

and Enhancement Program at ICRISAT, Patancheru, India.

## References

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## Registration of Groundnut Cultivar

### Sylvia (ICGV 93207)

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### Purpose of description

The Mauritius Sugar Industry Research Institute in 1998 released the groundnut (*Arachis hypogaea*) variety ICGV 93207 as Sylvia for commercial plantation in pure stand and in sugarcane (*Saccharum officinarum*) interrows in Mauritius (MSIRI 1998). Sylvia significantly outyielded the popular control cultivar Cabri by 38.8% with more stable yields than the control. It is adapted to all soils and regions in Mauritius where groundnut is grown. It is resistant to rust (caused by *Puccinia arachidis*).

## Origin and development

ICGV 93207 is a high-yielding improved Spanish groundnut (*Arachis hypogaea* subsp. *fastigiata* var. *vulgaris*) genotype developed at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, India. It is derived from a cross between two advanced breeding lines, ICGV 86594 and ICGV 86672. ICGV 86594 is a derivative from a cross between NC Ac 1107 and a rust resistant genotype, NC Ac 17090; ICGV 86672 is a triple cross derivative of (JH 60 X PI 259747) X NC Ac 17133 (RF). JH 60 is a Virginia runner breeding line from Gujarat, India. PI 259787 is a landrace from Peru belonging to the botanical variety, *peruviana* and is resistant to rust and late leaf spot (caused by *Phaeoisariopsis personata*) (Subrahmanyam et al. 1995) and tolerant to drought (Reddy et al. 1994). NC Ac 17133 (RF) is a red flowered variant from NC Ac 17133, a landrace originally from Peru, belonging to the botanical variety *vulgaris* and resistant to rust (Subrahmanyam et al. 1995). ICGV 93207 was developed by repeated bulk selections for rust resistance and other agronomically desirable characters. Phenotypically similar F<sub>2</sub> plants with rust resistance and moderate to high pod yield were selected and bulked and advanced to higher generations. This process of bulking phenotypically similar plants was continued until the F<sub>8</sub> generation, when the bulk was phenotypically homogeneous. The full pedigree of ICGV 93207 is ICGV 86594 X ICGV 86672 F<sub>2</sub>-B<sub>1</sub>-B<sub>1</sub>-B<sub>3</sub>-B<sub>1</sub>-B<sub>1</sub>-B<sub>1</sub>. It was evaluated at ICRISAT, Patancheru and in the southern and eastern Africa region, through the Southern African Development Community (SADC)/ICRISAT Groundnut Project, Malawi.

## Performance

In trials conducted during the 1993 rainy season at two locations on ICRISAT-Patancheru farm, ICGV 93207, with a mean pod yield of 1.75 t ha<sup>-1</sup>, outyielded both the control cultivars JL 24 and ICGS 44 by 75% higher pod yields (Table 1). The haulm yield of ICGV 93207 was also higher than that of both the control cultivars. In the disease nurseries conducted during 1993/94 at Chitala, Malawi it outyielded the control cultivars, Malimba and JL 24. In the rust disease nursery, it gave a pod yield of 3.6 t ha<sup>-1</sup> as compared to 1.3 t ha<sup>-1</sup> of the best control, JL 24 (Table 2). In the late leaf spot nursery ICGV 93207 had a pod yield of 2.9 t ha<sup>-1</sup> and outyielded both the local cultivar Malimba (1.3 t ha<sup>-1</sup>) and improved variety JL 24 (2.1 t ha<sup>-1</sup>). In 26 trials conducted during 1994-97 at different locations and seasons in Mauritius, ICGV 93207

had a mean pod yield of 3.86 t ha<sup>-1</sup> and outyielded the local control cultivar Cabri (2.78 t ha<sup>-1</sup>) (Table 3). Mean pod yield superiority of ICGV 93207 over Cabri in the 26 trials was 38.8%. From the stability analysis based on 23 trials conducted in Mauritius, Ismael and Govinden (1998) found ICGV 93207 more stable in its yield performance than Cabri.

### Plant characters

ICGV 93207 is a Spanish variety with erect growth habit, sequential branching, oval and medium green leaves. It has 3 primary and 5 secondary branches. It matures in

about 130 to 140 days depending on the location in Mauritius. At ICRISAT, Patancheru, it took 110-120 days from emergence to maturity during the rainy season and 130-135 days during the postrainy season. It has moderately reticulated pods with no constriction. The pods are one- to three-seeded with an average shelling of 68%. The seeds are tan with a 100-seed mass of 32 g. ICGV 93207 has higher proportion (65.8%) of seeds in Virginia medium and Spanish jumbo grades compared to that of Cabri (38.9%) (Ismael and Govinden 1998). In a consumers' survey, it was found to be as good as Cabri for salted nuts, boiled nuts, and roasted in-shell nuts (Govinden and Ismael 1997).

