

## Special features of newly released wheat and barley varieties for cultivation in India

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Improved varieties played pivotal role in increasing the production and productivity of wheat and barley in our country. The All India Coordinated Research Project on Wheat and Barley organises to conduct the coordinated yield trials institutes/SAUs/KVKs etc. across the country, for the assessment of new genotypes every year. The genotypes which performed superior to checks for grain yield, and possess resistance to major diseases along with desirable quality and nutritional attributes during the three years of testing in different trials, qualify for identification. Once the variety is identified by VIC, the proposal for its release and notification is submitted to the Central Sub Committee on Crop Standards, Notifications and Release (CSCSN&R). Besides, varieties released by the SVRC are also considered for notification by the CSCSN&R. Once the variety is notified, it comes under the seed chain for commercial cultivation. In this article, information is provided on wheat and barley varieties that have been notified during last two years (2017-18 and 2018-19) for the benefit of all stakeholders namely researchers, seed growers and farmers.

### Central released

#### Wheat

**K 1317** (*K0307/K9162*) a high yielding bread wheat variety developed by CSAUA&T, Kanpur for cultivation under timely sown, rainfed conditions of North Eastern Plains Zone (NEPZ). K 1317 recorded average grain yield of 30.18q/ha and having yield potential of 38.6q/ha in rainfed trials conducted in NEPZ. It recorded resistance reaction to brown rust and leaf blight diseases and also posses good chapati quality score (8.05/10).

**HI 1612 (Pusa Wheat 1612)** (*Kauz//Altar84/AOS/3/Milan/Kauz/4/Huites*) bread wheat variety developed by ICAR-IARI Regional station, Indore for cultivation under timely sown, restricted irrigation conditions of North Eastern Plains Zone (NEPZ). HI 1612 recorded average grain yield of 37.68q/ha and having a yield potential of 50.53q/ha in the All India coordinated trials conducted in parts of NEPZ. HI 1612 recorded 32.4% higher grain yield at one irrigation as compared no irrigation. HI 1612 recorded high level of resistance against yellow and brown rusts.

**DBW 187 (Karan Vandana)** (*NAC/TH.AC//3\*PVN/3/MIRLO/BUC/4/2\*PASTOR/5/KACHU/6/ KACHU*)

bread wheat variety developed by IIWBR, Karnal for cultivation under timely sown, irrigated conditions of North Eastern Plains Zone (NEPZ). DBW 187 recorded average grain yield of 48.8q/ha and having a yield potential of 64.7q/ha in the All India coordinated trials on wheat conducted in parts of NEPZ under timely sown irrigated conditions. DBW 187 has good biscuit spread factor (8.6cm), high iron content (43.1 ppm) and resistance to yellow and brown rusts.

**HI 8777 (Pusa Wheat 8777)** (*B93/HD 4672//HI8627*) durum wheat variety developed by ICAR-IARI, Regional Station, Indore for cultivation under timely sown, rainfed conditions of Peninsular zone (PZ). HI 8777 gave average grain yield of 18.5q/ha and had yield potential of 28.8q/ha in trials conducted in PZ. This variety poses resistance to leaf rust disease, has higher level of grain protein (14.3%), zinc (43.6 ppm) and iron (48.7 ppm) content.

**MACS 4028** (*MACS 2846/BHALEGAON3\*2*) durum wheat variety developed by Agharkar Research Institute, Pune for cultivation under timely sown, rainfed conditions of Peninsular zone (PZ). MACS 4028 recorded average grain yield of 19.3q/ha with a yield potential of 28.7q/ha in the All India coordinated trials conducted in parts of PZ under timely sown, rainfed conditions. It is an early maturing variety (102 days) variety with higher level of protein content (14.7%) and resistant to stem and leaf rust diseases.

**UAS 375** (*UAS320/GW322//Lok62*) bread wheat variety developed by UAS Dharwad for cultivation under timely sown, rainfed conditions of Peninsular zone (PZ). In the All India coordinated trials on wheat conducted in parts of PZ under timely sown, rainfed conditions, variety UAS 375 gave average grain yield of 21.45q/ha with a yield potential of 29.12q/ha. UAS 375 is highly resistant to black and brown rust diseases.

