

ESM1. Origin and data obtained for the all accessions of rivet wheat (*Triticum turgidum* ssp. *turgidum*)

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
BGE 012534	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 012555	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Medium	Yellow
BGE 012557	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Yellow
BGE 013074	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Red
BGE 013076	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013077	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013078	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 013079	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 013081	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 013083	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thick	Yellow
BGE 013084	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 013089	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013090	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013091	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Red
BGE 013093	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	White
BGE 013096	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thick	Yellow
BGE 013097	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Medium	Yellow
BGE 013099	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Red
BGE 013100	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Blue
BGE 013101	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013103	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Red
BGE 013717	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thick	Red
BGE 013718	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Blue
BGE 013719	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thick	Red
BGE 013721	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 013722	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013724	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Yellow
BGE 013725	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 013726	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 013729	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Medium	Yellow
BGE 013733	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Red
BGE 013735	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Fusiform	Thin	Yellow
BGE 018620	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 018621	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Medium	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
BGE 018622	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 018625	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Blue
BGE 018626	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 018627	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Red
BGE 018628	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Red
BGE 018643	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thin	Red
BGE 018653	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Red
BGE 018655	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Yellow
BGE 018677	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thick	Yellow
BGE 018678	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Thick	Yellow
BGE 019290	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Thin	Yellow
BGE 019291	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Parallel sides	Medium	Red
BGE 020946	Spain	Centro de Recursos Fitogeneticos INIA (Alcala de Henares, Spain)	Tapering	Medium	Red
Cltr 3270	China	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 4577	Georgia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
Cltr 5988	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
Cltr 7505	Egypt	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
Cltr 7519	Egypt	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7772	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7774	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7778	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7785	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
Cltr 7786	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7795	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7796	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7798	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 7809	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7810	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 7833	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 7839	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
Cltr 7840	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7841	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
Cltr 7859	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 7863	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 7864	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 7871	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
Cltr 7875	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
Cltr 7881	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
Cltr 7945	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
Cltr 8000	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 8055	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 8090	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
Cltr 8098	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
Cltr 8099	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 8109	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
Cltr 8115	China	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 8481	Australia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Blue
Cltr 13712	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
Cltr 14445	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 14625	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
Cltr 14743	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
Cltr 14795	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
Cltr 14863	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
Cltr 17714	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	White
PI 134946	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 134947	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 134948	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 134949	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 134951	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 134952	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 134953	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 134955	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 134956	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 134957	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 134960	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 134961	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 134962	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 166484	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 166496	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 166591	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 167867	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 185723	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 185724	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 185728	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 185734	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 190932	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 190948	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 190978	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 191015	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 191104	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 191145	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 191203	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 191204	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 191353	Ukraine	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 191445	Spain	National Small Grain Collection (Aberdeen, USA)	Fusiform	Medium	Yellow
PI 191534	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 191579	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 191871	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 191951	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 191952	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 191953	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 192050	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 192520	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 212835	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 221423	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Red
PI 221424	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 221425	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 223173	Jordan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 225308	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 225309	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 245666	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 245751	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 264954	Italy	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 264995	Grecian	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 265016	Grecian	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 266851	United Kingdom	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 266906	Portugal	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 272584	Hungary	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 272592	Hungary	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 278221	United Kingdom	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 278596	Croatia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Red
PI 278597	Croatia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 290526	Hungary	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 290527	Hungary	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 290528	Hungary	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 294568	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 294574	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 295011	Bulgaria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 295012	Bulgaria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 295043	Bulgaria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 295071	Bulgaria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 297859	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 297860	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 297862	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 306559	Romania	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 306560	Romania	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 323440	Austria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 330560	United Kingdom	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 331258	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 341283	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 341300	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	White
PI 341391	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	White
PI 341482	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 345413	Bosnia-Herzegovina	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 347134	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 347136	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 347137	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 349056	Armenia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 349057	Georgia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Blue
PI 349058	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 349059	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 349060	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 350154	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 350207	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 350208	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 352351	Asia minor	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 352516	France	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352518	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352520	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352521	Spain	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 352526	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 352527	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 352528	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 352530	Spain	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Red
PI 352531	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 352532	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352533	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 352534	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352535	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 352536	France	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 352538	United Kingdom	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 352539	France	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 352540	Romania	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Blue
PI 352541	Germany	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 352542	France	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 352544	Switzerland	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Red
PI 352545	France	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 352547	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Blue
PI 352549	Italy	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Blue
PI 352550	Greece	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 361804	Denmark	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 361838	Denmark	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 362657	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 362703	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 367168	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 372447	Cyprus	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Blue
PI 372456	Cyprus	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Blue
PI 372458	Cyprus	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 372459	Cyprus	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Blue
PI 372460	Cyprus	National Small Grain Collection (Aberdeen, USA)	Fusiform	Medium	Blue
PI 372461	Cyprus	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 372462	Cyprus	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 372495	Greece	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 372496	Greece	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White
PI 372499	Greece	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 374590	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 374592	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 374618	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 374620	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 374655	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 374656	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 374660	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 377637	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 377674	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 377675	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 377676	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Red
PI 378347	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378377	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 378378	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 378383	Macedonia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Red
PI 378384	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378389	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 378390	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 378419	Macedonia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	White
PI 378420	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 378442	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 378454	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378459	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378463	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378468	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378473	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378481	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378499	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 378502	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White
PI 378503	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378508	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	White
PI 378510	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 378515	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Blue
PI 387274	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 387336	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 387498	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 387520	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 388223	Pakistan	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 390349	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 390350	Macedonia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 415464	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White
PI 415465	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 415471	Macedonia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 428378	Morocco	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Red
PI 435002	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thick	Yellow
PI 435005	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 435006	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 435007	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	White
PI 435012	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 435014	Former Yugoslavia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White
PI 438971	Kazakhstan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 470788	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 479909	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
PI 479934	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 479946	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 479962	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 480028	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 480041	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 480042	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 480058	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 480167	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 480252	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 480269	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 480328	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 520175	Bulgaria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 525375	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 525376	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Blue
PI 525377	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Blue
PI 525406	Morocco	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Blue
PI 525407	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 525431	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 532078	Egypt	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 532303	Oman	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 542664	Argelia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Red
PI 559977	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	White
PI 565432	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 572918	China	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 572919	China	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 572923	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 585014	Uzbekistan	National Small Grain Collection (Aberdeen, USA)	Clavate	Medium	Red
PI 585194	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 591967	Russian Federation	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 591968	Russian Federation	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Red
PI 620943	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 620944	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 620972	Iran	National Small Grain Collection (Aberdeen, USA)	Clavate	Thick	Yellow
PI 620973	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Red
PI 623927	Iran	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 623928	Iran	National Small Grain Collection (Aberdeen, USA)	Clavate	Thin	Yellow
PI 624057	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 624457	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 624691	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 624726	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Red
PI 624727	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow

ESM1. Origin and data obtained for the all accessions of rivet wheat (*Triticum turgidum* ssp. *turgidum*) - Continuation-

