

Table S1. List of material used in the study

Entr y	NAME	Breeder's ID	DOI	Groups	Country
1	Kalak robot sangi	IW-AFG-2017-8	10.18730/KASBJ	WLR-AFG	AFG
2	Omid bedon_e_ dasa	IW-AFG-2017-5	10.18730/KAS8F	WLR-AFG	AFG
3	Dandan shotur	IW-AFG-2017-11	10.18730/KASEN	WLR-AFG	AFG
4	Surkhak mahali	IW-AFG-2017-2	10.18730/KAS5C	WLR-AFG	AFG
5	Shanaze	IW-AFG-2017-12	10.18730/KASFP	WLR-AFG	AFG
6	Nesh shotor	IW-AFG-2017-17	10.18730/KASMV	WLR-AFG	AFG
7	Safedak kalak bedon_e_ dasa	IW-AFG-2017-4	10.18730/KAS7E	WLR-AFG	AFG
8	Kalak	IW-AFG-2017-18	10.18730/KASNW	WLR-AFG	AFG
9	Roshan safed khosha	IW-AFG-2017-14	10.18730/KASHR	WLR-AFG	AFG
10	Dandan	IW-AFG-2017-13	10.18730/KASGQ	WLR-AFG	AFG
11	Zardcha kalak robot sangi	IW-AFG-2017-9	10.18730/KASCK	WLR-AFG	AFG
12	Omid kalak robot sangi	IW-AFG-2017-15	10.18730/KASJS	WLR-AFG	AFG
13	Lalmi bor khosha	IW-AFG-2017-10	10.18730/KASDM	WLR-AFG	AFG
14	Kalak bor khosha	IW-AFG-2017-3	10.18730/KAS6D	WLR-AFG	AFG
15	Omid sorkh khosha bedon_e_ dasah	IW-AFG-2017-6	10.18730/KAS9G	WLR-AFG	AFG
16	Kalak sorkh khosha	IW-AFG-2017-19	10.18730/KASPX	WLR-AFG	AFG
17	Attaye	IW-AFG-2017-1	10.18730/KAS4B	WLR-AFG	AFG
18	Saffroni	IW-AFG-2017-20	10.18730/KASQY	WLR-AFG	AFG
19	Sorkhak watani lalmi	IW-AFG-2017-16	10.18730/KASKT	WLR-AFG	AFG
20	Lalmi safedak	IW-AFG-2017-7	10.18730/KASAH	WLR-AFG	AFG
21	Sardari biotype	IW-IRN-2017-7	10.18730/KARQ=	WLR-IRAN	IRN
22	Sardari biotype	IW-IRN-2017-10	10.18730/KART1	WLR-IRAN	IRN
23	Sardari biotype	IW-IRN-2017-13	10.18730/KARX4	WLR-IRAN	IRN
24	Khosheh ablaq	IW-IRN-2017-3	10.18730/KARKZ	WLR-IRAN	IRN
25	White spike	IW-IRN-2017-2	10.18730/KARJY	WLR-IRAN	IRN
26	Sardari biotype	IW-IRN-2017-14	10.18730/KARY5	WLR-IRAN	IRN
27	Sardari biotype	IW-IRN-2017-17	10.18730/KAS18	WLR-IRAN	IRN
28	Sardari biotype	IW-IRN-2017-15	10.18730/KARZ6	WLR-IRAN	IRN

