

## Supplementary Materials

**Table S1.** FCM results of cross-pollination experiments in studied *Crataegus* taxa. Data include types of pollination, mean relative fluorescence, the coefficient of variation (CV) and the number of nuclei per sample (particles) of embryo (EMB), endosperm (END) and reference standard (ST). In the study, two reference standards were used: *Solanum pseudocapsicum* (P) and *Solanum lycopersicum* (L). Preparation of two samples was necessary for the determination of ploidy levels of embryo and endosperm: 1<sup>st</sup> sample (embryo + standard) and 2<sup>nd</sup> sample (endosperm + embryo or endosperm + standard).

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
BOTZ 1 × BOTZ 1 (self-pollination)	100.28	3.87	1189	175.37(P)	3.56	5318	101.31	2.72	1333	/	/	/	154.23	2.78	962
BOTZ 1 × BOTZ 3 (2x × 2x)	101.05	3.26	1561	178.11(P)	3.44	892	99.55	3.98	2436	/	/	/	151.60	3.57	317
BOTZ 1 × BOTZ 3 (2x × 2x)	100.93	3.58	1694	179.55(P)	3.4	1463	100.23	3.81	2713	/	/	/	152.78	3.65	837
BOTZ 1 × BOTZ 3 (2x × 2x)	101.30	3.40	1503	179.81(P)	3.30	931	99.78	4.18	1978	/	/	/	151.27	4.29	691
BOTZ 1 × BOTZ 3 (2x × 2x)	99.42	4.03	1538	176.30(P)	3.69	1248	99.01	3.42	4863	/	/	/	149.90	3.83	1150
BOTZ 1 × BOTZ 3 (2x × 2x)	99.38	3.39	3033	175.99(P)	3.34	2367	98.53	3.05	1531	/	/	/	149.32	3.08	575
BOTZ 1 × BOTZ 3 (2x × 2x)	97.76	3.65	2490	174.05(P)	3.59	4352	97.78	4.03	3248	/	/	/	148.63	4.69	1158
BOTZ 1 × BOTZ 3 (2x × 2x)	101.99	3.70	1355	180.40(P)	3.54	1419	103.27	3.25	1682	/	/	/	156.47	3.32	731
BOTZ 1 × BOTZ 3 (2x × 2x)	105.53	3.32	1389	186.52(P)	3.08	1787	103.80	3.27	1471	/	/	/	158.47	3.22	705
BOTZ 1 × BOTZ 3 (2x × 2x)	102.51	2.91	1830	180.78(P)	2.79	682	99.41	2.79	3654	/	/	/	151.92	2.74	847
BOTZ 1 × BOTZ 3 (2x × 2x)	101.53	2.95	1423	180.58(P)	2.74	1517	101.23	3.48	1371	/	/	/	154.44	3.06	571
BOTZ 1 × BOTZ 3 (2x × 2x)	100.70	2.92	1599	186.74(P)	4.66	2125	99.57	3.24	2303	/	/	/	150.32	3.05	389
BOTZ 1 × BOTZ 3 (2x × 2x)	101.55	3.30	1741	181.46(P)	3.05	1034	100.53	2.96	2269	/	/	/	152.61	3.52	636

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
BOTZ 1 × BOTZ 2 (2x × 2x)	101.35	2.99	1570	179.98(P)	2.59	540	99.81	3.03	2270	/	/	/	153.10	2.74	507
BOTZ 1 × BOTZ 2 (2x × 2x)	99.36	3.01	1514	174.75(P)	2.90	754	101.88	2.89	10284	/	/	/	155.68	2.86	1352
BOTZ 1 × BOTZ 2 (2x × 2x)	101.91	3.13	3481	178.82(P)	3.03	1323	99.96	3.38	3116	/	/	/	152.50	3.58	793
BOTZ 1 × BOTZ 2 (2x × 2x)	101.84	3.42	1933	179.03(P)	3.48	578	102.80	3.58	2507	/	/	/	157.09	3.37	685
BOTZ 1 × BOTZ 2 (2x × 2x)	101.43	3.26	1315	178.54(P)	3.27	1226	103.89	3.14	1701	/	/	/	157.97	3.27	678
BOTZ 1 × BOTZ 2 (2x × 2x)	105.57	3.43	1420	183.64(P)	3.19	2509	103.53	2.72	1358	/	/	/	156.53	3.07	1126
BOTZ 1 × BOTZ 2 (2x × 2x)	102.60	3.51	1548	180.64(P)	3.18	1606	99.81	4.30	1608	/	/	/	151.42	4.13	1369
BOTZ 1 × BOTZ 2 (2x × 2x)	100.77	4.01	1423	177.48(P)	3.66	1686	97.07	4.85	1457	/	/	/	148.28	4.56	565
BOTZ 2 × BOTZ 1 (2x × 2x)	101.66	3.03	1772	127.26(L)	2.61	1853	101.31	2.72	1333	/	/	/	154.23	2.78	962
BOTZ 2 × BOTZ 4 (2x × 3x)	80.91	3.46	1382	101.48(L)	3.08	2118	80.91	4.74	1159	/	/	/	120.78	3.67	2561
BOTZ 3 (intact flowers bagged)	101.19	3.25	3695	179.15(P)	3.29	886	101.08	3.27	4031	/	/	/	153.63	3.09	1293
BOTZ 3 × BOTZ 1 (2x × 2x)	101.10	3.35	1515	180.13(P)	2.75	5345	101.84	3.73	3704	/	/	/	154.94	3.34	873
BOTZ 3 × BOTZ 1 (2x × 2x)	102.41	3.26	1422	181.36(P)	3.04	1436	100.37	3.29	5422	/	/	/	152.60	3.34	1177
BOTZ 3 × BOTZ 1 (2x × 2x)	102.15	3.06	3388	179.88(P)	3.12	1590	101.71	2.83	3224	/	/	/	155.30	2.70	1203
BOTZ 3 × BOTZ 1 (2x × 2x)	101.65	3.05	1659	182.23(P)	2.71	4613	101.05	3.22	3050	/	/	/	154.54	2.97	656
BOTZ 3 × BOTZ 1 (2x × 2x)	104.48	2.97	1486	185.98(P)	2.53	4360	100.49	3.29	1597	/	/	/	152.95	3.04	601

