

Supplementary data 1A. List of 99 accessions used in the SSR analysis. Pedigree, origin, year of release, and clusters based on the STRUCTURE analysis.

Genotype	Registered pedigree	Year of release	Origin	Clusters based on STRUCTURE analysis
*Bima 1	Mazhamai/Quality	1949	HC	NC
*Bima 4	Mazhamai/Quality	1951	HC	NC
*Ji'nan 13	White Orofen//Huixianhong/Abbondanza	1979	HC	NC
*Ji'nan 2	Bima 4/Early Piemium	1962	HC	NC
*Ji'nan 9	Xinshi 3/Early Piemium	1968	HC	NC
Xuzhou 438	Selection from landraces	1949	HC	NC
*Youzimai	Landrace	1949	HC	NC
*Yumai 13	Bainong3217/9612-2	1990	HC	NC
Zhengmai 9023	Xiaoyan 6/Xinong 65//83(2)3-3/84(14)43/3/Shan 213	2001	HC	NC
*Beijing 8	Bima 4/Early Piemium	1965	NC	NC
Han 3475	Peixian 30421/Han 4162	2000	NC	NC
Han 6172	Han 4032/Zhongyin 1	2001	NC	NC
Heng95guan 26	Heng84Guan749/Heng87-263	2001	NC	NC
*Jimai 26	Aiganzao/Lovrin 10//Jinfeng 1	1986	NC	NC
*Jimai 30	78-3147/Shi 4414	1989	NC	NC
*Jimai 38	Zhi 4001/Shi 4212-1	1966	NC	NC
*Jingdong 8	Abpopa/5238-016//Hongliang 4/3/You 7-Lovrin 10	1992	NC	NC
Jinnong 4	Nongda 3338/Jingdong 6	2003	NC	NC
Jintai 170	SWM788912/Jing 437	2003	NC	NC
Ningchun 4	Sonora 64/Hongtu	1981	NC	NC
*Shijiangzhuang 54	Bima 4/Early Piemium	1963	NC	NC
Shijiazhuang 8	Shi 91-5096/Jimai 38	2001	NC	NC
Xinong 6028	Xibei 60/Zhongnong 28	1950	NC	NC
Yanda 1817	Selection from Pingyaoxiaobaimai	1950	NC	NC
*Miannong 4	75-21-4/76-19//Mianyang 11/Alondra"s	1995	SWC	NC
*Abbondanza	Autonomia/Fontarionco	1961		NC
lovrin 10				NC
*Mentana	Rieti/Wilhelmina//Akagomughi			NC
Mexipak 66	Penjamo 62 Sib/Gabo 55	1997		NC
*Quality	-			NC
Annong 92484	NS2464/Annong 8455//Annong 8635	2000	HC	HC1

Jimai 19	Lumai 13/Linfen 5046	2001	HC	HC1
Xinmai 18	C6/Xinxiang3577//Xinmai 9	2003	HC	HC1
Xinong 2208	Shan 229//Shan 213/8623	2003	HC	HC1
Xuzhou 25	Xuzhou 79042/Bainong 792	1997	HC	HC1
Yanzhan 4110	C39/Xibei78(6)9-2//FR81-3/Aizao 781-4	2003	HC	HC1
Yumai 34	Aifeng 3//Mengxian 201/Neuzucht/Yumai 2	1994	HC	HC1
*Yumai 49	394A/Yumai 2 (selection from Wen 2540)	1996	HC	HC1
Yumai 51	Zhou 8425B/Yumai 17	1998	HC	HC1
Yumai 57	Aizao 781/80 (6) -3-3-10	1999	HC	HC1
Yumai 58	394A/Siyang 188	1999	HC	HC1
Yumai 62	Zhou 8425A/SW73295	2000	HC	HC1
Yumai 66	MZAleonclBeer/Baofeng 7228//90	2000	HC	HC1
Yumai 70	Mianyang 84-27/Neixiang 86C6//Yumai 17	2000	HC	HC1
Zhongyuan 98-68	Wen 2540/Siyang 188	2004	HC	HC1
Zhoumai 16	Zhou 9/Zhou 8425B	2002	HC	HC1
Zhoumai 17	Aizao 781/Zhou 8425B//Zhoumai 9	2004	HC	HC1
Zhoumai 18	Neixiang 185/Zhoumai 9	2004	HC	HC1
Beinong 9549	Yannong 15/Zhongmai 2//Linfen 0571/Zhongmai 9	2003	NC	HC1
Gaoyou 503	78506-2-4-6/845504	1997	NC	HC1
Han 4589	Han 4032/85Zhong 47	2001	NC	HC1
Han 5316	Han 7808/CA8059//85Zhong 47	1999	NC	HC1
Shi 4185	Tal/Zhi 8094//Yumai 2/3/Jimai 26	1997	NC	HC1
*Chuanmai 22	Mianyang 11/Chuanmai 20	1989	SWC	HC1
*Mianyang 26	Chuanyu 9/Mianyang 20	1995	SWC	HC1
Wuyimai	Chengduguangtou/Ailiduo//Chuanfumai/Quality	1950	SWC	HC1
*Bainong 3217	Funo/Neixiang 5//Xiannong 39/3/Xinong 64/Yanda 24	1979	HC	HSWC
*Boai 7023	Selection from Funo	1970	HC	HSWC
*Ganmai 8	Wuyimai/Abbondanza	1970	HC	HSWC
Jinan 16	Tal Shannongfu 63/Aimengniu V	1994	HC	HSWC
*Lumai 1	Aifeng 3//Mengxian 201/Neuzucht	1983	HC	HSWC

