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## Sorghum Variety MRS 13 (SDSV 1513) Do not film

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- Open-pollinated pure line
- Dwarf-semi-dwarf (1.3–1.4 m)
- Matures in 110–125 days
- Medium-sized red grains
- Large, elliptic, semicompact panicle
- Recommended for dry Middleveld and Lowveld regions of Swaziland



ICRISAT

Plant Material Description no. 54

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

1995

## Purpose of description

MRS 13 is a high-yielding, medium-duration sorghum variety recommended for general cultivation in Swaziland, especially in the dry Middleveld (350–500 m altitude) and Lowveld (below 350 m) of southern Swaziland. It is one of the first two improved varieties released by the Government of Swaziland (Swaziland Variety Release Committee) in March 1990. Commercial seed of this variety is available from Swazi-American (Etsala PH1) Seed, Mbabane, Swaziland.

## Origin and development

MRS 13 is originally a kafir germplasm line identified as IS 2391. From ICRISAT Asia Center (IAC), India, it was re-introduced into the southern Africa region by the Southern African Development Community (SADC)/ICRISAT Sorghum and Millet Improvement Project (SMIP), and indexed as SDS 1513.

For two seasons, the line was observed together with other lines in the observation breeding nurseries at Malkerns Research Station in Swaziland. Individual head-row selections were made from the line bulks. Seed was increased during the 1985 and 1986 off-seasons, and evaluated in a preliminary yield trial in 1985/86, in an advanced yield trial in 1986/87, and in multilocational national elite variety trials in 1987/88 and 1988/89. In winter 1988, single-plant progenies from the selected lines were sown for uniqueness purification tests and certification by the Swaziland Seed Quality Control authorities and the Swaziland Seed Multiplication Project. They were then bulked separately to comprise MRS 13. The varieties were finally evaluated in 1989/90–1991/92 under both on-station and on-farm conditions in six agroecological environments.

## Synonyms

SDS 1513, SDSV 1513, MRS 13

## Performance

MRS 13 had the highest grain yield among three test varieties, and second highest compared with those of the hybrid controls PNR 8311 and DC 99 across three locations in 2 years (1985/86 and 1986/87) and six environments. On average, MRS 13 yielded 2.5 t ha<sup>-1</sup> compared with the local variety Ntuli Red (1.7 t ha<sup>-1</sup>) and the commercial hybrids DC 99 (4.6 t ha<sup>-1</sup>) and PNR 8311 (2.6 t ha<sup>-1</sup>) (Table 1). In a second set of trials (1987/88 and 1988/89), MRS 13 had the highest overall grain yield among five entries tested in a different set of six environments. The mean yield of this variety was 3.2 t ha<sup>-1</sup> compared with the local variety Ntuli Red (1.6 t ha<sup>-1</sup>), and the previously highest-yielding commercial variety DC 99 (2.9 t ha<sup>-1</sup>) (Table 2). MRS 13 outyielded Ntuli Red by 80% in the first set of six environments and by 100% in the second set.

## Plant characteristics

MRS 13 is a medium-duration (110–125 days) pure line variety. The plant is purple, produces one or more tillers, and grows to a height of 1.3–1.4 m. Its leaves are medium-sized (60–70 cm long and 8–10 cm wide). The panicle is fairly large (26–28 cm), semicompact, and elliptic. MRS 13 has no major disease problems.

## Seed characteristics

MRS 13 has medium-sized (100-seed mass 2.4 g), bright red grains with a thin pericarp. The grains have no testa and do not contain tannin. They are hard (3.7 on a 1–5 scale) with white endosperm and good milling (flour) yield of 82%. They are also suitable for malting, but are highly recommended for milling.