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
BOTZ 3 × BOTZ 1 (2x × 2x)	101.84	3.07	3757	181.19(P)	2.90	1378	101.86	3.23	2442	/	/	/	155.37	2.94	1118
BOTZ 3 × BOTZ 1 (2x × 2x)	102.20	3.07	6164	180.94(P)	3.38	1941	99.66	3.21	3887	/	/	/	152.18	3.14	1409
BOTZ 3 × BOTZ 1 (2x × 2x)	100.27	3.27	2303	180.11(P)	3.92	2473	100.35	3.17	2919	/	/	/	152.8	2.92	712
BOTZ 3 × BOTZ 1 (2x × 2x)	100.98	3.27	2106	179.82(P)	3.14	2985	100.16	3.24	1851	/	/	/	153.02	3.43	609
BOTZ 3 × BOTZ 1 (2x × 2x)	101.12	3.24	1473	177.27(P)	3.09	1553	99.88	3.23	2150	/	/	/	153.00	3.00	592
BOTZ 3 × BOTZ 1 (2x × 2x)	99.66	3.11	1417	175.78(P)	3.04	3268	102.59	3.18	2212	/	/	/	156.81	2.73	589
BOTZ 3 × BOTZ 1 (2x × 2x)	100.74	3.35	1640	179.34(P)	2.95	2085	101.61	3.27	2067	/	/	/	155.47	2.98	817
BOTZ 3 × BOTZ 1 (2x × 2x)	100.96	3.32	3094	179.63(P)	2.95	1759	100.89	3.96	1385	/	/	/	153.61	3.60	527
BOTZ 3 × BOTZ 1 (2x × 2x)	101.50	3.53	2474	181.95(P)	4.10	1324	97.94	3.91	1788	/	/	/	148.95	3.44	583
BOTZ 3 × BOTZ 1 (2x × 2x)	101.06	3.95	1916	179.54(P)	3.27	1414	100.41	4.46	2025	/	/	/	152.68	4.09	609
BOTZ 3 × BOTZ 1 (2x × 2x)	101.21	3.80	1629	178.50(P)	3.49	2707	99.18	4.21	2599	/	/	/	150.48	4.55	524
BOTZ 3 × BOTZ 1 (2x × 2x)	102.45	3.31	1925	181.75(P)	3.08	1520	101.35	3.97	2052	/	/	/	153.98	3.89	678
BOTZ 3 × BOTZ 1 (2x × 2x)	101.87	3.22	1498	182.13(P)	3.09	1976	101.26	3.23	1677	/	/	/	153.58	3.18	683
BOTZ 3 × BOTZ 1 (2x × 2x)	101.34	3.06	1562	177.67(P)	2.73	1320	101.11	3.35	2041	/	/	/	154.82	2.90	542
BOTZ 3 × BOTZ 2 (2x × 2x)	103.46	2.88	2325	182.85(P)	2.67	1345	100.29	4.17	2121	/	/	/	153.16	4.07	898
BOTZ 3 × BOTZ 2 (2x × 2x)	103.26	3.01	1509	181.95(P)	2.85	1773	100.61	3.43	1811	/	/	/	153.41	2.95	1194

