–	–	–	–	–
Ga82	Galicia	–	–	12.6	1 886.0	314.0 Hyperhumid
Landes	Laverantière/Landes	40	–	11.9	897.7	121.7 Humid
Landps62	CEMAGREF/Landes (tested, SO)	300	–	11.9	897.7	121.7 Humid
Pa18	Maceda T13/Aveiro (selected)	80	V	15.3	861.5	154.7 Humid
Pas54	M. da Moita/Alcácer do Sal (selected)	20	VIII	16.3	572.8	75.9 Subhumid
Pb42	Albagueiras/Bragança (selected)	800	external	12.2	742.7	91.6 Subhumid
Pcse0102	M. N. Escaroupim (qualified, SO)	10	– ¹	15.3	577.6	82.9 Subhumid
Pff03	P. Foja T11c/Figueira da Foz (selected)	50	V	14.8	724.2	144.4 Humid
Pff06	P. Urso T145/Figueira da Foz (selected)	20	IV	14.8	724.2	144.4 Humid
Pl20	Carvalho/Lousã (selected)	430	VI	13.5	1 170.8	176.9 Hyperhumid
Pl24	Braçal/Lousã (selected)	250	VI	13.5	1 170.8	176.9 Hyperhumid
Pl26	S. Pedro Dias/Lousã (selected)	410	VI	13.5	1 170.8	176.9 Hyperhumid
Pm33	Anta T14/Monção (selected)	310	I	14.7	1 189.7	170.7 Hyperhumid
Pm34	Anta T45/Monção (selected)	370	I	14.7	1 189.7	170.7 Hyperhumid
Pm36	Anta T23/Monção (selected)	500	I	14.7	1 189.7	170.7 Hyperhumid
Pma29	Verdelhos/Manteigas (selected)	750	VI	12.9	1 629.2	216.6 Hyperhumid
Pma30	More/Manteigas (selected)	630	VI	12.9	1 629.2	216.6 Hyperhumid
Pmb39	Arjuiz/Mondim de Basto (selected)	480	II	13.4	1 111.5	145.5 Humid
Pmc43	Chacim/M. de Cavaleiros (selected)	680	II	12.5	639.8	81.3 Subhumid
Pmg12	T54a/M. N. Leiria (selected)	20	IV	14.7	806.4	140.4 Humid
Pmg46	T199/M. N. Leiria (selected)	20	IV	14.7	806.4	140.4 Humid
Pmg52	T164/M. N. Leiria (selected)	55	IV	14.7	806.4	140.4 Humid
Pmt40	C. Pondres/Montalegre (selected)	690	external	9.9	1 487.0	220.8 Hyperhumid
Ps45	Monserate/Sintra (selected)	250	PAR-C ²	14.8	993.5	204.1 Hyperhumid
Psp02	Covelinho/S. Pedro do Sul (selected)	700	III	12.2	2 337.3	372.9 Hyperhumid
Sn5063	Australia-Joondalup (qualified, SO)	–	–	–	–	–
Sn7901	Australia-Mullaloo (qualified, SO)	–	–	–	–	–

¹ Not applicable for this seed orchard, established with grafts from phenotypically selected plus trees of Leiria.

² PAR-C = restricted provenance area ‘C’.

Supplementary Table SII. Total height (m), diameter at breast height (DBH, cm), stem form (notation scale) and survival rate of the 30 populations, analyzed in Escaroupim site. BLUP values (and expected gain, G, n.e. denoting non-estimable gain) for each population and assigned rank number (R, 1 = highest estimate by trait).