*Lumai 23	Lumai 8/Dliai	1996	HC	HSWC
*Neixiang 36	Selection from Baihuomai	1960'	HC	HSWC
*Shan 7859	Предгорная 2 //Mara/Abbondanza/3/6811 (2)	1986	HC	HSWC
*Taishan 1	Bimai 4/Скороспелка Л-1//Orofen	1973	HC	HSWC
*Xi'an 8	Aiganza0//St1472/506	1984	HC	HSWC
*Xiaoyan 6	St2422/464/Xiaoyan 96	1980	HC	HSWC
*Xuzhou 14	Early Piemium/Mentana	1965	HC	HSWC
*Xuzhou 21	Punong 3665/UP301	1984	HC	HSWC
*Yangmai 158	9-16/St1472/506	1992	HC	HSWC
*Yangmai 5	Mentana/Triumph/Axuan 2/3/St1742/506	1985	HC	HSWC
*Yumai 17	Yanda 7406/Nanyang 75-6	1991	HC	HSWC
*Yumai 18	Zhengzhou 761/Yanshi 4	1990	HC	HSWC
*Yumai 21	Bainong 791/Yumai 2//Lumai 1/Yanshi 4	1992	HC	HSWC
*Yumai 41	394A/Yumai 2 (a mutant from Yumai 25)	1996	HC	HSWC
*Yumai 54	Bainong 8717/3/Yanda7-629-52/Shi82-5594//Bainong84-4046-1	1996	HC	HSWC
*Yumai 7	Предгорная 2/Yanshi 4	1984	HC	HSWC
*Een 1	Lovrin 10/761//Sumai 3	1985	SWC	HSWC
*Fan 6	Complex cross among IB 01826, N. P 824, Wuyimai, Chengduguangtou, Zhongnong 483, Zhongnong 28B and Funo	1974	SWC	HSWC
*Mianyang 11	70-5858/Fan 6	1980	SWC	HSWC
*Mianyang 15	Selection from Mianyang 11	1983	SWC	HSWC
*Xinkehan 9	Kefeng 2/Ke74F3-249-3	1987	SWC	HSWC
*CI12203	Merit/Thatcher			HSWC
*Funo	Duecentodieci/Damiano	1957		HSWC
Orofen	Newthathch/Marroqui 588//Kenya C 9908/Mentana/3/Frontana			HSWC
*St1472/506	-	1972		HSWC
*Fengchan 3	Danmark 1/Xinong 6028	1968	HC	HC2
Huaimai 20	Zhengzhou 891/Yan 1604	2002	HC	HC2
Jimai 20	Lumai 14/Lumai 884187	2003	HC	HC2

Jimai 21	865186/Chuannongda 84-1109//Ji 84-5418	2004	HC	HC2
*Ji'nan 17	Linfen 5064/Lumai 13	1998	HC	HC2
*Lumai 14	C149/F4-530	1990	HC	HC2
*Lumai 15	Tal Yangmai 1-B1/Aimengniu II//104-14	1990	HC	HC2
*Lumai 21	Yanzhong 144/Baofeng 7228	1996	HC	HC2
*Shannongfu 63	(Youbao/Orofen) F4 induced by ⁶⁰ Co γ	1980	HC	HC2
Taishan 21	26744/Taishan 10//Lumai 7/Lumai 18	2000	HC	HC2
Yannong 21	Yan 1933/Shan 82-29	2002	HC	HC2
*Yumai 2	65 (14) 3/Huixianhong with rust resistance	1983	HC	HC2
Lunxuan 987	Complex cross among more than 20 lines	2003	NC	HC2

*Chinese cultivars released before 2000, each covering an annual acreage of >667,000 hectares. NC: Northern region of China; HC: Huanghuai region of China; SWC: Southwest region of China. NC, HC1, HSWC, and HC2 clusters were based on STRUCTURE analysis.