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
BGE 012534	No	Yes	Yellow	No	Straight	Short
BGE 012555	Yes	Yes	Yellow	No	Straight	Extremely long
BGE 012557	Yes	Yes	Black	No	Moderately curved	Medium
BGE 013074	No	Yes	Red	No	Straight	Short
BGE 013076	No	Yes	Yellow	No	Straight	Short
BGE 013077	No	Yes	Yellow	No	Moderately curved	Short
BGE 013078	No	Yes	Yellow	No	Straight	Medium
BGE 013079	No	Yes	Yellow	No	Straight	Medium
BGE 013081	No	Yes	Yellow	No	Moderately curved	Medium
BGE 013083	No	Yes	Yellow	No	Straight	Short
BGE 013084	No	Yes	Yellow	No	Moderately curved	Long
BGE 013089	No	Yes	Yellow	No	Moderately curved	Medium
BGE 013090	No	Yes	Black	No	Moderately curved	Medium
BGE 013091	No	Yes	Red	No	Straight	Short
BGE 013093	Yes	Yes	White	No	Straight	Short
BGE 013096	Yes	Yes	Black	No	Moderately curved	Long
BGE 013097	Yes	Yes	Black	No	Moderately curved	Long
BGE 013099	Yes	Yes	Black	No	Moderately curved	Medium
BGE 013100	Yes	Yes	Yellow	No	Moderately curved	Short
BGE 013101	Yes	Yes	Yellow	No	Straight	Short
BGE 013103	Yes	Yes	Black	Yes	Moderately curved	Long
BGE 013717	No	Yes	Red	No	Straight	Long
BGE 013718	No	Yes	Yellow	No	Straight	Medium
BGE 013719	No	Yes	Red	No	Moderately curved	Short
BGE 013721	No	Yes	Black	No	Moderately curved	Medium
BGE 013722	No	Yes	Yellow	No	Straight	Long
BGE 013724	Yes	Yes	Yellow	No	Moderately curved	Medium
BGE 013725	Yes	Yes	Black	No	Straight	Long
BGE 013726	No	Yes	Yellow	No	Straight	Long
BGE 013729	No	Yes	Yellow	No	Straight	Long
BGE 013733	Yes	Yes	Red	No	Moderately curved	Long
BGE 013735	No	Yes	Yellow	No	Moderately curved	Long
BGE 018620	No	Yes	Yellow	No	Moderately curved	Short
BGE 018621	No	Yes	Yellow	No	Straight	Long
BGE 018622	No	Yes	Yellow	No	Straight	Medium
BGE 018625	No	Yes	Yellow	No	Moderately curved	Medium

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
BGE 018626	No	Yes	Yellow	No	Moderately curved	Short
BGE 018627	Yes	Yes	Red	No	Straight	Long
BGE 018628	Yes	Yes	Red	No	Straight	Long
BGE 018643	Yes	Yes	Red	No	Straight	Short
BGE 018653	No	Yes	Red	No	Straight	Short
BGE 018655	No	Yes	Yellow	No	Moderately curved	Long
BGE 018677	Yes	Yes	Black	No	Moderately curved	Long
BGE 018678	Yes	Yes	Yellow	No	Straight	Long
BGE 019290	No	Yes	Yellow	No	Straight	Long
BGE 019291	No	Yes	Red	No	Straight	Medium
BGE 020946	Yes	Yes	Yellow	No	Moderately curved	Medium
Cltr 3270	No	Yes	Yellow	No	Moderately curved	Short
Cltr 4577	No	Yes	Black	No	Moderately curved	Medium
Cltr 5988	No	Yes	Black	No	Straight	Short
Cltr 7505	Yes	Yes	Red	No	Straight	Short
Cltr 7519	No	Yes	Yellow	No	Curved	Long
Cltr 7772	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7774	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7778	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7785	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7786	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 7795	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7796	Yes	Yes	Yellow	No	Straight	Short
Cltr 7798	Yes	Yes	Yellow	No	Moderately curved	Short
Cltr 7809	No	Yes	Yellow	No	Curved	Long
Cltr 7810	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 7833	Yes	Yes	Yellow	No	Straight	Short
Cltr 7839	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 7840	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7841	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7859	No	Yes	Yellow	No	Moderately curved	Short
Cltr 7863	Yes	Yes	Yellow	No	Straight	Short
Cltr 7864	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 7871	No	Yes	Red	No	Curved	Long
Cltr 7875	No	Yes	Red	No	Straight	Short
Cltr 7881	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 7945	No	Yes	Black	No	Curved	Long
Cltr 8000	No	Yes	Yellow	No	Straight	Long

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
Cltr 8055	No	Scurs	Yellow	No	Curved	Long
Cltr 8090	No	Yes	Red	No	Moderately curved	Long
Cltr 8098	No	Yes	Red	No	Moderately curved	Short
Cltr 8099	Yes	Yes	Yellow	No	Straight	Long
Cltr 8109	No	Yes	Yellow	No	Curved	Long
Cltr 8115	No	Yes	Yellow	No	Moderately curved	Medium
Cltr 8481	No	Yes	No	No	Curved	Long
Cltr 13712	No	Yes	Red	No	Straight	Short
Cltr 14445	No	Yes	Yellow	No	Moderately curved	Long
Cltr 14625	No	Yes	Yellow	No	Straight	Short
Cltr 14743	Yes	Yes	Red	No	Straight	Long
Cltr 14795	Yes	Yes	Red	No	Moderately curved	Long
Cltr 14863	No	Yes	Yellow	No	Moderately curved	Extremely long
Cltr 17714	No	Yes	White	No	Straight	Medium
PI 134946	Yes	Yes	Yellow	No	Moderately curved	Long
PI 134947	No	Yes	Red	No	Straight	Long
PI 134948	No	Yes	Red	No	Straight	Medium
PI 134949	Yes	Yes	Red	No	Straight	Short
PI 134951	Yes	Yes	Yellow	No	Moderately curved	Short
PI 134952	No	Yes	Yellow	No	Straight	Long
PI 134953	No	Yes	Yellow	No	Straight	Long
PI 134955	No	Yes	Red	No	Moderately curved	Long
PI 134956	No	Yes	Yellow	No	Moderately curved	Short
PI 134957	No	Yes	Black	No	Moderately curved	Long
PI 134960	Yes	Yes	Yellow	No	Straight	Medium
PI 134961	Yes	Yes	Yellow	No	Moderately curved	Short
PI 134962	No	Yes	Red	No	Moderately curved	Medium
PI 166484	No	Yes	Yellow	No	Curved	Long
PI 166496	No	Yes	Yellow	No	Moderately curved	Short
PI 166591	No	Yes	Yellow	No	Moderately curved	Long
PI 167867	Yes	Yes	Yellow	No	Straight	Medium
PI 185723	No	Yes	Yellow	No	Moderately curved	Medium
PI 185724	No	Yes	Yellow	No	Straight	Extremely long
PI 185728	No	Yes	Yellow	No	Moderately curved	Medium
PI 185734	Yes	Yes	Red	No	Straight	Short
PI 190932	No	Scurs	Yellow	No	Moderately curved	Short
PI 190948	Yes	Yes	Yellow	No	Moderately curved	Short
PI 190978	No	Yes	Red	No	Straight	Short

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 191015	Yes	Yes	Yellow	No	Moderately curved	Medium
PI 191104	Yes	Yes	Yellow	No	Moderately curved	Medium
PI 191145	Yes	Yes	Yellow	No	Moderately curved	Short
PI 191203	No	Yes	Yellow	No	Straight	Short
PI 191204	No	Yes	Yellow	No	Moderately curved	Long
PI 191353	Yes	Yes	Red	No	Straight	Long
PI 191445	No	Yes	Black	No	Moderately curved	Long
PI 191534	No	Yes	Yellow	No	Straight	Short
PI 191579	No	Yes	Red	No	Straight	Short
PI 191871	Yes	Yes	Yellow	No	Straight	Long
PI 191951	No	Yes	Yellow	No	Straight	Long
PI 191952	No	Yes	Yellow	No	Moderately curved	Long
PI 191953	No	Yes	Yellow	No	Moderately curved	Long
PI 192050	Yes	Yes	Yellow	No	Moderately curved	Medium
PI 192520	No	Yes	Yellow	No	Straight	Short
PI 212835	Yes	Yes	Yellow	No	Curved	Medium
PI 221423	No	Yes	Yellow	No	Straight	Medium
PI 221424	No	Yes	Red	No	Straight	Long
PI 221425	No	Yes	Yellow	No	Moderately curved	Long
PI 223173	No	Yes	Black	No	Straight	Short
PI 225308	No	Yes	Black	No	Straight	Short
PI 225309	No	Yes	Yellow	No	Straight	Short
PI 245666	Yes	Yes	Red	No	Straight	Short
PI 245751	Yes	Yes	Yellow	No	Straight	Short
PI 264954	No	Yes	Yellow	No	Straight	Long
PI 264995	No	Yes	Yellow	No	Straight	Short
PI 265016	No	Yes	Yellow	No	Moderately curved	Medium
PI 266851	Yes	Yes	Blue	No	Moderately curved	Short
PI 266906	No	Yes	Yellow	No	Moderately curved	Long
PI 272584	No	Yes	Yellow	No	Straight	Long
PI 272592	No	Yes	Yellow	No	Straight	Short
PI 278221	Yes	Yes	Red	No	Straight	Long
PI 278596	No	Yes	Black	No	Straight	Short
PI 278597	No	Yes	Yellow	No	Straight	Short
PI 290526	Yes	Yes	Yellow	No	Straight	Long
PI 290527	Yes	Yes	Yellow	No	Straight	Short
PI 290528	Yes	Yes	Red	No	Straight	Medium
PI 294568	Yes	Yes	Yellow	No	Straight	Long

