

Supplementary Table S1 Supplemental information on wheat cultivar

Cultivar	Crop duration (Days)	Accession number	Yield (1×10^3 kg / ha)	Plant height (cm)	Source or release agency
Shannong 22	228	Nationally Validated Wheat 2011013	7.55	83	Shandong Agricultural University
Lunxuan 061	236	Hebei Province Validated Wheat 2009010	7.40	75.2	Institute of Crop Sciences, Chinese Academy of Agricultural Sciences; Xinjian Seed Farm in Zhao County
Nongda 5181	236	Nationally Validated Wheat 20170021	6.31	86	China Agricultural University
Chang 6154	250	Nationally Validated Wheat 2003039	3.35	90	Shanxi Academy of Agricultural Sciences, Millet Research Institute
Chang 4738	245	Nationally Validated Wheat 2006024	7.24	80	Shanxi Academy of Agricultural Sciences, Millet Research Institute
Nongda 212	256	Hebei Province Validated Wheat 2013011	6.06	80	College of Agriculture and Biotechnology, China Agricultural University
Liaochun 18	256	Nationally Validated Wheat 2007024	5.61	84	College of Agriculture and Biotechnology, China Agricultural University
Jinuo 200	237	Hebei Province Validated Wheat 2011002	7.07	74	Institute of cereal and Oil Crop, Hebei Academy of Agriculture and Forestry Science
Henong 7106	241	Hebei Province Validated Wheat 2012006	6.42	68.5	Hebei Agricultural University
Jimai 518	244	Hebei Province Validated Wheat 2013007	7.65	75.5	Institute of Cereal and Oil Crop, Hebei Academy of Agriculture and Forestry Science
Jimai 325	233	Nationally Validated Wheat 20210063	5.51	70.7	Institute of Cereal and Oil Crop, Hebei Academy of Agriculture and Forestry Science
Heng 136	245	Nationally Validated Wheat 2011017	5.37	77	Institute of Dryland Agriculture, Hebei Academy

Heng 6632	239	Nationally Validated Wheat 2013018	5.26	73	of Agriculture and Forestry Science Institute of Dryland Agriculture, Hebei Academy of Agriculture and Forestry Science
Cangmai 119	256	Hebei Province Validated Wheat 2005012	7.03	74	Cangzhou Academy of Agriculture and Forestry Sciences
Shannong 19	232	Nationally Validated Wheat 2010005	8.39	86	Shandong Agricultural University
Jimai 21	241	Jiangsu Validated Wheat 200604	7.74	76.9	Crop Research Institute, Shandong Academy of Agricultural Sciences
Jimai 22	223	Nationally Validated Wheat 2006018	7.76	72	Crop Research Institute, Shandong Academy of Agricultural Sciences
Tanmai 98	237	Shandong Province Crops Validation 2009057	7.94	82	Tancheng County Seed Company, Shandong Province
Shimai 15	244	Hebei Province Validated Wheat 2005003	8.33	77	Shijiazhuang Academy of Agricultural and Forestry Science
Henong 826	242	Hebei Province Validated Wheat 2007010	6.18	73.8	Hebei Agricultural University
H6756	236	Shandong Province Crops Validation [2004] 031	6.38	80	Dezhou Academy of Agricultural Science; Institute of Crop Sciences, Chinese Academy of Agricultural Sciences
Aikang 58	245	Nationally Validated Wheat 2005008	7.99	70	Wheat Breeding Center of Henan University of Science and Technology
Jinan 17	240	Shandong Province Variety Validation 0262-2	7.54	77	Crop Research Institute; Shandong Academy of Agricultural Sciences
Kunpeng 1	242	Hebei Province Validated Wheat 2007006	7.30	73.5	Hebei Kunpeng Seed Industry Co., Ltd
Lin 4	242	Shandong Province Crops Validation	8.42	78.9	Linyi Academy of Agricultural Sciences

Linmai 2	241	2006046 Shandong Province Crops Validation [2004] 021	7.65	78.6	Linyi Academy of Agricultural Sciences
Nongda 399	242	Hebei Province Validated Wheat 2012004	8.36	68.2	College of Agriculture and Biotechnology, China Agricultural University; Hebei Jincheng Seed Industry Co., Ltd
Lunxuan 103	242	Hebei Province Validated Wheat 2015001	8.80	68.6	Institute of Crop Sciences, Chinese Academy of Agricultural Sciences; Zhao County Agricultural Science Research Institute
Kenong 1006	244	Hebei Province Validated Wheat 2013003	7.37	66.3	Center for Agricultural Resources Research, IGDB, CAS
Jimai 19	244	Shandong Crops Province Validation [2001] 002	7.63	82.9	Crop Research Institute, Shandong Academy of Agricultural Sciences
Han 5316	242	Nationally Validated Wheat 20000009	6.34	85	Handan Academy of Agricultural Sciences
Shunmai 1718	222	Nationally Validated Wheat 2011009	8.46	75	Institute of Cotton Research, Shanxi Agricultural University
Yunhan 618	230	Nationally Validated Wheat 2010012	5.57	90	Institute of Cotton Research, Shanxi Agricultural University
Jimai 738 strong gluten	241	Hebei Province Validated Wheat 2016015	8.08	81.8	Institute of cereal and Oil Crop, Hebei Academy of Agriculture and Forestry Science
Ke 2009 strong gluten	240	Nationally Validated Wheat 20170015	8.95	81.5	Center for Agricultural Resources Research, IGDB, CAS
Shiyou 20 strong gluten	223	Nationally Validated Wheat 2011011	6.30	77	Shijiazhuang Academy of Agricultural and Forestry Science
Heng S29	241	Nationally Validated Wheat 2016025	8.83	81	Institute of Dryland Agriculture, Hebei Academy of Agriculture and Forestry Science

Kenong 2011	241	LuYinZhong 2019178	8.43	77.8	Center for Agricultural Resources Research, IGDB, CAS; Institute of Crop Sciences, Chinese Academy of Agricultural Sciences Shandong Agricultural University; Zibo Hefeng Seed Industry Technology Co., Ltd Institute of Cereal and Oil Crop, Hebei Academy of Agriculture and Forestry Science
Shannong 28	226	Nationally Validated Wheat 20230107	8.52	80.1	
Jimai 120	237	Hebei Province Validated Wheat 2016019	8.27	76.8	
