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Variety Release

WH 1306: A New High Yielding, Disease Resistant Bread Wheat Variety for the Peninsular Zone of India

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A new bread wheat (*Triticum aestivum* L.) variety, WH 1306 was developed through the collaborative efforts of scientists of Wheat and Barley Section, Department of Genetics and Plant Breeding, College of Agriculture, Chaudhary Charan Singh Haryana Agricultural University, Hisar, Haryana (India). This variety originated as a selection from the 52nd IBWSN CIMMYT nursery received during the *rabi* season of 2019-20. Its pedigree includes the following lineage: *CROC-1/AE.SQUARROSA (205)//BORL95 /3/ PRL/SARA //TSI/VEE#5/4/FRET2/5/CIRO16.*

WH 1306 was identified in 63rd Annual Group Meeting of the All India Coordinated Research Project (AICRP) on Wheat and Barley held at ANDUA&T, Kumarganj, Ayodhya (U.P.) from September 11-13, 2024. It was subsequently released and notified for cultivation in the Peninsular Zone (PZ) of India–comprising Maharashtra, Karnataka, Andhra Pradesh, Goa, the plain and the hilly regions of Tamil Nadu and Kerala (Nilgiri and Palni hills)– under timely sown, irrigated conditions as per Gazette Notification No. S.O. 2128 (E) dated 13th May, 2025 by the Central Sub-Committee on Crop Standards, Notification, and Release of Varieties, Ministry of Agriculture and Farmers Welfare, Government of India.

WH 1306 exhibits dark green foliage with a semi-erect, compact plant type. The spikes are long, tapering, light brown in color, dense and parallel with spreading awns. The peduncle is moderately waxy with a distinct bent posture.

In multi-location trials, WH 1306 recorded a grain yield of 54.87 q/ha under timely sown conditions and 45.97 q/ha under late sown conditions, ranking third among all genotypes under timely sown trials. On mean grain yield basis, it yielded 50.42 q/ha, which was significantly higher than the check variety AKAW 5100 (45.48 q/ha) and statistically *at par* with other leading checks including MACS 6222, GW 322 and MP 1378 as well as qualifying genotypes such as NWS 2222, DBW 443 and PBW 891.

In comparison to check varieties WH 1306 out yielded DBW 187 (15.57%), HI 1544 (11.84%), MACS 6222 (5.73%) and GW 322 (3.34%). It recorded the highest weighted mean yield (50.43 q/ha) under timely sown, irrigated conditions in the Peninsular Zone. WH 1306 also showed a yield advantage over qualifying genotypes AKAW 5100 (2.55%), DBW 443 (2.54%) and PBW 891 (0.31%). Notably, it achieved a potential yield of 72.8 q/ha at Parbhani, Maharashtra during the crop season 2022–23.

WH 1306 exhibited high levels of resistance to major rust diseases, including stem rust (black rust), leaf rust (brown rust) and stripe rust (yellow rust) consistently over three years under both natural and artificial screening conditions, as reflected by low average coefficient of infection (ACI) values. This variety also showed resistance

to other foliar diseases such as leaf blight, flag smut and powdery mildew.

In adult plant resistance (APR) studies, it was resistant to the predominant pathotypes of black rust (11, 40A-117-6), brown rust (77-5, 77-9, 104-2) and yellow rust (238S119, 110S119, 46S119). Similarly, in seedling resistance tests (SRT), WH 1306 was resistant to all major stem rust pathotypes prevalent in India.

WH 1306 is distinguished by its excellent grain and end-use quality traits. It possesses a high grain appearance score (6.8), protein content of 12.4%, sedimentation value of 61 ml and hectoliter weight of 80.85 kg/hl. It scored 8.0/10 for chapati making and 7.8/10 for bread quality. The gluten index is notably high at 96 %, indicating superior dough strength. Additionally, it is enriched with micronutrients, recording high iron (40.8 ppm) and zinc (40.5 ppm) content.

WH 1306 is a physiologically efficient genotype, showing high normalized difference vegetation index (NDVI) values (0.75) and chlorophyll content (52.4) in the Peninsular Zone.

Author contributions

The article was written and enriched by OPB, HC and YK. All authors read, edited, and approved the final manuscript.

Conflict of interest

The authors declare no conflict of interest.

Ethical Approval

The article doesn't contain any study involving ethical approval.

Generative AI or AI/Assisted Technologies use in Manuscript Preparation

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