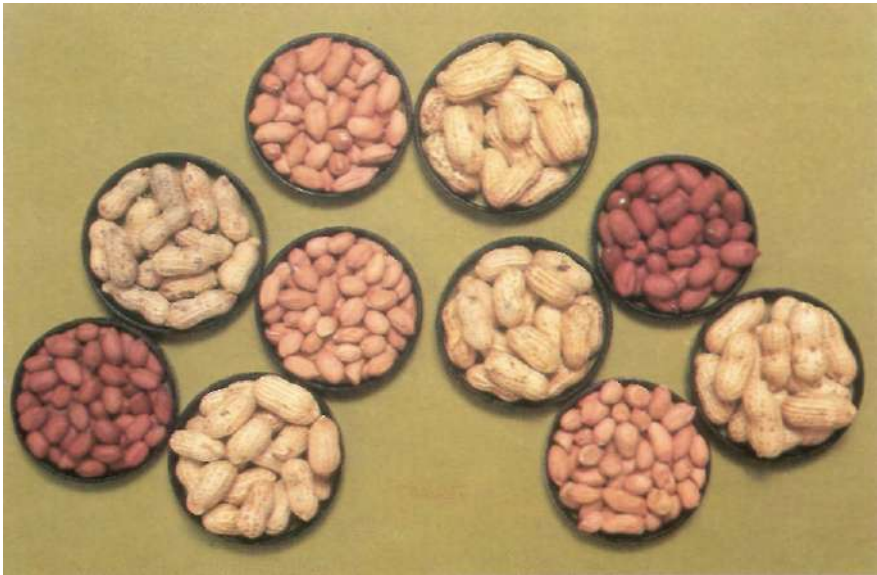

Groundnut Elite Germplasm ICGVs 86155, 86156, 86158, 87378, and 87921

- High-yielding Spanish varieties with 4-week postmaturity fresh seed dormancy
- Suitable for cultivation in areas where seeds may germinate in situ
- Maturity duration in the rainy season: 110-115 days for ICGV 86155, 120-125 days for the other four genotypes
- Average 100-seed mass 39 g in ICGV 86155, 51-53 g in the other genotypes
- Shelling—ICGV 86155 71%, ICGV 86156 62%, ICGV 86158 69%, ICGV 87378 60%, ICGV 87921 65%
- Oil content 46.0 to 48.4%
- Protein content 19.6 to 22.2%



ICRISAT

Plant Material Description no. 69

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

Purpose of Description

ICGVs 86155, 86156, 86158, 87378, and 87921 are high-yielding Spanish (subsp *fastigiata* var *vulgaris*) groundnut varieties with 4-week postmaturity fresh seed dormancy.

Origin and Development

These varieties were developed at ICRISAT Asia Center (IAC), India. ICGVs 86155, 86156, and 86158 originated from the cross ICGS 30 x (TMV 10 x Chico-F₆ breeding line), made in the 1983 rainy season; and ICGV 87921 from the cross ICGS 21 x (TMV 2 x Chico), made in the 1983/84 postrainy "season. ICGV 87378 was bred by mass selection from Kanto No. 40, a Spanish Japanese germplasm line also known as ICG 7261 and EC 123074. ICGV 30 (ICGV 87126) and ICGS 21 (ICGV 87124) are high-yielding medium-duration Spanish varieties developed at IAC. TMV 10 (Virginia group, subsp *hypogaea* var *hypogaea*) and TMV 2 (Spanish group) are cultivars that have been released in India. Chico is a Spanish short-duration germplasm line released in the USA. The pedigrees of these varieties are:

ICGV 86155 = ICGS 30 x (TMV 10 x Chico F₆) F₂-P₂₃-B₁-B₁-B₁-B₁-B₁

ICGV 86156 = ICGS 30 x (TMV 10 x Chico F₆) F₂-P₂₆-B₁-B₁-B₁-B₁-B₁

ICGV 86158 = ICGS 30 x (TMV 10 x Chico F₆) F₂-P₃₂-B₁-B₁-B₁-B₁-B₁

ICGV 87921 = ICGS 21 x (TMV 2 x Chico) F₂-P₃₀-B₃-B₂-B₁-B₂-B₁

ICGV 87378 = Kanto No. 40-B₁-B₁-B₁-B₁

Description

Details of plant, pod, and seed characteristics are given in Table 1.

Table 1. Plant, pod, and seed characteristics of spanish dormant varieties ICGVs 86155, 86156, 86158, 87378, and 87921, ICRI SAT Asia Center, India, 1992 rainy season.