Supplementary data 1B. Chromosomal location, number of alleles, chromosome position, and gene diversity detected for 99 wheat accessions.

Locus	Location	Chromosome position	Allele No.	Gene Diversity	Locus	Location	Chromosome position	Allele No.	Gene Diversity
*Xgwm135	1AL	61	9	0.65	*Xgwm610	4AL	12	7	0.81
*Xgwm497	1AL	86	17	0.85	*Wmc516	4AS	2	5	0.66
*Wmc24	1AS	48	9	0.79	*Wmc254	4BL, 6AL	36,148	9	0.51
*Xgwm136	1AS	12	21	0.9	*Xgwm513	4BL	32	7	0.71
*Xgwm11	1BL	35	7	0.75	*Xgwm538	4BS	11	4	0.54
Xgwm124	1BL	64	4	0.2	*Xgwm194	4DL	82	6	0.71
Xgwm18	1BL	35	8	0.77	*Xgwm624	4DL	89	3	0.22
*Xgwm264	1BS, 3BS	21,56	24	0.87	*Xgwm186	5AL	62	15	0.85
*Xgdm33	1AS, 1BS, 1DS	6,30,8	14	0.85	Xgwm415	5AS	54	4	0.59
*Xgwm458	1DL	55	5	0.41	*Xgwm154	5AS	34	4	0.1
*Wmc147	1DS	16	5	0.4	*Xgwm499	5BL	75	14	0.74
*Xgwm294	2AL	76	21	0.87	*Xgwm159	5BS	57	4	0.34
*Xgwm312	2AL	74	19	0.84	*Xgwm234	5BS	38	19	0.86
*Xgwm296	2AS, 2DS	9,24	50	0.97	Xgwm544	5BS	61	12	0.87
*Xgwm636	2AS	11	8	0.5	*Xgwm190	5DS	9	4	0.52
*Xgwm120	2BL	79	21	0.85	*Xgwm427	6AL	93	7	0.72
Xgwm501	2BL	85	7	0.78	Xgwm169	6AL	83	19	0.87
Xgwm55	2BL	66	21	0.9	*Xgwm334	6AS	2	38	0.94
Xgwm148	2BS	47	9	0.79	*Xgwm219	6BL	59	9	0.71
Xgwm157	2DL	73	4	0.51	Xgwm626	6BL	48	4	0.58
Xgwm261	2DS	23	7	0.61	*Xgwm508	6BS	32	4	0.32
*Xgwm484	2DS	41	10	0.7	*Xgwm325	6DS	53	11	0.78
*Xgwm102	2DS	48	7	0.73	*Xgwm469	6DS	25	13	0.85
*Wmc169	3AL	99	7	0.64	*Xgwm332	7AL	100	13	0.79
*Xgwm480	3AL	116	8	0.5	*Wmc83	7AS	55	6	0.56
Xgwm2	3AS	37	10	0.67	Xgwm60	7AS	32	21	0.91
*Xgwm247	3BL	142	14	0.84	Xgwm333	7BL	65	34	0.92
*Xgwm566	3BS	54	7	0.79	*Xgwm611	7BL	136	18	0.87

*Xgwm285	3BS	61	25	0.92	*Wmc76	7BL	78	13	0.75
Xgwm77	3BS	65	7	0.46	*Xgwm46	7BS	56	11	0.86
*Xgwm3	3DL	43	7	0.67	*Xgwm537	7BS	41	6	0.62
Xgwm664	3DS	21	3	0.31	*Xgwm295	7DS	77	6	0.37
*Xgwm161	3DS	3	11	0.79	Xgwm44	7DS	78	8	0.78
Xgwm52	3DS	29	6	0.61	*Xgwm437	7DS	92	23	0.81
*Xgwm160	4AL	79	16	0.7	Mean	-	-	11.72	0.69

* Primers used in STRUCTURE analysis.

Supplementary data 1C.