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
BOTZ 3 × BOTZ 2 (2x × 2x)	101.81	3.49	2064	180.91(P)	3.18	1373	100.15	3.82	1639	/	/	/	153.23	3.45	701
BOTZ 3 × BOTZ 2 (2x × 2x)	101.40	3.24	1385	179.68(P)	3.22	1982	100.65	3.84	1994	/	/	/	151.85	3.69	719
BOTZ 3 × BOTZ 2 (2x × 2x)	100.02	3.10	1574	179.29(P)	2.55	1894	100.03	3.90	1775	/	/	/	152.52	4.18	606
BOTZ 3 × BOTZ 2 (2x × 2x)	101.42	2.98	2237	179.28(P)	2.67	2294	100.52	3.28	2620	/	/	/	153.16	3.14	1254
BOTZ 3 × BOTZ 2 (2x × 2x)	101.42	2.75	2155	180.48(P)	2.60	1558	99.75	3.00	1831	/	/	/	151.81	2.76	930
BOTZ 3 × BOTZ 2 (2x × 2x)	101.88	2.86	2755	179.32(P)	2.69	2308	100.34	2.84	2644	/	/	/	152.41	2.83	696
GOCAL 1 × GOCAL 2 (2x × 2x)	101.84	3.18	1508	178.41(P)	3.05	1446	99.58	3.78	1343	/	/	/	151.66	3.78	541
GOCAL 1 × GOCAL 2 (2x × 2x)	101.46	3.09	2998	178.09(P)	3.05	2670	100.55	3.76	1718	/	/	/	153.69	3.49	1637
GOCAL 1 × GOCAL 2 (2x × 2x)	100.79	3.32	1569	177.85(P)	3.13	1316	101.95	3.30	1381	/	/	/	155.04	3.35	965
GOCAL 1 × GOCAL 2 (2x × 2x)	103.71	3.29	3271	182.85(P)	3.13	2617	100.68	3.77	1322	/	/	/	154.09	3.30	1140
BOTZ 4 × BOTZ 2 (3x × 2x)	124.29	2.84	2369	103.14(L)	3.19	1323	125.25	3.44	2270	/	/	/	341.15	3.17	652
BOTZ 4 × BOTZ 2 (3x × 2x)	123.18	3.66	1356	102.34(L)	3.55	1506	126.66	3.24	1902	/	/	/	344.06	3.41	586
BOTZ 4 × BOTZ 2 (3x × 2x)	123.59	2.95	1318	102.54(L)	3.03	1579	121.82	3.12	2950	/	/	/	331.59	3.44	517
BOTZ 4 × BOTZ 2 (3x × 2x)	122.62	3.11	1436	101.31(L)	3.08	1377	124.23	2.90	3337	/	/	/	337.59	2.68	876
BOTZ 4 × BOTZ 3 (3x × 2x)	123.69	2.87	2123	102.72(L)	2.95	1346	119.99	3.64	2669	/	/	/	324.08	3.67	628
BOTZ 4 × BOTZ 3 (3x × 2x)	114.83	3.74	2023	95.35(L)	3.58	2381	117.46	2.54	4365	/	/	/	320.23	2.42	1096

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
BOTZ 4 × BOTZ 3 (3x × 2x)	120.40	2.71	1352	100.80(L)	2.86	1460	118.09	2.67	3068	/	/	/	321.26	2.74	790
BOTZ 4 × BOTZ 3 (3x × 2x)	121.80	2.79	2108	100.50(L)	3.12	1313	123.65	2.43	2646	/	/	/	334.81	2.57	615
BOTZ 4 × BOTZ 3 (3x × 2x)	124.48	2.88	1554	102.48(L)	2.99	1620	124.15	3.09	8219	/	/	/	338.52	2.82	902
BOTZ 4 × BOTZ 3 (3x × 2x)	123.64	2.87	1463	101.15(L)	2.79	2614	123.00	3.15	2282	/	/	/	291.00	3.39	643
BOTZ 4 × BOTZ 3 (2x × 2x)	122.77	3.13	1393	101.08(L)	3.11	3087	121.99	3.06	3304	/	/	/	331.92	2.83	701
BOTZ 4 × BOTZ 3 (3x × 2x)	165.75	2.97	1621	102.17(L)	3.15	1576	164.66	2.73	5276	/	/	/	332.16	3.17	524
VYH 3 × GOCAL 2 (3x × 2x)	134.87	3.52	743	107.83(L)	3.01	2200	221.55	2.95	2355	/	/	/	438.37	4.44	314
VYH 3 × GOCAL 2 (3x × 2x)	131.42	3.27	1584	104.64(L)	3.31	2553	209.97	3.17	875	/	/	/	596.36	3.23	278
VYH 3 × GOCAL 2 (3x × 2x)	125.60	3.21	1543	101.88(L)	3.37	1743	129.04	3.13	715	/	/	/	342.84	2.82	712
VYH 3 × GOCAL 2 (3x × 2x)	/	/	/	/	/	/	141.97	4.57	966	94.17 (L)	4.86	1301	195,64	3,05	840
VYH 3 × GOCAL 2 (3x × 2x)	/	/	/	/	/	/	150.77	3.30	683	100.11 (L)	4.73	856	202,43	3.00	823
VYH 3 × VYH 8 (3x × 3x)	246.77	3.25	1442	201.26(L)	3.45	2307	128.23	5.14	1200	/	/	/	388.93	3.33	586
VYH 3 × VYH 8 (3x × 3x)	130.79	3.75	1757	104.11(L)	3.16	2466	132.48	2.91	610	/	/	/	387.21	2.52	1034
VYH 1 (intact flowers bagged)	167.94	3.29	1721	100.70(L)	3.14	5275	/	/	/	99.93 (L)	4.02	1445	494.38	3.18	539
VYH 1 (intact flowers bagged)	169.75	3.33	1417	102.60(L)	4.22	1235	/	/	/	99.11 (L)	2.60	1714	495.74	3.04	805
VYH 1 (intact flowers bagged)	/	/	/	/	/	/	169,42	3,17	1026	103.80 (L)	3.36	3718	512.80	3.13	248

