

Development and release of new wheat and barley varieties for different zones and states

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Central released varieties

During 2016-17, the Central Sub-Committee on Crops Standards, Notification and Release of Varieties for Agricultural Crops (CVRC) recommended the release of 14 wheat and barley varieties; 8 of bread wheat, 3 of durum varieties and 3 barley varieties vide notification number 2238(E) dated 29.06.16, 3540(E) dated 22.11.2016 and 1007 (E) dated 30.03.2017.

Bread Wheat

1. Raj 4238 (HW2021/RAJ3765) was developed by RARI, Durgapura for irrigated late sown conditions of Central Zone. The average grain yield is 45.5 q/ha and maximum grain yield potential is 62.8 q/ha. It is good for chapatti making.

2. HS 562 (OASIS/SKAUZ//4*BCN /3/2*PASTOR) was developed by ICAR- IARI RS, Shimla for both timely sown rainfed and irrigated conditions of Northern Hills zone. Average grain yield under rainfed conditions is 36.0 q/ha and 52.7q/ha under irrigated conditions. The genotype is resistant to yellow rust.

3. PBW 660 (WG6761/WG6798) was developed by PAU, Ludhiana for rainfed, timely sown conditions of NWPZ. Average grain yield of the variety is 35.3q/ha and it has a potential of 49.3q/ha. It is good for chapatti quality.

4. HD 3171 (PBW 343/HD2879) was developed by ICAR-IARI, Delhi for timely sown rainfed conditions of NEPZ. It is resistant to all the three rusts i.e. yellow, brown and black rust. Its average grain yield is 28.0q/ha and has a potential of 46.3q/ha.

5. WB2 (T.DICOCCONCI9309/AE. SQUARROSA (409)/3/MILAN/S87230//BAV92/4/2*MILAN/S87320//BAV92) was developed by ICAR-IIWBR, Karnal for irrigated timely sown conditions of NWPZ.

Its average grain yield is 51.6q/ha and potential is 58.9q/ha. It is a zinc-rich (42.0 ppm) wheat variety having resistance to yellow and brown rusts.

6. HI 1605 (*Pusa Ujala*) (BOW/VEE/5/ND/VG9144//KAL/BB/3/YACO/4/CHIL/6/CASKOR/3/CROC_1/AE.SQUARROSA(224)//OPATA/7/PASTOR/MILAN/KAUZ/3/BAV92). The variety was developed by ICAR-IARI, Regional station, Indore for restricted irrigated timely sown conditions of PZ. It has resistance to brown and black rust and possesses excellent chapatti making quality. Its average grain yield is 29.1 q/ha with potential of 44.0 q/ha.

7. PBW 723 (*Unnat PBW343*) (PBW343+Lr57/Yr40+Lr37/Yr17) was developed by PAU, Ludhiana for irrigated timely sown conditions of NWPZ. Its average grain yield is 49.2 q/ha with a potential of 63.2 q/ha. It has resistance to yellow and brown rusts.

8. HPBW 01 (*PBW1 Zn*) (T. DICOCCON CI9309/AE.SQUARROSA(409)/3/MILAN/S87230//BAV92/4/2*MILAN/S87320//BAV92) was developed for irrigated timely sown conditions of NWPZ by PAU, Ludhiana. Its average grain yield is 51.7 q/ha and potential is 64.8 q/ha. It is a zinc-rich wheat variety having resistance to yellow and brown rusts.

Durum Wheat

1. HD 4728 (*Pusa Malwi*) (ALTAR84/STINT//SILVER453/SOMAI3.1 /4/GREEN14/YAV10/AUK) was developed by IARI, New Delhi for irrigated timely sown conditions of Central Zone. Besides, good grain quality, its average grain yield is 54.2 q/ha with yield potential of 75.1 q/ha.

2. MACS 3949 (STOT//ALTAR84/ALD/3/THB/CEP7780//2*MUSK_4) was developed by ARI, Pune for irrigated timely sown conditions of Peninsular Zone. Its average grain yield is 44 q/ha and potential is 64.3 q/ha. It has resistance to stem and leaf rusts and good pasta making quality.