**Table 1. Mean grain yield (t ha<sup>-1</sup>) of MRS 13 and two varieties in on-station national trials at three locations, Swaziland, 1985/86 and 1986/87.**

Cultivar	Type	Locations			Mean
		Malkerns	Luve	Nhlangano	
MRS 13	Open pollinated	2.3	1.6	3.6	2.5
SDS 1503	Open pollinated	1.8	0.9	2.7	1.8
ICSV 112	Open pollinated	2.9	1.2	2.6	2.3
Controls					
Ntuli Red	Local variety	1.8	1.2	2.2	1.7
PNR 8311	Commercial hybrid	3.3	2.1	2.4	2.6
DC 99	Commercial hybrid	5.1	1.9	3.5	4.6

**Table 2. Mean grain yield (t ha<sup>-1</sup>) of MRS 13 and two varieties in on-station national trials at three locations, Swaziland, 1987/88 and 1988/89.**

Cultivar	Type	Locations			Mean
		Malkerns	Mangcongco	Big Bend	
MRS 13	Open pollinated	3.8	4.8	1.0	3.2
SDS 1503	Open pollinated	3.7	2.5	0.6	2.3
ICSV 112	Open pollinated	3.4	2.8	1.7	2.8
Controls					
Ntuli Red	Local variety	2.2	1.9	0.6	1.6
PNR 8311	Commercial hybrid	3.0	3.2	1.2	2.5
DC 99	Commercial hybrid	3.9	3.4	1.4	2.9



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# Sorghum Variety MRS 94 (SDSV 1594)

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- Open-pollinated pure line
- Semi-tall (1.6–1.8 m)
- Matures in 125–130 days
- Large, dark red grains
- Long, cylindrical, compact panicle
- Recommended for dry Middleveld and Lowveld regions of Swaziland



ICRISAT

Plant Material Description no. 55

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

1995

## Purpose of description

MRS 94 is a high-yielding (3–4 ha<sup>-1</sup> yield potential), medium-long duration sorghum variety recommended for cultivation in the marginal agroecological areas of Swaziland; especially in the dry Middleveld (350–500 m altitude) and the Lowveld (below 350 m). It consistently outyielded the popular local variety Ntuli Red by 75% on average. It is one of the first two improved varieties released by the Government of Swaziland (Swaziland Variety Release Committee) in March 1990. It is suitable for both malting and brewing. Commercial seed is available from the Swazi-American (Etsala PHI) Seeds, Mbabane, Swaziland.

## Origin and development

MRS 94 is originally a kafir germplasm line identified as IS 3693. From ICRISAT Asia Center (IAC), it was re-introduced into the southern African region by the Southern African Development Community (SADC)/ICRISAT Sorghum and Millet Improvement Project (SMIP), and indexed as SDS 1594.

For two seasons, it was observed together with other lines, in observation breeding nurseries at Malkerns Research Station in Swaziland. Individual head-row selections were made from the line bulks. Seed was increased during the 1985 and 1986 off-seasons and evaluated in a preliminary yield trial in 1985/86, in an advanced yield trial in 1986/87, and in multilocational national elite variety trials in 1987/88–1988/89. In winter 1988, single-plant progenies from the selected lines were sown for uniqueness purification tests, and certification by the Swaziland Seed Quality Control authorities, and the Swaziland Seed Multiplication Project. They were then bulked separately to comprise MRS 94. The varieties were finally evaluated in 1989/90–1991/92, under both on-station and on-farm conditions in six agroecological environments.

## Synonyms

SDS 1594-1, SDSV 1594, MRS 94.

## Performance

MRS 94 ranked second highest in grain yield of three test varieties, across three locations, in 2 years: 1985/86 and 1986/87 (six environments). It yielded less than the hybrid controls PNR 8311 and DC 99 in the same environments. On average, MRS 94 yielded 2.3 t ha<sup>-1</sup> compared with 1.7 t ha<sup>-1</sup> for the popular farmers' local variety Ntuli Red (Table 1).

In the second set of six environments in 1987/88 and 1988/89, MRS 94 was the third highest grain yielder among all the six entries, including the hybrid controls. Its mean yield was 2.7 t ha<sup>-1</sup> compared with 1.6 t ha<sup>-1</sup> for Ntuli Red (Table 2). Across six environments, MRS 94 consistently outyielded Ntuli Red, by 70% in 1985–87, and 80% in 1987–89.

## Plant characteristics

MRS 94 is a medium-long duration (125–130 days) pure line variety. The plant is purple, semi-tall (1.6–1.8 m), and has a low tillering ability. It has medium-sized leaves (60–70 cm long and 8–10 cm wide). The panicle is long (30–35 cm), slim, cylindrical, and compact. MRS 94 has no major disease problems.