Population	Escaroupim			
	Height	DBH	Stem form	Survival
	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)
Corsica	⁽³⁰⁾ 5.33(-1.47)	⁽²⁹⁾ 10.90(-0.71)	⁽²⁾ 4.11(0.27)	⁽³⁰⁾ 0.52(-0.12)
Cuenca	⁽²⁹⁾ 5.37(-1.44)	⁽³⁰⁾ 10.34(-1.03)	⁽¹⁾ 4.12(0.28)	⁽²⁸⁾ 0.61(-0.05)
D1097	⁽¹⁾ 7.66(0.52)	⁽¹³⁾ 12.45(0.16)	⁽⁵⁾ 4.04(0.21)	⁽¹⁸⁾ 0.66(-0.01)
Ga82	⁽²³⁾ 6.93(-0.11)	⁽²¹⁾ 12.06(-0.07)	⁽¹⁶⁾ 3.73(-0.03)	⁽¹⁰⁾ 0.70(0.03)
Landes	⁽²⁸⁾ 6.25(-0.69)	⁽²⁸⁾ 11.30(-0.49)	⁽²⁹⁾ 3.46(-0.23)	⁽¹⁷⁾ 0.67(-0.01)
Landps62	⁽²⁷⁾ 6.31(-0.64)	⁽¹⁸⁾ 12.22(0.03)	⁽²⁵⁾ 3.55(-0.16)	⁽²⁵⁾ 0.61(-0.05)
Pa18	⁽¹¹⁾ 7.39(0.29)	⁽⁹⁾ 12.48(0.18)	⁽¹⁷⁾ 3.68(-0.06)	⁽²³⁾ 0.62(-0.04)
Pas54	⁽¹²⁾ 7.36(0.26)	⁽⁶⁾ 12.51(0.19)	⁽²⁰⁾ 3.66(-0.08)	⁽¹¹⁾ 0.69(0.02)
Pb42	⁽¹⁸⁾ 7.06(0.01)	⁽¹⁹⁾ 12.21(0.02)	⁽¹⁴⁾ 3.77(0.02)	⁽⁶⁾ 0.73(0.05)
Pcse0102	⁽²⁾ 7.63(0.50)	⁽⁴⁾ 12.60(0.25)	⁽⁴⁾ 4.05(0.22)	⁽⁷⁾ 0.72(0.04)
Pff03	⁽¹⁵⁾ 7.26(0.18)	⁽¹⁷⁾ 12.25(0.05)	⁽¹⁸⁾ 3.67(-0.07)	⁽¹²⁾ 0.69(0.02)
Pff06	⁽²⁰⁾ 7.05(-0.01)	⁽²⁴⁾ 11.88(-0.17)	⁽¹⁵⁾ 3.75(-0.01)	⁽²⁷⁾ 0.61(-0.05)
PI20	⁽¹³⁾ 7.34(0.25)	⁽¹⁴⁾ 12.38(0.12)	⁽²⁶⁾ 3.54(-0.17)	⁽⁹⁾ 0.71(0.03)
PI24	⁽⁴⁾ 7.48(0.37)	⁽⁸⁾ 12.49(0.18)	⁽²²⁾ 3.61(-0.12)	⁽¹⁾ 0.79(0.10)
PI26	⁽²²⁾ 6.94(-0.10)	⁽²⁰⁾ 12.15(-0.02)	⁽²⁴⁾ 3.56(-0.15)	⁽²⁴⁾ 0.62(-0.05)
Pm33	⁽⁶⁾ 7.46(0.35)	⁽¹⁾ 12.92(0.42)	⁽⁷⁾ 3.97(0.16)	⁽¹³⁾ 0.68(0.02)
Pm34	⁽⁸⁾ 7.42(0.31)	⁽³⁾ 12.72(0.31)	⁽²³⁾ 3.60(-0.12)	⁽²¹⁾ 0.63(-0.04)
Pm36	⁽¹⁰⁾ 7.41(0.31)	⁽⁷⁾ 12.50(0.19)	⁽¹⁹⁾ 3.66(-0.08)	⁽¹⁵⁾ 0.68(0.01)
Pma29	⁽¹⁶⁾ 7.24(0.16)	⁽¹⁶⁾ 12.29(0.07)	⁽¹²⁾ 3.78(0.02)	⁽³⁾ 0.75(0.07)
Pma30	⁽²⁴⁾ 6.90(-0.13)	⁽²⁶⁾ 11.8(-0.21)	⁽²⁷⁾ 3.51(-0.19)	⁽¹⁶⁾ 0.68(0.01)
Pmb39	⁽¹⁷⁾ 7.17(0.10)	⁽²³⁾ 11.95(-0.13)	⁽⁸⁾ 3.97(0.16)	⁽⁴⁾ 0.75(0.06)
Pmc43	⁽²⁶⁾ 6.52(-0.46)	⁽²²⁾ 12.03(-0.09)	⁽⁹⁾ 3.91(0.12)	⁽²⁶⁾ 0.61(-0.05)
Pmg12	⁽⁵⁾ 7.48(0.37)	⁽¹²⁾ 12.47(0.17)	⁽¹⁰⁾ 3.84(0.06)	⁽²⁾ 0.75(0.07)
Pmg46	⁽⁹⁾ 7.41(0.31)	⁽¹¹⁾ 12.48(0.17)	⁽¹³⁾ 3.77(0.02)	⁽²²⁾ 0.63(-0.04)
Pmg52	⁽¹⁴⁾ 7.32(0.23)	⁽¹⁵⁾ 12.38(0.12)	⁽⁶⁾ 4.02(0.2)	⁽⁸⁾ 0.71(0.04)
Pmt40	⁽²⁵⁾ 6.85(-0.18)	⁽²⁷⁾ 11.78(-0.22)	⁽²¹⁾ 3.64(-0.1)	⁽¹⁹⁾ 0.66(-0.02)
Ps45	⁽¹⁹⁾ 7.05(-0.01)	⁽²⁾ 12.76(0.33)	⁽³⁰⁾ 3.44(-0.24)	⁽²⁹⁾ 0.60(-0.06)
Psp02	⁽²¹⁾ 6.99(-0.06)	⁽²⁵⁾ 11.80(-0.21)	⁽²⁸⁾ 3.50(-0.20)	⁽⁵⁾ 0.74(0.06)
Sn5063	⁽³⁾ 7.58(0.46)	⁽¹⁰⁾ 12.48(0.18)	⁽¹¹⁾ 3.79(0.03)	⁽²⁰⁾ 0.65(-0.02)
Sn7901	⁽⁷⁾ 7.45(0.34)	⁽⁵⁾ 12.58(0.23)	⁽³⁾ 4.07(0.24)	⁽¹⁴⁾ 0.68(0.01)
Mean	7.05	12.17	3.75	0.67

Supplementary Table SIII. Analogous to Supplementary Table SII, for Leiria site.

