Pigeonpea Variety ICPL 332

- **Tolerant to the pod borer, *Helicoverpa armigera***
- **High-yielding**
- **Medium-duration**

ICRISAT
Plant Material Description no. 35

International Crops Research Institute for the Semi-Arid Tropics
Patancheru, Andhra Pradesh 502 324, India

1992

Purpose of Description

ICPL 332 is a high-yielding, medium-duration pigeonpea variety. It is tolerant to the pod borer *Helicoverpa armigera.* It was released as "Abhaya" in Andhra Pradesh, India in 1989.

Origin and Development

ICPL 332 is a pure line selection from a landrace found in Andhra Pradesh. Bulk seed of the landrace, ICRISAT germplasm accession no. ICP 1903, was heterogeneous for several characters. Single-plant selections of the bulk population were initially screened for *Helicoverpa* tolerance. Selections with tolerance were evaluated for yield in the 1982/83 rainy season at ICRISAT Center. From 1984/85 to 1988/89 further evaluations were carried out for *Helicoverpa* tolerance and yield in multinational trials in Andhra Pradesh.

Plant Characters

ICPL 332 is of indeterminate growth habit; its plants are about 2 m tall. Its stem is green and flowers are yellow with light red streaks. The pods are green with purple streaks. This variety takes approximately 122 days to 50% flowering, and matures in approximately 180 days.

The means and ranges for plant height, days to 50% flowering, days to 75% maturity, and 100-seed mass are given in Table 1.

Seed Characters

The seeds of ICPL 332 are light brown, pea-shaped, with a 100-seed mass of 7.0 g. The mean seed protein content is 23.8% which compares well with that of the control cultivars, 23.6% for C 11 and 26.5% for BDN 1. The *dhal* of ICPL 332 cooks faster (19 minutes) than *dhal* made from C 11 or BDN 1 (22 minutes). A panel of 10 members at ICRISAT Center found ICPL 332 *dhal* tasted good and was generally acceptable.

Performance

The mean yield of ICPL 332 in multilocational trials was 1.69 t ha^{-1} as compared to 1.40 t ha^{-1} for C 11, the best control cultivar (Table 2). It was the highest-yielding entry at each trial location in Andhra Pradesh. Pod borer damage of ICPL 332 ranged from 11.6% to 70.6% with a mean of 35% as compared to the means of two control cultivars C 11 (51%), and BDN 1 (65%) in pesticide-free fields at ICRISAT Center (Table 3).

ICPL 332 was further evaluated for *Helicoverpa* damage and yield for 3 years at Lam farm, Guntur, by Andhra Pradesh Agricultural University (APAU) scientists. In these evaluations the mean yield of ICPL 332 was 1.08 t ha^{-1} compared to 0.87 t ha^{-1} for the local control, LRG 30. The average *Helicoverpa* incidence at Lam farm was 8% on ICPL 332 compared to 20% on LRG 30.

Table 1. Characteristics of pigeonpea genotypes ICPL 332 and controls BDN 1 and C 11.

	Plant height (cm)		Days to 50% flowering		Days to 75% maturity		100-seed mass (g)	
Genotype	Mean	Range	Mean	Range	Mean	Range	Mean	Range
ICPL 332	196	163-238	122	103-146	180	170-204	6.9	5.7-7.9
Controls								
BDN 1	161	123-217	115	103-127	179	160-199	9.7	8.2-11.1
C 11	189	153-234	126	114-145	190	177-210	9.7	7.3-11.1

Table 2. Seed yield (t ha^{-1}) of ICPL 332 and control cultivars in Andhra Pradesh, India, 1984-88.

	1984		1985	1986	1987		1988	
Genotype	Madhira	Lam	ICRISAT Center	Lam	ICRISAT Center	Warangal	ICRISAT Center	Mean
ICPL 332	2.27	1.05	1.84	1.05	2.73	1.42	1.48	1.69
Controls								
C 11	1.61	1.00	1.32	-	1.88	0.45	2.13	1.40
BDN 1	1.83	0.94	1.44	0.58	1.54	0.45	0.89	1.09
LRG 30	2.25	0.99	-	0.62	-	-	-	1.28
SE	±0.141	±0.080	±0.167	±0.056	±0.271	±0.090	±0.210	
Trial Mean	1.86	0.92	1.25	0.72	1.91	0.57	1.26	
CV%	15	17	23	14	28	28	24	

- not tested

Table 3. Borer-damaged pods (%) on *Helicoverpa*-tolerant line ICPL 332 and control varieties C 11 and BDN 1 in pesticide-free fields at ICRISAT Center, rainy seasons 1983-88.

	Borer-damaged pods (%)					
Genotype	1983	1985	1986	1987	1988	Mean
ICPL 332	49.0	11.6	22.5	70.6	19.0	35
Controls						
C 11	63.0	21.1	38.3	99.6	31.7	51
BDN 1	76.0	33.4	71.4	94.2	48.1	65

Plant Material Descriptions from ICRISAT

Leaflets in this series provide brief descriptions of crop genotypes identified or developed by ICRISAT, including:

- germplasm accessions with important agronomic or resistance attributes;
- breeding materials, both segregating and stabilized, with unique character combinations; and
- cultivars that have been released for cultivation.

These descriptions announce the availability of plant material, primarily for the benefit of the Institute's cooperators. Their purpose is to facilitate the identification of cultivars and lines and promote their wide utilization. Requests should be addressed to the Director General, ICRISAT, or to appropriate seed suppliers. Stocks for research use issued by ICRISAT are sent to cooperators and other users free of charge.

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