## Seed characteristics

MRS 94 has very large (100-seed mass 4.13 g), dark red grains that have a thick pericarp but no testa. The grains do not contain tannin. They are fairly hard (4.1 on a 1–5 scale), but have a chalky endosperm. The milling yield is fairly good (80%). MRS 94 is recommended for malting and brewing. It is less prone to attack by birds than MRS 13.

**Table 1. Mean grain yield ( $t\ ha^{-1}$ ) of MRS 94 and two varieties in on-station trials at three locations, Swaziland, 1985/86–1986/87.**

Cultivar	Type	Locations			Mean
		Malkerns	Luve	Nhlangano	
MRS 94	Open pollinated	2.4	1.7	2.7	2.3
SDS 1503	Open pollinated	1.8	0.9	2.7	1.8
ICSV 112	Open pollinated	2.9	1.2	2.6	2.3
Controls					
Ntuli Red	Local variety	1.8	1.2	2.2	1.7
PNR 8311	Commercial hybrid	3.3	2.1	2.4	2.6
DC 99	Commercial hybrid	5.1	1.9	3.5	4.6

**Table 2. Mean grain yield ( $t\ ha^{-1}$ ) of MRS 94 and two other varieties in on-station trials at three locations, Swaziland, 1987/88–1988/89.**

Cultivar	Type	Locations			Mean
		Malkerns	Mangcongco	Big Bend	
MRS 94	Open pollinated	3.9	3.2	1.0	2.7
SDS 1503	Open pollinated	3.7	2.5	0.6	2.3
ICSV 112	Open pollinated	3.4	2.8	1.7	2.8
Controls					
Ntuli Red	Local variety	2.2	1.9	0.6	1.6
PNR 8311	Commercial hybrid	3.0	3.2	1.2	2.5
DC 99	Commercial hybrid	3.9	3.4	1.4	2.9



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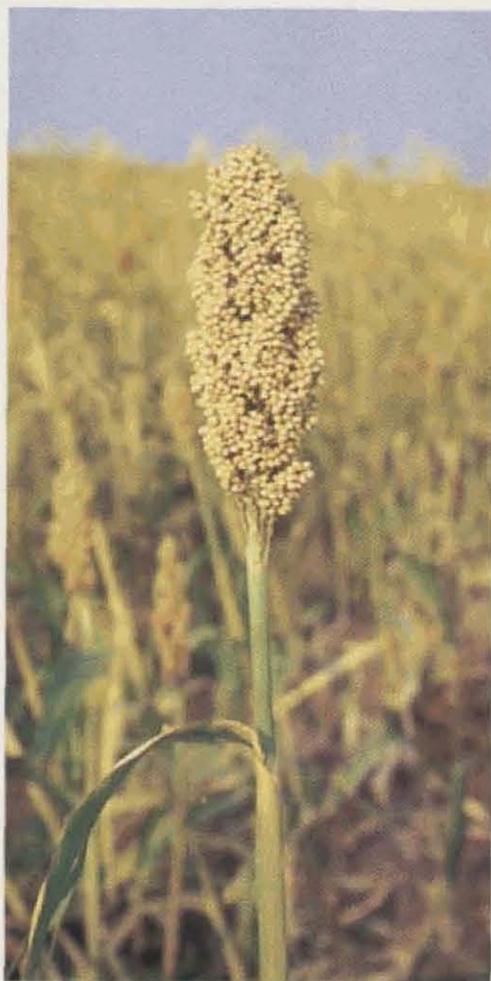
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# Sorghum Variety Pirira 1

## (ICSV 1)

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- Photoperiod-insensitive
- Semi-dwarf (1.4–1.7 m)
- Matures in 100–115 days
- White, corneous, hard grain
- Resistant to downy mildew and sooty stripe
- Recommended for the humid lower Shire Valley of Malawi



ICRISAT

Plant Material Description no. 60

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

1995

## **Purpose of description**

Pirira 1 is a high-yielding, medium-duration, drought-resistant sorghum variety recommended for general cultivation in Malawi, and specifically for the hot, humid, lower Shire river basin. It was released by the National Cultivar Release Committee of Malawi on the basis of its hard grains, to replace the soft-grained commercial variety, PN 3.

