
Groundnut Elite Germplasm

ICGV-SM 85048



- High-yielding Spanish breeding line released in 1992 as Stella in Mauritius
- Suitable for cultivation both in sugarcane interrows and pure stands
- Resistant to web blotch
- Usually 2-seeded pods with a prominent ridge and reticulation
- Seeds are deep red, and contain 54% oil and 26% protein



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Plant Material Description no. 74

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

Purpose of description

ICGV-SM 85048 is a high-yielding breeding line released in 1992 as Stella in Mauritius. It is suitable for cultivation both in sugarcane interrows and in pure stands in that country. It also performs well in other countries of the southern African region.

Origin and development

ICGV-SM 85048 originates from a double cross made in 1980/81 crop season at ICRISAT Asia Center, India. The F₃ population of the cross was introduced in the Southern African Development Community (SADC)/ICRISAT Groundnut Project, Malawi, in the 1982/83 crop season. The first selection for high pod yield and other agronomic characteristics was performed visually in the F₃ population at the time of harvest. Selected plants were bulked together into different phenotypically uniform bulks. One such bulk was designated B₁. This process of selection and bulking was repeated for the next two generations in the B₁ bulk, after which the selected bulk stabilized. The full pedigree of ICGV-SM 85048 is [(Goldin 1 x Faizpur 1-5) x (Manfredi x M 13)] F₃-B₁-B₂-B₁.

ICGV-SM 85048 was evaluated in replicated yield trials conducted by the SADC/ICRISAT Groundnut Project during 1985/86 to 1990/91. It was introduced in 1988 in the Mauritius Sugar Industry Research Institute, Mauritius. After evaluation in on-station and on-farm trials, it was released in 1992 as Stella in the country.

Performance

In various on-station yield trials conducted during 1985/86-1990/91 at Chitedze, Malawi, ICGV-SM 85048 recorded a pod yield advantage over control cultivar Malimba ranging from 3.4 to 66.1% (average 29.5%). The pod yield of ICGV-SM 85048 in these trials ranged from 1.2 to 3.9 t ha⁻¹ and that of control, Malimba, from 1.2 to 3.1 t ha⁻¹. In the 1990/91 SADC/ICRISAT regional yield trial conducted in Malawi, Namibia, Swaziland, and Zambia, the pod yield advantage of ICGV-SM 85048 ranged from 8.1 to 69.0% (average 36.2%). The pod yield of ICGV-SM 85048 in this trial ranged from 0.4 to 2.8 t ha⁻¹ and that of controls from 0.3 to 2.4 t ha⁻¹.

In Mauritius, ICGV-SM 85048 produced, on average, 39.4% more pod yield than Cabri, a local cultivar, in on-station trials (Table 1), 41.5% more in on-farm trials in 1991, and 27.3% more in on-farm trials in 1992 (Table 2). These on-farm trials were conducted in sugarcane interrows.

Plant characters

ICGV-SM 85048 belongs to the Spanish botanical group (*Arachis hypogaea* subsp *fastigiata* var *vulgaris*). It has an erect growth habit, sequential flowering, and medium-sized, light-green, elliptic leaves. It has, on average, six primary branches,

and one secondary branch. The plant height is about 29 cm, and the canopy width is 33 cm. The days to maturity of ICGV-SM 85048 at Chitedze, Malawi, range from 116 to 126.

Pod/seed characters

ICGV-SM 85048 usually has 2-seeded pods, characterized by absent to slight beak, slight to moderate constriction, and prominent reticulation and ridge. In Malawi, the pod length averages 29.5 mm, and the pod breadth 10.3 mm. The shelling turnover varies from 66 to 71 % (average 69%), and the 100-seed mass from 30 to 41 g (average 34 g). The seeds of ICGV-SM 85048 are deep red, round, and have flat ends. They contain 26.2% protein and 54.0% oil with an oleic to linoleic acid ratio of 1.12 (based on the 1994/95 crop season data from Malawi).

Reaction to diseases and insect pests

ICGV-SM 85048 shows resistant reaction to web blotch (*Phoma arachidicola*) in Mauritius. But, like the local cultivar Cabri, it is susceptible to rust (*Puccinia arachidis*), late leaf spot (*Phaeoisariopsis personata*), and pepper spot (*Leptosphaerulina crassiasca*). In Malawi, it shows tolerance to early leaf spot (*Cercospora arachidicola*) when compared to the local cultivar Malimba.

Compared to Cabri, ICGV-SM 85048 is relatively less susceptible to leaf tier (*Lamprosema indicata*) infestation in Mauritius. Its reaction to other insect pests was not tested.

Acknowledgements

We gratefully acknowledge the help given by the research staff of Mauritius Sugar Industry Research Institute in evaluating ICGV-SM 85048 in Mauritius, and for the information on yield performance, and disease and insect pest reaction of this germplasm.

Table 1. Pod yield of ICGV-SM 85048 (Stella) and Cabri¹ in on-station trials, Mauritius.²

Year/ Location	Pod yield (t ha ⁻¹)		SE	Percent superiority in pod yield of ICGV-SM 85048 over Cabri
	ICGV-SM 85048	Cabri		
1989				
Redit	2.4	1.6	±0.17	50.0
1990				
Redit	3.0	2.6	±0.16	12.9
Pamplemousses	3.3	1.7	±0.13	98.2
Belle Rive	3.1	2.6	±0.28	21.2
Mean	3.0	2.1	-	39.4

1. Local control cultivar.

2. Source: Mauritius Sugar Industry Research Institute-Annual report 1989 (p 66), and Annual report 1990 (p 76), Redit, Mauritius.

Table 2. Pod yield of ICGV-SM 85048 (Stella) and Cabri¹ in on-farm trials, Mauritius.²

Location		Pod yield (t ha ⁻¹ of sugarcane interrows)		SE	Percent superiority in pod yield of ICGV-SM 85048 over Cabri
		ICGV-SM 85048	Cabri		
Beau Champ	1991	0.8	0.5	±0.06	45.3
	1992	1.1	0.8	±0.09	38.5
Rose Belle	1991	0.3	0.2	±0.03	56.3
	1992	0.2	0.1	±0.02	33.3
Savannah	1992	0.8	0.9	±0.09	-17.2
Medine	1991	0.8	0.5	±0.07	75.0
	1992	1.0	0.7	±0.10	34.2
Belle Vue	1992	1.3	1.0	±0.08	33.7
Societe Sucriere de Riviere du Rempart	1991	0.4	0.4	±0.03	10.0
	1992	0.4	0.3	±0.02	21.9
St. Antoine	1991	0.6	0.5	±0.06	24.0
	1992	2.1	1.5	±0.13	41.9
Mean	1991	0.6	0.4	-	41.5
	1992	1.0	0.8	-	27.3

1. Local control cultivar.

2. Source: Mauritius Sugar Industry Research Institute-Annual report 1991 (p 69), and Annual report 1992 (p 67), Reduit. Mauritius.



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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.