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
VYH 1 (intact flowers bagged)	/	/	/	/	/	/	161,97	2,51	2017	101.88 (L)	2.88	1970	493.97	2.18	196
VYH 1 (intact flowers bagged)	/	/	/	/	/	/	158,20	2,70	2145	99.82 (L)	3.07	1555	471.56	2.71	142
VYH 1 (intact flowers bagged)	/	/	/	/	/	/	166,11	2,66	1317	100.46 (L)	2.89	3074	492.57	2.57	330
VYH 1 (intact flowers bagged)	/	/	/	/	/	/	165,35	2,65	2671	98.61 (L)	3.21	1312	497.22	3.01	248
VYH 2 (intact flowers bagged)	167.72	4.41	1345	101.08(L)	3.67	3221	/	/	/	103.16 (L)	2.86	2016	423.88	3.71	1137
VYH 2 (intact flowers bagged)	167.21	2.85	1584	100.53(L)	4.37	2434	/	/	/	97.95 (L)	3.76	1819	409.60	3.01	564
VYH 2 (intact flowers bagged)	171.29	3.38	1775	102.37(L)	4.17	2589	/	/	/	99.87 (L)	3.28	1979	505.31	3.28	419
VYH 2 (intact flowers bagged)	165.34	3.48	1314	100.04(L)	3.73	1640	/	/	/	102.33 (L)	4.12	1367	418.80	2.84	1325
VYH 2 (intact flowers bagged)	169.67	4.86	1359	100.89(L)	2.97	3974	/	/	/	101.90 (L)	3.97	1603	502.18	3.16	570
VYH 2 (intact flowers bagged)	175.80	2.95	1415	103.80(L)	3.56	1848	/	/	/	103.04 (L)	4.10	2158	521.90	3.21	1012
VYH 2 (intact flowers bagged)	168.01	3.14	1442	99.56(L)	4.11	1967	/	/	/	98.43 (L)	4.20	2372	491.64	3.71	967
VYH 2 (intact flowers bagged)	167.10	3.32	2455	101.26(L)	4.37	3664	/	/	/	100.57 (L)	4.64	1186	501.35	3.40	504
VYH 2 (intact flowers bagged)	169.51	3.52	1466	101.86(L)	4.22	2187	/	/	/	102.22 (L)	3.97	1500	509.61	3.47	702
VYH 2 (intact flowers bagged)	171.83	2.93	1826	102.94(L)	3.94	2564	/	/	/	103.17 (L)	3.92	1933	514.69	2.80	743
VYH 2 (intact flowers bagged)	175.38	3.09	1327	105.10(L)	4.28	3603	/	/	/	101.88 (L)	4.41	3196	513.23	3.19	634
VYH 2 (intact flowers bagged)	173.88	3.71	2264	104.75(L)	3.74	5039	/	/	/	103.99 (L)	4.52	2103	508.68	3.81	1054

PLANT CODE (Type of pollination ♀ × ♂)	1 <sup>st</sup> SAMPLE						2 <sup>nd</sup> SAMPLE								
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles
VYH 2 (intact flowers bagged)	168.22	3.35	807	99.42(L)	4.63	1521	/	/	/	101.18 (L)	3.98	1738	531.60	2.97	467
VYH 2 (intact flowers bagged)	167.31	3.36	1649	101.78(L)	4.13	1937	/	/	/	100.05 (L)	3.87	2067	488.74	3.87	2067