## **Origin and development**

Pirira 1 was derived from a line developed at ICRISAT Asia Center (IAC), by pedigree selection from a simple cross between SC 108-3 and CS 3541. The line was supplied with pedigree (SC 108-3 × CS 3541)19-1, as part of ICRISAT's International Sorghum Variety Adaptation Trial. It was tested as an F<sub>6</sub> bulk from 1979 at IAC locations and in multilocal yield trials across the semi-arid tropics (SAT). The collaborative trials with the Malawi national agricultural research system were conducted at Kasinthula and Ngabu Research Stations, Malawi and the Southern African Development Community (SADC)/ICRISAT Sorghum and Millet Improvement Project (SMIP) Bulawayo, Zimbabwe from 1984/85 to 1992/93.

## **Synonyms**

SPV 351, ICSV 1, Pirira 1.

## **Performance**

Pirira 1 had the highest grain yield among five other ICRISAT cultivars tested across six environments in 5 years (between 1984/85 and 1992/93), in Malawi. On average, Pirira 1 yielded 2.37 t ha<sup>-1</sup> compared with 1.42 t ha<sup>-1</sup> for the commercial variety PN 3 and 2.29 t ha<sup>-1</sup> for the commercial hybrid DC 75, used as controls (Table 1). In farmers' fields, Pirira 1 was evaluated against three cultivars including two improved varieties (Seredo, Kuyuma), and one farmers' local variety (Thengalamanga). Across eight sites, Pirira 1 yielded 2.60 t ha<sup>-1</sup> compared with 1.99 t ha<sup>-1</sup> for the local Thengalamanga. It also outyielded the two other improved controls (Table 2).

## **Plant characteristics**

Pirira 1 is a medium-duration (110–115 days), photoperiod-insensitive variety with a tan plant and medium-sized leaves. It grows to a height of 1.4–1.7 m and has elliptic,

medium-sized, semicompact, well-exserted panicles. It is resistant to downy mildew (*Sclerospora sorghi*) and sooty stripe *Ramulispora sorghi*, but is susceptible to shoot fly (*Atherigona soccata*) and stem borer (*Chilo partellus*) attacks if sown late.

## Seed characteristics

Pirira 1 has creamy-white medium-sized grains (100-seed mass 2.6 g) with white, pearly endosperm and thin pericarps. The grains have no testa (seedcoat). They are hard (3.7 on a 1–5 scale) with very good milling yield (83%) and water absorption (12.3%). The flour is white (Agtron reading 73.2 dry and 48.4 wet), is acceptable as food, and has better storage qualities than PN 3 whose grain hardness is only 2.5.

**Table 1. Mean grain yield (t ha<sup>-1</sup>) of Pirira 1 and five other sorghum varieties in on-station national advanced trials, Chitedze Research Station, Malawi, 1984/85–1992/93.**

Cultivar	1984/85	1985/86	1988/89	1990/91	1992/93	Mean
Pirira 1	2.68	3.43	1.23	1.84	2.68	2.37
SPV 346	2.86	2.50	1.46	0.52	-	1.84
SPV 472	2.47	1.99	0.71	-	-	1.72
SPV 386	2.12	1.75	1.21	-	-	1.69
SPV 815	1.80	2.78	0.43	-	-	1.67
SPV 245	2.04	1.96	0.50	-	-	1.50
Controls						
PN 3 (open pollinated)	0.99	2.36	0.90	-	-	1.42
DC 75 (hybrid)	-	-	-	0.97	2.29	

**Table 2. Mean grain yield (t ha<sup>-1</sup>) of Pirira 1 and two improved sorghum varieties in on-farm verification trials at eight locations in Malawi, 1992/93.**

Cultivar	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>	F <sub>8</sub>	Mean
Pirira 1	0.40	1.40	1.79	3.80	5.60	0.76	4.10	2.58	2.60
Kuyuma	0.35	1.15	0.73	-	-	0.55	-	1.31	0.82
Seredo	-	-	-	-	2.96	-	2.88	0.18	2.01
Control									
Thengalamanga (local variety)	-	0.90	-	-	3.29	-	-	1.80	1.99



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# Sorghum Variety Pirira 2 (ICSV 112)