29	Khosheh qermez	IW-IRN-2017-1	10.18730/KARHX	WLR-IRAN	IRN
30	Sardari biotype	IW-IRN-2017-9	10.18730/KARS0	WLR-IRAN	IRN
31	Sardari biotype	IW-IRN-2017-12	10.18730/KARW3	WLR-IRAN	IRN
32	Sardari biotype	IW-IRN-2017-16	10.18730/KAS07	WLR-IRAN	IRN
33	Sardari biotype	IW-IRN-2017-8	10.18730/KARRU	WLR-IRAN	IRN
34	Sardari biotype	IW-IRN-2017-6	10.18730/KARP\$	WLR-IRAN	IRN
35	Sardari biotype	IW-IRN-2017-19	10.18730/KAS3A	WLR-IRAN	IRN
36	Siahdaneh	IW-IRN-2017-5	10.18730/KARN~	WLR-IRAN	IRN
37	Qzil khosheh	IW-IRN-2017-4	10.18730/KARM*	WLR-IRAN	IRN
38	Sardari biotype	IW-IRN-2017-18	10.18730/KAS29	WLR-IRAN	IRN
39	Sardari biotype	IW-IRN-2017-11	10.18730/KARV2	WLR-IRAN	IRN
40	Cirpuz	IW875-2012-11TR44-0YM	10.18730/KAWB3	WLR-TUR	TUR
41	Kunduru	IW819-2012-26TR44-0YM	10.18730/KAW80	WLR-TUR	TUR
42	Sorgül	IW1338-2014-3TR47-0YM	10.18730/KAR7K	WLR-TUR	TUR
43	Haciali	IW1394-2014-1TR47-0YM	10.18730/KARCR	WLR-TUR	TUR
44	Akyarnaz	IW133-2009-1TR42-0YM	10.18730/KAR4G	WLR-TUR	TUR
45	Akbugday	IW674-2012-9TR45-0YA	10.18730/KAQKU	WLR-TUR	TUR
46	Kirmizi kunduru	IW836-2012-5TR44-0YM	10.18730/KAQZB	WLR-TUR	TUR
47	Akbugday	IW680-2012-14TR45-0YA	10.18730/KAW3*	WLR-TUR	TUR
48	Siverek	IW866-2012-12TR44-0YM	10.18730/KAWA2	WLR-TUR	TUR
49	Calibasan	IW694-2012-17TR45-0YA	10.18730/KAQN1	WLR-TUR	TUR
50	Şergun	IW1397-2014-1TR47-0YM	10.18730/KARET	WLR-TUR	TUR
51	Kilciksiz bugday	IW708-2012-8TR45-0YA	10.18730/KAWC4	WLR-TUR	TUR
52	Cakmak	IW809-2012-21TR44-0YM	10.18730/KAW7U	WLR-TUR	TUR
53	Goderedi	IW226-2010-6TR70-0YM	10.18730/KAR3F	WLR-TUR	TUR
54	Hinta	IW1330-2014-1TR47-0YM	10.18730/KAR8M	WLR-TUR	TUR
55	Kunduru	IW819-2012-13TR44-0YM	10.18730/KAQV7	WLR-TUR	TUR
56	Sorgül	IW1344-2014-1TR47-0YM	10.18730/KARGW	WLR-TUR	TUR
57	Ormece	IW397-2012-26TR60-0YA	10.18730/KAW5\$	WLR-TUR	TUR
58	Cam bugdayi	IW373-2012-5TR60-0YA	10.18730/KAW4~	WLR-TUR	TUR
59	Ormece	IW397-2012-18TR60-0YA	10.18730/KAQP2	WLR-TUR	TUR

