

Table S1. List of 140 varieties in this study

Entry no.	Cultivar name	Region code <sup>1</sup>	Exp. grouping <sup>2</sup>	Mat. group <sup>3</sup>	Year <sup>4</sup>	Breeder / origin	Country
1	CH22172 / OBELIX	2	1	000	2014	AGROSCOPE	Switzerland
2	CH21912 / PROTEIX	2	1	00	2009	AGROSCOPE	Switzerland
3	CH22138 / AMANDINE	2	1	00	2012	AGROSCOPE	Switzerland
4	CH22177 / GALICE	2	1	00	2015	AGROSCOPE	Switzerland
5	CH22315 / MARQUISE	2	1	00	2016	AGROSCOPE	Switzerland
6	CH21265 / ORION	2	2	0	1998	AGROSCOPE	Switzerland
7	CH22429	2	2	0	x	AGROSCOPE	Switzerland
8	CH22015 / CASTETIS	2	3	I	2010	AGROSCOPE	Switzerland
9	CH50111	2	3	I	x	AGROSCOPE	Switzerland
10	CH50051 / PACO	2	4	II	2012	AGROSCOPE	Switzerland
11	Atlanta	2	1	00	2013	Agroyoumis	Poland
12	Mavka	2	1	000	2013	Agroyoumis	Poland
13	ADA TD	2	2	0	2005	ARDS Turda	Romania
14	CRISTINA TV	2	2	0	2017	ARDS Turda	Romania
15	FELIX	2	1	00	2016	ARDS Turda	Romania
16	MIRUNA	2	1	00	2012	ARDS Turda	Romania
17	ERICA	2	1	000	2017	DANKO	Poland
18	PEPITA	2	2	0	2011	ERSA	Italy
19	AMMA	2	3	I	2016	ERSA	Italy
20	Ananda	2	3	I	2014	ERSA	Italy
21	BAHIA	2	3	I	2008	ERSA	Italy
22	Prana	2	3	I	2015	ERSA	Italy
23	ADONAI	2	4	II	2012	ERSA	Italy
24	Avatar	2	4	II	2018	ERSA	Italy
25	BLANCAS	2	4	II	2007	ERSA	Italy
26	Buenos	2	4	II	2011	ERSA	Italy
27	Guru	2	4	II	2018	ERSA	Italy
28	ES Senator	2	1	000	2012	Euralis / Lidea	France
29	ES Gladiator	2	2	0	2014	Euralis / Lidea	France
30	ES Tenor	2	2	0	2015	Euralis / Lidea	France
31	ES Indicator	2	3	I	2017	Euralis / Lidea	France
32	ES Mediator	2	4	II	2015	Euralis / Lidea	France
33	GK MEDAL	2	3	I	x	Gabonakutato	Hungary
34	GK SPIRIT	2	3	I	x	Gabonakutato	Hungary
35	PANNONIA KINCSE	2	3	I	2008	Gabonakutato	Hungary
36	Khutorianochka	2	1	000	2010	IFRAP	Ukraine
37	Oriana	2	1	000	2002	IFRAP	Ukraine
38	TriDa	2	1	000	2015	IFRAP	Ukraine
39	Vezha	2	1	000	2010	IFRAP	Ukraine
40	NS Kaca	2	1	000	2013	IFVCNS	Serbia
41	Favorit	2	1	00	2010	IFVCNS	Serbia
42	Galina	2	2	0	2006	IFVCNS	Serbia
43	NS Atlas	2	2	0	2016	IFVCNS	Serbia
44	NS Maximus	2	2	0	2011	IFVCNS	Serbia
45	NS Mercury	2	2	0	2008	IFVCNS	Serbia
46	NS Princeza	2	2	0	2013	IFVCNS	Serbia
47	Dongnong 53	1	2	0	2008	Northeast Agricultural University	China
48	NS-L-201458	2	2	0	x	IFVCNS	Serbia
49	NS-L-401088	2	2	0	x	IFVCNS	Serbia
50	NS-L-401145	2	2	0	x	IFVCNS	Serbia
51	NS-L-401156	2	2	0	x	IFVCNS	Serbia
52	NS-L-401157	2	2	0	x	IFVCNS	Serbia
53	NS-L-501012	2	2	0	x	IFVCNS	Serbia
54	Tajfun	2	2	0	2010	IFVCNS	Serbia
55	Valjevka	2	2	0	2003	IFVCNS	Serbia
56	NS Fantast	2	4	II	2017	IFVCNS	Serbia
57	NS HOGAR	2	3	I	2013	IFVCNS	Serbia
58	NS Kraljica	2	4	II	2017	IFVCNS	Serbia
59	NS Zita	2	4	II	2013	IFVCNS	Serbia
60	Sava	2	4	II	2004	IFVCNS	Serbia
61	Trijumf	2	4	II	2009	IFVCNS	Serbia
62	Venera	2	4	II	2013	IFVCNS	Serbia
63	Ventis	2	4	II	2017	IFVCNS	Serbia
64	Victoria	2	4	II	2009	IFVCNS	Serbia
65	AUGUSTA	2	1	0000	2002	Poznan University of Life Sci.	Poland
66	Amadea	2	1	00	2014	Saatzucht Donau	Austria
67	Antonia	2	1	00	2015	Saatzucht Donau	Austria
68	Abelina	2	1	000	2016	Saatzucht Donau	Austria
69	Albenga	2	1	00	2016	Saatzucht Donau	Austria
70	Alexa	2	1	000	2017	Saatzucht Donau	Austria
71	Ancona	2	1	000	2015	Saatzucht Donau	Austria
72	Angelica	2	1	00	2017	Saatzucht Donau	Austria
73	Regina	2	1	000	2016	Saatzucht Donau	Austria