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- **Photoperiod-insensitive**
- **Medium height (1.5–1.8 m)**
- **Matures in 110–120 days**
- **Creamy-white, corneous, hard grain, threshing percentage 56.5%**
- **Recommended for the humid lower Shire Valley of Malawi**



**ICRISAT**

**Plant Material Description no. 61**

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

**1995**

## Purpose of description

Pirira 2 is a high-yielding, medium-duration, sorghum variety recommended for general cultivation in Malawi, and specifically for the hot, humid, lower Shire river basin. It was released by the National Cultivar Release Committee of Malawi to replace the soft-grained commercial variety, PN 3.

## Origin and development

Pirira 2 is a pure line developed at ICRISAT Asia Center (IAC) by pedigree selection from a multiple cross involving five parents: IS 12622C, 535, IS 3612C, 2219B, and E 35-1. Pedigree selection in self-pollinated progenies of  $F_2$ ,  $F_3$ ,  $F_4$ , and  $F_5$  was done progressively at IAC and at two other locations. In 1979, the  $F_6$  bulk was distributed to several locations worldwide for testing. It was also included in ICRISAT multilocal yield trials along with other materials. Pirira 2 outyielded all other varieties, and was then given to collaborating national programs for further testing and adaptation. The national and collaborative trials were conducted by the Malawi national agricultural research system at Kasinthula and Ngabu Research Stations in the Shire Valley of Malawi, and the Southern African Development Community (SADC)/ICRISAT Sorghum and Millet Improvement Program (SMIP), Bulawayo, Zimbabwe from 1984/85–1992/93.

## Synonyms

SPV 475, ICSV 112, SV 1, M 39335

## Performance

Pirira 2 had the highest grain yield among five ICRISAT cultivars and two controls when tested across six environments in 5 years (between 1984/85 and 1992/93), in Malawi. On average, it yielded 2.25 t ha<sup>-1</sup> compared with 1.42 t ha<sup>-1</sup> for the commercial variety PN 3, and 2.29 t ha<sup>-1</sup> for the commercial hybrid DC 75, used as controls in three different environments (Table 1).

In farmers' fields, Pirira 2 was evaluated with three cultivars including two improved varieties (Kuyuma, Seredo), and one farmers' local (Thengalamanga). Across eight locations ( $F_1$ - $F_8$ ), Pirira 2 yielded 2.03 t ha<sup>-1</sup> compared with 1.99 t ha<sup>-1</sup> for the farmers' local variety, and 0.82 t ha<sup>-1</sup> for Kuyuma (Table 2).

## Plant characteristics

Pirira 2 is a medium-duration (110–120 days), photoperiod-insensitive variety with a tan plant and medium-sized leaves. It grows to a medium height of 1.5–1.8 m, and has an elliptic, large, open, well-exserted panicle. It is resistant to most leaf diseases

in the Shire Valley, but is susceptible to shoot fly (*Atherigona soccata*) and stem borer (*Chilo partellus*) attack, if sown late.

## Seed characteristics

Pirira 2 has creamy-white, medium to large grains (100-seed mass 2.9 g) with white, intermediate corneous endosperm and thin pericarp. The grains have no testa. They are medium hard (3.2 on a 1–5 scale) with flour milling yield of 78.10% (lower than Pirira 1, another high-yielding sorghum variety released in Malawi) and 13.3% water absorption. The grain is “sweet”, because it does not contain tannin. Its flour is whiter (Agtron readings 77.7 dry and 58.6 wet) than that of Pirira 1, and is acceptable for food. The grain is harder than that of PN 3 whose grain hardness is 2.5.