60	Kirmizi buğday	IW1331-2014-1TR47-0YM	10.18730/KAR5H	WLR-TUR	TUR
61	Agbugday	IW890-2012-6TR44-0YM	10.18730/KAQQ3	WLR-TUR	TUR
62	Akbugday	IW690-2012-8TR45-0YA	10.18730/KAR1D	WLR-TUR	TUR
63	Sorik	IW1327-2014-1TR47-0YM	10.18730/KARAP	WLR-TUR	TUR
64	Cam bugdayi (kirmizi)	IW419-2012-10TR60-0YA	10.18730/KAQG~	WLR-TUR	TUR
65	Koca bugday	IW100-2009-4TR42-0YM	10.18730/KAWD5	WLR-TUR	TUR
66	Haciali	IW1394-2014-2TR47-0YM	10.18730/KARDS	WLR-TUR	TUR
67	Uveyik bugdayi	IW409-2012-12TR60-0YA	10.18730/KAW2Z	WLR-TUR	TUR
68	Agsunteri	IW368-2012-7TR60-0YA	10.18730/KAQHŞ	WLR-TUR	TUR
69	Ormece	IW407-2012-5TR60-0YA	10.18730/KAQM0	WLR-TUR	TUR
70	Cirpuz	IW875-2012-3TR44-0YM	10.18730/KAR2E	WLR-TUR	TUR
71	Kirmizi buğday	IW1339-2014-1TR47-0YM	10.18730/KAR6J	WLR-TUR	TUR
72	Cakmak	IW809-2012-23TR44-0YM	10.18730/KAQS5	WLR-TUR	TUR
73	Cirpuz	IW877-2012-4TR44-0YM	10.18730/KAQX9	WLR-TUR	TUR
74	Kirmizi buğday	IW1385-2014-1TR47-0YM	10.18730/KARFV	WLR-TUR	TUR
75	Zinebe	IW1326-2014-2TR47-0YM	10.18730/KAR9N	WLR-TUR	TUR
76	Kunduru	IW821-2012-13TR44-0YM	10.18730/KAQR4	WLR-TUR	TUR
77	Cam bugdayi (beyaz)	IW385-2012-2TR60-0YA	10.18730/KAQJ=	WLR-TUR	TUR
78	Cirpuz	IW895-2012-3TR44-0YM	10.18730/KAR0C	WLR-TUR	TUR
79	Siverek	IW863-2012-17TR44-0YM	10.18730/KAQW8	WLR-TUR	TUR
80	Cakmak	IW803-2012-24TR44-0YM	10.18730/KAQT6	WLR-TUR	TUR
81	Kirmizi kunduru	IW836-2012-2TR44-0YM	10.18730/KAQYA	WLR-TUR	TUR
82	Haciali	IW1394-2014-4TR47-0YM	10.18730/KARBQ	WLR-TUR	TUR
83	Cirpuz	IW877-2012-2TR44-0YM	10.18730/KAW91	WLR-TUR	TUR
84	Polatli	IW806-2012-2TR44-0YM	10.18730/KAW6=	WLR-TUR	TUR
85	Bezostaya	LC-IR-1	10.18730/KATVX	MG-IRR	RUS
86	Kate a-1	LC-IR-2	10.18730/KATXZ	MG-IRR	TUR
87	Konya 2002	LC-IR-3	10.18730/KATY*	MG-IRR	TUR
88	Nacibey	LC-IR-4	10.18730/KASW=	MG-SA	TCI
89	38ibwsn-97/Destin	TCI091043	10.18730/KAV96	MG-IRR	TCI
90	Eskina-7/3/Nemura/Crdn//78014-40	TCI061006	10.18730/KAV74	MG-IRR	TCI

91	Copper/7/Zcl/3/Pgfn//Cno67/Sn64/4/Seri/5/Ua.2837/6/ Attila/3*Bcn	TCI071181	10.18730/KAVFC	MG-IRR	TCI
92	B1551-Wh/Ks94u326/3/F10s-1//Stozher/Karl/4/F10s- 1//Stozher/Karl	TCI092565	10.18730/KAV1=	MG-IRR	TCI
93	Agri/Nac//Kauz/3/1d13.1/Mlt/4/Atay/Galvez87//Shark-1	TCI091606	10.18730/KAV2U	MG-IRR	TCI
94	Cmh84.168/4/Tast/Sprw//Zar/3/Atay/Galvez87	TCI071028	10.18730/KAVHE	MG-IRR	TCI
95	Mt0419/Destin//Bonito-36	TCI092341	10.18730/KATZ~	MG-IRR	TCI
96	Tam200/3/F60314.76/Mrl//Cno79/4/84.40022/5/ Agri/Nac//Kauz/3/1d13.1	TCI071150	10.18730/KAVJF	MG-IRR	TCI
97	Pyn*2/Co725052/3/Kauz*2/Yaco//Kauz/4/Kria	TCI091614	10.18730/KAVB8	MG-IRR	TCI
98	Croc_1/Ae.Squarrosa(205)//Kauz/3/Lufer/4/Ks97p0630-4- 5/Cm95560//X920879-C15-1/3/X84w063-9-18/U1324-25-1-4-....	TCI091583	10.18730/KAVC9	MG-IRR	TCI
99	Babax/Lr42//Babax*2/3/Vivitsi/4/Agri/Nac//Attila	TCI091009	10.18730/KAV85	MG-IRR	TCI
100	Orh010083/Ahmetaga	TCI091718	10.18730/KAV63	MG-IRR	TCI
101	Pantheon/Bluegil-2/5/Agri/Bjy//Vee/3/Bul6687.12/4/F6038w12.1	TCI091450	10.18730/KAVGD	MG-IRR	TCI
102	F4141-W-1-1/Pastor//Pyn/Bau/4/Vorona//Milan/ Sha7/3/Mv17/5/Dorade-5	TCI092289	10.18730/KAV41	MG-IRR	TCI
103	Citari-9/Mv18-2000//Starshina	TCI072102	10.18730/KAVEB	MG-IRR	TCI
104	Babax/Lr42//Babax*2/3/Kuruku/4/Tx96v2427	TCI091085	10.18730/KAVA7	MG-IRR	TCI
105	T88/2180//T811//Kristadora/3/Shark/F4105w2.1	TCI092010	10.18730/KAV0\$	MG-IRR	TCI
106	T136//T812*2/Karl/3/Zubkov/3/Agri/Nac//Attila	TCI092349	10.18730/KAVDA	MG-IRR	TCI
107	Tam200*2/Mo88//Kamb1*2/Kukuna/3/Sw89-3218/ Vorona	CMSA06WM00019T	10.18730/KAV52	MG-IRR	TCI
108	Almaly//Pbw343/Pastor	CMWS06MI00015S	10.18730/KAVPK	MG-IRR	MEX
109	Krasnovodopadskaya-25//Pbw343*2/Kukuna	CGWS05B00038S	10.18730/KAVMH	MG-IRR	MEX
110	Intensivnaya/Kukuna	CGWS04WM00049S	10.18730/KAVQM	MG-IRR	MEX
111	Intensivnaya/Kkts	CGWS05B00007S	10.18730/KAVKG	MG-IRR	MEX
112	Grk79//Inqalab 91*2/Tukuru	CGWS05B00063S	10.18730/KAVNJ	MG-IRR	MEX
113	Mv Nemere	TCI161230	10.18730/KAVVR	MG-IRR	HUN
114	Mv Sed	TCI161229	10.18730/KAVTQ	MG-IRR	HUN
115	Retezat	TCI150889	10.18730/KAVSP	MG-IRR	ROM
116	Partener	TCI150888	10.18730/KAVRN	MG-IRR	ROM