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 294574	Yes	Yes	Red	No	Straight	Medium
PI 295011	No	Yes	Yellow	No	Straight	Long
PI 295012	No	Yes	Yellow	No	Moderately curved	Medium
PI 295043	Yes	Yes	Yellow	No	Straight	Long
PI 295071	Yes	Yes	Red	No	Moderately curved	Short
PI 297859	No	Yes	Yellow	No	Straight	Short
PI 297860	No	Yes	Yellow	No	Moderately curved	Short
PI 297862	No	Yes	Yellow	No	Moderately curved	Medium
PI 306559	No	Yes	Yellow	No	Straight	Short
PI 306560	No	Yes	Red	No	Straight	Medium
PI 323440	No	Yes	Yellow	No	Moderately curved	Medium
PI 330560	No	Yes	Red	No	Straight	Short
PI 331258	No	Yes	Yellow	No	Moderately curved	Medium
PI 341283	No	Yes	Yellow	No	Straight	Short
PI 341300	No	Yes	White	No	Straight	Medium
PI 341391	No	Yes	White	No	Moderately curved	Medium
PI 341482	No	Yes	Black	No	Straight	Short
PI 345413	Yes	Yes	Yellow	No	Straight	Short
PI 347134	No	Yes	Yellow	No	Moderately curved	Medium
PI 347136	Yes	Yes	Black	No	Moderately curved	Long
PI 347137	No	Yes	Yellow	No	Moderately curved	Long
PI 349056	No	Yes	Yellow	No	Straight	Short
PI 349057	No	Yes	Black	No	Moderately curved	Medium
PI 349058	No	Yes	Black	No	Straight	Long
PI 349059	No	Yes	Yellow	No	Moderately curved	Medium
PI 349060	No	Yes	Yellow	No	Straight	Long
PI 350154	No	Yes	Yellow	No	Moderately curved	Long
PI 350207	Yes	Yes	Black	No	Moderately curved	Medium
PI 350208	No	Yes	Yellow	No	Straight	Long
PI 352351	No	No	No	No	Curved	Medium
PI 352516	Yes	Yes	Red	No	Straight	Extremely long
PI 352518	Yes	Yes	Red	No	Straight	Long
PI 352520	Yes	Yes	Yellow	No	Straight	Extremely long
PI 352521	Yes	Yes	Yellow	No	Straight	Short
PI 352526	Yes	Yes	Red	No	Moderately curved	Short
PI 352527	No	Yes	Yellow	No	Straight	Short
PI 352528	No	Yes	Red	No	Straight	Short
PI 352530	No	Yes	Red	No	Straight	Medium

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 352531	No	Yes	Yellow	No	Straight	Medium
PI 352532	Yes	Yes	Red	No	Moderately curved	Long
PI 352533	Yes	Yes	Blue	No	Straight	Short
PI 352534	Yes	Yes	Red	No	Moderately curved	Medium
PI 352535	No	Yes	Red	No	Straight	Medium
PI 352536	Yes	Yes	Red	No	Straight	Short
PI 352538	Yes	Yes	Black	No	Straight	Long
PI 352539	No	Yes	Yellow	No	Straight	Medium
PI 352540	Yes	Yes	Blue	No	Moderately curved	Extremely long
PI 352541	Yes	Yes	Black	No	Straight	Short
PI 352542	Yes	Yes	Red	No	Moderately curved	Short
PI 352544	Yes	Yes	Red	No	Moderately curved	Medium
PI 352545	Yes	Yes	Red	No	Straight	Short
PI 352547	No	Yes	Blue	No	Straight	Medium
PI 352549	Yes	Yes	Blue	No	Moderately curved	Short
PI 352550	Yes	Yes	Black	No	Straight	Extremely long
PI 361804	Yes	Yes	Black	No	Straight	Short
PI 361838	No	Yes	Black	No	Moderately curved	Medium
PI 362657	No	Yes	Red	No	Straight	Long
PI 362703	No	Yes	Red	No	Moderately curved	Medium
PI 367168	No	Yes	Yellow	No	Moderately curved	Medium
PI 372447	No	Yes	Blue	No	Straight	Short
PI 372456	No	Yes	Blue	No	Moderately curved	Long
PI 372458	No	Yes	Yellow	No	Straight	Short
PI 372459	No	Yes	Black	No	Straight	Extremely long
PI 372460	No	Yes	Black	No	Moderately curved	Medium
PI 372461	No	Yes	Black	No	Moderately curved	Medium
PI 372462	No	Yes	Black	No	Moderately curved	Long
PI 372495	Yes	Yes	Black	No	Moderately curved	Medium
PI 372496	No	Yes	White	No	Straight	Short
PI 372499	No	Yes	Yellow	No	Moderately curved	Extremely long
PI 374590	No	Yes	Black	No	Straight	Short
PI 374592	No	Yes	Black	No	Straight	Long
PI 374618	No	Yes	Black	No	Straight	Short
PI 374620	No	Yes	Black	No	Straight	Long
PI 374655	No	Yes	White	No	Straight	Short
PI 374656	No	Yes	Black	No	Straight	Long
PI 374660	No	Yes	Black	No	Straight	Long

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 377637	No	Yes	Black	No	Straight	Medium
PI 377674	No	Yes	Red	No	Straight	Extremely long
PI 377675	No	Yes	Black	No	Straight	Medium
PI 377676	No	Yes	Red	No	Straight	Long
PI 378347	No	Yes	Red	No	Straight	Medium
PI 378377	No	Yes	Black	No	Moderately curved	Medium
PI 378378	No	Yes	Blue	No	Straight	Medium
PI 378383	No	Yes	Black	No	Straight	Medium
PI 378384	No	Yes	Black	No	Straight	Extremely long
PI 378389	Yes	Yes	Black	No	Curved	Medium
PI 378390	Yes	Yes	Black	No	Straight	Medium
PI 378419	No	Yes	White	No	Moderately curved	Short
PI 378420	No	Yes	Black	No	Straight	Short
PI 378442	No	Yes	Black	No	Straight	Extremely long
PI 378454	No	Yes	Black	No	Straight	Medium
PI 378459	No	Yes	Black	No	Straight	Long
PI 378463	No	Yes	Black	No	Straight	Long
PI 378468	No	Yes	Black	No	Moderately curved	Long
PI 378473	No	Yes	Black	No	Straight	Medium
PI 378481	No	Yes	Black	No	Moderately curved	Long
PI 378499	No	Yes	Black	No	Straight	Long
PI 378502	No	Yes	White	No	Straight	Short
PI 378503	No	Yes	Black	No	Straight	Medium
PI 378508	No	Yes	White	No	Straight	Short
PI 378510	No	Yes	Black	No	Straight	Long
PI 378515	No	Yes	Black	No	Straight	Short
PI 387274	No	Yes	Yellow	No	Moderately curved	Short
PI 387336	No	Yes	Yellow	No	Straight	Medium
PI 387498	No	Scurs	Yellow	No	Moderately curved	Medium
PI 387520	No	Yes	Yellow	No	Curved	Medium
PI 388223	Yes	Yes	Yellow	No	Moderately curved	Short
PI 390349	No	Yes	Yellow	No	Straight	Medium
PI 390350	No	Yes	Black	No	Straight	Long
PI 415464	No	Yes	White	No	Straight	Long
PI 415465	No	Yes	Black	No	Straight	Long
PI 415471	No	Yes	Black	No	Straight	Long
PI 428378	No	Yes	Red	No	Moderately curved	Long
PI 435002	No	Yes	Black	No	Straight	Short