74	Christine	2	1	00	2007	Saatzucht Gleisdorf	Austria
75	GL Hermine	2	1	00	2010	Saatzucht Gleisdorf	Austria
76	Josefine	2	1	00	2006	Saatzucht Gleisdorf	Austria
77	SM SR17046	2	1	000	x	Freiherr von Moreau Saatzeit	Germany
78	SM SR16050	2	1	000	x	Freiherr von Moreau Saatzeit	Germany
79	Dongnong 54	1	2	0	2009	Northeast Agricultural University	China
80	Dongnong 58	1	2	0	2012	Northeast Agricultural University	China
81	Dongnong 50	1	2	0	2007	Northeast Agricultural University	China
82	Dongnong 52	1	2	0	2008	Northeast Agricultural University	China
83	Heihe 43	1	2	0	2007	Heihe Branch of Heilongjiang Agricultural Sci.	China
84	Dongnong 51	1	2	0	2007	Northeast Agricultural University	China
85	Heihe 45	1	1	00	2007	Heihe Branch of Heilongjiang Agricultural Sci.	China
86	Heihe 44	1	1	000	2007	Heihe Branch of Heilongjiang Agricultural Sci.	China
87	Dongnong 55	1	2	0	2009	Northeast Agricultural University	China
88	Dengke 5	1	1	00	2012	Hulun Buir Institution of Agricultural Sci.	China
89	Dengke 1	1	2	0	2009	Hulun Buir Institution of Agricultural Sci.	China
90	Heihe 52	1	2	0	2010	Heihe Branch of Heilongjiang Agricultural Sci.	China
91	Hefeng 51	1	3	I	2006	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
92	Heihe 51	1	1	00	2009	Heihe Branch of Heilongjiang Agricultural Sci.	China
93	Heihe 36	1	2	0	2004	Heihe Branch of Heilongjiang Agricultural Sci.	China
94	Mengdou 30	1	2	0	2009	Hulun Buir Institution of Agricultural Sci.	China
95	Heinong 69	1	3	I	2012	Soybean Institute of Heilongjiang Agricultural Sci.	China
96	Heinong 64	1	3	I	2010	Soybean Institute of Heilongjiang Agricultural Sci.	China
97	Jiyu 95	1	4	III	2008	Institute of Soybean Research, Jilin Academy of Agricultural Sci.	China
98	Heinong 52	1	3	I	2007	Soybean Institute of Heilongjiang Agricultural Sci.	China
99	Heinong 68	1	3	I	2011	Soybean Institute of Heilongjiang Agricultural Sci.	China
100	Heinong 61	1	3	I	2010	Soybean Institute of Heilongjiang Agricultural Sci.	China
101	Keshan 1	1	2	0	2009	Keshan Branch of Heilongjiang Agricultural Sci.	China
102	Heinong 51	1	3	I	2007	Soybean Institute of Heilongjiang Agricultural Sci.	China
103	Heihe 49	1	1	000	2008	Heihe Branch of Heilongjiang Agricultural Sci.	China
104	Heihe 39	1	1	00	2006	Heihe Branch of Heilongjiang Agricultural Sci.	China
105	Hefeng 35	1	3	I	1994	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
106	Hefeng 48	1	3	I	2005	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