117	T-153	TCI150948	10.18730/KAW1Y	MG-IRR	USA
118	Hatcher/Ks03hw12-1//Nudakota	X062245	10.18730/KAV30	MG-IRR	USA
119	Art/Ks990494-11-~O//Ks06o3a~36	KS061426K-1	10.18730/KAVWS	MG-IRR	USA
120	Tx00d1390/Ronl//Ks990159-3-~7	KS060041-M-1	10.18730/KAVZW	MG-IRR	USA
121	Fuller/Overley//Ks980554-12-~9	KS061193K-1	10.18730/KAVYV	MG-IRR	USA
122	Ks061880m-3		10.18730/KAW0X	MG-IRR	USA
123	O3a-B8//Wbll 1*2/Kukun/3/Fuller	KS061278K-1	10.18730/KAVXT	MG-IRR	USA
124	Nd643/2*Waxwing/4/Tam200/Kauz/3/Agri/Bjy//Vee	TCI091080	10.18730/KAT02	MG-SA	TCI
125	Gerek	LC-SA-1	10.18730/KASRZ	MG-SA	TUR
126	Karahan-99	LC-SA-2	10.18730/KAST~	MG-SA	TUR
127	Mufitbey	LC-SA-3	10.18730/KASS*	MG-SA	TUR
128	Sonmez	LC-SA-4	10.18730/KASV\$	MG-SA	TCI
129	Bilinmiyen96.55/7/Zcl/3/Pgfn//Cno67/Sn64/4/Seri/5/ Ua.2837/6/Attila/3*Bcn	TCI071122	10.18730/KAT35	MG-SA	TCI
130	Vorona//Pri/Vee#6/3/Kauz/3/*2/Yaco//Kauz//Pantheon/ Bluegil-2	TCI091623	10.18730/KAT8A	MG-SA	TCI
131	Ca8055/4/Romtast/Bon/3/Dibo//Su92/Ci13645/5/Agri/Bjy// Veas/6/Ks9468/Nwt//Ark/3/Pastor/7/Ye2453//Ppbb68/Chrc	TCI092317	10.18730/KAT46	MG-SA	TCI
132	Tam200/3/F60314.76/Mrl//Cno79/4/84.40022/5/ Agri/Nac//Kauz/3/1d13.1	TCI071150	10.18730/KATAC	MG-SA	TCI
133	Vorona//Milan/Sha7/3/Mv17/4/Atay/Galvez87//Shark-1	TCI091334	10.18730/KAT9B	MG-SA	TCI
134	Temporaleram87*2/4/Hd2281/Trap#1/3/Kauz*2/ Trap//Kauz/5/Steklovidnaya24/6/F10s-1//Stozher/Karl	TCI092011	10.18730/KASXU	MG-SA	TCI
135	Zander-17//Saulesku#26/Parus	TCI051323	10.18730/KAT13	MG-SA	TCI
136	Es14/Sitta//Agri/Nac/5/Trap#1/Yaco/3/Kauz*2/Trap// Kauz/4/Kinaci9127/Id800994.W/Falke	TCI091607	10.18730/KASZ1	MG-SA	TCI
137	Star/Bwd//Atay/Galvez87	TCI071243	10.18730/KASY0	MG-SA	TCI
138	Ks00f5-14-7/Eureka//Zargana-4	TCI072219	10.18730/KAT57	MG-SA	TCI
139	Sultan95/Atilla//Zargana-6	TCI071290	10.18730/KAT79	MG-SA	TCI
140	Shark/F4105w2.1//Chakinskaya306	OCW05S1253S	10.18730/KAT68	MG-SA	TCI
141	Azar2/78zhong291-64	TCI161269	10.18730/KATFH	MG-SA	IRN
142	Spartanka//Pbw343*2/Kukuna	CGWS04WM00059S	10.18730/KATDF	MG-SA	MEX