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 435005	No	Yes	Yellow	No	Straight	Short
PI 435006	No	Yes	Yellow	No	Straight	Short
PI 435007	No	Yes	Black	No	Straight	Short
PI 435012	No	Yes	Black	No	Straight	Short
PI 435014	No	Yes	Black	No	Straight	Short
PI 438971	No	Yes	Black	No	Straight	Short
PI 470788	No	Yes	Yellow	No	Curved	Medium
PI 479909	No	Yes	Yellow	No	Straight	Extremely long
PI 479934	No	Yes	Yellow	No	Straight	Extremely long
PI 479946	No	Yes	Yellow	No	Straight	Extremely long
PI 479962	No	Yes	Yellow	No	Straight	Short
PI 480028	No	Yes	Yellow	No	Curved	Medium
PI 480041	No	Yes	Yellow	No	Moderately curved	Medium
PI 480042	No	Yes	Yellow	No	Straight	Short
PI 480058	No	Yes	Yellow	No	Moderately curved	Short
PI 480167	No	Yes	Red	No	Straight	Extremely long
PI 480252	No	Yes	Yellow	No	Moderately curved	Extremely long
PI 480269	No	Yes	Yellow	No	Moderately curved	Extremely long
PI 480328	No	Yes	Yellow	No	Moderately curved	Long
PI 520175	No	Yes	Yellow	No	Moderately curved	Short
PI 525375	No	Yes	Black	No	Moderately curved	Medium
PI 525376	No	Yes	Black	No	Moderately curved	Medium
PI 525377	No	Yes	Blue	No	Straight	Medium
PI 525406	No	Yes	Black	No	Straight	Short
PI 525407	No	Yes	Yellow	No	Moderately curved	Long
PI 525431	No	Yes	Black	No	Straight	Long
PI 532078	Yes	Yes	Black	No	Straight	Long
PI 532303	No	Yes	Yellow	No	Moderately curved	Short
PI 542664	No	Yes	Red	No	Moderately curved	Short
PI 559977	No	Yes	White	No	Curved	Long
PI 565432	Yes	Yes	Red	No	Moderately curved	Short
PI 572918	No	Yes	Black	No	Straight	Short
PI 572919	Yes	Yes	Black	No	Straight	Short
PI 572923	No	Yes	Black	No	Moderately curved	Long
PI 585014	No	Yes	Yellow	No	Moderately curved	Long
PI 585194	No	Yes	Red	No	Curved	Medium
PI 591967	Yes	Yes	Red	No	Moderately curved	Medium
PI 591968	No	Yes	Red	No	Moderately curved	Medium

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 620943	Yes	Yes	Yellow	No	Straight	Extremely long
PI 620944	Yes	Yes	Black	No	Straight	Short
PI 620972	Yes	Yes	Black	No	Straight	Short
PI 620973	Yes	Yes	Red	No	Straight	Short
PI 623927	No	Yes	Black	No	Straight	Short
PI 623928	No	Yes	Black	No	Straight	Short
PI 624057	No	Yes	Black	No	Straight	Short
PI 624457	No	Yes	Yellow	No	Moderately curved	Short
PI 624691	No	Yes	Yellow	No	Straight	Short
PI 624726	No	Yes	Red	No	Straight	Short
PI 624727	No	Yes	Yellow	No	Straight	Short

ESM1. Origin and data obtained for the all accessions of rivet wheat (*Triticum turgidum* ssp. *turgidum*) -Continuation-

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
BGE 012534	Sloping	Long	White	Long	Yes	2*	6+8	6
BGE 012555	Sloping	Short	Red	Long	Yes	1	6+8	5
BGE 012557	Sloping	Long	White	Short	No	2*	7+8	23
BGE 013074	Sloping	Short	White	Long	Yes	2*	6+8	6
BGE 013076	Straight	Short	White	Short	Yes	2*	17'+18'	6
BGE 013077	Sloping	Short	White	Long	Yes	2*	17'+18'	6
BGE 013078	Elevated	Short	White	Long	No	1	6+8	7
BGE 013079	Sloping	Short	White	Short	No	2*	17'+18'	28
BGE 013081	Straight	Short	Red	Short	No	2'	13+16	8
BGE 013083	Sloping	Short	White	Short	No	2'	13+16	24
BGE 013084	Sloping	Short	Red	Short	Yes	1	6+8	10
BGE 013089	Straight	Short	Red	Short	Yes	2*	6	23
BGE 013090	Sloping	Short	White	Short	Yes	1	13**+8*	31
BGE 013091	Sloping	Long	White	Long	No	Null	6+8	11
BGE 013093	Sloping	Short	Red	Short	No	1	6+8	32
BGE 013096	Sloping	Short	Red	Short	No	1	6+8	25
BGE 013097	Sloping	Short	White	Long	No	2*	7+8	15
BGE 013099	Straight	Short	White	Long	No	2*	7	15
BGE 013100	Sloping	Short	Red	Short	No	1	6+8	1
BGE 013101	Sloping	Short	Red	Long	No	1	6+8	1
BGE 013103	Elevated	Short	White	Long	No	2*	7	17
BGE 013717	Sloping	Long	White	Long	Yes	1	6+8	10
BGE 013718	Sloping	Short	Red	Long	Yes	1	7+8	23
BGE 013719	Sloping	Short	Red	Long	No	1	6+8	7
BGE 013721	Sloping	Short	White	Short	No	1	13**+8*	31
BGE 013722	Straight	Long	Red	Short	No	2*	17'+18'	29
BGE 013724	Sloping	Short	Red	Long	Yes	1	6+8	2
BGE 013725	Sloping	Short	Red	Short	No	2'	6+8	25
BGE 013726	Sloping	Short	Red	Long	Yes	1	6+8	18
BGE 013729	Sloping	Long	White	Short	No	1	7+8	15
BGE 013733	Sloping	Short	Red	Long	No	1	7+8	3
BGE 013735	Sloping	Short	Red	Long	Yes	1	6+8	12
BGE 018620	Sloping	Short	White	Short	No	1	6+8	13
BGE 018621	Sloping	Long	White	Short	Yes	2'	13+16	19
BGE 018622	Sloping	Short	Red	Short	Yes	2*	13+16	19
BGE 018625	Straight	Long	White	Long	No	2*	6+8	5

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
BGE 018626	Straight	Short	Red	Short	No	2*	6+8	14
BGE 018627	Straight	Long	White	Long	No	2*	6+8	9
BGE 018628	Straight	Long	Red	Short	No	2*	6+8	20
BGE 018643	Sloping	Long	Red	Long	Yes	1	7+8	4
BGE 018653	Sloping	Long	White	Long	Yes	2*	17'+18'	6
BGE 018655	Sloping	Long	Red	Long	No	2*	6+8	21
BGE 018677	Straight	Short	White	Long	Yes	Null	6+8	7
BGE 018678	Elevated	Short	White	Long	No	2*	6+8	24
BGE 019290	Straight	Short	Red	Long	No	Null	6	16
BGE 019291	Straight	Short	Red	Long	No	2*	17'+18'	28
BGE 020946	Straight	Short	White	Long	No	2*	7+8	15
Cltr 3270	Sloping	Short	White	Long	No	2"	17'+18'	36
Cltr 4577	Straight	Long	White	Long	Yes	2'	17'+18'	49
Cltr 5988	Sloping	Short	White	Short	No	2'	17'+18'	6
Cltr 7505	Sloping	Short	White	Short	Yes	2"	7	7
Cltr 7519	Sloping	Short	White	Long	No	2*	7+8	57
Cltr 7772	Sloping	Short	White	Short	No	Null	7+8	41
Cltr 7774	Sloping	Short	Red	Short	No	Null	7+8	41
Cltr 7778	Sloping	Short	Red	Short	No	Null	7+8	41
Cltr 7785	Sloping	Short	Red	Short	No	Null	20	41
Cltr 7786	Sloping	Short	Red	Short	Yes	Null	20	33
Cltr 7795	Elevated	Short	Red	Short	No	Null	20	41
Cltr 7796	Straight	Short	Red	Long	No	Null	7+8	7
Cltr 7798	Sloping	Short	White	Short	No	Null	7+8	36
Cltr 7809	Sloping	Short	Red	Long	Yes	Null	7+8	58
Cltr 7810	Sloping	Short	White	Long	Yes	Null	7+8	41
Cltr 7833	Sloping	Short	Red	Short	No	Null	7+8	37
Cltr 7839	Elevated	Short	Red	Short	No	Null	7+8	54
Cltr 7840	Sloping	Short	Red	Short	No	Null	7+8	41
Cltr 7841	Sloping	Short	Red	Short	No	Null	7+8	41
Cltr 7859	Straight	Short	Red	Long	No	Null	7+8	55
Cltr 7863	Sloping	Long	Red	Long	No	Null	7+8	57
Cltr 7864	Sloping	Short	Red	Short	No	Null	7+8	41
Cltr 7871	Sloping	Short	Red	Long	Yes	Null	7+8	37
Cltr 7875	Straight	Short	Red	Short	No	Null	7+8	41
Cltr 7881	Sloping	Short	Red	Short	No	Null	7+8	58
Cltr 7945	Straight	Short	Red	Short	No	2"	20	57
Cltr 8000	Sloping	Long	White	Short	Yes	2"	20	39

