
Groundnut Elite Germplasm ICGV 86388

- High-yielding sequentially branched improved germplasm
- Matures in 110-115 days in the rainy season in India
- Moderately resistant to peanut bud necrosis virus
- Resistant to jassids, moderately resistant to thrips
- Average shelling percentage 70
- Average oil content 53 %



Reactions to bud necrosis disease in ICGV 86388 and JL 24 (susceptible control, right).



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Plant Material Description no. 66

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

Purpose of Description

ICGV 86388 is a high-yielding, sequentially branched, improved germplasm line with moderate resistance to peanut bud necrosis disease (PBNB). Resistance to the causal virus (PBNV) under mechanical inoculation is higher than in ICGV 86031, a previously reported resistance source. ICGV 86388 is also moderately resistant to thrips (*Thrips palmi*) and resistant to jassids (*Empoasca kerni*), and is therefore suitable for areas where PBNB, thrips, and jassids are endemic. It can also be used in breeding programs as a source of resistance to these three stress factors.

Origin and Development

ICGV 86388 was selected using the bulk pedigree method from a three-way cross made in 1981 between Dh 3-20, USA 20 (ICG 983), and NC Ac 2232. Its pedigree is [(Dh 3-20 x USA 20) x NC Ac 2232] F₂-B₁-B₁-B₂-B₁. Dh 3-20 is a high-yielding Spanish bunch breeding line developed in India, USA 20 a high-yielding Virginia runner germplasm line, and NC Ac 2232 a low-yielding Virginia runner germplasm line with resistance to thrips and jassids.

Performance

In 3 years of field screening at Narkoda and Palem in Andhra Pradesh and Mainpuri in Uttar Pradesh, average PBNB incidence was 18% on ICGV 86388, as against 61% in the susceptible control JL 24. Greenhouse tests were also con-

Table 1. Cumulative PBNB incidence in ICGV 86388 and controls following mechanical sap inoculation under greenhouse conditions, ICRISAT Asia Center.

Genotype	Cumulative PBNB incidence (%) ¹			
	1993/94	1994	1994/95	Average
ICGV 86388	17.7 (24.4) ²	52.7 (46.6)	21.0 (27.4)	30.5
Controls				
ICGV 86031	26.2 (30.0)	71.7 (58.0)	37.0 (37.6)	45.0
JL 24	78.2 (62.8)	93.7 (76.9)	90.0 (72.1)	87.3
SE	(±4.27)	(±2.64)	(±1.86)	
CV (%)	(23.0)	(11.0)	(9.0)	

1. Plants were inoculated at the 4th or 5th quadrifoliate stage with infected groundnut leaf extract diluted to 10⁻² w/v.

2. Figures in parentheses are angular transformed values.

ducted at ICRISAT Asia Center for 3 seasons. Plants mechanically inoculated with PBNV-infected plant leaf extract at 10^{-2} dilution showed an average PBNV incidence of 31% in ICGV 86388 and 87% in JL 24 (Table 1). Under field conditions, ICGV 86388 also showed higher resistance to thrips and jassids than JL 24. On a 1-9 scale (1 - highly resistant, 8-9 - highly susceptible), mean damage scores in ICGV 86388 were 3 (jassids) and 5 (thrips). The corresponding scores for JL 24 were 7 and 8.

In yield trials conducted over 3 rainy seasons at 11 locations in India, average pod yields were 2.04 t ha^{-1} in ICGV 86388, compared to 1.68 t in JL 24 (Table 2). In postrainy-season trials at ICRISAT Asia Center, average pod yields were 3.32 t ha^{-1} in ICGV 86388 and 2.71 t ha^{-1} in J 11 (Table 3).

Table 2. Pod yields in ICGV 86388 and JL 24 (control), rainy seasons, India.

Year	Number of locations	Genotype	Average pod yield (t ha^{-1})
1988	6	ICGV 86388	2.10
		JL 24	1.65
1989	3	ICGV 86388	2.38
		JL 24	2.24
1993	2	ICGV 86388	1.35
		JL 24	0.95

Average pod yields: ICGV 86388 2.04 t ha^{-1} , JL 24 1.68 t ha^{-1}

Table 3. Pod yields of ICGV 86388 and J 11 (control), postrainy seasons, ICRISAT Asia Center, India.

Year	Location	Genotype	Pod yield (t ha^{-1})	SE	CV (%)
1988/89	Alfisol	ICGV 86388	3.38	± 0.206	9
		J 11	3.32		
	Vertisol	ICGV 86388	2.31	± 0.156	18
		J 11	1.28		
1989/90	Alfisol	ICGV 86388	4.27	± 0.306	12
		J 11	3.54		

Average pod yields: ICGV 86388 3.32 t ha^{-1} , J 11 2.71 t ha^{-1}

Plant Characters

ICGV 86388 has an erect growth habit with sequential branching and medium-sized, elliptic, dark green leaves. It has 4-5 primary and 2-4 secondary branches. The main axis is 24 cm high, and the canopy 36 cm broad. This cultivar matures in 110-115 days in the rainy season at ICRISAT Asia Center.

Pod/Seed Characters

ICGV 86388 has small pods, mainly two-seeded, with none to slight constriction, moderate reticulation, and no beak. The shelling percentage is 70. The seeds are tan in color, with an average 100-seed mass of 37 g, and contain 53% oil.



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Plant Material Descriptions

from the

International Crops Research Institute for the Semi-Arid Tropics

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
- 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 breeding lines and to promote their wide utilization. Requests for seed should be addressed to the Director General, ICRISAT, or to appropriate seed suppliers. Materials for research are sent by ICRISAT to cooperators and other users free of charge.