**DBW 168** (*SUNSU/CHIBIA*) bread wheat variety developed by ICAR-IIWBR, Karnal for cultivation under timely sown, irrigated conditions of Peninsular zone (PZ). DBW 168 recorded average grain yield of 47.46q/ha and having a good yield potential of 70.1q/ha in the trials conducted in parts of PZ under timely sown, irrigated conditions. It has good chapatti quality score (Score: 8.15/10) and it is also good for biscuit quality due to soft grains (grain hardness index =36). DBW 168 exhibit high level of resistance against black and brown rust diseases.

**DBW 173** (*KAUZ/AA//KAUZ/PBW602* bread wheat variety developed by ICAR-IIWBR, Karnal for cultivation under late sown, irrigated conditions of North Western Plains Zone (NWPZ). DBW 173 recorded average grain yield of 47.2q/ha and having yield potential of 57.0q/ha in the All India coordinated trials conducted in parts of NWPZ under late sown, irrigated conditions. DBW 173 has shown better heat tolerance ability in a coordinated trial with a heat sensitivity index of 0.97. DBW 173 has also recorded resistant reaction against yellow and brown rusts both under natural and artificial epiphytotic conditions.

**P B W 7 5 2** (*B W 6 2 1 / 4 / P B W 3 4 3 // YR10/6\*AVOCET/3/3\*PBW343/5/PBW62*) bread wheat variety developed by PAU, Ludhiana for cultivation under late sown, irrigated conditions of North Western Plains Zone (NWPZ). PBW 752 recorded average grain yield of 47.2q/ha with a yield potential of 65.4q/ha in the trials conducted in parts of NWPZ. PBW 752 also responded favourably and recorded 35.05% higher grain yield in early sown as compared to late sown. PBW 752 a high yielding variety possessed with high degree of resistance against yellow and brown rusts both under natural and artificial epiphytotic conditions. It also recorded resistant reaction against two virulent pathotypes of yellow rust (*78S84* and *46S119*) and one pathotype of leaf rust (*104-2*).

**PBW 757** (*PBW550/YR15/6\*AVOCET/3/2\*PBW550/4/PBW568+YR36/3\*PBW550*) an early maturing high yielding bread wheat variety developed by PAU, Ludhiana for cultivation under very late sown, irrigated conditions of North Western Plains Zone (NWPZ). PBW 757 recorded average grain yield of 36.7q/ha and having a yield potential of 44.9q/ha in the All India coordinated trials conducted in parts of NWPZ under very late sown conditions. It has high degree of resistance to yellow and brown rusts. It recorded good chapatti quality score (Score: 8.07/10) and higher Zn content (42.3ppm).

**HD 3226 (Pusa Yashasvi)** (*GRACKLE/HD2894*) bread wheat variety developed by ICAR-IARI, New Delhi for cultivation under timely sown, irrigated conditions of North Western Plains Zone (NWPZ). HD 3226 recorded average grain yield of 57.5q/ha with a yield potential of 79.6q/ha in the All India coordinated trials conducted in parts of NWPZ under irrigated, timely sown conditions. HD 3226 recorded resistance reaction against yellow and brown rusts and it has higher content of wet gluten (30.85%).

**HD 3237 (Pusa wheat 3237)** (*HD3016/HD2967*) bread wheat variety developed by ICAR-IARI, New Delhi for cultivation under timely sown, restricted irrigation conditions of North Western Plains Zone (NWPZ). HD

3237 recorded average grain yield of 48.4q/ha and having a yield potential of 63.1q/ha in the All India coordinated trials conducted in parts of NWPZ under timely sown, restricted irrigation conditions. HD 3237 recorded less reduction in yield as compared to check varieties even at one or no irrigation level. HD 3237 recorded resistant reaction against yellow and brown rusts and chapatti quality score was 7.98/10.

**HI 1620 (Pusa wheat 1620)** (*NAC/TH.AC//3\*PVN/3/MIRLO/BUC/4/2\*PASTOR/5/KACHU/6/ KACHU*) bread wheat variety developed by ICAR-IARI Regional Station, Indore for cultivation under timely sown, restricted irrigation conditions of North Western Plains Zone (NWPZ). HI 1620 recorded average grain yield of 49.1q/ha and having a yield potential of 61.8q/ha in the All India coordinated trials conducted in parts of NWPZ under timely sown, restricted irrigation conditions. HI 1620 recorded high yield along with resistance against yellow and brown rusts and tolerant to lodging.