107	Henong 61	1	3	I	2010	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
108	Suinong 24	1	2	0	2007	Suihua Branch of Heilongjiang Agricultural Sci.	China
109	Suinong 27	1	3	I	2008	Suihua Branch of Heilongjiang Agricultural Sci.	China
110	Suinong 22	1	4	II	2005	Suihua Branch of Heilongjiang Agricultural Sci.	China
111	Suinong 23	1	4	II	2006	Suihua Branch of Heilongjiang Agricultural Sci.	China
112	Suinong 26	1	4	II	2008	Suihua Branch of Heilongjiang Agricultural Sci.	China
113	Suinong 29	1	4	II	2009	Suihua Branch of Heilongjiang Agricultural Sci.	China
114	Suinong 32	1	4	II	2011	Suihua Branch of Heilongjiang Agricultural Sci.	China
115	Suinong 33	1	4	II	2012	Suihua Branch of Heilongjiang Agricultural Sci.	China
116	Suinong 34	1	4	II	2012	Suihua Branch of Heilongjiang Agricultural Sci.	China
117	Suinong 35	1	4	II	2012	Suihua Branch of Heilongjiang Agricultural Sci.	China
118	Henong 60	1	3	I	2010	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
119	Hefeng 39	1	3	I	2000	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
120	Henong 59	1	3	I	2010	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
121	Hefeng 56	1	3	I	2009	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
122	Hefeng 55	1	3	I	2008	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
123	Hefeng 50	1	3	I	2006	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
124	Henong 58	1	3	I	2010	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
125	Henong 62	1	3	I	2011	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
126	Hefeng 57	1	3	I	2009	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
127	Kenong 36	1	3	I	2009	Kenfeng Seed	China
128	Kenbao 1	1	3	I	2013	Kenfeng Seed	China
129	Heinong 63	1	3	I	2010	Kenfeng Seed	China
130	Kenfeng 16	1	3	I	2006	Kenfeng Seed	China
131	Heihe 48	1	2	0	2007	Kenfeng Seed	China
132	Heinong 53	1	3	I	2007	Kenfeng Seed	China
133	Hefeng 53	1	3	I	2008	Jiamusi Branch of Heilongjiang Agricultural Sci.	China
134	Fengshou 22	1	3	I	1992	Keshan Branch of Heilongjiang Agricultural Sci.	China
135	Fengshou 25	1	2	0	2007	Keshan Branch of Heilongjiang Agricultural Sci.	China
136	Kenfeng 20	1	3	I	2008	Kenfeng Seed	China
137	Heihe 5	1	1	00	1986	Heihe Branch of Heilongjiang Agricultural Sci.	China
138	Beifeng 16	1	2	0	2002	Heilongjiang Land Reclamation Bureau Beian Institute of Agricultural Sci.	China
139	Kenfeng 17	1	3	I	2007	Kenfeng Seed	China
140	Beidou 30	1	2	0	2008	Heilongjiang Land Reclamation Bureau Hongxinglong Institute of Agricultural Sci.	China

