
Groundnut Elite Germplasm ICGV 86699



- High-yielding interspecific derivative
- Multiple resistance/tolerance to diseases—rust, early and late leaf spots, peanut bud necrosis and peanut mottle viruses, stem and pod rots (*Sclerotium rolfsii*)
- Less susceptible to the tobacco caterpillar and jassids than popular Indian cultivars
- Matures in 118 days in the rainy season in India
- Average shelling percentage 60
- Average oil content 48%



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Plant Material Description no. 65

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

Purpose of Description

ICGV 86699 is a high-yielding interspecific derivative with multiple resistance/tolerance to diseases and insect pests.

Origin and Development

ICGV 86699 originates from a single-plant selection made in CS 29, which in turn was developed through repeated selections from a cytologically unstable segregating population of (*Arachis batizocoi* x *A. duranensis*) x *A. hypogaea* (cv NC 2) received from the North Carolina State University, USA. ICGV 86699 was developed using the bulk pedigree method in four subsequent generations of the single-plant selection in CS 29. Phenotypically similar plants with high yield and superior agronomic characters including disease resistance were bulked together at harvest and advanced to the next generation until the bulk stabilized. Its pedigree is: (*A. batizocoi* x *A. duranensis*) x *A. hypogaea* (cv NC 2)-CS 29-P₁-B₂-B₁-B₁-B₁.

Performance

ICGV 86699 was evaluated for pod yield from 1987 to 1990 in All India Coordinated Research Project on Oilseeds (AICORPO) trials, where it consistently out-yielded the Indian cultivar Kadiri 3. In other trials in Myanmar and South Africa, it gave higher pod yields than local cultivars (Table 1).

This variety is resistant to rust and tolerant of early and late leaf spots in India, Myanmar, South Africa, Niger, and Sri Lanka (Table 2). It is also resistant/tolerant to other diseases (peanut bud necrosis, peanut mottle, stem and pod

Table 1. Pod yields in ICGV 86699 and local groundnut cultivars in three countries.

Country	Pod yield (t ha ⁻¹)		Superiority (%) over local cultivar
	ICGV 86699	Local cultivar ²	
India ¹	1.22	0.83 (Kadiri 3)	47
Myanmar	1.42	0.71 (Sinpadetha 2)	100
South Africa	1.42	1.38 (Sellie)	3

1. Date from 20 AICORPO trials conducted for 4 years (1987-90) at 8 locations.

2. Cultivar names in parentheses.

Table 2. Disease reactions (1-9 scale) in ICGV 86699 and local groundnut cultivars to rust and early and late leaf spots.¹

Genotype	Disease	Country				
		India ²	Myanmar	South Africa	Niger	Sri Lanka
ICGV 86699	Rust	3.09		1.00		2.65
	Late leaf spot	5.92	1.00	1.67	3.90	3.60
	Early leaf spot			1.33	4.00	2.85
Local cultivar ³	Rust	7.92		6.67		5.15
	Late leaf spot	7.69	8.00	6.00	7.00	5.65
	Early leaf spot			4.67	6.30	4.70
		(Kadiri 3)	(Magwe 12)	(Sellie)	(28-206)	(Red Spanish)

1. Scored on a 1-9 scale, where 1 = no disease, 9 = 50-100% foliage destroyed.

2. Based on 12 trials conducted for 3 years at ICRISAT Asia Center.

3. Cultivar names in parentheses.

rots caused by *Sclerotium rolfsii*) and insect pests (tobacco caterpillar *Spodoptera litura*, jassids *Empoasca kerri*; Table 3).

Plant Characters

ICGV 86699 belongs to the Virginia bunch group (*A. hypogaea* subsp *hypogaea* var *hypogaea*). It has a decumbent 3 growth habit, alternate branching, and medium-sized elliptic green leaves. It has eight primary and several secondary branches. It matures in about 118 days in the rainy season in India.

Pod/Seed Characters

ICGV 86699 has slightly reticulated pods with moderate beak and slight constriction. The pods are mostly two-seeded. The seeds are red, with a 100-seed mass of 38 g, and contain 48% oil and 24% protein. The shelling percentage is 60.

Table 3. Reactions of ICGV 86699 and other Indian groundnut cultivars to diseases and insect pests.

	PBND ¹		PMV ²		Stem/pod rots ³		Spodoptera ⁴			Jassids ⁵	
	Loc1		Loc2		Loc1		Loc1			Loc5	
	R	PR	PR		Stem rot	Pod rot		Loc3	Loc4		
ICGV 86699	2.5	33.3	7.9	16.6	0.5	6.5	10.6	23.2	13.3	5	9.8
Controls											
JL 24	25.0	50.8			30.9	41.7					28.2
TMV 2			87.3	35.1			18.0	41.4	65.0		
ICGV 86031			47.1					30.1	31.7		
Kadiri 3										8	

Loc1 = ICRISAT Asia Center, Loc2 = Mainpuri, Uttar Pradesh, Loc3 = Dharwad, Karnataka, Loc4 = Bapatla, Andhra Pradesh, Loc5 = Junagadh, Gujarat. Locations 3, 4, and 5 are AICORPO trials.

R = Rainy, PR = Postrainy season.

1. Percentage of plants infected by peanut bud necrosis disease (PBND).
2. Percentage yield loss in plants artificially infected with peanut mottle virus (PMV).
3. Stem/pod rots caused by *Sclerotium rolfsii*; percentage of infected plants (stem rot) and infected pods (pod rot).
4. Percentage of leaflets damaged by *Spodoptera litura*.
5. Location 1: scored on a 1-9 scale where 1 = no damage, 9 = 76-100% foliage damaged. Location 5: scored as percentage of yellowed foliage.



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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.