### Barley

**DWRB 137** (*DWR28/DWRUB64*) is a six row barley variety, was released and notified vide Gazette notification S.O. 1379 (E) dated March 27, 2018 for irrigated timely sown conditions of North Eastern Plains Zone and Central Zone. The variety DWRB 137 showed average grain yield of 42.49q/ha with genetic potential of 67.44q/ha in Central zone and average grain yield of 37.93q/ha in NEPZ. DWRB137 exhibited overall good malting quality with 90 per cent bold grains, hectolitre wt. of 61 kg/hl, grain beta glucan of 4.9 %, malt yield of 87.1 %, and diastatic power of **102 0L** in six row segment. The variety has erect growth habit, short plant height, erect flag leaf and compact plant type with dense and pale green spikes during heading.

**RD 2899** (*RD2592/RD2035//RD2715*) is a high yielding barley variety developed by RARI, Durgapura for cultivation under timely sown, irrigated conditions of Central Zone (CZ). RD 2899 recorded average grain yield of 42.19q/ha and having a yield potential of 57.43q/ha in the All India coordinated trials conducted in parts of CZ under timely sown irrigated conditions. RD2899 has bold grains and resistant to yellow rust.

**RD 2907** (*RD103/RD2518//RD2592*) is a high yielding barley variety developed by RARI, Durgapura for cultivation under timely sown, salinity conditions of NWPZ and NEPZ. RD 2907 recorded average grain yield of 35.54q/ha and having a yield potential of 53.62q/ha in the All India coordinated trials conducted in parts of NWPZ and NEPZ under timely sown irrigated conditions. RD 2907 showed resistance for yellow rust and has compact plant type.

## State releases

### Wheat

**BRW 3723 (Sabour Nirjal) (ACHYUT/BL1887)** bread wheat variety developed by Bihar Agricultural University, Sabour for cultivation under timely sown, rainfed conditions of Bihar. BRW 3723 recorded average grain yield of 28.7q/ha and having a yield potential of 47.3q/ha in the yield evaluation trials conducted in parts of Bihar under timely sown, rainfed conditions. BRW 3723 was found to be tolerant to leaf blight and brown rust diseases.

**HW 5207 (CoW 3) (HW3029//V763-2312(Yr15))** a high yielding bread wheat variety developed by ICAR-IARI Regional Station Wellington and Tamilnadu Agricultural University, Coimbatore for cultivation under timely sown, restricted irrigation conditions of Tamilnadu. HW 5207 recorded average grain yield of 40.7q/ha and having a yield potential of 59.6q/ha in the yield evaluation trials conducted in parts of Tamilnadu under timely sown, restricted irrigation conditions. It recorded highly resistant reaction against leaf and stem rust diseases and carrying *Lr24+Sr24, Sr2, Yr15* genes for rust resistance.

**Gujarat Junagadh Wheat 463 (GJW 463) (GW496/KLP010)** high yielding bread wheat variety developed by Junagadh Agricultural University, Junagarh for cultivation under early sown irrigated conditions of Saurashtra and timely sown, irrigated conditions of rest of Gujarat. GJW 463 recorded average grain yield of 55.7q/ha and having a yield potential of 78.3q/ha in the yield evaluation trials conducted in parts of Saurashtra under early sown, irrigated conditions. Similarly, GJW 463 recorded average grain yield of 50.9q/ha and also having a yield potential of 67.46q/ha in the yield evaluation trials conducted in Gujarat (except Saurashtra) under timely sown, irrigated conditions. It recorded moderately resistance reaction against brown and black rusts.

**KRL 283 (CPAN3004/KHARCHIA65//PBW343)** bread wheat variety developed by CSSRI, Karnal for cultivation in salt affected soils of Uttar Pradesh under timely sown, irrigated conditions. KRL 283 recorded average grain yield of 20.87q/ha and having a yield potential of 40.96q/ha in the yield evaluation trials conducted in salt affected soils of Uttar Pradesh under timely sown, irrigated conditions. KRL 283 also gave higher grain yield under water logging conditions. It is moderately resistant to leaf blight, karnal bunt and hill bunt diseases.

