SHORT COMMUNICATION https://doi.org/10.58297/VVFY9393

Him Palam Dhan 3 (HPR 2865): A Medium Maturing Long Bold Rice Variety with Stable Yield and Acceptable Grain Quality for Himachal Pradesh and Uttrakhand

Neelam Bhardwaj*, Dhirendra Singh, Daisy Basandrai, Shivani and Surbhi Patyal

Department of Genetics and Plant Breeding, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur-176062
*Corresponding author Email: neenabhardwaj@gmail.com

Received : 16th December, 2025, Accepted: 29th December, 2025

Abstract

Him Palam Dhan 3 (HPR 2865), a variety developed from a cross between *Palampur Purple* and *Kasturi*, is a medium duration, long-bold grained rice variety evaluated for agronomic traits in the All India Coordinated Rice Improvement Project (AICRIP) across 13 testing locations in the Northern Hill Zone during *kharif* 2018 to 2020, along with three checks*, i.e.,* Vivekdhan 86, Shalimar Rice 3 and HPR 1068. The genotype exhibited consistent tolerance to both leaf and neck blast with low disease scores across seasons compared to the checks. HPR 2865 recorded stable grain yield over three years along with desirable plant height, early flowering and adequate panicle density. Grain quality analysis revealed satisfactory hulling, milling, head rice recovery, medium amylose content and acceptable cooking quality. The overall performance indicates that HPR 2865 is a promising blast tolerant rice variety suitable for possible release in blast-prone regions of the North Western Himalayas.

Keywords: HPR 2865, blast tolerance, early maturity, grain quality, long bold grains

Introduction

Rice (*Oryza sativa* L.) is one of the most important staple food crops, supporting the livelihood and food security of millions of people worldwide. In India, rice occupies a central position in agricultural production systems across diverse agro-ecological regions. However, rice productivity is frequently constrained by biotic stresses, among which blast disease caused by *Magnaporthe oryzae* remains the most devastating and widespread. The disease affects rice at multiple growth stages, including leaf, node and panicle, leading to severe yield losses, particularly when neck blast incidence coincides with the reproductive phase.

The North Western Himalayan region presents unique challenges for rice cultivation due to its variable climate, high humidity during the cropping season and frequent occurrence of blast epidemics. The adoption of blast-susceptible varieties often results in unstable yields and increased dependence on fungicidal management, which is neither economically sustainable nor environmentally desirable. Consequently, the development and deployment of blast-tolerant rice varieties remain the most effective and eco-friendly strategy for managing the disease in these regions. Grain and cooking quality characteristics also play a vital role in varietal acceptance by farmers, millers and consumers. Traits such as milling efficiency, grain type, amylose content and cooking quality determine market value and consumer preference.

In response to these challenges, a systematic varietal development programme was initiated at CSK HPKV, Rice and Wheat Research Centre, Malan, to breed high-yielding, lodging-resistant and quality rice cultivars. Germplasm with desirable grain type and tolerance to hill-specific stresses was identified from the available collections and strategic hybridization

plans were implemented. The parental lines chosen for the crossing programme included *Palampur Purple*, a locally adapted genotype known for its robustness in hill ecologies and *Kasturi*, a quality rice type with favourable grain characteristics. The material from F_2 onwards was handled by the pedigree method, enabling systematic selection across segregating generations based on plant type, productivity potential, disease reaction and quality traits. A uniform line from one of the F_2:$_9$ was tested in a station trial from 2016. Once uniformity was achieved, it was included in the Initial Evaluation Trials (IET) under the All India Coordinated Rice Improvement Project (AICRIP). Following encouraging performance, the line was promoted to subsequent stages, including multi-location Preliminary Yield Trials and later to advanced yield trials across Low and Medium Northern Hill zones.

The three-year evaluation across 13 diverse testing locations confirmed the stability and superiority of HPR 2865, with the variety consistently ranking among the top performers when compared with established national and regional checks. The variety showed a yield advantage of 0.59-82.34% and 21.38-93.31% over the national check Vivekdhan 86 and the regional check Shalimar Rice 3, respectively (**Table 1 and Figure 1**). Artificially screening for pests and diseases was done at Rice and Wheat Research Centre, Malan, CSK HPKV and the results are presented in **Table 2**. The variety showed moderate resistance to leaf and neck blast during 2018, 2019 and 2020. The infestation of brown plant hopper, white-backed plant hopper, leaf folder and stem borer was found to be comparatively lower in this variety as compared to other tested varieties *i.e.,* TN-1 (SC) and W-1263 (RC) (**Table 3**).

Table 1: Mean data for different agro-morphological traits during *kharif* 2018, 2019 and 2020

Variety	Days to 50 % flowering			Plant height			Panicles/m^2			Yield (kg/ha)		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
HPR 2865	99	100	88	103	117	129	185	338	222	3387	3670	2657
Viveldhan 86	92	92	90	108	117	127	271	307	210	3367	3083	2243
Shalimar rice 3	91	84	82	108	104	124	254	249	196	2553	2594	1742
1068	109	95	86	93	106	98	294	298	228	3743	3243	1881

Figure 1: Field View of Rice Variety Him Palam Dhan 3 (HPR 2865)

Table 2 Disease reaction of Him Palam Dhan 3 (HPR 2865) against leaf and neck blast during *kharif* 2018, 2019 and 2020

Sl. No.	Variety	Leaf blast			Neck Blast		
		2018	2019	2020	2018	2019	2020
1	HPR 2865	1	2	3	3	1	3
2	Vivekdhan 86	1	2	3	3	3	3
3	Shalimar Rice 3	5	4	4	7	7	7

Table 3: Reaction to Insect Pests

Variety	Brown Plant Hopper	White-backed Plant Hopper	Stem Borer	Leaf Folder
HPR 2865	5.8	6.6	16.1	8.7
TN-1 (SC)	8.3	9.0	27.6	15.2
W-1263 (RC)	6.1	9.0	24.5	7.6

Grain qualities of the variety were analyzed based on standard laboratory procedures (**Table 4**). This variety had long, bold white grains with 86.6% hulling, 68.8% milling, L/B ratio of 2.51and amylose content of 24.5% (**Figure 2 and Table 4**). Its strong agronomic behavior, moderate resistance to leaf and neck blast, lower pest incidence and favorable grain quality contributed to its advancement for large-scale testing and eventual proposal for identification.

Table 4: Data on Quality Characteristics

Sl. No.	Variety	Hull	Mill	HRR	KL	KB	L/B	Grain Type	Grain Chalk	ASV	AC	GC
1	**HPR 2865**	86.6	68.8	53	6.34	2.52	2.51	LB	OC	4	24.49	22
2	Vivekdhan-86	80.6	69.3	57.7	5.42	2.6	2.08	SB	OC	4	24.17	22
3	Shalimar Rice-3	80.6	68.2	62.1	5.1	2.53	2.01	SB	OC	4	25.81	22
4	1068	77.2	64.4	18.1	5.48	2.3	2.3	SB	VOC	4	24.4	28