Groundnut Elite Germplasm
ICGV-SM 83005

- **High-yielding Spanish breeding line adapted to the southern African region**
- **Released in 1995 as Chipego for low- and medium-rainfall areas in Zambia**
- **Matures in 108 to 133 days depending upon the location and season**
- **Average shelling turnover 69%**
- **Average 100-seed mass 46 g**
- **Average oil content 46%**
- **An oleic to linoleic acid ratio of 1.08**

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Plant Material Description no. 73

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

1997

Purpose of description

ICGV-SM 83005 is a high-yielding groundnut breeding line adapted to the southern African region. It was released in 1995 as Chipego for cultivation in low- and medium-rainfall areas of Zambia. It also performed well in other countries of the region.

Origin and development

ICGV-SM 83005 (also known as ICGMS 5) originated from a single plant selection made in 1978 at ICRISAT Asia Center, India, in the F_4 generation of a bulk-selected population of a cross between Robut 33-1 and NC Ac 2698. The plant was progeny-rowed in the next generation, and phenotypically similar plants were selected and bulked at harvest. This bulk was advanced to subsequent generations by bulking phenotypically similar plants at harvest until the bulk stabilized. Its full pedigree is (Robut 33-1 x NC Ac 2698)F_2-B_2-P_1-B_1-B_1-B_1-B_1-B_1-B_1-B_1.

ICGV-SM 83005 was introduced in the Southern African Development Community (SADC)/ICRISAT Groundnut Project, Malawi, in 1982 as an advanced breeding line. After initial evaluation in the 1982/83 season in Malawi, it was included in the regional groundnut varietal trial of the SADC region in 1983/84 as ICGMS 5. Subsequendy, it was designated ICGV-SM 83005. After extensive evaluation in regional, national, and on-farm trials, it was released in Zambia.

Performance

ICGV-SM 83005 was evaluated in 39 regional and on-station trials in southern Africa during 1983/84-1992/93. As Table 1 shows, the average pod yield superiority over the local control in Malawi was 3.6% (19 trials), Zambia 11.7% (10), Zimbabwe 5.7% (4), Mozambique 12.1% (2), Lesotho 121.7% (1), and Swaziland 37.2% (1).

In 24 multilocational trials conducted during 1985/86-1990/91 by the national program in Zambia, ICGV-SM 83005 recorded an average seed yield superiority of 8.7% over the local control Comet (Table 2).

Plant characters

ICGV-SM 83005 belongs to the Spanish botanical group (*Arachis hypogaea* subsp *fastigiata* var *vulgaris*). It has a decumbent-3 growth habit, sequential flowering, and medium to large, dark-green, elliptic leaves. It has four primary branches. Its plant height and canopy width are about 40 cm. ICGV-SM 83005 matures in 108 to 133 days depending upon the location and season.

Pod/seed characters

ICGV-SM 83005 usually has 2-seeded thin-shelled pods which are characterized by a small or no beak, slight to deep constriction, slight reticulation, and slight to moderate ridge. The average pod length is 32 mm, and pod width is 10 mm. Its shelling turnover varies between 64 and 73 % (average 69%), and 100-seed mass varies between 28 and 62 g (average 46 g). The seeds of ICGV-SM 83005 are tan, and elongated with round ends. The oil content in seeds ranges from 42 to 52% (average 46%). The oleic to linoleic acid ratio of ICGV-SM 83005 is 1.08, and the protein content is 21% (based on one season and one location data from Malawi).

Reaction to diseases and insect pests

ICGV-SM 83005 is marginally superior to local cultivars, Comet and Malimba, in its reaction to early leaf spot (*Cercospora arachidicola*) in Malawi and Zambia, and to Comet in reaction to rust (*Puccinia arachidis*) in Zambia. Its reaction to insect pests was not tested.

Table 1. Average pod yield of ICGV-SM 83005 (ICGMS 5) in regional and on-station trials in southern Africa, 1983/84-1992/93[1].

Country	No. of trials	Average pod yield ($t\ ha^{-1}$)		Percent increase in pod yield of ICGV-SM 83005 over control
		ICGV-SM 83005	Control[2]	
Malawi	19	2.04	1.97	3.6
Zambia	10	1.72	1.54	11.7
Zimbabwe	4	2.22	2.10	5.7
Mozambique	2	1.11	0.99	12.1
Lesotho	1	1.48	0.46	121.7
Swaziland	1	3.65	2.66	37.2

1. Source: SADC-ICRISAT Groundnut Project, Malawi, unpublished data.
2. The control cultivar was Malimba in Malawi, Lesotho, and Swaziland; Comet in Zambia; Plover in three trials and Valencia R_2 in one trial in Zimbabwe; and Starr in Mozambique.

Table 2. Average seed yield of ICGV-SM 83005 (ICGMS 5) in multilocational trials in Zambia, 1985/86-1990/91[1].

	Seed yield (kg ha^{-1})					
Variety	Masumba	Mogoye	Mochipapa	Siatwinda	Kaoma	Average over locations
ICGV-SM 83005	1246	738	584	575	742	772
Comet	1170	672	574	572	576	710
Percent superiority of ICGV-SM 83005 seed yield over Comet	6.5	9.8	1.7	0.5	28.8	8.7

1. Source: Msekera Regional Research Station, Zambia, unpublished data.

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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.

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