3. HI 8759 (*Pusa Tejas*) (HI8663/HI8498) was developed by ICAR-IARI Regional Station, Indore for irrigated timely sown conditions of Central Zone. Its average grain yield is 56.9 q/ha and potential is 75.5 q/ha. It is good for pasta making.

Barley

1. DWRB 123 (DWRUB54/DWR51) was developed by ICAR-IIWBR, Karnal for irrigated timely sown conditions of North Western Plains Zone. The average grain yield is 48.7q/ha and grain yield potential is 67.26 q/ha. DWRB123 is two-rowed malt barley and possess good malting quality characters with resistance to stripe and brown rusts.

2. RD 2849 (DWRUB52/PL705) was developed by RARI, Durgapura for irrigated timely sown conditions of North Western Plains Zone. Average grain yield of the variety is 50.9 q/ha and it has a potential of 69.2 q/ha. It is two-rowed malt barley with resistance to stripe rust.

3. RD 2794(RD2035/RD2683) was developed by RARI, Durgapura for salinity/alkalinity conditions of North Western/Eastern Plains Zones. Average grain yield under salinity conditions is 29.90 q/ha and potential yield was recorded as 43.30 q/ha. The genotype is six-row feed barley.

State released varieties

Central Sub-Committee on Crops Standards, Notification and Release of Varieties for Agricultural Crops recommended the notification of state released 15 bread wheat varieties and 1 variety each of durum wheat and barley vide notification number 112 (E) dated 12.01.2016, 2238(E) dated 29.06.16, 3540(E) dated 22.11.2016 and 1007 (E) dated 30.03.2017. These varieties are:

Bread Wheat

1. PBW 658 was developed by PAU, Ludhiana. The variety is recommended for irrigated, late sown conditions in Punjab state. The variety has resistance to stripe and leaf rust and leaf blight. The average grain yield of the variety is 46.7 q/ha and its potential is 60.7 q/ha.

2. MP 3382 (*JW 3382*) was developed by JNKVV, Jabalpur. The variety is recommended for irrigated, timely sown conditions of Madhya Pradesh state. The variety has

good chapatti making quality (score:8.03/10). The average grain yield of the variety is 59.2 q/ha and its potential is 79.4 q/ha.

3. HD 3117 was developed by ICAR-IARI, New Delhi and is recommended for conservation agriculture under late sown conditions in Delhi NCR. The average grain yield of the variety is 47.9q/ha and its potential is 50.1 q/ha.

4. HDCSW 18 was developed by ICAR-IARI, New Delhi and it is recommended for conservation agriculture under early sown conditions of Delhi NCR. The average grain yield of the variety is 63.0 q/ha and its potential is 73.0 q/ha.

5. GW 451 was developed by SDAU, Vijapur. The variety is recommended for irrigated, timely sown conditions in Gujarat state. The variety has resistance to black and brown rust. It has good grain quality. The average grain yield of the variety is 53.9 q/ha and its potential is 66.0 q/ha.

6. NIAW 1994 (*Phule Samadhan*) was developed by MPKV Niphad. The variety is recommended for irrigated timely sown conditions in Maharashtra, but it is suitable for both timely and late sown conditions. The average grain yield of the variety is 46.1 q/ha under timely and 44.2 q/ha under late sown conditions. Its potential is 62.0 q/ha under timely and 57.9 q/ha under late sown conditions.

7. PBW 677 was developed by PAU, Ludhiana. The variety is recommended for irrigated, timely sown conditions in Punjab. The variety has resistance to yellow and brown rust. The average grain yield of the variety is 59.9 q/ha and its potential is 78.2 q/ha.

8. PBW 725 was developed by PAU, Ludhiana. The variety is recommended for irrigated, timely sown conditions in Punjab state. The variety has high degree of resistance to yellow and brown rust. The average grain yield of the variety is 61.7 q/ha and its potential is 81.5 q/ha.

9. AKAW 4210-6 (*PDKV Sardar*) was developed by PDKV, Akola. The variety is recommended for irrigated, late sown conditions in Maharashtra. It is an early maturing variety. The average grain yield of the variety is 39.2 q/ha and its potential is 62.5 q/ha.