Population	Leiria			
	Height	DBH	Stem form	Survival
	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)
Corsica	⁽²⁹⁾ 3.88(−0.58)	⁽²⁹⁾ 6.73(−0.45)	⁽¹⁷⁾ 3.68(−0.02)	⁽³⁰⁾ 0.52(−0.15)
Cuenca	⁽³⁰⁾ 3.68(−0.75)	⁽³⁰⁾ 6.54(−0.56)	⁽³⁾ 4.04(0.24)	⁽²⁷⁾ 0.61(−0.06)
D1097	⁽¹⁾ 5.24(0.54)	⁽¹⁾ 8.33(0.49)	⁽⁸⁾ 3.80(0.07)	⁽³⁾ 0.77(0.08)
Ga82	⁽³⁾ 5.15(0.46)	⁽⁴⁾ 8.08(0.35)	⁽¹⁶⁾ 3.69(−0.02)	⁽¹⁷⁾ 0.68(−0.01)
Landes	⁽¹⁶⁾ 4.53(−0.06)	⁽²¹⁾ 7.32(−0.11)	⁽²¹⁾ 3.63(−0.06)	⁽²⁴⁾ 0.64(−0.05)
Landps62	⁽²⁷⁾ 4.32(−0.22)	⁽²⁴⁾ 7.19(−0.18)	⁽¹⁸⁾ 3.66(−0.04)	⁽⁵⁾ 0.75(0.06)
Pa18	⁽²¹⁾ 4.44(−0.13)	⁽¹⁹⁾ 7.35(−0.08)	⁽⁵⁾ 3.85(0.11)	⁽⁹⁾ 0.73(0.05)
Pas54	⁽¹¹⁾ 4.68(0.08)	⁽²⁵⁾ 7.16(−0.20)	⁽¹⁰⁾ 3.78(0.06)	⁽¹⁾ 0.80(0.10)
Pb42	⁽²⁶⁾ 4.37(−0.18)	⁽²⁶⁾ 7.16(−0.20)	⁽²⁴⁾ 3.52(−0.13)	⁽⁷⁾ 0.75(0.06)
Pcse0102	⁽⁷⁾ 4.85(0.22)	⁽⁹⁾ 7.59(0.06)	⁽⁴⁾ 3.88(0.12)	⁽²⁹⁾ 0.59(−0.09)
Pff03	⁽¹²⁾ 4.66(0.06)	⁽¹⁵⁾ 7.48(−0.01)	⁽²⁶⁾ 3.50(−0.15)	⁽¹⁹⁾ 0.66(−0.02)
Pff06	⁽²²⁾ 4.43(−0.13)	⁽²⁸⁾ 7.12(−0.22)	⁽¹²⁾ 3.75(0.04)	⁽¹¹⁾ 0.70(0.02)
PI20	⁽²⁴⁾ 4.41(−0.15)	⁽¹⁴⁾ 7.49(0.01)	⁽¹⁹⁾ 3.66(−0.04)	⁽¹⁵⁾ 0.68(−0.01)
PI24	⁽¹⁹⁾ 4.46(−0.11)	⁽²³⁾ 7.20(−0.18)	⁽²²⁾ 3.61(−0.07)	⁽²²⁾ 0.65(−0.03)
PI26	⁽¹³⁾ 4.66(0.06)	⁽¹¹⁾ 7.55(0.04)	⁽²⁸⁾ 3.48(−0.16)	⁽¹⁸⁾ 0.67(−0.02)
Pm33	⁽⁶⁾ 4.90(0.26)	⁽⁸⁾ 7.61(0.07)	⁽⁶⁾ 3.81(0.08)	⁽²⁾ 0.77(0.08)
Pm34	⁽¹⁰⁾ 4.72(0.11)	⁽⁶⁾ 7.85(0.22)	⁽¹³⁾ 3.73(0.02)	⁽²⁸⁾ 0.60(−0.07)
Pm36	⁽⁴⁾ 4.95(0.30)	⁽³⁾ 8.26(0.46)	⁽³⁰⁾ 3.44(−0.19)	⁽¹⁴⁾ 0.70(0.01)
Pma29	⁽⁹⁾ 4.76(0.15)	⁽¹²⁾ 7.53(0.03)	⁽²³⁾ 3.57(−0.1)	⁽²⁶⁾ 0.62(−0.06)
Pma30	⁽¹⁷⁾ 4.52(−0.06)	⁽¹⁰⁾ 7.57(0.05)	⁽²⁹⁾ 3.47(−0.17)	⁽¹⁰⁾ 0.72(0.03)