143	Grk79//Pbw343*2/Kukuna	CGWS05B00064S	10.18730/KATBD	MG-SA	MEX
144	Karlygash*2/Tukuru	CMWS07MI00008T	10.18730/KATEG	MG-SA	MEX
145	Sanzar-8/Tukuru	CGWS04WM00009S	10.18730/KATCE	MG-SA	MEX
146	De9//Inqalab 91*2/Tukuru/3/308.02.2/Weaver//362k2.121	CMSA06WM00070T	10.18730/KAT24	MG-SA	MEX
147	Co050337-2/Byrd	CO11D1353	10.18730/KATNQ	MG-SA	USA
148	Ks061860m-3	TCI161147	10.18730/KATRT	MG-SA	USA
149	Or1/Santa Fe/3/Overley*3/Amadina//Ks990011~27	KS050278M-1	10.18730/KATQS	MG-SA	USA
150	Fuller/Overley//Ks980554-12~9	KS061193K-2	10.18730/KATHK	MG-SA	USA
151	X031102-6-4/Ok00611w//Ks98w0512-2~4	KS061880M-3	10.18730/KATKN	MG-SA	USA
152	Ks090120c*-25	TCI161154	10.18730/KATTW	MG-SA	USA
153	Ks010567-4-2/Ks980512-11	KS060695K-7	10.18730/KATGJ	MG-SA	USA
154	Ars97135-9/O3a-B4//Ks06o3a~49	KS061470K-2	10.18730/KATPR	MG-SA	USA
155	Ks080448*C-102	TCI161153	10.18730/KATSV	MG-SA	USA
156	Ocw00m618s-2b/Ks020482tm~3//Nuhills	KS061705M-11	10.18730/KATMP	MG-SA	USA
157	Ars97135-9/O3a-B4//Ks06o3a~49	KS061470M-4	10.18730/KATJM	MG-SA	USA

Table S2. Names and characteristics of the main morphotypes of *Triticum aestivum* ssp. *aestivum* and *T. turgidum* ssp. *durum*.

Morphotype designation by species†		Status of morphotype traits			
<i>T. aestivum</i> ssp. <i>aestivum</i>	<i>T. turgidum</i> ssp. <i>durum</i>	Presence of awns	Glume pubescence	Glume color	Grain color
<i>albidum</i>	<i>candicans</i>	No	No	White	White
<i>lutescens</i>	<i>schechurdinii</i>	No	No	White	Red
<i>alborubrum</i>	<i>subastrale</i>	No	No	Red	White
<i>milturum</i>	<i>stebutii</i>	No	No	Red	Red
<i>leucospermum</i>	<i>muticovalenciae</i>	No	Yes	White	White
<i>velutinum</i>	<i>muticinazillennse</i>	No	Yes	White	Red
<i>delfi</i>	<i>muticitalicum</i>	No	Yes	Red	White
<i>pyrotrix</i>		No	Yes	Red	Red
<i>greacum</i>	<i>leucurum</i>	Yes	No	White	White
<i>erythrospermum</i>	<i>affine</i>	Yes	No	White	Red
<i>erythroleucon</i>	<i>hordeiforme</i>	Yes	No	Red	White
<i>ferrugineum</i>	<i>murciense</i>	Yes	No	Red	Red
<i>meridionale</i>	<i>valenciae</i>	Yes	Yes	White	White
<i>hostianum</i>	<i>durum</i>	Yes	Yes	White	Red
<i>turcicum</i>	<i>italicum</i>	Yes	Yes	Red	White
<i>barbarossa</i>	<i>aegyptiacum</i>	Yes	Yes	Red	Red

† spikes with black awns will be additionally distinguished by the prefix *pseudo*- added to the morphotype designation.