10. VL 953 was developed by ICAR-VPKAS, Almora. The variety is recommended for irrigated, timely sown conditions of Uttarakhand (Hills and Plains). The variety has resistance to yellow and brown rust. The average grain yield of the variety is 33.4 q/ha in hills and 44.7 q/ha in plains.

11. UP 2784 was developed by GBPUA&T, Pantnagar. The variety is recommended for irrigated, timely sown conditions of Uttarakhand Plains. The variety has resistance to leaf and stripe rust. The average grain yield of the variety is 44.3 q/ha and its potential is 55.2 q/ha.

12. CG 1015 (*Chhattisgarh Genhu-4*) was developed by IGKV Regional Station, Bilaspur. The variety is recommended for irrigated, late sown conditions of Chhattisgarh. The variety has resistance to brown and black rust. The average grain yield of the variety is 36.7 q/ha and its potential is 68.8 q/ha.

13. BRW 3708 (*Sabour Samridhi*) was developed by BAU, Sabour. The variety is recommended for irrigated, timely sown conditions in Bihar state. The variety has resistance to leaf blight and brown rust. The average grain yield of the variety is 46.9 q/ha and its potential is 51.8 q/ha.

14. BRW 934 (*Sabour Shreshtha*) was developed by BAU Sabour. The variety is recommended for irrigated, late sown conditions in Bihar. The variety has resistance to loose smut and brown rust. The average grain yield of the variety is 43.1 q/ha and its potential is 54.0 q/ha.

15. DH 114 (*Himpratham*) was developed by CSK HPKV, Palampur. The variety is recommended for higher hills in Himachal Pradesh. The variety is developed using double haploid technique.

Durum Wheat

1. MPO 1255 (*MPO (JW) 1255*) was developed by JNKVV- RS, Powarkheda. The variety is recommended for rainfed/restricted irrigated timely sown conditions of Madhya Pradesh. The variety is suitable for pasta making. The average grain yield of the variety is 21.3 q/ha under rainfed and 33.8 q/ha under restricted irrigation. Its potential is 34.5 q/ha and 47.3 q/ha under rainfed and restricted irrigated conditions, respectively.

Barley

1. VLB 94 was developed by ICAR-VPKAS, Almora. The variety is recommended for rainfed conditions in Uttarakhand state. The average grain yield of the variety is 18.41 q/ha and its potential is 23.08 q/ha.

Registration of new genetic stocks

Thirty-six genetic stocks of wheat developed for traits like resistance to rusts, coloured grains, heat tolerance and high yellow pigment content were found suitable for registration by the Plant Germplasm Registration Committee during the year 2016-17. These genotypes were developed by IIWBR Karnal; IIWBR Regional Station Shimla; NABI Mohali; PAU Ludhiana and IARI Regional Station Indore. The details of these stocks are given in table below:

S No	Name	Registration No.	National ID No.	Trait
IIWBR, Karnal				
1	KBRL 77-1	INGR 15039	IC0616061	Resistance to Karnal bunt
2	KBRL 81-1	INGR 15043	IC0616065	Resistance to Karnal bunt and high 1000 grains weight
3	KBRL 78-2	INGR 15040	IC0616062	Resistance to Karnal bunt and high 1000 grains weight
4	KBRL 83-3	INGR 15045	IC0616067	Resistance to Karnal bunt and high number of tiller/m
5	KBRL 79-2	INGR 15041	IC0616063	Resistance to Karnal bunt and high number of tiller/m
6	KBRL 82-2	INGR 15044	IC0616066	Resistance to Karnal bunt and high number of grains per spike
7	KBRL 80-3	INGR 15042	IC0616064	Resistance to Karnal bunt and high number of grains per spike
8	LBRIL102	INGR 15060	IC0611477	Resistance to leaf blight
9	LBRIL 189	INGR 16013	IC0611476	Resistance to leaf blight
10	DDW 42	INGR 17004	IC0621692	High yellow pigment content
11	DBW 150	INGR 17005	IC0621693	Tolerant to heat stress
IIWBR Regional Station, Shimla				
12	FLW10	INGR 17006	IC0621833	Carrying yellow rust resistant gene <i>Yr10</i> in WH 542 background
13	FLW 16	INGR 17007	IC0621834	Yellow rust resistant gene <i>Yr5</i> in UP 2338 background
14	FLW 21	INGR 17008	IC0621836	Resistant to yellow and brown rusts due to presence of <i>Yr15</i> and <i>Lr24</i> genes, respectively in the background of UP 2338
15	FLW 22	INGR 17009	IC0621837	Resistant to brown and yellow rusts due to presence of <i>Lr28</i> and <i>YrChina84</i> genes, respectively in the background of WH 542
16	FWW 2	INGR 17010	IC0621838	Brown rust resistant genes <i>Lr19+Lr24</i> in the background of PBW 343
17	Local Wheat Hango	INGR 17011	IC0621839	Susceptible to all the three rusts