Pmb39	⁽²⁸⁾ 4.26(−0.27)	⁽²⁷⁾ 7.15(−0.20)	⁽¹¹⁾ 3.78(0.06)	⁽²⁵⁾ 0.63(−0.05)
Pmc43	⁽²⁰⁾ 4.44(−0.13)	⁽²²⁾ 7.31(−0.11)	⁽²⁰⁾ 3.63(−0.06)	⁽¹³⁾ 0.70(0.01)
Pmg12	⁽¹⁵⁾ 4.56(−0.03)	⁽¹⁸⁾ 7.36(−0.08)	⁽¹⁵⁾ 3.69(−0.01)	⁽⁴⁾ 0.76(0.07)
Pmg46	⁽⁸⁾ 4.84(0.21)	⁽⁷⁾ 7.84(0.21)	⁽⁷⁾ 3.81(0.07)	⁽⁶⁾ 0.75(0.06)
Pmg52	⁽⁵⁾ 4.92(0.28)	⁽⁵⁾ 7.97(0.29)	⁽¹⁴⁾ 3.72(0.02)	⁽²¹⁾ 0.65(−0.03)
Pmt40	⁽¹⁸⁾ 4.50(−0.08)	⁽¹⁷⁾ 7.40(−0.06)	⁽²⁵⁾ 3.50(−0.15)	⁽⁸⁾ 0.74(0.05)
Ps45	⁽²⁵⁾ 4.38(−0.18)	⁽¹³⁾ 7.50(0.01)	⁽⁹⁾ 3.79(0.06)	⁽¹²⁾ 0.70(0.02)
Psp02	⁽²³⁾ 4.42(−0.14)	⁽²⁰⁾ 7.33(−0.10)	⁽²⁷⁾ 3.50(−0.15)	⁽¹⁶⁾ 0.68(−0.01)
Sn5063	⁽¹⁴⁾ 4.59(−0.01)	⁽¹⁶⁾ 7.45(−0.03)	⁽¹⁾ 4.18(0.33)	⁽²⁰⁾ 0.66(−0.03)
Sn7901	⁽²⁾ 5.15(0.46)	⁽²⁾ 8.31(0.48)	⁽²⁾ 4.04(0.24)	⁽²³⁾ 0.65(−0.04)
Mean	4.58	7.49	3.70	0.68

Supplementary Table SIV. Analogous to Supplementary Table SII, for Malcata site.

Population	Malcata			
	Height	DBH	Stem form	Survival
	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)
Corsica	⁽³⁰⁾ 4.49(n.e.)	⁽²⁵⁾ 7.31(n.e.)	⁽⁷⁾ 3.83(0.09)	⁽²⁸⁾ 0.69(-0.13)
Cuenca	⁽²⁹⁾ 4.54(n.e.)	⁽⁶⁾ 8.00(n.e.)	⁽¹¹⁾ 3.79(0.07)	⁽²⁶⁾ 0.72(-0.09)
D1097	⁽²⁾ 4.90(n.e.)	⁽¹³⁾ 7.86(n.e.)	⁽²⁾ 4.11(0.28)	⁽¹¹⁾ 0.86(0.04)
Ga82	⁽¹⁶⁾ 4.72(n.e.)	⁽⁷⁾ 8.00(n.e.)	⁽²⁹⁾ 3.32(-0.26)	⁽²⁰⁾ 0.83(0.01)
Landes	⁽²³⁾ 4.69(n.e.)	⁽²¹⁾ 7.59(n.e.)	⁽³⁰⁾ 3.31(-0.26)	⁽²³⁾ 0.80(-0.02)
Landps62	⁽²⁰⁾ 4.70(n.e.)	⁽³⁾ 8.13(n.e.)	⁽²⁶⁾ 3.43(-0.18)	⁽³⁰⁾ 0.58(-0.22)
Pa18	⁽¹⁷⁾ 4.71(n.e.)	⁽²³⁾ 7.44(n.e.)	⁽¹⁵⁾ 3.70(0.01)	⁽²⁹⁾ 0.63(-0.18)
Pas54	⁽⁴⁾ 4.87(n.e.)	⁽²⁾ 8.23(n.e.)	⁽¹⁷⁾ 3.66(-0.03)	⁽¹⁸⁾ 0.83(0.02)
Pb42	⁽²⁴⁾ 4.68(n.e.)	⁽¹¹⁾ 7.89(n.e.)	⁽²⁴⁾ 3.50(-0.14)	⁽¹⁹⁾ 0.83(0.02)