**Table 1. Performance of ICGV 93207 and control cultivars at ICRISAT, Patancheru, India during 1993 rainy season.**

Variety	Pod yield <sup>1</sup> (t ha <sup>-1</sup> )			Haulm yield <sup>2</sup> (t ha <sup>-1</sup> )	Disease score <sup>1</sup>						
	L1	L2	Mean		Late leaf spot			Rust			Jassid damage <sup>4</sup>
					L1	L2	Mean	L1	L2	Mean	
ICGV 93207	1.6	1.9	1.75	24	7	6	6.5	3	5	4.0	5
Control											
JL 24	0.8	1.2	1.00	1.0	8	8	8.0	7	7	7.0	8
ICGS 44	0.7	1.3	1.00	0.9	8	7	7.5	7	7	7.0	8
SE±	0.13	0.14	0.28	0.2	0.3	0.2	0.2	0.6			
CV (%)	17	13	20	8	13	6	5	15			

1. L1 = Location 1: High fertility (60 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>; 400 kg gypsum ha<sup>-1</sup>) field with supplemental irrigation and protection from insects  
L2 = Location 2: Low fertility (20 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>) rainfed field with no protection from insects.

2. At L1.

3. Scored on a 1-9 scale, where 1 = no disease; and 9 = 81-100% foliage damaged.

4. At L2; scored on a 1-9 scale, where 1 = no damage; and 9=81-100% foliage damaged.

**Table 2. Performance of ICGV 93207 and control cultivars in the groundnut disease nursery at Chitala, Malawi, during 1993/94 crop season.**

Variety	Yield <sup>1</sup> (t ha <sup>-1</sup> )				Disease score <sup>2</sup>	
	Nursery 1		Nursery 2		Rust	LLS
	Pod	Seed	Pod	Seed		
ICGV 93207	3.6	2.3	2.9	1.9	5	7
Control						
Malimba	0.7	0.5	1.3	0.8	9	8
JL 24	1.3	0.7	2.1	1.2	9	8
CG 7	0.9	0.6	3.9	1.8	9	7

1. Nursery 1 = Rust nursery; Nursery 2 = Late leaf spot (LLS) nursery.

2. Scored on a 1-9 scale, where 1 = no disease; and 9=81-100% foliage damaged

**Table 3. Pod yield of groundnut cultivars ICGV 93207 (Sylvia) and Cabri in various trials conducted in Mauritius from 1994 to 1997.**

Year	Season	No. of trials	Mean pod yield <sup>1</sup> (t ha <sup>-1</sup> )	
			ICGV 93207	Cabri
1994	Second season	1	4.20	2.72
1995	First season	2	2.04	1.18
1995	Second season	5	3.36	2.19
1996	First season	4	2.35	1.87
1996	Second season	6	4.54	3.12
1997	First season	8	4.82	3.75
Overall mean (26 trials)			3.86	2.78
First season mean (14 trials)			3.71	2.85
Second season mean (12 trials)			4.02	2.70
LSD (0.05) First season				0.52
LSD (0.05) Second season				0.66

1. Pod yield at 8% moisture content.

### Reaction to diseases and insect pests

In two trials conducted at ICRISAT, Patancheru, ICGV 93207 was rated a mean score of 4.0 for rust compared to a mean score of 7.0 for both the susceptible cultivars, JL 24 and ICGS 44 on a 1-9 disease rating scale (Table 1). For jassid or leaf hopper (*Empoasca kerri*) damage, ICGV 93207 was rated a score of 5.0 compared to 8.0 for JL 24 and ICGS 44 on a 1-9 scale (where 1 = no damage, and 9 = 81–100% foliage damaged). In the disease nurseries conducted at Chitala, Malawi, ICGV 93207 maintained its superiority over the local and improved cultivars for rust resistance (Table 2). In Mauritius, ICGV 93207 was much less susceptible to both rust and late leaf spot than the popular cultivar Cabri (MSIRI 1998).

### Seed availability

The SADC/ICRISAT Groundnut Project, Malawi maintains the breeder seed of ICGV 93207. Seed of ICGV 93207 is also deposited with the ICRISAT Genebank, Patancheru. Limited quantities of seed, without limitation on uses, will be made available on request and by signing a Material Transfer Agreement.

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