**Table S2.** FCM results of open pollinations in studied *Crataegus* taxa. Data include types of pollinations, mean relative fluorescence, the coefficient of variation (CV) and the number of nuclei per sample (particles) of embryo (EMB), endosperm (END) and reference standard (ST). In the study, two reference standards were used: *Solanum pseudocapsicum* (P) and *Solanum lycopersicum* (L). Preparation of two samples was necessary for the determination of ploidy levels of embryo and endosperm: 1<sup>st</sup> sample (embryo + standard or embryo + standard + endosperm) and 2<sup>nd</sup> sample (embryo + endosperm). An upper index <sup>1</sup> indicates determination of ploidy level for bulked samples.

PLANT CODE (Ploidy level)	1 <sup>st</sup> SAMPLE									2 <sup>nd</sup> SAMPLE					
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles	Mean EMB	CV	Particles	Mean END	CV	Particles
BOTZ 1 (2x)	102.53	3.14	2471	181.16(P)	2.99	1677	/	/	/	101.23	3.49	1829	154.41	3.28	614
BOTZ 1 (2x)	107.51	4.80	1594	181.24(P)	3.44	6061	/	/	/	101.53	4.95	1490	149.71	3.98	1220
BOTZ 1 (2x)	100.96	3.42	2566	178.61(P)	3.26	751	/	/	/	99.43	3.99	2676	151.57	4.57	571
BOTZ 1 (2x)	102.20	3.63	2451	179.47(P)	3.50	1365	/	/	/	101.13	3.43	2793	154.16	3.45	616
BOTZ 1 (2x)	102.45	3.39	2240	180.46(P)	2.94	1463	/	/	/	101.11	3.64	3152	154.25	3.97	958
BOTZ 1 (2x)	99.43	4.20	2183	174.79(P)	3.91	1406	/	/	/	100.17	4.15	1351	152.50	3.71	810
BOTZ 1 (2x)	100.20	3.72	3972	177.07(P)	3.90	1369	/	/	/	99.41	4.23	3993	151.24	4.25	1043
BOTZ 1 (2x)	102.07	4.30	3006	177.39(P)	4.46	2258	/	/	/	99.79	4.39	2239	152.13	4.17	559
BOTZ 1 (2x)	100.39	4.32	4182	172.47(P)	4.81	2153	/	/	/	100.00	4.65	6369	150.60	4.93	1159
BOTZ 1 (2x)	100.69	4.35	1465	177.85(P)	4.16	1327	/	/	/	100.45	4.30	3444	152.13	3.94	949
BOTZ 1 (2x)	101.16	3.82	2034	177.25(P)	4.31	1517	/	/	/	97.24	4.08	2729	147.22	3.96	1030
BOTZ 1 (2x)	98.65	4.22	2103	166.75(P)	3.97	1574	/	/	/	100.38	3.94	2962	151.04	3.95	709
BOTZ 1 (2x)	97.94	3.90	3698	171.06(P)	3.75	1352	/	/	/	98.94	3.99	4026	149.95	3.94	603
BOTZ 1 (2x)	98.53	3.51	4784	172.47(P)	3.66	1322	/	/	/	98.27	4.04	4808	149.26	3.80	1262
BOTZ 1 (2x)	100.06	3.56	4006	177.19(P)	3.74	1358	/	/	/	99.33	3.88	3949	150.63	3.57	837
BOTZ 1 (2x)	99.75	3.61	4387	174.47(P)	3.77	1311	/	/	/	99.23	3.91	4016	150.15	3.88	757
BOTZ 1 (2x)	101.16	4.60	1330	175.25(P)	4.16	4332	/	/	/	103.56	4.62	1564	155.32	4.79	504
BOTZ 1 (2x)	100.12	3.57	3604	174.75(P)	3.87	1333	/	/	/	99.07	3.96	2252	150.30	4.08	516
BOTZ 1 (2x)	100.10	3.61	2706	176.24(P)	3.59	1367	/	/	/	99.27	3.70	3175	150.36	3.48	742
BOTZ 1 (2x)	102.88	4.59	1308	178.30(P)	3.71	3394	/	/	/	103.83	4.35	601	154.22	3.81	1143
BOTZ 2 (2x)	100.75	2.46	1407	125.01(L)	2.21	1335	/	/	/	102.10	3.31	1735	155.87	3.24	774