Pcse0102	⁽¹⁰⁾ 4.77(n.e.)	⁽¹⁵⁾ 7.75(n.e.)	⁽⁹⁾ 3.80(0.08)	⁽⁴⁾ 0.89(0.07)
Pff03	⁽¹⁹⁾ 4.70(n.e.)	⁽³⁰⁾ 6.86(n.e.)	⁽¹⁴⁾ 3.71(0.02)	⁽¹⁶⁾ 0.84(0.03)
Pff06	⁽¹⁵⁾ 4.72(n.e.)	⁽²⁴⁾ 7.37(n.e.)	⁽²¹⁾ 3.6(-0.07)	⁽⁷⁾ 0.87(0.05)
Pl20	⁽²¹⁾ 4.69(n.e.)	⁽¹⁸⁾ 7.60(n.e.)	⁽²⁵⁾ 3.47(-0.16)	⁽²¹⁾ 0.82(-0.01)
Pl24	⁽¹²⁾ 4.75(n.e.)	⁽¹⁶⁾ 7.69(n.e.)	⁽²⁸⁾ 3.41(-0.2)	⁽¹³⁾ 0.85(0.04)
Pl26	⁽⁹⁾ 4.79(n.e.)	⁽⁹⁾ 7.96(n.e.)	⁽¹⁸⁾ 3.63(-0.05)	⁽¹⁾ 0.91(0.09)
Pm33	⁽⁸⁾ 4.81(n.e.)	⁽¹⁾ 8.54(n.e.)	⁽¹⁹⁾ 3.63(-0.05)	⁽¹⁵⁾ 0.84(0.03)
Pm34	⁽¹³⁾ 4.75(n.e.)	⁽²²⁾ 7.50(n.e.)	⁽²⁷⁾ 3.43(-0.18)	⁽²⁵⁾ 0.75(-0.07)
Pm36	⁽²⁵⁾ 4.66(n.e.)	⁽⁸⁾ 7.98(n.e.)	⁽²³⁾ 3.58(-0.08)	⁽²⁴⁾ 0.79(-0.03)
Pma29	⁽²⁷⁾ 4.65(n.e.)	⁽¹²⁾ 7.87(n.e.)	⁽¹³⁾ 3.72(0.02)	⁽²⁷⁾ 0.71(-0.11)
Pma30	⁽⁷⁾ 4.83(n.e.)	⁽⁴⁾ 8.11(n.e.)	⁽³⁾ 4.03(0.23)	⁽⁶⁾ 0.88(0.07)
Pmb39	⁽²²⁾ 4.69(n.e.)	⁽²⁶⁾ 7.30(n.e.)	⁽⁶⁾ 3.83(0.10)	⁽¹²⁾ 0.85(0.04)
Pmc43	⁽²⁶⁾ 4.66(n.e.)	⁽²⁰⁾ 7.59(n.e.)	⁽¹⁶⁾ 3.68(-0.02)	⁽²²⁾ 0.81(-0.01)
Pmg12	⁽¹⁴⁾ 4.74(n.e.)	⁽²⁸⁾ 7.06(n.e.)	⁽²²⁾ 3.59(-0.08)	⁽⁵⁾ 0.89(0.07)
Pmg46	⁽¹¹⁾ 4.76(n.e.)	⁽²⁹⁾ 6.90(n.e.)	⁽¹⁰⁾ 3.79(0.07)	⁽⁹⁾ 0.86(0.05)
Pmg52	⁽⁶⁾ 4.83(n.e.)	⁽¹⁹⁾ 7.60(n.e.)	⁽¹²⁾ 3.76(0.05)	⁽¹⁷⁾ 0.83(0.02)
Pmt40	⁽⁵⁾ 4.85(n.e.)	⁽¹⁰⁾ 7.96(n.e.)	⁽⁵⁾ 3.96(0.19)	⁽⁸⁾ 0.87(0.05)
Ps45	⁽¹⁸⁾ 4.71(n.e.)	⁽²⁷⁾ 7.22(n.e.)	⁽⁸⁾ 3.82(0.09)	⁽³⁾ 0.89(0.07)
Psp02	⁽²⁸⁾ 4.63(n.e.)	⁽¹⁷⁾ 7.69(n.e.)	⁽²⁰⁾ 3.60(-0.07)	⁽¹⁴⁾ 0.85(0.03)
Sn5063	⁽³⁾ 4.89(n.e.)	⁽¹⁴⁾ 7.80(n.e.)	⁽¹⁾ 4.16(0.32)	⁽¹⁰⁾ 0.86(0.04)
Sn7901	⁽¹⁾ 4.92(n.e.)	⁽⁵⁾ 8.02(n.e.)	⁽⁴⁾ 3.99(0.21)	⁽²⁾ 0.90(0.08)
Mean	4.73	7.69	3.69	0.81

Supplementary Table SV. Analogous to Supplementary Table SII, for Montalegre site.