**CG 1013 (Chhattisgarh Genhu 3) (GW322/KYZ0285)** bread wheat variety developed by TCB college of Agriculture, and Research Station, Bilaspur for cultivation under timely sown, irrigated conditions of Chhattisgarh. CG 1013 recorded average grain yield

of 33.37q/ha and having a yield potential of 49.32q/ha in the yield evaluation trials conducted in parts of Chhattisgarh state under timely sown, irrigated conditions. It recorded resistant reaction against brown rust.

**CG 1018 (Chhattisgarh Amber Wheat) (HW2004/PBN1662-2)** bread wheat variety developed by TCB college of Agriculture, and Research Station, Bilaspur for cultivation under timely sown, restricted irrigation conditions of Chhattisgarh. CG 1018 recorded average grain yield of 34.84q/ha with a yield potential of 52.11q/ha in the yield evaluation trials conducted in Chhattisgarh state under timely sown, irrigated conditions. It recorded resistant reaction against brown rust and Karnal bunt.

**UAS 334 (SITE/MO/4/NAC/TH.AC//3\*PVN/3/MIRLO/BUC)** high yielding bread wheat variety developed by UAS, Dharwad for cultivation under timely sown, irrigated conditions of Zone 3 and Zone 8 of Karnataka state. UAS 334 recorded average grain yield of 49.1q/ha and having a yield potential of 59.5q/ha in the yield evaluation trials on wheat conducted in parts of Karnataka under timely sown, irrigated conditions. It has higher zinc content (43.1 ppm) and resistant to brown and black rust diseases.

**JAUW 584 (PDW233/Ae.crassa/PBW343)** bread wheat variety developed by SKUAST, Jammu for cultivation under timely sown, irrigated conditions of plains and mid hills of Jammu region of J&K. JAU 584 recorded average grain yield of 37.6q/ha and having a yield potential of 46.3q/ha in the yield evaluation trials conducted in plains and mid hills of Jammu region of J&K under timely sown, irrigated conditions. It recorded resistant reaction against yellow and brown rusts.

**Unnat PBW 550 (PBW550/Yr15/6\*Avocet/3\*PBW550)** bread wheat variety developed by PAU, Ludhiana for cultivation under timely sown, irrigation conditions of Punjab. Unnat PBW 550 high yielding and recorded average grain yield of 60.4q/ha and having a yield potential of 73.6q/ha in the yield evaluation trials conducted in Punjab under timely sown, irrigated conditions. It is highly resistant to yellow and brown rusts and escapes terminal heat stress due to early maturity.

**HUW 669 (Malviya 669) (ALTAR84/HUW206/MILAN)** bread wheat variety developed by BHU, Varanasi for cultivation under timely sown, rainfed and restricted irrigated conditions of Uttar Pradesh. HUW 669 recorded average grain yield of 24.1q/ha and having a yield potential of 43.2q/ha in the yield evaluation trials conducted in parts of Uttar Pradesh under timely sown, rainfed conditions. It recorded resistant reaction against yellow and brown rust disease.

**AAIW-10 (SHIATS-W 10) (WELLI/KAMBI/PASTOR)** bread wheat variety developed by Sam Higginbottom University of Agriculture, Technology and Sciences, formerly known as Allahabad Agricultural Institute, Allahabad for cultivation under timely sown, irrigated conditions of Uttar Pradesh. AAIW-10 recorded average grain yield of 43.07q/ha and having a yield potential of 57.78q/ha in the yield evaluation trials conducted in parts of Uttar Pradesh under timely sown, irrigated conditions. This variety is tolerant to high temperature (35-36°C) at grain filling stage and resistant to brown rust, leaf blight, karnal bunt diseases.

**AAIW-9 (SHIATS-W 9) (TOBA97/PASTOR)** bread wheat variety developed by Sam Higginbottom University of Agriculture, Technology and Sciences, formerly Allahabad Agricultural Institute, Allahabad for cultivation under late sown, irrigated conditions of Uttar Pradesh. AAIW-9 recorded average grain yield of 38.37q/ha with a yield potential of 50.52q/ha in the yield evaluation trials on wheat conducted in parts of Uttar Pradesh under late sown, irrigated conditions. This variety is tolerant to high temperature (35-36°C) at grain filling stage and resistant to brown rust, leaf blight, karnal bunt diseases.