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
Cltr 8055	Sloping	Short	Red	Long	No	2"	20	40
Cltr 8090	Sloping	Short	Red	Long	No	Null	7+8	42
Cltr 8098	Straight	Short	White	Long	No	Null	7+8	58
Cltr 8099	Sloping	Long	White	Short	Yes	Null	7+8	40
Cltr 8109	Sloping	Long	Red	Short	Yes	2"	20	57
Cltr 8115	Sloping	Short	White	Long	No	2"	7+8	34
Cltr 8481	Sloping	Short	Red	Long	Yes	1	7	1
Cltr 13712	Straight	Short	White	Short	No	1	7+8	39
Cltr 14445	Sloping	Short	White	Long	No	1	20	41
Cltr 14625	Straight	Short	Red	Long	No	Null	20	45
Cltr 14743	Sloping	Short	White	Short	Yes	2*	7+8	7
Cltr 14795	Sloping	Short	Red	Short	Yes	2*	7+8	7
Cltr 14863	Straight	Short	Red	Long	Yes	Null	7+8	33
Cltr 17714	Sloping	Short	Red	Short	No	Null	7+8	7
PI 134946	Sloping	Short	Red	Long	No	1	7+8	38
PI 134947	Straight	Short	Red	Long	No	1	7+8	7
PI 134948	Sloping	Long	Red	Short	No	1	7+8	7
PI 134949	Sloping	Short	Red	Short	No	1	7+8	7
PI 134951	Sloping	Short	Red	Short	No	1	7+8	7
PI 134952	Sloping	Long	White	Short	No	1	7+8	44
PI 134953	Sloping	Long	White	Short	No	1	7+8	44
PI 134955	Sloping	Long	Red	Long	No	Null	13+16	43
PI 134956	Sloping	Short	Red	Short	No	1	7+8	43
PI 134957	Sloping	Short	Red	Short	No	1	13+16	7
PI 134960	Sloping	Long	White	Short	No	1	17'+18'	35
PI 134961	Sloping	Short	Red	Short	No	1	7+8	7
PI 134962	Sloping	Short	Red	Long	No	1	7+8	35
PI 166484	Sloping	Short	Red	Short	No	Null	14+15	7
PI 166496	Straight	Short	White	Short	No	2*	17'+18'	38
PI 166591	Sloping	Long	White	Short	Yes	1	17'+18'	36
PI 167867	Sloping	Long	White	Short	No	Null	20	6
PI 185723	Sloping	Short	Red	Short	No	1	7+8	7
PI 185724	Sloping	Short	White	Long	No	2*	6+8	15
PI 185728	Sloping	Short	Red	Short	No	1	7+8	7
PI 185734	Straight	Short	Red	Long	No	1	6+8	7
PI 190932	Sloping	Long	Red	Short	Yes	1	8'	26
PI 190948	Elevated	Short	Red	Long	No	1	6+8	24
PI 190978	Straight	Long	White	Long	No	2*	17'+18*	27

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 191015	Sloping	Short	Red	Short	No	1	17'+18'	15
PI 191104	Sloping	Short	White	Long	No	2*	7+8	15
PI 191145	Straight	Long	White	Short	No	Null	6+8	15
PI 191203	Sloping	Short	White	Long	No	1	6+8	30
PI 191204	Sloping	Short	Red	Long	No	1	6+8	7
PI 191353	Sloping	Short	Red	Long	No	1	7+8	15
PI 191445	Sloping	Short	White	Long	Yes	Null	7+8	33
PI 191534	Sloping	Short	White	Long	No	1	17'+18'	7
PI 191579	Sloping	Long	White	Long	No	1	17'+18'	7
PI 191871	Elevated	Short	White	Short	No	1	7+8	7
PI 191951	Sloping	Short	Red	Long	No	2*	6+8	37
PI 191952	Sloping	Short	Red	Short	No	1	6+8	37
PI 191953	Sloping	Short	White	Short	No	1	7+8	15
PI 192050	Sloping	Short	Red	Short	No	1	17'+18'	15
PI 192520	Straight	Short	White	Long	No	1	20	43
PI 212835	Elevated	Short	White	Long	Yes	2*	7+15	64
PI 221423	Straight	Short	Red	Long	No	1	7+8	7
PI 221424	Sloping	Short	Red	Short	No	2*	6+8	15
PI 221425	Sloping	Short	White	Short	No	Null	6+8	46
PI 223173	Straight	Short	Red	Short	No	2*	17'+18'	7
PI 225308	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 225309	Sloping	Short	White	Short	No	2*	17'+18'	6
PI 245666	Straight	Short	White	Short	No	1	17'+18'	4
PI 245751	Straight	Short	White	Long	No	Null	7+15	47
PI 264954	Straight	Long	White	Short	No	1	17'+18'	43
PI 264995	Straight	Short	White	Short	No	2*	7	43
PI 265016	Sloping	Short	White	Short	No	2*	7	43
PI 266851	Sloping	Short	White	Long	No	1	6+8	59
PI 266906	Elevated	Short	White	Short-Long	No	2*	6+8	15
PI 272584	Straight	Long	Red	Short	No	1	6+8	7
PI 272592	Sloping	Short	White	Short	No	2*	17'+18*	52
PI 278221	Straight	Short	Red	Short	No	1	6+8	6
PI 278596	Straight	Short	Red	Short	No	2*	7	31
PI 278597	Straight	Long	Red	Short	No	2*	7	7
PI 290526	Straight	Short	Red	Short	Yes	1	6+8	7
PI 290527	Straight	Short	Red	Short	No	1	6+8	4
PI 290528	Sloping	Short	Red	Short	No	1	7+8	7
PI 294568	Straight	Short	Red	Short	No	1	6+8	6

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 294574	Straight	Short	Red	Short	No	1	6+8	7
PI 295011	Sloping	Short	White	Long	No	Null	20	51
PI 295012	Sloping	Short	White	Long	No	Null	7+8	7
PI 295043	Straight	Short	White	Short	No	1	17'+18'	52
PI 295071	Sloping	Short	White	Long	No	2*	17'+18'	38
PI 297859	Straight	Short	White	Long	Yes	Null	7+8	41
PI 297860	Sloping	Short	Red	Short	Yes	Null	7+8	58
PI 297862	Sloping	Short	White	Short	Yes	Null	7+8	58
PI 306559	Elevated	Short	Red	Short	Yes	1	6+8	7
PI 306560	Straight	Long	White	Long	No	1	17'+18'	7
PI 323440	Elevated	Short	Red	Long	No	1	7+8	7
PI 330560	Straight	Short	White	Short	No	2*	17'+18'	6
PI 331258	Sloping	Short	Red	Short	Yes	Null	20	48
PI 341283	Sloping	Short	White	Short	No	1	17'+18'	4
PI 341300	Elevated	Short	White	Short	No	2*	17'+18'	36
PI 341391	Sloping	Long	Red	Short	No	2'	17'+18'	6
PI 341482	Sloping	Short	White	Short	Yes	1	17'+18'	4
PI 345413	Sloping	Short	White	Short	Yes	Null	6+8	52
PI 347134	Straight	Short	White	Long	Yes	2*	17'+18'	36
PI 347136	Straight	Short	White	Long	Yes	Null	14+15	7
PI 347137	Sloping	Long	White	Long	No	1	20	43
PI 349056	Sloping	Short	White	Short	No	2'	17'+18'	49
PI 349057	Straight	Long	White	Short	No	2*	17'+18'	6
PI 349058	Sloping	Short	Red	Long	Yes	2*	17'+18'	36
PI 349059	Straight	Long	White	Short	No	2'	17'+18'	38
PI 349060	Sloping	Short	Red	Short	Yes	2'	17'+18'	6
PI 350154	Straight	Long	White	Short	No	2*	6+16	19
PI 350207	Sloping	Short	White	Long	No	2*	6+16	7
PI 350208	Straight	Long	White	Long	Yes	2*	17'+18'	7
PI 352351	Sloping	Short	Red	Short	Yes	1	6+8	4
PI 352516	Sloping	Short	White	Short	No	2*	6+8	19
PI 352518	Straight	Long	Red	Long	Yes	1	6+8	34
PI 352520	Sloping	Short	Red	Long	Yes	1	7+8	1
PI 352521	Sloping	Short	Red	Short	No	1	7+8	1
PI 352526	Sloping	Short	Red	Long	Yes	1	7+8	22
PI 352527	Straight	Long	Red	Short	No	1	17'+18'	6
PI 352528	Straight	Short	Red	Long	No	1	17'+18*	67
PI 352530	Straight	Long	Red	Long	Yes	2*	7	23