PLANT CODE (Ploidy level)	1 <sup>st</sup> SAMPLE									2 <sup>nd</sup> SAMPLE					
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles	Mean EMB	CV	Particles	Mean END	CV	Particles
BOTZ 2 (2x)	99.51	3.60	1632	124.71(L)	3.33	1520	/	/	/	99.14	3.64	2390	151.02	3.70	982
BOTZ 2 (2x)	97.86	3.25	3954	127.98(L)	3.77	1001	/	/	/	100.13	3.68	3166	151.99	3.96	889
BOTZ 2 (2x)	101.69	2.90	1459	128.24(L)	2.64	2643	/	/	/	100.14	3.32	1562	152.78	4.46	666
BOTZ 2 (2x)	101.58	3.18	1359	128.75(L)	2.83	2672	/	/	/	99.05	3.36	3103	151.45	3.19	937
BOTZ 2 (2x)	101.58	2.89	1966	127.24(L)	2.68	6185	/	/	/	100.00	2.83	1806	152.45	2.76	560
BOTZ 2 (2x)	100.80	2.91	1906	127.66(L)	2.75	1470	/	/	/	100.79	2.98	1610	154.60	2.64	852
BOTZ 2 (2x)	98.22	3.38	2415	124.50(L)	3.08	1318	/	/	/	99.90	4.02	2200	152.70	4.07	532
BOTZ 2 (2x)	102.78	3.84	2038	129.66(L)	3.61	1374	/	/	/	103.40	3.33	3254	158.00	3.56	1375
BOTZ 2 (2x)	104.91	3.76	1321	130.55(L)	3.29	2126	/	/	/	101.33	3.08	2208	155.14	2.77	660
BOTZ 2 (2x)	103.52	3.11	2323	131.12(L)	2.94	1961	/	/	/	101.85	3.58	2048	155.94	3.60	695
BOTZ 2 (2x)	103.74	3.14	2010	137.67(L)	3.02	2566	/	/	/	100.55	2.88	3713	153.22	2.68	901
BOTZ 2 (2x)	102.80	2.97	1694	130.31(L)	2.57	3170	/	/	/	102.55	3.44	4546	156.48	3.30	1596
BOTZ 2 (2x)	100.83	3.11	1658	132.12(L)	2.54	1311	/	/	/	101.07	3.02	2013	154.93	2.66	656
BOTZ 2 (2x)	100.31	3.23	1338	131.36(L)	2.88	2565	/	/	/	100.60	2.99	3218	153.06	2.72	1272
BOTZ 2 (2x)	100.09	2.88	1407	133.08(L)	2.70	1569	/	/	/	101.47	2.64	6421	155.23	2.49	1236
BOTZ 2 (2x)	98.38	3.39	1351	126.48(L)	2.90	2736	/	/	/	100.24	3.14	1489	153.95	2.94	591
BOTZ 2 (2x)	104.17	2.83	1608	135.43(L)	2.91	1491	/	/	/	102.10	3.18	3255	154.03	2.93	506
BOTZ 2 (2x)	98.88	3.16	1538	124.54(L)	3.00	1344	/	/	/	100.58	3.31	2388	153.70	3.01	1624
BOTZ 2 (2x)	102.70	2.72	1394	131.76(L)	2.53	2516	/	/	/	101.04	2.84	1542	153.82	2.37	811
BOTZ 3 (2x)	98.79	3.82	1914	175.75(P)	3.14	1525	/	/	/	100.05	3.82	1736	153.52	3.47	742
BOTZ 3 (2x)	100.81	3.08	1907	178.70(P)	2.58	1813	/	/	/	103.21	3.06	1358	156.38	3.03	570
BOTZ 3 (2x)	100.21	3.11	2023	178.42(P)	2.75	2741	/	/	/	100.03	3.15	2998	152.56	2.88	1029
BOTZ 3 (2x)	100.12	2.92	3404	176.93(P)	2.68	2625	/	/	/	101.40	3.21	2988	155.15	2.82	1121
BOTZ 3 (2x)	99.82	3.07	1592	177.59(P)	2.59	1935	/	/	/	101.72	3.29	1573	155.26	2.98	842
BOTZ 3 (2x)	102.79	2.94	2785	183.34(P)	2.59	1633	/	/	/	100.91	3.06	4373	153.94	2.82	1210
BOTZ 3 (2x)	100.76	3.21	1774	179.64(P)	2.70	1732	/	/	/	99.82	3.04	3346	152.46	2.96	942
BOTZ 3 (2x)	100.28	3.32	1698	177.90(P)	2.96	1872	/	/	/	100.71	3.19	2114	154.07	2.63	928
BOTZ 3 (2x)	100.05	3.12	2421	178.52(P)	2.57	1391	/	/	/	98.18	3.38	2549	150.09	3.17	792
BOTZ 3 (2x)	100.05	2.99	2973	177.36(P)	2.50	1428	/	/	/	103.07	3.00	3167	157.02	2.82	782
BOTZ 3 (2x)	101.34	3.39	1587	180.52(P)	2.78	3334	/	/	/	101.88	4.68	2770	155.21	4.58	881
BOTZ 3 (2x)	102.60	3.12	1402	182.06(P)	2.55	951	/	/	/	103.50	3.62	1623	158.14	3.46	881
BOTZ 3 (2x)	103.55	3.36	1404	184.10(P)	2.70	3450	/	/	/	103.25	3.32	2365	157.81	2.75	1169
BOTZ 3 (2x)	100.59	3.57	1924	178.78(P)	2.99	1362	/	/	/	98.82	2.96	2040	150.92	2.99	806
BOTZ 3 (2x)	99.77	3.15	2065	176.13(P)	2.96	1469	/	/	/	98.28	3.34	2355	149.80	3.49	640
BOTZ 3 (2x)	99.32	3.22	3055	175.55(P)	3.04	1602	/	/	/	100.66	3.22	3710	153.38	3.05	1137
BOTZ 3 (2x)	101.47	2.91	1731	179.41(P)	2.68	1357	/	/	/	101.60	3.24	2707	154.09	3.10	924
BOTZ 3 (2x)	101.51	3.59	1437	179.90(P)	3.05	1523	/	/	/	100.73	3.98	1359	153.69	3.61	762
BOTZ 3 (2x)	101.49	3.48	1714	180.38(P)	3.07	1476	/	/	/	101.68	3.57	1662	155.82	3.25	717