Table S3. The list of KASP markers used in the study.

#	Gene	Marker ID
1	1RS:1BL	wMAS000011
2	Drought/salinity tolerance	Dreb1_JC_3BL
3	1-feh-w3	1fehw3
4	Ppd-A1	Cdex5-6ID
5	Ppd-A1	GS100-1027ID
6	Ppd-A1	GS105-1117ID
7	Ppd-B1	TaPpdBJ003
8	Ppd-D1	TaPpdDD001
9	Vrn-A1	Exon7_C/T_Vrn-A1
10	Vrn-A1	Vrn1_new
11	Vrn-A1	Vrn-A1_9K0001
12	Vrn-B1	wMAS000036
13	Vrn-B1	wMAS000037
14	Vrn-D1	Vrn-D1-D1a_A
15	PRR-A1	PRR73A1-9IND
16	PRR-B1	PRR73B1-4558
17	Rht-B1	Rht-B1_160IND
18	Rht-B1	Rht-B1_197IND
19	Rht-B1	wMAS000001
20	Rht-D1	Rht-D1_SNP
21	Sus2-2B	wMAS000021
22	TaElf3-B1/Ppd-B2	TaFT3-B1_Kasp1
23	TaElf3-D1	FT3-Exon4_A/G
24	TaMOT1-D1	TaMOT1-D1_KASP1
25	TaTOE1-B1/Ppd-B3	TaTOE1-B1_KASP1
26	ISBW1-ISBW1-GY-QTL-CANDIDATE	wsnp_Ex_c2526_4715978
27	ISBW2-GY-QTL-CANDIDATE	Kukri_c3243_1065
28	ISBW3-BM-QTL-CANDIDATE	TA004946-0577
29	ISBW5-TKW-QTL-CANDIDATE	BS00057445_51
30	ISBW6-GPS-QTL-CANDIDATE	Kukri_c9898_1618
31	ISBW7-GPS-QTL-CANDIDATE	wsnp_Ex_rep_c66324_64493429
32	ISBW9-SM2-QTL-CANDIDATE	Excalibur_c71712_180
33	ISBW10-SM2-QTL-CANDIDATE	BS00076246_51
34	ISBW11-GY-QTL-CANDIDATE	wsnp_Ex_c12812_20324622
35	2DLcQTL-FHB	IWB44589
36	2DLcQTL-FHB	IWB28643
37	Cre8	Cre8_SNP
38	Lr14a	ubw14
39	Lr34	Lr34_TCCIND
40	Lr37/Yr17/Sr38	VPM_SNP
41	Lr46	Lr46_JF2-2A_AL1
42	Lr67	TM4_67

43	Lr68	Lr68-2
44	Lr9	Wsnp1Lr9
45	Nematode resistance	Rlnn1_SNP2_JC
46	Pch1	wMAS000023
47	QTL nematodes	wsnp_BE443588A_Ta_2_1
48	QTL nematodes	RAC875_c13116_943
49	QTL nematodes	Excalibur_c18966_804
50	QTL nematodes	Tdurum_contig10380_87
51	QTL nematodes	wsnp_BE426418A_Ta_2_1
52	QTL nematodes	Tdurum_contig12008_803
53	QTL nematodes	Excalibur_c20277_483
54	QTL nematodes	Tdurum_contig82236_117
55	QTL nematodes	wsnp_Ex_c55245_57821389
56	QTL nematodes	Excalibur_c78724_434
57	QTL nematodes	Bobwhite_rep_c66630_331
58	Sbm1	wMAS000016
59	Sr2	wMAS000005_sr2
60	Sr36/Pm6	wMAS000015_sr36
61	SrCad, Sr42, SrTmp	IWB31561
62	Sr24	Kukri_c22857_496
63	Tsn1	Tsn1
64	Yr57	BS00062676
65	Fhb1	Fhb1_KSU_AL1
66	CWI-4A	CWI_4A_1523
67	TaCKX-D1	TaCKX-D1
68	TaGASR7-A1	TaGASR
69	TaGs3-D1	TaGS-D1
70	TaGS5-A1	GS5-2334-SNP
71	TaSus1-7B	Sus1-7B-2932IND
72	TPP-6A	TPP-6A_AL1
73	Glu-A1	gluA1.1_1594_ALG
74	Glu-A1	gluA1.1_1883_ALA
75	GluD1	Glu-D1d_SNP
76	Pina-D1	Pina-D1_INS
77	Pinb2-V	Pinb2-v2-3
78	Pinb-D1	Pinb-D1_INS
79	Ppo-A1	PPO-A1
80	Ppo-D1	PPO-D1_SNP
81	Psy-A1	PsyA1-IND
82	Tamby-A1	Tamby10-A1
83	Tamby-A1	Tamby10-Nor17
84	Tamby-B1	TamybR B1a-b
85	Tamby-D1	TamybR D1a-b
86	Sr26	Sr26_R-dom_A
87	Sr22	Sr22_A_AL-Sus-T