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 352531	Straight	Long	White	Short	No	1	6+8	47
PI 352532	Sloping	Short	Red	Short	Yes	1	7+8	4
PI 352533	Straight	Short	Red	Long	Yes	1	6+8	4
PI 352534	Straight	Short	Red	Short	No	1	17'+18*	34
PI 352535	Straight	Short	Red	Short	Yes	2*	7	52
PI 352536	Sloping	Short	White	Short	No	1	17'+18'	4
PI 352538	Sloping	Short	Red	Long	Yes	2*	6+8	34
PI 352539	Straight	Long	White	Short	No	1	6+8	49
PI 352540	Sloping	Long	White	Short	Yes	1	6+8	4
PI 352541	Sloping	Short	Red	Short	No	1	6+8	4
PI 352542	Sloping	Short	White	Short	No	1	17'+18'	4
PI 352544	Straight	Long	White	Short	No	2*	17'+18'	34
PI 352545	Straight	Short	White	Short	No	1	17'+18'	4
PI 352547	Straight	Short	Red	Long	No	1	6+8	7
PI 352549	Straight	Long	Red	Long	Yes	2*	17	7
PI 352550	Straight	Short	Red	Short	No	1	6+8	4
PI 361804	Sloping	Short	White	Short	No	1	17'+18'	4
PI 361838	Sloping	Short	White	Short	No	Null	17'+18'	7
PI 362657	Straight	Long	White	Long	Yes	2*	6+16	52
PI 362703	Sloping	Short	White	Long	No	1	17'+18'	6
PI 367168	Sloping	Short	White	Long	Yes	2*	17'+18'	36
PI 372447	Sloping	Short	White	Long	No	Null	17'+18'	43
PI 372456	Elevated	Short	White	Long	No	Null	17'+18'	43
PI 372458	Straight	Long	White	Short	Yes	Null	6+16	64
PI 372459	Sloping	Short	White	Short	No	Null	17'+18'	43
PI 372460	Straight	Long	White	Long	No	Null	17'+18'	43
PI 372461	Elevated	Short	White	Short	No	Null	17'+18'	43
PI 372462	Elevated	Short	White	Short	No	Null	17'+18'	43
PI 372495	Straight	Long	White	Long	Yes	2*	7+8	49
PI 372496	Sloping	Long	Red	Long	Yes	2''	20	7
PI 372499	Elevated	Short	White	Short	No	2*	17'+18*	7
PI 374590	Straight	Long	White	Long	No	2*	6+16	52
PI 374592	Sloping	Short	White	Short	No	2*	6+16	52
PI 374618	Straight	Long	White	Short	Yes	2*	17'+18'	36
PI 374620	Straight	Long	White	Short	Yes	2*	6+16	52
PI 374655	Straight	Long	White	Short	Yes	2*	17'+18'	6
PI 374656	Straight	Long	White	Long	Yes	2*	6+16	52
PI 374660	Straight	Long	White	Long	No	2*	6+16	52

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 377637	Straight	Long	White	Long	Yes	2*	6+16	52
PI 377674	Straight	Long	White	Long	No	2*	6+16	52
PI 377675	Straight	Long	White	Short	No	2*	6+16	52
PI 377676	Straight	Long	White	Long	No	2*	6+16	38
PI 378347	Straight	Long	White	Long	Yes	2*	6+16	52
PI 378377	Straight	Long	White	Short	No	2*	6+16	52
PI 378378	Sloping	Long	White	Long	No	2*	6+16	52
PI 378383	Straight	Long	White	Short	No	2*	6+16	52
PI 378384	Sloping	Short	White	Short	No	2*	17'+18*	52
PI 378389	Straight	Short	White	Long	Yes	2*	17'+18*	7
PI 378390	Straight	Short	White	Short	No	2*	17'+18*	7
PI 378419	Straight	Long	White	Short	Yes	2*	17'+18'	6
PI 378420	Straight	Long	White	Short	Yes	2*	17'+18*	7
PI 378442	Straight	Long	White	Long	Yes	2*	17'+18'	6
PI 378454	Straight	Long	White	Long	No	2*	6+16	52
PI 378459	Sloping	Long	White	Short	Yes	2*	6+16	52
PI 378463	Straight	Long	White	Long	Yes	2*	6+16	52
PI 378468	Straight	Long	White	Long	Yes	2*	6+16	52
PI 378473	Straight	Long	White	Short	No	2*	6+16	52
PI 378481	Straight	Long	White	Short	No	2*	6+16	52
PI 378499	Straight	Long	White	Long	Yes	2*	17'+18*	7
PI 378502	Sloping	Long	White	Short	Yes	2*	17'+18'	6
PI 378503	Straight	Long	White	Long	No	2*	6+16	52
PI 378508	Sloping	Short	White	Long	Yes	2*	17'+18'	6
PI 378510	Straight	Long	White	Short	No	2*	6+16	52
PI 378515	Sloping	Long	White	Short	Yes	2*	6+16	52
PI 387274	Sloping	Short	Red	Short	No	Null	7+8	37
PI 387336	Sloping	Long	Red	Short	Yes	Null	7+8	42
PI 387498	Sloping	Short	White	Long	Yes	Null	20	41
PI 387520	Sloping	Short	Red	Long	No	Null	7+8	43
PI 388223	Sloping	Short	White	Long	Yes	2*	17'+18'	38
PI 390349	Straight	Long	White	Long	No	2*	6+16	52
PI 390350	Straight	Long	White	Short	No	2*	6+16	52
PI 415464	Straight	Short	White	Long	Yes	2*	17'+18*	7
PI 415465	Straight	Long	Red	Short	Yes	2*	17'+18*	7
PI 415471	Straight	Long	White	Long	Yes	2*	6+16	52
PI 428378	Sloping	Long	Red	Short	No	1	6+8	53
PI 435002	Straight	Short	White	Long	No	1	7	36