<sup>1</sup> Region code: 1=CN, 2= EU

<sup>2</sup> Experimental grouping: See Suppl. Table 2

<sup>3</sup> Soybean maturity group

<sup>4</sup> Year of cultivar release

Table S2. Environment code for experiment carried out in Europe in 2019

Environment code	Location	Latitude	Longitude	Year
1	Tulln	48.31946	16.06947	2019
2	Kühnham	48.4055	13.24921	2019
3	Nyon	46.39591	6.26113	2019
4	DLón	51.69199	17.07018	2019
5	Novi Sad	45.33678	19.84092	2019

## Distribution of AAT

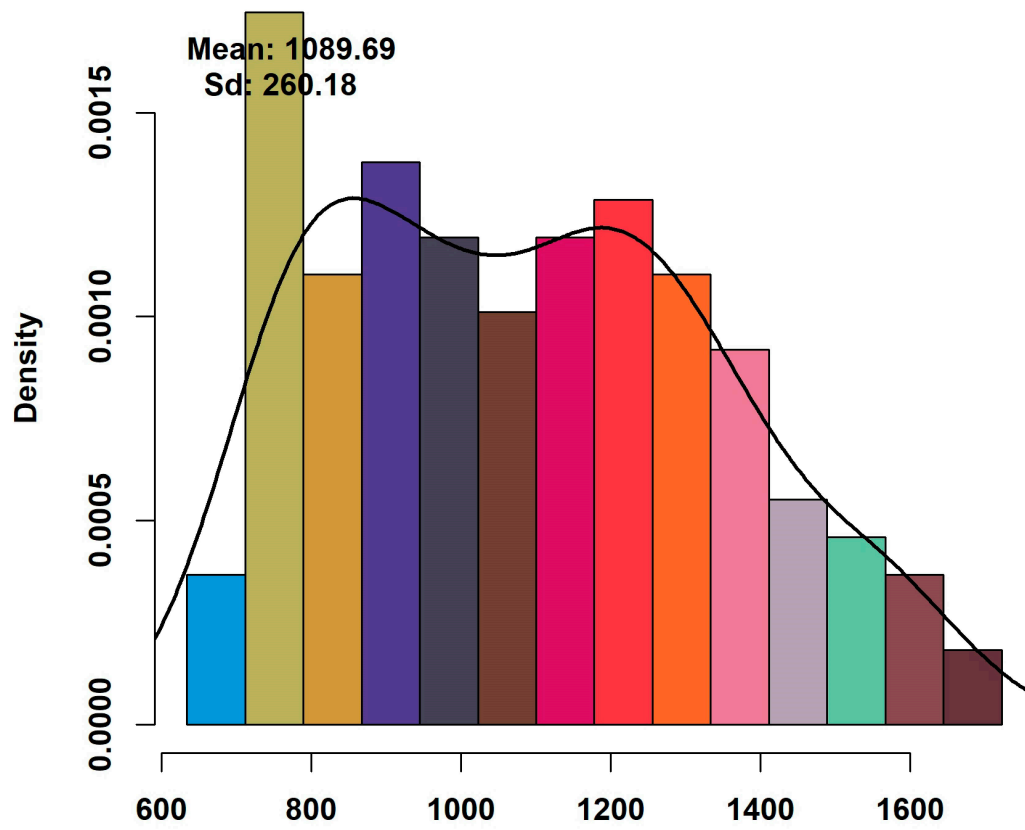


Figure S1. Distribution of AAT of time to flowering

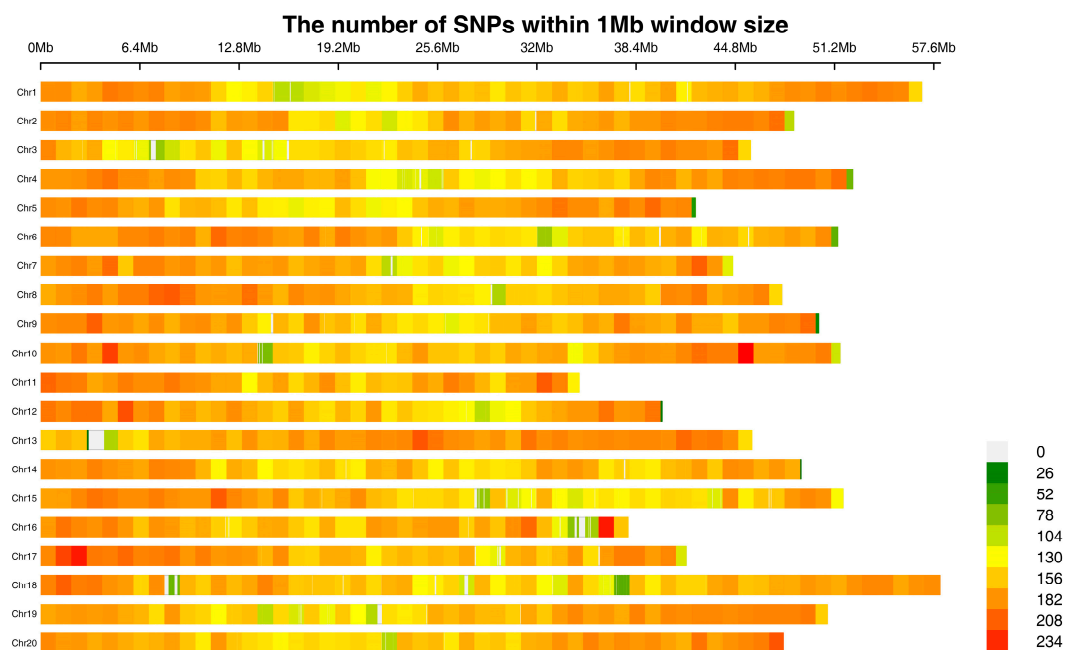


Figure S2. Dentist of SNPs passed quality control