Population	Montalegre			
	Height	DBH	Stem form	Survival
	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)
Corsica	⁽³⁰⁾ 3.71(n.e.)	⁽²⁰⁾ 7.31(n.e.)	⁽¹⁾ 4.06(n.e.)	⁽⁵⁾ 0.96(n.e.)
Cuenca	⁽²⁴⁾ 3.99(n.e.)	⁽¹⁷⁾ 7.49(n.e.)	⁽²⁾ 3.93(n.e.)	⁽¹⁰⁾ 0.90(n.e.)
D1097	⁽¹³⁾ 4.30(n.e.)	⁽¹⁸⁾ 7.43(n.e.)	⁽¹¹⁾ 3.63(n.e.)	⁽²²⁾ 0.75(n.e.)
Ga82	⁽²⁷⁾ 3.92(n.e.)	⁽¹⁹⁾ 7.34(n.e.)	⁽¹⁰⁾ 3.67(n.e.)	⁽²¹⁾ 0.76(n.e.)
Landes	⁽¹⁵⁾ 4.25(n.e.)	⁽⁹⁾ 7.77(n.e.)	⁽³⁰⁾ 3.20(n.e.)	⁽³⁾ 0.97(n.e.)
Landps62	⁽⁴⁾ 4.55(n.e.)	⁽⁵⁾ 8.05(n.e.)	⁽¹³⁾ 3.61(n.e.)	⁽⁹⁾ 0.91(n.e.)
Pa18	⁽¹¹⁾ 4.32(n.e.)	⁽¹⁵⁾ 7.54(n.e.)	⁽⁷⁾ 3.69(n.e.)	⁽¹⁵⁾ 0.88(n.e.)
Pas54	⁽²¹⁾ 4.07(n.e.)	⁽²⁶⁾ 7.10(n.e.)	⁽⁹⁾ 3.68(n.e.)	⁽²⁸⁾ 0.70(n.e.)
Pb42	⁽¹²⁾ 4.31(n.e.)	⁽¹⁾ 8.31(n.e.)	⁽²⁹⁾ 3.34(n.e.)	⁽²³⁾ 0.74(n.e.)
Pcse0102	⁽²⁾ 4.65(n.e.)	⁽¹³⁾ 7.63(n.e.)	⁽⁶⁾ 3.72(n.e.)	⁽⁷⁾ 0.93(n.e.)
Pff03	⁽²⁹⁾ 3.81(n.e.)	⁽²³⁾ 7.21(n.e.)	⁽²⁷⁾ 3.40(n.e.)	⁽¹²⁾ 0.89(n.e.)
Pff06	⁽¹⁹⁾ 4.15(n.e.)	⁽²⁷⁾ 7.09(n.e.)	⁽¹⁴⁾ 3.61(n.e.)	⁽²⁹⁾ 0.56(n.e.)
Pl20	⁽¹⁸⁾ 4.20(n.e.)	⁽¹⁴⁾ 7.57(n.e.)	⁽⁴⁾ 3.85(n.e.)	⁽¹⁷⁾ 0.86(n.e.)
Pl24	⁽¹⁷⁾ 4.21(n.e.)	⁽²²⁾ 7.23(n.e.)	⁽¹⁷⁾ 3.58(n.e.)	⁽²⁰⁾ 0.78(n.e.)
Pl26	⁽²²⁾ 4.05(n.e.)	⁽²¹⁾ 7.29(n.e.)	⁽²⁰⁾ 3.50(n.e.)	⁽¹⁾ 0.99(n.e.)
Pm33	⁽¹⁶⁾ 4.23(n.e.)	⁽¹¹⁾ 7.68(n.e.)	⁽²¹⁾ 3.50(n.e.)	⁽²⁴⁾ 0.73(n.e.)
Pm34	⁽⁶⁾ 4.51(n.e.)	⁽⁴⁾ 8.09(n.e.)	⁽²⁴⁾ 3.43(n.e.)	⁽²⁷⁾ 0.70(n.e.)
Pm36	⁽⁹⁾ 4.42(n.e.)	⁽⁷⁾ 7.83(n.e.)	⁽²³⁾ 3.48(n.e.)	⁽¹¹⁾ 0.90(n.e.)
Pma29	⁽²⁰⁾ 4.09(n.e.)	⁽¹⁶⁾ 7.54(n.e.)	⁽¹⁹⁾ 3.51(n.e.)	⁽³⁰⁾ 0.52(n.e.)