88	<i>Yr5</i>	Y5/SPKASP3
89	<i>Yr5</i>	Yr5
90	<i>Lr16</i>	kwm849
91	<i>Lr23_BW</i>	<i>sunKASP_16</i>
92	<i>SrCAD</i>	Contig11536236_557_kwm999
93	<i>SrCAD</i>	Contig11536236_558_kwm1000
94	<i>SrCAD</i>	Kukri_rep_c68823_696_kwm987
95	<i>SrCAD</i>	6DS_2105488_5581_kwm907
96	<i>Stb6</i>	cfn80047
97	<i>Stb6</i>	cfn80048
98	<i>Stb6</i>	cfn80050

Table S4. Distribution of WLR and MG according to botanical varieties

Botanical variety	Number of entries in the following material			
	WLR-AFG	WLR-IRN	WLR-TUR	MG
1. <i>Albidum</i>	0	0	0	2
2. <i>Alborubrum</i>	3	0	0	0
3. <i>Erythroleucon</i>	3	2	10	2
4. <i>Erythroleucon-compactoides</i>	1	0	5	0
5. <i>Pseudo-erythroleucon-compactoides</i>	0	0	1	0
6. <i>Erythroleucon-compactum</i>	0	0	3	0
7. <i>Erythrosperum</i>	0	0	3	41
8. <i>Erythrosperum-compactoides</i>	0	0	1	0
9. <i>Erythrosperum-compactum</i>	0	0	1	0
10. <i>Ferrugineum</i>	0	4	6	4
11. <i>Pseudo-ferrugineum</i>	0	0	2	0
12. <i>Ferrugineum-compactoides</i>	0	0	5	0
13. <i>Ferrugineum-compactum</i>	0	0	1	0
14. <i>Greacum</i>	4	11	4	20
15. <i>Sub-greacum</i>	1	0	0	0
16. <i>Pseudo-greacum</i>	3	1	0	0
17. <i>Greacum-compactum</i>	0	0	2	0
18. <i>Pseudo-greacum-compactum</i>	0	0	1	0
19. <i>Leucopersicum</i>	5	0	0	0
20. <i>Lutescens</i>	0	0	0	4
21. <i>Meridionale</i>	0	1	0	0
Total number of botanical varieties	7	5	14	6

Table S5. Agronomic parameters of wheat landraces and modern germplasm tested in Afghanistan, Iran and Turkey, 2018-2019.