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 435005	Straight	Long	White	Long	No	1	7	31
PI 435006	Sloping	Short	Red	Long	No	2*	7	6
PI 435007	Straight	Long	White	Short	Yes	2*	7	71
PI 435012	Sloping	Long	White	Long	Yes	1	7	36
PI 435014	Straight	Long	Red	Long	Yes	1	7	63
PI 438971	Sloping	Short	White	Short	No	2*	17'+18'	64
PI 470788	Sloping	Short	Red	Long	Yes	2"	7+8	39
PI 479909	Sloping	Long	White	Long	Yes	Null	7+8	57
PI 479934	Elevated	Short	Red	Long	Yes	Null	7+8	60
PI 479946	Sloping	Short	Red	Long	Yes	Null	7+8	48
PI 479962	Straight	Short	Red	Long	Yes	Null	20	61
PI 480028	Straight	Short	White	Long	No	2"	7+8	57
PI 480041	Straight	Short	Red	Short	Yes	Null	7+8	39
PI 480042	Sloping	Short	Red	Short	Yes	Null	7+8	39
PI 480058	Sloping	Short	Red	Long	Yes	Null	7+8	39
PI 480167	Sloping	Short	Red	Long	Yes	2"	20	57
PI 480252	Sloping	Long	White	Long	Yes	2"	7+8	65
PI 480269	Elevated	Short	Red	Long	No	2"	7+8	65
PI 480328	Sloping	Short	Red	Long	Yes	Null	20	58
PI 520175	Sloping	Short	Red	Short	Yes	Null	7+8	58
PI 525375	Elevated	Short	White	Long	No	Null	17'+18'	43
PI 525376	Straight	Short	White	Short	No	Null	17'+18'	43
PI 525377	Elevated	Short	White	Long	No	Null	17'+18'	43
PI 525406	Elevated	Short	White	Short	No	Null	17'+18'	43
PI 525407	Sloping	Short	White	Long	Yes	Null	20	33
PI 525431	Elevated	Short	White	Short	No	Null	20	33
PI 532078	Elevated	Short	White	Long	Yes	2"	7+15'	56
PI 532303	Elevated	Short	Red	Long	Yes	1	17'+18'	41
PI 542664	Straight	Long	White	Short	Yes	2*	7+8	63
PI 559977	Sloping	Short	Red	Long	Yes	Null	7+8	58
PI 565432	Sloping	Long	White	Long	No	Null	6+8	47
PI 572918	Straight	Long	White	Short	No	2*	6+8	6
PI 572919	Straight	Long	White	Short	No	2*	6+8	15
PI 572923	Straight	Long	White	Long	Yes	2*	17'+18*	7
PI 585014	Straight	Long	White	Short	No	2*	17'+18'	49
PI 585194	Sloping	Short	Red	Short	No	Null	7+8	63
PI 591967	Straight	Short	White	Short	Yes	1	7+8	69
PI 591968	Straight	Short	White	Short	Yes	Null	7+8	70

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 620943	Sloping	Short	Red	Short	No	1	17'+18'	4
PI 620944	Sloping	Short	White	Short	No	1	17'+18'	4
PI 620972	Elevated	Short	White	Short	No	1	17'+18'	4
PI 620973	Sloping	Short	White	Short	No	1	17'+18'	4
PI 623927	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 623928	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 624057	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 624457	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 624691	Sloping	Short	White	Short	No	2*	17'+18'	49
PI 624726	Sloping	Short	Red	Short	Yes	2*	17'+18'	49
PI 624727	Sloping	Short	White	Short	Yes	2*	17'+18'	38

ESM 2. Origin and data obtained for the all accessions of khorasan wheat (*Triticum turgidum* ssp. *turanicum*)

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
Cltr 2431	Egypt	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
Cltr 8485	Australia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	Yellow
Cltr 8522	Turkmenistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
Cltr 8581	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 8587	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
Cltr 11390	United States of America	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 14082	Unknown	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
Cltr 14089	Unknown	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
Cltr 14095	Unknown	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
Cltr 14599	Ethiopia	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Red
PI 113392	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 113393	Iraq	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 115814	Russian Federation	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 115815	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 127106	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	White
PI 166450	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 166959	Turkey	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thick	White
PI 167481	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 182717	Syria	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 184526	Portugal	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 185192	Morocco	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Yellow
PI 185193	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 190973	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 191599	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 192641	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 192658	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Red
PI 210386	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 225328	Iran	National Small Grain Collection (Aberdeen, USA)	Clavate	Medium	Yellow
PI 225331	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 251925	Ukraine	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 254202	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 254203	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 254204	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 254205	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	White
PI 254206	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 254207	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	White

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 254208	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 254209	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 254212	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	White
PI 256034	Spain	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	White
PI 272601	Hungary	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 272602	Hungary	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 278350	Italy	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thick	Yellow
PI 283795	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 286069	Poland	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 306665	France	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 317495	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 321737	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 330552	United Kingdom	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 337643	Afghanistan	National Small Grain Collection (Aberdeen, USA)	Fusiform	Medium	White
PI 341414	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 349055	Russian Federation	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	White
PI 352514	Azerbaijan	National Small Grain Collection (Aberdeen, USA)	Tapering	Medium	Yellow
PI 352515	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	White
PI 362067	Rumania	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	Brown
PI 525355	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 537992	Turkey	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 559976	Morocco	National Small Grain Collection (Aberdeen, USA)	Tapering	Thick	Yellow
PI 576854	Turkey	National Small Grain Collection (Aberdeen, USA)	Fusiform	Thin	White
PI 623629	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 623641	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 623656	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 624207	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 624208	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 624209	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	White
PI 624217	Iran	National Small Grain Collection (Aberdeen, USA)	Fusiform	Medium	Yellow
PI 624420	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 624421	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 624422	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 624429	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 624892	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow
PI 624893	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 625164	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 625187	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Medium	Yellow

Accession	Country	Germplasm Bank	Spike shape	Section of stem	Glumes colour
PI 625189	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow
PI 625214	Iran	National Small Grain Collection (Aberdeen, USA)	Tapering	Thin	Yellow
PI 625401	Iran	National Small Grain Collection (Aberdeen, USA)	Parallel sides	Thin	Yellow

ESM 2. Origin and data obtained for the all accessions of khorasan wheat (*Triticum turgidum* ssp. *turanicum*) - Continuation-

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
Cltr 2431	Yes	Yes	Yellow	No	Moderately curved	Short
Cltr 8485	Yes	Yes	Yellow	No	Straight	Short
Cltr 8522	Yes	Yes	Yellow	No	Straight	Short
Cltr 8581	Yes	Yes	Yellow	No	Straight	Short
Cltr 8587	Yes	Yes	Yellow	No	Moderately curved	Short
Cltr 11390	Yes	Yes	Yellow	No	Moderately curved	Long
Cltr 14082	No	Yes	Yellow	No	Straight	Extremely long
Cltr 14089	No	Yes	Yellow	No	Straight	Medium
Cltr 14095	No	Yes	Yellow	No	Moderately curved	Short
Cltr 14599	No	Yes	Red	No	Straight	Long
PI 113392	No	Yes	Yellow	No	Straight	Short
PI 113393	Yes	Yes	Yellow	No	Straight	Extremely long
PI 115814	No	Yes	Yellow	No	Moderately curved	Short
PI 115815	Yes	Yes	Yellow	No	Straight	Short
PI 127106	No	Yes	Yellow	No	Moderately curved	Short
PI 166450	Yes	Yes	Yellow	No	Straight	Extremely long
PI 166959	Yes	Yes	White	No	Straight	Short
PI 167481	No	Yes	Red	No	Moderately curved	Long
PI 182717	Yes	Yes	Yellow	No	Straight	Short
PI 184526	Yes	Yes	Yellow	No	Straight	Extremely long
PI 185192	Yes	Yes	Yellow	No	Moderately curved	Long
PI 185193	Yes	Yes	Black	No	Straight	Medium
PI 190973	Yes	Yes	Yellow	No	Moderately curved	Long
PI 191599	Yes	Yes	Black	No	Moderately curved	Medium
PI 192641	Yes	Yes	Black	No	Moderately curved	Long
PI 192658	Yes	Yes	Red	No	Moderately curved	Long
PI 210386	Yes	Yes	Yellow	No	Moderately curved	Short
PI 225328	Yes	Yes	Yellow	No	Moderately curved	Short
PI 225331	Yes	Yes	Yellow	No	Moderately curved	Short
PI 251925	Yes	Yes	Black	No	Straight	Long
PI 254202	Yes	Yes	Yellow	No	Moderately curved	Short
PI 254203	Yes	Yes	Yellow	No	Straight	Short
PI 254204	Yes	Yes	Black	No	Moderately curved	Short
PI 254205	Yes	Yes	Yellow	No	Straight	Short
PI 254206	Yes	Yes	Black	No	Moderately curved	Medium
PI 254207	Yes	Yes	Yellow	No	Moderately curved	Short

