

ICPL 87051 - A White, Bold-seeded, Wilt and Sterility Mosaic Tolerant Line of Pigeonpea

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ICPL 87051 is a medium-duration, large (100-seeds weigh 14 g) white-seeded, and wilt and sterility mosaic

tolerant line derived through pedigree selection from the cross between ICP 7979 × C 11. Considering its yield potential, seed size, seed color, and tolerance to wilt and sterility mosaic, ICPL 87051 was included in station trials at ICRISAT Center and Agricultural Research Station, Gulbarga (Karnataka). The performance of this line has been summarized below.

Performance in Karnataka State. ICPL 87051 was evaluated in large-scale station trials for three cropping seasons along with local control GS 1 and 12 other breeding lines. From the 3-year data (Table 1), ICPL 87051 (2.15 t ha⁻¹) was found to be 33% better than the local control GS 1 (1.61 t ha⁻¹).

To know the performance of ICPL 87051 in farmers' fields, it was evaluated in four villages in Gulbarga taluk (Table 2). ICPL 87051 (1.76 t ha⁻¹) was found to be 28% superior to local controls GS-1/PT 221 (Table 2).

Table 2. Performance of ICPL 87051 in farmers' fields in Gulbarga taluk, rainy season 1989 (sole crop).

Farmer's name	Village	Yield (t ha ⁻¹)	
		ICPL 87051	GS 1/PT 221
G. Patil	Linganwadi	2.18	1.60
Y. Patil	Revoor	1.99	1.70
S. Sirur	Ferozabad	1.87	1.41
S. Bilgundi	Madgil	1.00	0.80
Mean		1.76	1.38

Performance at ICRISAT Center. At ICRISAT Center, ICPL 87051 was evaluated in yield trials for 3 years

Table 1. Performance of ICPL 87051 in large-scale station trials at Gulbarga, rainy seasons 1987-89.

Entry	Yield (t ha ⁻¹)				100-seed mass (g)
	1987	1988	1989	Mean	
ICPL 87051	1.72(3) ¹	2.60(1)	2.09(1)	2.15(1)	13.9
Control GS 1	1.56(7)	1.65(14)	1.61(9)	1.61(11)	8.8
Trial mean (n=14)	1.51	2.14	1.68	-	-
CV (%)	13	12	22	-	-

1. Figures in parentheses indicated rank of entry in the trial.

along with BDN 2 (a white-seeded variety recommended for Maharashtra and Gujarat states). The performance is summarized in Table 3. On an average ICPL 87051 yielded 1.75 t ha⁻¹ while the yield of BDN 2 was 1.37 t ha⁻¹ and the former was 28% superior.

Table 3. Performance of ICPL 87051 at ICRISAT Center, rainy seasons 1987-89.

Entry	Yield (t ha ⁻¹)				100-seed mass (g)
	1987	1988	1989	Mean	
ICPL 87051	1.40	2.04	1.80	1.75	14.5
Control BDN 2	1.39	1.17	1.54	1.37	9.1
SE	±0.30	±0.19	±0.13	-	-
Trial mean	1.41 (n=10)	1.86 (n=8)	1.54 (n=16)	-	-
CV (%)	37	21	14	-	-

During the 1988 season, ICPL 87051 was also evaluated under rainfed conditions in a large plot along with BDN 2. ICPL 87051 yielded 1.56 t ha⁻¹ (0.46 ha block) while BDN 2 recorded 1.24 t ha⁻¹ (0.20 ha block), indicating its ability to produce high yield under rainfed conditions.

Disease reaction at ICRISAT Center. ICPL 87051 and BDN 2 were compared for wilt and sterility mosaic reactions in disease-sick plots for three seasons. In comparison to BDN 2 (59), wilt incidence in ICPL 87051 (23%) was less and can be considered as tolerant. Similarly, ICPL 87051 showed tolerance to sterility mosaic also (Table 4). It shows ring-spot symptoms but no sterility.

Table 4. Wilt and sterility mosaic reactions of ICPL 87051 in disease-sick plots at ICRISAT Center, rainy seasons 1987-89.

Entry	Wilt (%)				Sterility Mosaic (%)			
	1987	1988	1989	Mean	1987	1988	1989	Mean
ICPL 87051	31	27	13	23	5	22	0	9
Control BDN 2	93	74	10	59	NA	99	98	99

Yield performance in disease-sick plots at ICRISAT Center and Gulbarga. In the 1989 rainy season, ICPL 87051 was sown in disease-sick plots both at ICRISAT Center and Agricultural Research Station (ARS), Gulbarga. At ICRISAT Center, this variety was grown for breeder's seed multiplication in a wilt and sterility mosaic sick plot in an Alfisol in 0.07 ha area with irrigation. ICPL 87051 recorded 13% wilt and 0% sterility mosaic and produced 1.34 t ha⁻¹ of grains.

At ARS, Gulbarga, ICPL 87051 was evaluated in a wilt-sick field along with two wilt-resistant (ICPL 270 and Maruti) and two wilt-susceptible (GS 1 and PT 221) controls in 600 m² plot each. In the wilt-susceptible cultivars, no yield was recorded because of high plant mortality. ICPL 87051 yielded 1.66 t ha⁻¹ grains in comparison with 1.37 t ha⁻¹ for ICPL 270 and 1.29 t ha⁻¹ for Maruti.