Trait	Country, year	Wheat landraces (WLR)			Modern germplasm (MG)		All	
		AFG	IRN	TUR	IRR	SA	WLR	MG
Number of genotypes		20	19	45	39	34	84	73
Days to heading from Jan. 1	AFG-19	129	131	138	130	129	134	129
	TUR-18	120	118	123	121	120	121	121
	TUR-19	137	139	143	140	140	141	140
	Mean	129	129	135	130	130	132	130
Plant height, cm	AFG-19	108	103	109	101	104	107	103
	TUR-18	83	69	63	46	61	69	54
	TUR-19	105	99	99	83	91	100	88
	Mean	99	90	90	77	85	92	82
Stripe rust, %	AFG-19	20.5	28.2	25.9	14.0	12.3	25.1	14.7
	TUR-18	45.8	45.0	34.3	6.4	4.2	32.3	5.5
	Mean	33.2	36.6	30.1	10.2	8.3	28.7	10.1
Leaf rust, %	TUR-18	62.5	72.6	55.6	20.3	20.3	61.1	23.8
	TUR-19	51.5	51.1	52.7	33.1	32.2	52.0	34.5
	Mean	57.0	61.9	54.2	26.7	26.3	56.6	29.2
Lodging, %	TUR-19	64.3	94.2	74.0	1.5	1.3	76.2	1.9
Grain yield, kg/ha	AFG-19	3529	2626	3158	3422	3782	3126	3574
	IRN-19	1832	2222	2180	-	2050	2078	2050
	TUR-18	2825	2724	2033	1574	2414	2378	2073
	TUR-19	3749	3747	3355	4562	4541	3538	4576
	Mean	3327	3090	2976	3221	3519	3084	3381
Spikes/0.25 m ²	TUR-19	153	205	174	148	152	175	149
Spike length, cm	TUR-18	9.3	8.1	6.6	7.3	8.6	7.5	8.0
	TUR-19	8.1	8.3	7.0	8.5	8.2	7.6	8.3
	Mean	8.7	8.2	6.8	7.9	8.4	7.5	8.1
Spikelets/spike	TUR-18	17.9	13.5	13.8	15.6	17.7	14.6	16.6
	TUR-19	16.6	15.5	15.8	18.4	18.6	16.0	18.4
	Mean	17.3	14.5	14.8	17.0	18.2	15.3	17.5
% of sterile spikelets	TUR-18	9.1	18.8	22.0	19.7	11.2	18.5	15.0
	TUR-19	19.4	27.9	26.0	19.0	20.2	24.9	19.6
	Mean	14.3	23.4	24.0	19.4	15.7	21.7	17.3
Grains/spike	TUR-18	37.2	18.4	17.2	24.2	35.7	21.7	30.3
	TUR-19	18.3	13.0	12.8	22.3	22.0	14.2	22.2
	Mean	27.8	15.7	15.0	23.3	28.9	18.0	26.3
1000 kernel weight, gr	IRN-19	34.6	36.3	35.0	-	31.7	35.2	32.3
	TUR-18	44.3	48.6	41.8	35.2	35.5	44.0	35.5
	TUR-19	34.3	37.1	32.0	29.6	29.2	33.7	29.7
	Mean	37.7	40.7	36.3	32.5	32.1	38.8	32.6

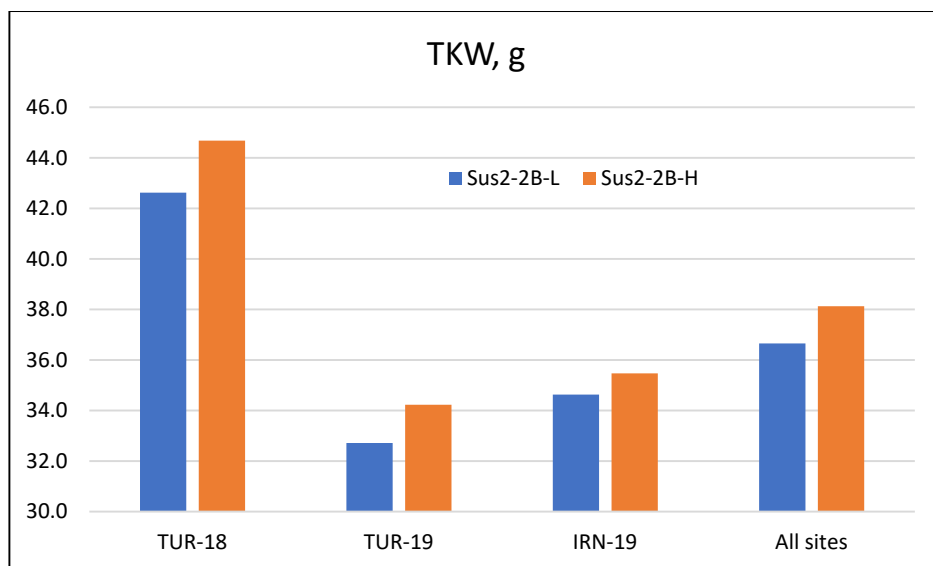


Figure S1. 1000 kernel weight of wheat landraces possessing different Sus2-2B alleles.