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 254208	Yes	Yes	Black	No	Straight	Short
PI 254209	Yes	Yes	Yellow	No	Straight	Medium
PI 254212	Yes	Yes	Black	No	Straight	Short
PI 256034	Yes	Yes	Black	No	Straight	Extremely long
PI 272601	Yes	Yes	Black	No	Straight	Short
PI 272602	Yes	Yes	Yellow	No	Straight	Short
PI 278350	Yes	Yes	Yellow	No	Moderately curved	Long
PI 283795	Yes	Yes	Black	No	Moderately curved	Extremely long
PI 286069	Yes	Yes	Yellow	No	Straight	Short
PI 306665	Yes	Yes	Yellow	No	Straight	Long
PI 317495	Yes	Yes	Yellow	No	Straight	Extremely long
PI 321737	No	Yes	Yellow	No	Straight	Extremely long
PI 330552	Yes	Yes	Yellow	No	Straight	Short
PI 337643	Yes	Yes	Black	No	Moderately curved	Extremely long
PI 341414	Yes	Yes	Yellow	No	Moderately curved	Long
PI 349055	Yes	Yes	White	No	Moderately curved	Short
PI 352514	Yes	Yes	Yellow	No	Moderately curved	Long
PI 352515	Yes	Yes	White	No	Straight	Short
PI 362067	Yes	Yes	Red	No	Moderately curved	Long
PI 525355	Yes	Yes	Black	No	Moderately curved	Long
PI 537992	No	Yes	Yellow	No	Straight	Short
PI 559976	Yes	Yes	Red	No	Straight	Long
PI 576854	Yes	Yes	White	No	Straight	Short
PI 623629	Yes	Yes	Yellow	No	Straight	Short
PI 623641	Yes	Yes	Yellow	No	Straight	Short
PI 623656	Yes	Yes	Yellow	No	Straight	Short
PI 624207	Yes	Yes	Yellow	No	Straight	Medium
PI 624208	Yes	Yes	Black	No	Straight	Short
PI 624209	Yes	Yes	Yellow	No	Straight	Short
PI 624217	Yes	Yes	Yellow	No	Straight	Short
PI 624420	Yes	Yes	Yellow	No	Moderately curved	Short
PI 624421	No	Yes	Yellow	No	Straight	Short
PI 624422	Yes	Yes	Yellow	No	Straight	Short
PI 624429	Yes	Yes	Yellow	No	Straight	Short
PI 624892	Yes	Yes	Black	No	Straight	Short
PI 624893	No	Yes	Yellow	No	Straight	Short
PI 625164	Yes	Yes	Yellow	No	Straight	Short
PI 625187	Yes	Yes	Black	No	Straight	Short

Accession	Glumes hairiness	Presence or not awn	Awns colour	Hairiness in spike	Glumes-beak shape	Glumes-beak length
PI 625189	Yes	Yes	Yellow	No	Straight	Short
PI 625214	Yes	Yes	Yellow	No	Straight	Short
PI 625401	Yes	Yes	Yellow	No	Straight	Short

ESM 2. Origin and data obtained for the all accessions of khorasan wheat (*Triticum turgidum* ssp. *uranicum*) - Continuation-

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
Cltr 2431	Straight	Broad	White	Long	Yes	Null	7+15	1
Cltr 8485	Very elevated	Narrow	White	Long	No	Null	7+15	1
Cltr 8522	Very elevated	Narrow	White	Long	Yes	Null	7+15	1
Cltr 8581	Sloping	Narrow	White	Long	No	Null	6+8	1
Cltr 8587	Elevated	Narrow	White	Short	Yes	Null	7+15	1
Cltr 11390	Straight	Narrow	White	Long	No	Null	6+8	2
Cltr 14082	Elevated	Narrow	White	Long	Yes	2*	14+15	3
Cltr 14089	Straight	Narrow	White	Long	Yes	Null	7+15	1
Cltr 14095	Straight	Narrow	White	Long	Yes	Null	7+15	1
Cltr 14599	Elevated	Narrow	White	Long	Yes	2"	14	4
PI 113392	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 113393	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 115814	Sloping	Broad	White	Long	Yes	Null	7+15	1
PI 115815	Straight	Narrow	White	Long	No	Null	7+15	1
PI 127106	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 166450	Elevated	Narrow	White	Long	No	Null	6+8	2
PI 166959	Elevated	Narrow	White	Long	No	Null	7+15	1
PI 167481	Sloping	Narrow	Red	Long	No	Null	7+15	1
PI 182717	Straight	Narrow	White	Long	Yes	Null	7+8	1
PI 184526	Elevated	Narrow	White	Long	No	Null	6+8	2
PI 185192	Straight	Narrow	White	Long	No	Null	20	5
PI 185193	Elevated	Narrow	White	Long	Yes	Null	13**+8*	5
PI 190973	Straight	Narrow	White	Long	Yes	Null	6+8	5
PI 191599	Straight	Narrow	White	Long	No	Null	13**+8*	5
PI 192641	Elevated	Narrow	White	Long	Yes	Null	13**+8*	2
PI 192658	Straight	Narrow	White	Long	No	Null	20	1
PI 210386	Sloping	Broad	White	Short	Yes	2*	7+15	1
PI 225328	Straight	Narrow	White	Long	Yes	2*	7+15	4
PI 225331	Elevated	Narrow	White	Long	Yes	Null	7+15	1
PI 251925	Sloping	Narrow	White	Long	No	Null	7+15	1
PI 254202	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 254203	Elevated	Narrow	White	Long	Yes	Null	7+15	1
PI 254204	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 254205	Straight	Broad	White	Long	Yes	Null	7+15	1
PI 254206	Straight	Broad	White	Long	Yes	Null	7+15	1
PI 254207	Straight	Narrow	White	Long	No	Null	7+15	1

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	Glu-A1	Glu-B1	Glu-3
PI 254208	Straight	Broad	White	Long	Yes	Null	7+15	1
PI 254209	Sloping	Broad	White	Long	Yes	Null	7+15	1
PI 254212	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 256034	Straight	Narrow	White	Long	No	Null	6+8	2
PI 272601	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 272602	Straight	Narrow	White	Long	No	Null	7+15	1
PI 278350	Straight	Narrow	Red	Long	No	Null	6+8	5
PI 283795	Elevated	Broad	White	Long	Yes	Null	20	5
PI 286069	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 306665	Straight	Narrow	White	Long	Yes	Null	6+8	2
PI 317495	Elevated	Narrow	White	Long	No	Null	6+8	2
PI 321737	Sloping	Narrow	White	Long	Yes	2*	14+15	3
PI 330552	Straight	Narrow	White	Long	No	Null	7+15	1
PI 337643	Straight	Narrow	White	Long	Yes	Null	6+8	2
PI 341414	Elevated	Narrow	White	Long	Yes	Null	6+8	2
PI 349055	Straight	Narrow	White	Long	No	Null	7+15	1
PI 352514	Sloping	Narrow	White	Long	Yes	Null	13+16	5
PI 352515	Straight	Narrow	White	Long	No	Null	7+15	6
PI 362067	Straight	Narrow	White	Long	Yes	Null	6+8	2
PI 525355	Elevated	Narrow	White	Long	Yes	Null	6+8	5
PI 537992	Straight	Broad	White	Long	Yes	Null	7+15	5
PI 559976	Elevated	Narrow	White	Long	Yes	Null	13**+8*	2
PI 576854	Straight	Narrow	White	Long	No	Null	7+15	1
PI 623629	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 623641	Elevated	Narrow	White	Long	Yes	Null	7+15	1
PI 623656	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 624207	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624208	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 624209	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624217	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624420	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624421	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624422	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624429	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 624892	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 624893	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 625164	Straight	Narrow	White	Long	No	Null	7+15	1
PI 625187	Straight	Narrow	White	Long	Yes	Null	7+15	1

Accession	Glumes-shoulder shape	Glumes-shoulder width	Kernel colour	Kernel shape	Kernel hairiness	<i>Glu-A1</i>	<i>Glu-B1</i>	<i>Glu-3</i>
PI 625189	Straight	Narrow	White	Long	Yes	Null	7+15	1
PI 625214	Sloping	Narrow	White	Long	Yes	Null	7+15	1
PI 625401	Straight	Narrow	White	Long	Yes	Null	7+15	1