PLANT CODE (Ploidy level)	1 <sup>st</sup> SAMPLE									2 <sup>nd</sup> SAMPLE					
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles	Mean EMB	CV	Particles	Mean END	CV	Particles
BOTZ 3 (2x)	100.70	3.41	1531	180.77(P)	3.03	2425	/	/	/	99.29	3.19	2139	151.27	3.36	564
GOCAL 1 (2x)	102.58	2.93	4623	182.32(P)	3.13	1600	/	/	/	99.19	3.81	2127	150.80	3.87	681
GOCAL 1 (2x)	102.60	3.43	3432	183.28(P)	3.20	1790	/	/	/	102.59	3.52	3438	156.38	3.36	1277
GOCAL 1 (2x)	98.62	4.24	3924	175.73(P)	4.02	1503	/	/	/	101.66	2.96	3377	155.01	2.79	545
GOCAL 1 (2x)	102.54	2.83	7570	181.67(P)	2.93	1922	/	/	/	98.75	3.57	3119	151.48	3.52	1634
GOCAL 1 (2x)	99.59	3.38	4357	175.96(P)	3.24	1604	/	/	/	99.91	3.26	8722	151.66	3.36	1524
GOCAL 1 (2x)	100.58	2.73	3772	177.44(P)	2.86	1435	/	/	/	101.56	3.19	5496	154.30	3.52	1156
GOCAL 1 (2x)	101.77	3.23	2560	181.15(P)	3.06	1582	/	/	/	102.47	3.19	3674	155.76	2.84	644
GOCAL 1 (2x)	98.69	3.59	5348	176.10(P)	3.62	1756	/	/	/	100.90	3.15	2235	153.19	3.40	592
GOCAL 1 (2x)	101.82	3.24	6560	179.35(P)	3.47	1360	/	/	/	100.56	3.45	2201	153.50	3.04	641
GOCAL 1 (2x)	99.11	3.47	4883	178.51(P)	4.03	1446	/	/	/	100.36	3.49	3471	153.13	3.52	751
GOCAL 1 (2x)	99.80	3.39	3259	176.59(P)	3.13	1476	/	/	/	100.83	3.39	1558	152.87	3.50	1312
BOTZ 4 (3x)	123.07	3.47	1311	102.21(L)	2.99	4251	/	/	/	119.99	3.36	1787	334.80	3.21	516
BOTZ 4 (3x)	121.75	2.77	1332	101.38(L)	2.69	3482	/	/	/	120.72	2.88	3520	329.38	3.01	722
BOTZ 4 (3x)	122.24	2.89	1761	101.77(L)	2.76	2722	/	/	/	117.90	3.27	3477	322.47	3.10	868
BOTZ 4 (3x)	120.55	3.07	1416	100.92(L)	2.65	3802	/	/	/	120.87	3.11	3413	330.32	2.69	665
BOTZ 4 (3x)	122.71	3.35	1318	101.34(L)	3.28	4189	/	/	/	122.66	3.48	1889	331.83	3.40	742
BOTZ 4 (3x)	123.19	2.8	1483	102.34(L)	2.63	2234	/	/	/	120.94	2.89	3348	327.60	2.52	506
BOTZ 4 (3x)	154.12	2.53	1679	100.09(L)	2.37	4600	/	/	/	150.49	2.69	3202	266.90	2.76	683
BOTZ 4 (3x)	116.37	2.85	1484	100.80(L)	2.70	2054	/	/	/	115.17	2.93	2415	314.53	2.57	574
BOTZ 4 (3x)	115.07	2.82	1524	99.97(L)	2.75	2698	/	/	/	115.96	2.69	2204	314.32	2.73	562
BOTZ 4 (3x)	120.55	3.19	2632	99.69(L)	3.44	1359	/	/	/	122.44	2.81	3462	290.62	2.52	539
BOTZ 4 (3x)	117.66	3.33	1650	98.97(L)	3.11	2861	/	/	/	122.28	3.91	2351	330.30	4.09	633
BOTZ 4 (3x)	164.34	2.54	1828	102.73(L)	2.56	2211	/	/	/	161.79	2.81	3848	325.53	3.46	522
BOTZ 4 (3x)	118.17	2.81	1994	102.60(L)	2.6	2292	/	/	/	116.22	2.97	3391	322.43	3.22	521
BOTZ 4 (3x)	116.01	2.62	1353	100.68(L)	2.72	1602	/	/	/	114.64	2.88	4852	311.36	3.33	640
BOTZ 4 (3x)	115.71	2.79	1539	100.15(L)	2.69	2336	/	/	/	116.57	2.77	4020	315.48	3.01	528
BOTZ 4 (3x)	121.25	3.12	1359	100.59(L)	2.74	5166	/	/	/	122.81	3.07	1669	332.57	2.57	576
BOTZ 4 (3x)	156.67	3.11	1703	101.35(L)	3.00	2286	/	/	/	157.22	3.21	2525	278.19	3.26	533
BOTZ 4 (3x)	120.11	2.89	1370	100.17(L)	2.94	1638	/	/	/	119.91	2.98	3615	325.83	3.27	658
BOTZ 4 (3x)	123.12	2.95	1407	101.67(L)	2.76	4011	/	/	/	122.65	3.02	1524	332.64	3.07	636
BOTZ 4 (3x)	120.96	3.23	2743	99.87(L)	3.35	1366	/	/	/	125.05	3.34	2336	338.00	3.56	685
BOTZ 4 (3x)	122.91	2.66	1607	100.99(L)	2.69	1743	/	/	/	123.08	2.95	2152	332.63	2.94	705
BOTZ 4 (3x)	124.56	2.80	3355	101.88(L)	2.88	1671	/	/	/	121.09	3.23	2106	325.85	3.58	506
VYH 3 (3x)	240.61	2.41	3122	198.28(L)	2.76	1482	739.21	2.38	462	/	/	/	/	/	/
VYH 3 (3x)	244.47	2.45	2076	201.59(L)	2.56	2056	815.64	2.15	623	/	/	/	/	/	/
VYH 3 (3x)	244.15	2.69	1464	200.73(L)	2.86	2925	760.41	2.97	732	/	/	/	/	/	/
VYH 3 (3x)	243.10	2.33	1715	199.33(L)	2.65	1398	844.84	1.60	109	/	/	/	/	/	/