Pma30	⁽¹⁰⁾ 4.38(n.e.)	⁽¹²⁾ 7.67(n.e.)	⁽²²⁾ 3.48(n.e.)	⁽²⁾ 0.99(n.e.)
Pmb39	⁽²³⁾ 4.02(n.e.)	⁽²⁵⁾ 7.14(n.e.)	⁽¹⁵⁾ 3.60(n.e.)	⁽⁸⁾ 0.92(n.e.)
Pmc43	⁽²⁶⁾ 3.96(n.e.)	⁽²⁹⁾ 6.78(n.e.)	⁽³⁾ 3.92(n.e.)	⁽¹³⁾ 0.89(n.e.)
Pmg12	⁽¹⁴⁾ 4.29(n.e.)	⁽²⁴⁾ 7.21(n.e.)	⁽⁵⁾ 3.74(n.e.)	⁽⁶⁾ 0.94(n.e.)
Pmg46	⁽³⁾ 4.63(n.e.)	⁽⁸⁾ 7.80(n.e.)	⁽¹⁶⁾ 3.58(n.e.)	⁽⁴⁾ 0.96(n.e.)
Pmg52	⁽⁷⁾ 4.47(n.e.)	⁽⁶⁾ 7.88(n.e.)	⁽²⁶⁾ 3.42(n.e.)	⁽¹⁴⁾ 0.89(n.e.)
Pmt40	⁽²⁸⁾ 3.90(n.e.)	⁽³⁰⁾ 6.59(n.e.)	⁽⁸⁾ 3.68(n.e.)	⁽¹⁹⁾ 0.84(n.e.)
Ps45	⁽²⁵⁾ 3.97(n.e.)	⁽²⁸⁾ 7.08(n.e.)	⁽²⁸⁾ 3.37(n.e.)	⁽¹⁸⁾ 0.85(n.e.)
Psp02	⁽⁸⁾ 4.45(n.e.)	⁽¹⁰⁾ 7.77(n.e.)	⁽¹⁸⁾ 3.52(n.e.)	⁽²⁶⁾ 0.71(n.e.)
Sn5063	⁽⁵⁾ 4.51(n.e.)	⁽³⁾ 8.15(n.e.)	⁽¹²⁾ 3.62(n.e.)	⁽¹⁶⁾ 0.87(n.e.)
Sn7901	⁽¹⁾ 4.84(n.e.)	⁽²⁾ 8.16(n.e.)	⁽²⁵⁾ 3.42(n.e.)	⁽²⁵⁾ 0.72(n.e.)
Mean	4.23	7.52	3.59	0.83

Supplementary Table SVI. Analogous to Supplementary Table SII, for Viséu site.

Population	Viséu			
	Height	DBH	Stem form	Survival
	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)	^(R) BLUP(G)
Corsica	⁽²⁹⁾ 7.58(-0.51)	⁽⁵⁾ 12.42(n.e.)	⁽¹⁾ 4.07(0.25)	⁽²⁾ 0.94(0.04)
Cuenca	⁽³⁰⁾ 7.38(-0.67)	⁽¹⁰⁾ 12.35(n.e.)	⁽¹⁶⁾ 3.65(-0.03)	⁽¹⁴⁾ 0.90(0.01)
D1097	⁽³⁾ 8.67(0.36)	⁽⁷⁾ 12.39(n.e.)	⁽⁵⁾ 3.89(0.13)	⁽³⁰⁾ 0.85(-0.05)
Ga82	⁽²¹⁾ 8.07(-0.13)	⁽²²⁾ 12.27(n.e.)	⁽¹⁷⁾ 3.64(-0.03)	⁽¹⁵⁾ 0.90(0.01)
Landes	⁽⁹⁾ 8.38(0.12)	⁽⁶⁾ 12.40(n.e.)	⁽³⁰⁾ 3.36(-0.21)	⁽²⁸⁾ 0.86(-0.04)
Landps62	⁽²⁾ 8.69(0.37)	⁽¹⁾ 12.48(n.e.)	⁽¹⁸⁾ 3.63(-0.04)	⁽⁶⁾ 0.91(0.02)
Pa18	⁽⁸⁾ 8.45(0.18)	⁽²⁶⁾ 12.26(n.e.)	⁽¹²⁾ 3.71(0.02)	⁽²⁰⁾ 0.88(-0.02)
Pas54	⁽²⁴⁾ 7.98(-0.20)	⁽²¹⁾ 12.29(n.e.)	⁽²⁹⁾ 3.43(-0.17)	⁽¹⁸⁾ 0.89(-0.01)