**UP 2844 (HD2844/FRTL/AGRI/NA)** a high yielding bread wheat variety developed by GBPUA&T, Pantnagar for cultivation under late sown, irrigated conditions of Uttarakhand plains. UP 2844 recorded average grain yield of 42.04q/ha and having a yield potential of 69.81q/ha in the yield evaluation trials conducted in plains of Uttarakhand under late sown, irrigated conditions. It recorded resistant reaction against yellow and brown rust diseases.

**UP 2855 (PBW565/UP2565)** bread wheat variety developed by GBPUA&T, Pantnagar for cultivation under timely sown, irrigated conditions of Uttarakhand plains. UP 2855 is a high yielding recorded average grain yield of 52.52q/ha and having a yield potential of 100q/ha in the yield evaluation trials conducted in plains of Uttarakhand under timely sown, irrigated conditions. It recorded resistant reaction against brown rust.

**UP 2865 (HP1749/PBW564)** a high yielding bread wheat variety developed by GBPUA&T, Pantnagar for cultivation under late sown, irrigated conditions of Uttarakhand plains. UP 2865 recorded average grain yield of 45.82q/ha with a yield potential of 68.89q/ha in the yield evaluation trials conducted in plains of Uttarakhand under late sown, irrigated conditions. It recorded resistant reaction against brown rust.

**VL Gehun 967 (SHARP/3/PRL/SARAJ/TSLA/EE#5/5/VEE/LIRNIBOW13BCNI4KAUZ#4)** yielding bread wheat variety developed by ICAR-VPKAS, Almora for organic cultivation under timely sown, rainfed conditions of Uttarakhand hills. VL Gehun

967 recorded average grain yield of 19.86q/ha and yield potential of 35.44q/ha in the yield evaluation trials conducted in hills of Uttarakhand for organic cultivation under timely sown, rainfed conditions. It recorded resistant reaction against yellow and brown rust diseases under natural as well as artificial epiphytotic conditions.

**VL Gehun 2014 (Raj4132/AKAW4006)** bread wheat variety developed by ICAR-VPKAS, Almora for cultivation under timely sown, irrigated conditions of Uttarakhand plains. VL Gehun 2014 recorded average grain yield of 52.06q/ha and having a yield potential of 71.01q/ha in the yield evaluation trials conducted in plains of Uttarakhand under timely sown, irrigated conditions. It is a high yielding wheat variety and highly resistant to yellow and brown rust diseases.

**VL Gehun 3004 (HD2844/PBW486)** bread wheat variety developed by ICAR-VPKAS, Almora for cultivation under late sown, irrigated conditions of Uttarakhand plains. VL Gehun 3004 recorded average grain yield of 43.88q/ha and having a yield potential of 70.31q/ha in the yield evaluation trials conducted in plains of Uttarakhand under late sown, irrigated conditions. It is highly resistant to yellow and brown rust.

## Barley

**K 1055 (Prakhar) (K508/NDB1081)** is a high yielding six row barley variety developed by CSAU&T, Kanpur for cultivation under timely sown, irrigated conditions of Uttar Pradesh. K1055 recorded average grain yield of 38.07q/ha and having a yield potential of 47.40q/ha in the yield evaluation trials conducted in Uttar Pradesh under timely sown irrigated conditions.

**VLB130 (MSEL//BUCK.M.8.88/E.ACACIA)** is a high yielding six row barley variety developed by ICAR-VPKAS, Almora for cultivation under timely sown, rainfed conditions of Uttarakhand. VLB 130 showed average grain yield of 20.93q/ha and depicted grain yield potential of 31.65q/ha in the yield evaluation trials conducted in Uttarakhand under timely sown rainfed conditions.

## Conclusion:

During the last two years, 31 wheat and 5 barley varieties have been notified by the CSCSN&R for commercial cultivation. Of which, 13 wheat and 3 barley varieties were central release (CVRC) and 18 wheat and 2 barley varieties were state released (SVRC). Amongst the central release varieties, 6 varieties were release for NWPZ, 4 for PZ and 3 for NEPZ. Similarly among the state release varieties, 6 wheat varieties were released for Uttarakhand, 4 for Uttar Pradesh, 2 for Chhattisgarh and 1 each for Bihar, Gujarat, Karnataka, Jammu and Kashmir, Punjab and Tamil Nadu.