PLANT CODE (Ploidy level)	1 <sup>st</sup> SAMPLE									2 <sup>nd</sup> SAMPLE					
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles	Mean EMB	CV	Particles	Mean END	CV	Particles
VYH 3 (3x)	244.77	2.48	1440	201.49(L)	2.60	1898	804.64	2.10	263	/	/	/	/	/	/
VYH 8 (3x)	119.77	2.56	2210	99.60(L)	2.78	1548	356.96	2.20	194	/	/	/	/	/	/
VYH 8 (3x)	120.95	2.51	2050	101.07(L)	2.78	1314	372.52	2.49	213	/	/	/	/	/	/
VYH 8 (3x)	120.29	2.59	2551	100.68(L)	2.75	3078	309.14	2.95	281	/	/	/	/	/	/
VYH 8 (3x)	118.24	2.44	1910	98.72(L)	2.85	1404	365.74	1.98	270	/	/	/	/	/	/
VYH 8 (3x)	119.79	2.38	4040	99.62(L)	2.70	2682	356.09	2.15	280	/	/	/	/	/	/
VYH 4 (3x)	119.30	2.70	1897	99.17(L)	2.82	1451	323.12	2.91	113	/	/	/	/	/	/
VYH 4 (3x)	118.63	2.59	4310	98.76(L)	2.76	3936	337.37	2.79	329	/	/	/	/	/	/
VYH 4 (3x)	121.23	3.09	2562	99.50(L)	2.80	1344	377.90	2.64	192	/	/	/	/	/	/
PS-VYH16-1 (4x) <sup>1</sup>	98.15	2.76	501	84.14(P)	3.62	862	/	/	/	100.52	3.34	956	308.49	2.07	56
PS-VYH16-1 (4x) <sup>1</sup>	98.15	2.76	501	84.14(P)	3.62	862	/	/	/	100.38	3.63	800	282.11	2.12	100
PS-VYH16-1 (4x) <sup>1</sup>	47.83	4.12	391	84.14(P)	3.62	862	/	/	/	48.24	3.40	978	198.26	2.61	181
PS-VYH16-1 (4x) <sup>1</sup>	102.36	3.23	432	87.97(P)	3.37	1130	/	/	/	102.41	3.44	284	314.53	1.96	70
PS-VYH16-1 (4x) <sup>1</sup>	102.36	3.23	432	87.97(P)	3.37	1130	/	/	/	102.83	3.33	1186	310.20	2.54	120
PS-VYH16-2 (4x) <sup>1</sup>	88.10	2.85	1412	75.71(P)	3.13	1857	/	/	/	95.94	2.94	1180	336.24	1.68	37
PS-VYH16-2 (4x) <sup>1</sup>	88.10	2.85	1412	75.71(P)	3.13	1857	/	/	/	86.97	3.21	1973	310.66	2.60	136
PS-VYH16-2 (4x) <sup>1</sup>	88.10	2.85	1412	75.71(P)	3.13	1857	/	/	/	87.00	3.07	2378	267.47	3.08	374
PS-VYH16-2 (4x) <sup>1</sup>	93.55	2.94	637	81.92(P)	3.26	1027	/	/	/	97.63	3.93	268	299.85	3.46	150
PS-VYH16-2 (4x) <sup>1</sup>	93.55	2.94	637	81.92(P)	3.26	1027	/	/	/	93.15	3.96	968	341.94	3.92	319
PS-VYH16-2 (4x) <sup>1</sup>	93.55	2.94	637	81.92(P)	3.26	1027	/	/	/	94.38	2.44	2164	243.66	2.64	274
PS-VYH16-2 (4x) <sup>1</sup>	100.83	2.58	1872	86.64(P)	2.82	1562	/	/	/	106.18	3.42	1600	271.31	2.64	150
VYH 16 (4x) <sup>1</sup>	98.12	2.58	2462	83.61(P)	3.76	806	/	/	/	109.20	4.36	2038	329.28	4.97	187
VYH 16 (4x) <sup>1</sup>	98.12	2.58	2462	83.61(P)	3.76	806	/	/	/	106.40	4.19	1390	325.05	3.29	268
VYH 16 (4x) <sup>1</sup>	98.12	2.58	2462	83.61(P)	3.76	806	/	/	/	97.06	3.32	3515	295.66	3.96	93
VYH 16 (4x) <sup>1</sup>	161.13	2.41	378	92.48(P)	3.71	767	/	/	/	144.04	2.60	3041	242.86	2.43	83
VYH 16 (4x) <sup>1</sup>	107.45	2.69	1320	92.48(P)	3.71	767	/	/	/	104.38	2.45	1654	319.45	1.83	195
VYH 16 (4x) <sup>1</sup>	107.45	2.69	1320	92.48(P)	3.71	767	/	/	/	106.73	3.17	1144	322.73	2.67	463
VYH 16 (4x) <sup>1</sup>	102.78	2.79	1004	89.13(P)	3.73	1057	/	/	/	100.25	3.15	1682	312.66	2.70	262
VYH 16 (4x) <sup>1</sup>	102.78	2.79	1004	89.13(P)	3.73	1057	/	/	/	100.11	2.76	1863	259.90	2.43	218
VYH 16 (4x) <sup>1</sup>	102.78	2.79	1004	89.13(P)	3.73	1057	/	/	/	97.85	2.71	1706	406.24	2.20	190
VYH 16 (4x) <sup>1</sup>	99.91	2.67	1131	86.05(P)	3.22	2011	/	/	/	96.70	2.78	1304	300.66	2.36	200
VYH 2 (4x) <sup>1</sup>	94.91	2.79	1061	80.28(P)	3.37	1249	/	/	/	100.59	3.24	1323	309.44	2.51	260
VYH 2 (4x) <sup>1</sup>	94.91	2.79	1061	80.28(P)	3.37	1249	/	/	/	100.04	2.95	1546	304.96	2.71	248
VYH 2 (4x) <sup>1</sup>	94.91	2.79	1061	80.28(P)	3.37	1249	/	/	/	93.54	2.95	1733	239.62	1.87	68
VYH 2 (4x) <sup>1</sup>	89.71	4.07	768	77.89(P)	3.04	1185	/	/	/	83.45	3.24	887	125.81	2.91	293
VYH 2 (4x) <sup>1</sup>	89.71	4.07	768	77.89(P)	3.04	1185	/	/	/	90.85	3.60	1008	277.92	2.56	156
VYH 2 (4x) <sup>1</sup>	89.71	4.07	768	77.89(P)	3.04	1185	/	/	/	88.79	3.50	1165	272.27	2.62	125
VYH 2 (4x) <sup>1</sup>	104.13	3.78	786	90.21(P)	2.88	1141	/	/	/	105.04	3.02	654	321.73	2.63	107

PLANT CODE (Ploidy level)	1 <sup>st</sup> SAMPLE									2 <sup>nd</sup> SAMPLE					
	Mean EMB	CV	Particles	Mean ST	CV	Particles	Mean END	CV	Particles	Mean EMB	CV	Particles	Mean END	CV	Particles
VYH 2 (4x) <sup>1</sup>	104.13	3.78	786	90.21(P)	2.88	1141	/	/	/	95.74	4.11	424	300.40	2.61	163

**Figure S1.** Light microscopy photographs of *Crataegus* pollen grains of diploid (*C. kyrtostyla*), triploid (*C. laevigata* × *C. subsphaerica*) and tetraploid (*C. subsphaerica*) accessions; note the variable size and shape irregularities of pollen grains of triploid accession compared to diploid and tetraploid ones. The same scale bar is applied to all subfigures.

