

Table S1: Sexual phenotypic values, SI phenotype, and estimate of fruit production of the *F. excelsior* individual genotypes originating from Normandy (France) and present in the collection located at the INRA experimental nursery in Orleans (France).

Individual genotype (IG)	Geographic origin of IG	Number of ramets [1]	Number of times an IG was typed for sex [1]	Mean value of sexual phenotype	Standard deviation	SI phenotype G1/G2	Estimate of fruit production in 2015
Orleans_03	N 49°20'05.26; E 0°11'00.76	25	144	1.055	0.228	G2	0
Orleans_27	N 49°25'03.06; E 1°19'04.76	17	91	1.066	0.250	G2	0
Orleans_26	N 49°25'03.06; E 1°19'04.76	17	98	1.091	0.380	G2	0
Orleans_40	N 48°46'05.36; E 0°39'02.76	1	7	1.143	0.378	G2	0
Orleans_02	N 49°20'05.26; E 0°11'00.76	14	79	1.197	0.400	G2	0
Orleans_21	N 49°39'01.66; E 1°37'00.16	10	76	1.355	0.482	G2	0
Orleans_14	N 49°08'05.46; E 0°47'03.66	4	19	1.368	0.496	G2	1*
Orleans_31	N 49°41'04.46; E 0°51'04.36	11	104	1.387	0.517	G2	0
Orleans_39	N 49°40'03.46; E 1°25'03.96	8	56	1.389	0.526	G2	0
Orleans_38	N 49°39'05.76; E 1°27'04.96	9	60	1.433	0.563	G2	0
Orleans_18	N 49°39'01.66; E 1°37'00.16	4	17	1.471	0.515	G2	1**
Orleans_10	N 49°15'00.56; E 0°58'00.06	11	70	1.507	0.504	G2	0
Orleans_08	N 49°16'04.56; E 0°51'00.66	10	66	1.727	0.755	G2	0
Orleans_42	N 48°59'00.56; E 0°28'02.36	8	45	1.822	0.806	G2	1*
Orleans_35	N 49°45'05.46; E 1°22'05.06	9	58	2.534	0.821	G2	0
Orleans_06	N 49°20'05.26; E 0°11'00.76	6	38	3.974	0.3667	G1	4
Orleans_32	N 49°44'02.96; E 0°58'01.86	10	44	4.000	0.374	G1	4
Orleans_34	N 49°45'05.46; E 1°22'05.06	13	90	4.099	0.335	G1	2
Orleans_46	N 49°45'00.66; E 1°33'00.46	13	79	4.304	0.704	G1	4
Orleans_45	N 49°08'05.46; E 0°47'03.66	18	76	4.395	0.713	G1	5
Orleans_07	N 49°20'05.26; E 0°11'00.76	11	65	4.400	0.725	G1	3
Orleans_33	N 49°40'03.46; E 1°25'03.96	15	62	4.419	0.714	G1	5
Orleans_15	N 49°08'05.46; E 0°47'03.66	2	3	4.667	1.155	G1	2
Orleans_41	N 48°46'05.36; E 0°39'02.76	15	81	4.793	0.857	G1	4
Orleans_16	N 49°08'05.46; E 0°47'03.66	17	53	5.000	0.855	G1	2
Orleans_44	N 48°46'05.36; E 0°39'02.76	6	26	5.346	0.892	G1	4
Orleans_11	N 49°15'00.56; E 0°58'00.06	17	107	5.897	0.857	G1	2

A collection of *F. excelsior* genotypes selected in natural stands in Normandy (France) was used in the current study. Several ramets of each genotypes present in the seed orchard located in Alençon (France) were studied over several years to score the proportion of male, hermaphrodite, and female flowers in inflorescences [1] producing a substantial number of sexual phenotype scores for each genotype and providing an accurate mean value of the sexual phenotype. Two ramets of 27 genotypes transferred to Orleans were still present and flowering in 2015. They have been phenotyped for SI and fruiting intensity. The ramets of each genotype were scored in Alençon for sexual phenotype each year (when flowering) between 1999 and 2005, and again in 2008. This repeated phenotype scoring was performed independently for each tree using a seven-level classification: 1, inflorescences with male flowers only; 2, inflorescences with male flowers and less than 50% of hermaphrodite flowers; 3, inflorescences with male flowers and more than 50% of hermaphrodite flowers; 4, inflorescences with hermaphrodite flowers only; 5, inflorescences with hermaphrodite flowers and less than 50% of female flowers; 6, inflorescences with hermaphrodite flowers and more than 50% of female flowers; 7, inflorescences with female flowers only as described in [1]. This scoring system makes it possible to calculate a mean value and a standard deviation for the sexual phenotype of each genotype. Each individual genotype (IG) was phenotyped for incompatibility using the stigma test and assigned to one of the two SI groups identified in the species: G1 or G2.

In November 2015, each tree in Orleans was photographed and the intensity of fruiting of each genotype was estimated by counting the clusters of samaras (fruits) on pictures. Trees were assigned to one of the following six classes. 0: no fruit (or no flowering); 1: rare fruits; 2: clusters of samaras present on less than 50% of branches; 3: clusters of samaras present on 50% of branches; 4: clusters of samaras present on more than 50% of branches; 5: clusters of samaras on all branches. * To test the germination ability of seeds produced by G2 individuals, the very few fruits produced were collected and germinated according to [2] (data not shown). ** only stalk observed, no fruit harvested.

References:

- [1] Albert, B., Morand-Prieur, M.-É., Brachet, S., Gouyon, P.-H., Frascaria-Lacoste, N. & Raquin, C. 2013 Sex expression and reproductive biology in a tree species, *Fraxinus excelsior* L. *Comptes Rendus Biologies* **336**, 479-485. (doi:<http://dx.doi.org/10.1016/j.crv.2013.08.004>).
- [2] Raquin, C., Jung-Muller, B., Dufour, J. & Frascaria-Lacoste, N. 2002 Rapid seedling obtaining from European ash species *Fraxinus excelsior* (L.) and *Fraxinus angustifolia* (Vahl.). *Annals of Forest Science* **59**, 219-224.