Pb42	⁽²⁶⁾ 7.96(-0.21)	⁽¹⁹⁾ 12.30(n.e.)	⁽²⁶⁾ 3.55(-0.09)	⁽¹²⁾ 0.91(0.01)
Pcse0102	⁽¹⁵⁾ 8.27(0.04)	⁽²⁸⁾ 12.23(n.e.)	⁽⁴⁾ 3.89(0.13)	⁽¹¹⁾ 0.91(0.01)
Pff03	⁽¹²⁾ 8.32(0.08)	⁽²³⁾ 12.27(n.e.)	⁽²¹⁾ 3.60(-0.06)	⁽⁹⁾ 0.91(0.01)
Pff06	⁽²²⁾ 8.05(-0.14)	⁽²⁹⁾ 12.22(n.e.)	⁽⁸⁾ 3.79(0.07)	⁽²⁶⁾ 0.87(-0.03)
PI20	⁽⁵⁾ 8.55(0.26)	⁽⁸⁾ 12.38(n.e.)	⁽²⁸⁾ 3.48(-0.14)	⁽¹³⁾ 0.90(0.01)
PI24	⁽²⁸⁾ 7.90(-0.26)	⁽²⁵⁾ 12.27(n.e.)	⁽¹¹⁾ 3.71(0.02)	⁽⁸⁾ 0.91(0.01)
PI26	⁽¹⁷⁾ 8.21(-0.01)	⁽¹¹⁾ 12.34(n.e.)	⁽²³⁾ 3.58(-0.07)	⁽¹⁰⁾ 0.91(0.01)
Pm33	⁽⁶⁾ 8.49(0.21)	⁽²⁰⁾ 12.30(n.e.)	⁽⁷⁾ 3.83(0.10)	⁽¹⁹⁾ 0.89(-0.01)
Pm34	⁽¹⁹⁾ 8.14(-0.07)	⁽¹⁶⁾ 12.31(n.e.)	⁽²⁴⁾ 3.58(-0.08)	⁽²⁷⁾ 0.87(-0.03)
Pm36	⁽¹¹⁾ 8.33(0.09)	⁽¹⁴⁾ 12.32(n.e.)	⁽¹⁰⁾ 3.74(0.04)	⁽¹⁷⁾ 0.89(-0.01)
Pma29	⁽¹⁰⁾ 8.35(0.10)	⁽¹³⁾ 12.33(n.e.)	⁽²⁰⁾ 3.62(-0.04)	⁽²⁵⁾ 0.87(-0.02)
Pma30	⁽²⁷⁾ 7.94(-0.23)	⁽³⁰⁾ 12.20(n.e.)	⁽²²⁾ 3.59(-0.06)	⁽²⁴⁾ 0.88(-0.02)
Pmb39	⁽¹⁸⁾ 8.21(-0.02)	⁽²⁷⁾ 12.23(n.e.)	⁽¹⁴⁾ 3.67(-0.02)	⁽¹⁶⁾ 0.90(-0.01)
Pmc43	⁽¹⁴⁾ 8.28(0.05)	⁽³⁾ 12.45(n.e.)	⁽¹³⁾ 3.68(-0.01)	⁽²²⁾ 0.88(-0.02)
Pmg12	⁽²⁰⁾ 8.08(-0.11)	⁽²⁴⁾ 12.27(n.e.)	⁽⁶⁾ 3.84(0.10)	⁽²¹⁾ 0.88(-0.02)
Pmg46	⁽¹³⁾ 8.30(0.07)	⁽¹⁷⁾ 12.31(n.e.)	⁽⁹⁾ 3.78(0.07)	⁽⁴⁾ 0.92(0.03)
Pmg52	⁽⁷⁾ 8.45(0.18)	⁽¹²⁾ 12.34(n.e.)	⁽¹⁵⁾ 3.66(-0.02)	⁽¹⁾ 0.98(0.08)
Pmt40	⁽¹⁶⁾ 8.25(0.03)	⁽¹⁵⁾ 12.31(n.e.)	⁽¹⁹⁾ 3.63(-0.04)	⁽³⁾ 0.93(0.03)
Ps45	⁽²³⁾ 8.05(-0.14)	⁽²⁾ 12.45(n.e.)	⁽²⁵⁾ 3.56(-0.09)	⁽²⁹⁾ 0.85(-0.04)
Psp02	⁽²⁵⁾ 7.98(-0.20)	⁽¹⁸⁾ 12.30(n.e.)	⁽²⁷⁾ 3.49(-0.13)	⁽⁷⁾ 0.91(0.02)
Sn5063	⁽¹⁾ 8.85(0.50)	⁽⁴⁾ 12.43(n.e.)	⁽³⁾ 3.90(0.14)	⁽⁵⁾ 0.91(0.02)
Sn7901	⁽⁴⁾ 8.59(0.29)	⁽⁹⁾ 12.38(n.e.)	⁽²⁾ 4.06(0.24)	⁽²³⁾ 0.88(-0.02)
Mean	8.22	12.32	3.68	0.89