Characteristic	ICGV 86155	ICGV 86156	ICGV 86158	ICGV 87378	ICGV 87921
Plant characteristics					
Growth habit	Erect	Erect	Erect	Erect	Erect
Branching pattern	Sequential	Sequential	Sequential	Sequential	Sequential
Stem pigmentation	Present	Present	Present	Present	Present
Leaf shape and color	Elliptic, green	Elliptic, green	Elliptic, green	Elliptic, green	Elliptic, green
Average height of main axis (cm)	23	20	16	20	24
Average canopy breadth (cm)	32	29	21	29	29
Average number of primary branches	4-6	5-6	3-4	2-6	3-5
Average number of secondary branches	0	0	0	0	0
Pod characteristics					
Beak	Slight to moderate	Slight	Slight to moderate	Slight	Slight to moderate
Constriction	Moderate to deep	Moderate	Moderate to deep	Moderate	Moderate
Reticulation	Slight	Slight	Slight	Slight	Slight
Length, breadth (mm)	27, 12	42, 18	32, 13	34, 14	38, 15
Number of seeds per pod	2-1	2-1-3	2-1-3	2-1	2-1
Seed characteristics					
Color	Red	Tan	Red	Tan	Tan
Length, breadth (mm)	11, 7	17, 8	14, 8	16, 7	17, 7

Performance

These varieties were evaluated in the laboratory for germination of fresh seeds in the 1991/92 and 1992/93 postrainy and 1992 and 1993 rainy seasons; and for germination of 1-week cured seeds in the 1991/92 and 1992/93 postrainy and 1993 rainy seasons. The average cumulative fresh seed germination after 4 weeks of incubation was 9.3% in ICGV 86155, 5.3% in ICGV 86156, 15.2% in ICGV 86158, 6.4% in ICGV 87378, and 3.7% in ICGV 87921, compared to 13.6% in the dormant control cultivar M 13 and 81.5% in the nondormant control cultivar JL 24 (Table 2). For cured seeds, average cumulative germination after 2 weeks of incubation was 5.9% in ICGV 86155, 1.0% in ICGV 86156, 8.0% in ICGV 86158, 5.9% in ICGV 87378, and 5.1% in ICGV 87921, compared to 8.3% in M 13 and 88.1% in JL 24.

In field experiments in the 1991/92 and 1992/93 postrainy seasons, these varieties were also evaluated for in situ sprouting by repeated irrigation after maturity. The cumulative in situ field sprouting 2 weeks after maturity was 1.0% in ICGV 86155, 0.2% in ICGVs 86156 and 86158, and 0.0% in ICGVs 87378 and 87921, compared to 0.6% in M 13 and 9.4% in JL 24.

ICGV 86155 matures in 110-115 days and ICGVs 86156, 86158, 87378, and 87921 in 120-125 days in the rainy season at IAC.

All the varieties except ICGV 86155 outyielded JL 24 in several trials (4-10 trials for different genotypes) at IAC; the superiority in pod yield ranged from 18 to 52%. Average shelling percentage is 71 in ICGV 86155, 62 in ICGV 86156, 69 in ICGV 86158, 60 in ICGV 87378, and 65 in ICGV 87921. Average 100-seed mass is 39 g for ICGV 86155 and 51-53 g for the other four genotypes. Oil content ranges from 46.0 to 48.4% and protein content from 19.6 to 22.2% (Table 2).

Table 2. Performance of five Spanish dormant varieties and control cultivars, ICRISAT Asia Center, India.

Genotype	CFSG ¹ (%)	CCSG ² (%)	CFS ³ (%)	Pod yield (t ha ⁻¹)	Shelling percent- age ⁴	100- seed mass ⁴ (g)	Oil content ⁵ (%)	Protein content ⁵ (%)
ICGV 86155	9.3	5.9	1.0	1.93 (10) ⁶	71	39	47.9	19.6
ICGV 86156	5.3	1.0	0.2	2.43 (10)	62	51	48.4	20.8
ICGV 86158	15.2	8.0	0.2	2.30 (10)	69	52	48.3	21.6
ICGV 87378	6.4	5.9	0.0	2.96 (4)	60	52	46.1	20.6
ICGV 87921	3.7	5.1	0.0	2.97 (4)	65	53	46.0	22.2
Controls								
M 13 (dormant)	13.6	8.3	0.6	2.34 (4)	66	51	48.7	21.2
JL 24 (nondormant)	81.5	88.1	9.4	1.95 (10)	70	41	48.5	24.1

1. Average cumulative fresh seed germination after 4 weeks of incubation.
2. Average cumulative cured seed germination after 2 weeks of incubation.
3. Average cumulative field sprouting 2 weeks after maturity.
4. Average of 4 seasons for JL 24 and ICGVs 86155, 86156, 86158; 3 seasons for ICGV 87378 and ICGV 87921, and M 13.
5. Average of 3 seasons.
6. Figures in parentheses show number of trials.



ICRISAT

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.