**Table 1. Mean grain yield (t ha<sup>-1</sup>) of Pirira 2 and five other sorghum varieties in on-station national advanced trials, Chitedze Research Station, Malawi, 1984/85–1992/93.**

Cultivar	1984/85	1985/86	1988/89	1990/91	1992/93	Mean
Pirira 2	2.69	2.80	1.30	2.23	2.22	2.25
SPV 346	2.86	2.50	1.46	0.52	-	1.84
SPV 472	2.47	1.99	0.71	-	-	1.72
SPV 386	2.12	1.75	1.21	-	-	1.69
SPV 815	1.80	2.78	0.43	-	-	1.67
SPV 245	2.04	1.96	0.50	-	-	1.50
Controls						
PN 3 (open pollinated)	0.99	2.36	0.90	-	-	1.42
DC 75 (hybrid)	-	-	-	0.97	3.61	2.29

**Table 2. Mean grain yield (t ha<sup>-1</sup>) of Pirira 2 and two improved sorghum varieties in on-farm verification trails at eight locations in Malawi, 1992/93.**

Cultivars	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>	F <sub>8</sub>	Mean
Pirira 2	0.50	1.45	1.54	4.40	-	1.01	3.93	1.40	2.03
Kuyuma	0.35	1.15	0.73	-	-	0.35	-	1.31	0.82
Seredo	-	-	-	-	2.96	-	2.88	0.18	2.01
Control									
Thengalamanga (local variety)	-	0.90	-	-	3.29	-	-	1.80	1.99



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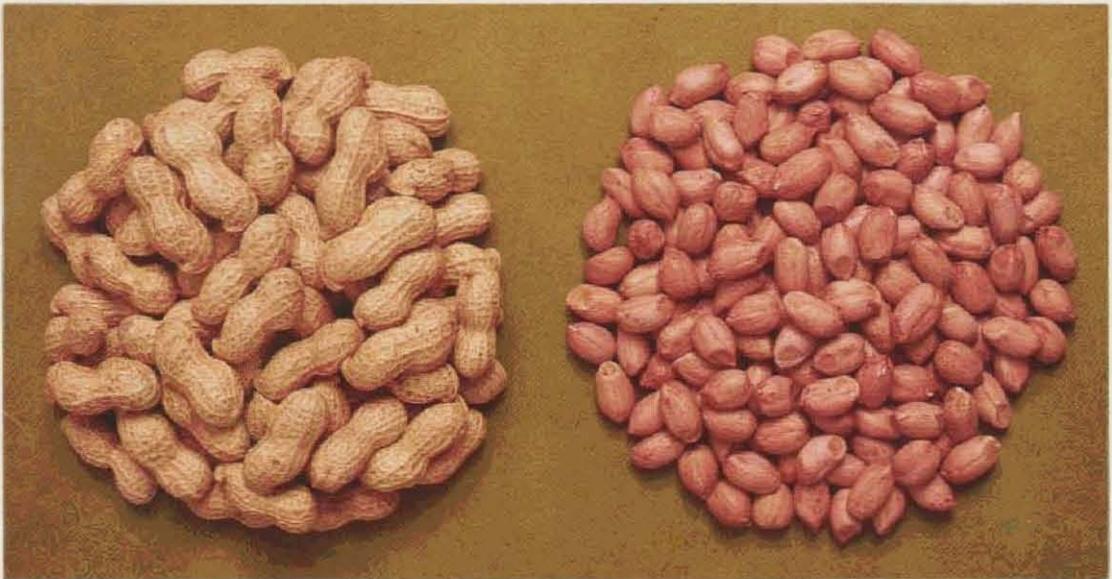
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# Groundnut Variety ICGV 86325

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- A high-yielding virginia bunch cultivar released in India
- Average maturity duration 120 days in the rainy season
- Tolerant of peanut bud necrosis and peanut mottle virus diseases
- Average shelling percentage 70%
- Average oil content 45%
- Average protein content 23%
- Oleic/linoleic fatty acid ratio 1.55



ICRISAT

Plant Material Description no. 62

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

1995

## Purpose of description

ICGV 86325 was released in 1994 by the Central Subcommittee on Crop Standards, Notification, and Release of Varieties, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, for rainy-season cultivation in southern Maharashtra, Andhra Pradesh (excluding the northern coastal districts), Karnataka, and Tamil Nadu.

## Origin and development

ICGV 86325 was bred and developed at ICRISAT Asia Center, India. It was selected using the bulk pedigree method from a cross between ICGS 20 and G 201. The former is a high-yielding breeding line, while G 201 has been released as Kaushal in India. The pedigree of ICGV 86325 is (ICGS 20 × G 201) F<sub>2</sub>-B<sub>2</sub>-B<sub>1</sub>-B<sub>1</sub>-B<sub>1</sub>-B<sub>1</sub>. It is suitable for low-input rainfed cultivation.