SNo	Name	Registration No.	National ID No.	Trait
NABI, Mohali				
18	NABIMG-9-Blue	INGR 17001	IC0620914	Blue coloured grains
19	NABIMG-10-Purple	INGR 17002	IC0620915	Purple coloured grains
20	NABIMG-11-Black	INGR 17003	IC0620916	Black coloured grains
PAU, Ludhiana				
21	PAU 16055	INGR 15046	IC0616571	Resistance to leaf and stripe rusts and carrying <i>Lr57</i> and <i>Yr40</i> genes transferred from <i>Ae. geniculata</i>
22	PAU 16062	INGR 15051	IC0616577	Resistance to leaf and stripe rusts and carrying <i>Lr57</i> and <i>Yr40</i> genes transferred from <i>Ae. geniculata</i>
23	PAU 16057	INGR 15047	IC0616573	Resistance to leaf and stripe rusts carrying leaf and stripe rust resistance genes <i>LrU</i> and <i>YrU</i> transferred from <i>Ae. umbellulata</i> (accession 3732) and from <i>Ae. peregrina</i> (accession 3519)
24	PAU 16058	INGR 15048	IC0616574	Resistance to leaf and stripe rusts carrying leaf and stripe rust resistant genes transferred from <i>Ae. peregrina</i> (PAU accession 3519).
25	PAU 16059	INGR 15049	IC0617118	Leaf and stripe rust resistance (APR) genes transferred from Wild 'A' genome species <i>T. monococcum</i> (PAU 16059) into wheat cv. WL 711.
26	PAU 16060	INGR 15050	IC0616575	Resistance to leaf and stripe rusts and carrying resistance genes transferred from <i>Ae. caudata</i>
27	PBW 703	INGR 15052	IC0616578	Resistance to leaf rust and stripe rusts (resistant version of PBW 343)
IARI Regional Station, Indore				
28	HI KK1 (NP4+ <i>Lr1</i>)	INGR 16024	IC0620368	Carrying <i>Lr1</i> brown rust resistant gene in NP 4 background
29	HI KK2 (NP4+ <i>Lr2a</i>)	INGR 16025	IC0620369	Carrying <i>Lr2a</i> brown rust resistant gene in NP 4 background
30	HI KK3 (NP4+ <i>Lr2c</i>)	INGR 16026	IC0620370	Carrying <i>Lr2c</i> brown rust resistant gene in NP 4 background
31	HI KK4 (NP4+ <i>Lr3a</i>)	INGR 16027	IC0620371	Carrying <i>Lr3a</i> brown rust resistant gene in NP 4 background
32	HI KK5 (NP4+ <i>Lr9</i>)	INGR 16028	IC0620372	Carrying <i>Lr9</i> brown rust resistant gene in NP 4 background
33	HI KK6 (NP4+ <i>Lr10</i>)	INGR 16029	IC0620373	Carrying <i>Lr10</i> brown rust resistant gene in NP 4 background
34	HI KK7 (NP4+ <i>Lr15</i>)	INGR 16030	IC0620374	Carrying <i>Lr15</i> brown rust resistant gene in NP 4 background
35	HI KK8 (NP4+ <i>Lr17a</i>)	INGR 16031	IC0620375	Carrying <i>Lr17a</i> brown rust resistant gene in NP 4 background
36	HI KK9 (NP4+ <i>Lr20</i>)	INGR 16032	IC0620376	Carrying <i>Lr20</i> brown rust resistant gene in NP 4 background