## Performance

In 4 years (1989–92) of testing in All India Coordinated Research Project on Oilseeds (AICORPO) trials, ICGV 86325 outyielded both the national control cultivar Kadiri 3 and the zonal control ICGS 76 (ICGV 87141). It gave seed yields 29% higher than Kadiri 3 and 16% higher than ICGS 76 (Table 1). It has a pod yield potential of 3 t ha<sup>-1</sup> in the rainy season and 5 t ha<sup>-1</sup> in the postrainy season under high-input conditions (Table 2).

## Plant characters

ICGV 86325 belongs to the virginia botanical group and has medium to small, elliptic, dark green leaves. It has a decumbent 3 growth habit, characterized by an indistinct main axis and laterals that tend to ascend, giving the plant a bushy appearance. It has 4–8 primary and 4–9 secondary branches. It matures in about 120 days in the rainy season.

ICGV 86325 has field tolerance to peanut bud necrosis virus disease and suffers little yield loss due to peanut mottle virus disease. However, like Kadiri 3 and ICGS 76, it is susceptible to foliar diseases, rust, and leaf spots. Similarly, it is as susceptible to leaf miners and jassids as is Kadiri 3.

## Pod/seed characters

ICGV 86325 has mostly 2-seeded pods with moderate to prominent beak and reticulation, and moderate to deep constriction. Pod ridges are absent. It has tan-colored seeds and a 100-seed mass of 34 g. The seeds contain, on an average, 23% protein and 45% oil with an oleic/linoleic fatty acid ratio of 1.55. The average shelling turnover is 70%, with 80% sound mature seeds.

**Table 1. Performance of ICGV 86325 and control cultivars in AICORPO<sup>1</sup> trials, India, 1989–92 rainy seasons.**

Trial <sup>2</sup>	Year	Number of locations	Genotype	Average yield (t ha <sup>-1</sup> )	
				Pod	Seed
IVT (VB)	1989	4	ICGV 86325	1.10	0.77
			Kadiri 3	0.82	0.57
AVT-I (VB)	1990	5	ICGV 86325	0.86	0.58
			Kadiri 3	0.61	0.43
			ICGS 76	0.68	0.46
AVT-I (VB)	1991	6	ICGV 86325	1.66	1.24
			Kadiri 3	1.37	1.00
			ICGS 76	1.39	0.98
AVT-II (VB)	1992	7	ICGV 86325	1.52	1.02
			Kadiri 3	1.23	0.81
			ICGS 76	1.45	1.01
Average over 4 years (1989–92)		22	ICGV 86325	1.29	0.90
			Kadiri 3	1.01	0.70
Average over 3 years (1990–92)		18	ICGV 86325	1.35	0.95
			ICGS 76	1.17	0.82

1. All India Coordinated Research Project on Oilseeds. Trials were conducted in zone V in India, i.e., southern Maharashtra, Andhra Pradesh (excluding the northern coastal districts), Karnataka, and Tamil Nadu.

2. IVT = Initial Varietal Trial, AVT = Advanced Varietal Trial, VB = virginia bunch.

Sources: Department of Oilseeds Research 1990, 1992a,b, 1993

**Table 2. Performance of ICGV 86325 and control cultivar Kadiri 3, ICRISAT Asia Center, India, 1986–89.**

Production environment	Year	Pod yield (t ha <sup>-1</sup> )		Superiority over Kadiri 3 (%)
		ICGV 86325	Kadiri 3	
Low input <sup>1</sup> (rainy season)	1987	1.38	0.96	44
	1988	1.84	1.41	30
	Average	1.61	1.18	36
High input <sup>2</sup> (rainy season)	1986	3.15	2.93	8
	1988	3.06	1.88	63
	Average	3.11	2.41	29
High input (postrainy season)	1987/88	5.04	4.24	19
	1988/89	3.90	3.53	10
	Average	4.47	3.89	15

1. Low input = rainfed, 20 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, no protection against insect pests and foliar diseases.

2. High input = irrigated, 60 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, 400 kg gypsum ha<sup>-1</sup>, full protection against insect pests and foliar diseases.

## References

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**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.