

Registration of ICGV 86699 Peanut Germplasm Line with Multiple Disease and Insect Resistance

ICGV 86699 (Reg. no. GP-76, PI 591815) is a high-yielding elite peanut (*Arachis hypogaea* L. subsp. *hypogaea* var. *hypogaea*) germplasm line with multiple pest resistance. It was released in 1994 by the Plant Material Identification Committee of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) because of its resistance to rust (caused by *Puccinia arachidis* Speg.) and stem and pod rots (caused by *Sclerotium rolfsii* Sacc.), and tolerance of late leaf spot [caused by *Phaeoisariopsis personata* (Berk. & M.A. Curtis) Arx; syn. *Cercosporidium personatum* (Berk. & M.A. Curtis) Deighton], early leaf spot (caused by *Cercospora arachidicola* S. Hori), peanut bud necrosis (caused by the peanut bud necrosis virus), and peanut mottle (caused by the peanut mottle virus). It also suffers less damage due to tobacco caterpillar [*Spodoptera litura* (F.)] and jassids or leafhoppers (*Empoasca kerri* Pruthi) than control cultivars under field conditions.

ICGV 86699 originates from a single-plant selection made from CS 29. CS 29 was developed through repeated selections from a cytologically unstable, segregating interspecific population of [*Arachis batizocoi* Krapov. & W.C. Gregory//*A. duranensis* Krapov. & W.C. Gregory//*A. hypogaea* (cv. NC 2)] received from the North Carolina State University at Raleigh. The single-plant selection made in CS 29 was progeny rowed, and selected plants at the time of harvest were grouped into three bulks based on their similarity in agronomic characters (including growth habit, yield, and disease reaction). These bulks were designated as B₁, B₂, and B₃ and were grown again. In subsequent generations, the same process of selection and bulking just described was repeated until the selected bulks stabilized. The pedigree of ICGV 86699 is [*Arachis batizocoi*//*A. duranensis*//*A. hypogaea* cv. NC 2] - CS 29-P₁-B₂-B₁-B₁-B₁.

In 20 replicated yield trials conducted during 1987 to 1990 by the All India Coordinated Research Project on Oilseeds (AICOR-PO) in different locations in India, ICGV 86699 produced 47% greater pod yield than the cultivar Kadiri 3. The average pod yield of ICGV 86699 in these trials was 1.25 t ha⁻¹. Similarly, in Myanmar, it produced 100% greater pod yield than the local cultivar 'Sinpadetha 2', with 1.42 t pods ha⁻¹.

In 12 trials conducted at ICRISAT Asia Center (IAC) over 3 yr under fungicide-free conditions, ICGV 86699 was rated 3.1 for rust and 5.9 for late leaf spot, on a field scale of 1 to 9 (where 1 = no disease and 9 = 81–100% disease incidence), compared with ratings of 7.9 and 7.7, respectively, for Kadiri 3. It has maintained its superior reaction to rust and late leaf spot over the local cultivars at other Indian locations and in Myanmar, South Africa, the Republic of Guinea, Niger, and Sri Lanka. Similarly, it was less susceptible to early leaf spot in South Africa, Niger, and Sri Lanka. ICGV 86699 showed field tolerance to peanut bud necrosis disease (PBND) in tests conducted for two seasons at IAC (with an average PBND incidence of 17.9%, compared with 37.9% incidence in 'JL 24') and for one season in a hot-spot location in northern India (with 7.9% PBND incidence, compared with 47.1% in Kadiri 3). It suffered only 16.6% yield loss when artificially inoculated with peanut mottle virus, compared with a 35.1% yield loss suffered by JL 24. It also had 0.5% stem rot and 6.5% pod rot incidences, compared with a respective 30.9 and 41.7% for the control JL 24, in tests conducted at IAC.

ICGV 86699 showed less susceptibility to tobacco caterpillar (10.6 to 23.2% damaged leaves) than the local cultivars (18 to 65% damaged leaves) in field trials conducted at three locations. It showed less jassid or leafhopper damage, with 9.8% yellowed foliage, compared with 28.3% yellowed foliage for JL 24 at Junagadh, India. At IAC, ICGV 86699 showed a jassid or leafhopper

score of 5, on a scale of 1 to 9 (where 1 = no damage and 9 = 76–100% foliage damaged), compared with a score of 8 for Kadiri 3.

ICGV 86699 has a Decumbent 3 growth habit (1), alternate branching, and medium-sized elliptic green leaves. It has 8 primary and 12 to 20 secondary branches. It matures in ≈118 d in the rainy season in India. The pods are slightly reticulated and constricted, with a moderate beak. The pods are mostly two-seeded with average meat content of 60%. The seeds are red, weigh 38 g 100 seed⁻¹, and contain 48% oil and 24% protein.

The Genetic Resources Division, ICRISAT Asia Center, Patancheru, AP 502 324, India, will maintain the breeder seed of ICGV 86699. Limited quantities of seed without limitations on uses will be made available upon request. Seed of ICGV 86699 is also deposited with the U.S. National Seed Storage Laboratory, 1111 S. Mason St., Fort Collins, CO 80521-4500.

L. J. REDDY,* S. N. NIGAM, J. P. MOSS, A. K. SINGH, P. SUBRAHMANYAM, D. McDONALD, AND A. G. S. REDDY (2)

References and Notes

1. IBPGR and ICRISAT 1992. Descriptors for groundnut. IBPGR, Rome, Italy, and ICRISAT, Patancheru, India.
 2. L.J. Reddy, S.N. Nigam, J.P. Moss, A.K. Singh, and A.G.S. Reddy, Asia Center, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, AP, India; P. Subrahmanyam, SADC/ICRISAT Groundnut Project, Lilongwe, Malawi; D. McDonald, "Dunslair", Glentress by Peebles, Borders EH45 8NB, Scotland, UK. ICRISAT Journal Article no. 1837. Registration by CSSA. Accepted 30 Nov. 1995. *Corresponding author (Email: l.reddy@cgnet.com).
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Registration of Mississippi *Sclerotinia*-Resistant (MSR) Alfalfa Germplasm

Mississippi *Sclerotinia*-Resistant (MSR) alfalfa (*Medicago sativa* L.) germplasm (Reg. no. GP-300, PI 590999) was jointly released by the USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in May 1995. MSR is the first germplasm of alfalfa developed for increased resistance to *Sclerotinia trifoliorum* Eriks., the causal agent of sclerotinia crown and stem rot of alfalfa and other forage legumes. This is one of the most destructive diseases of fall-planted alfalfa in the southeastern and south-central USA (3).

MSR was produced as a by-product of efforts to develop and evaluate techniques to screen alfalfa for heritable resistance to *S. trifoliorum* (1). Initially 1675 plants of 'Delta' were screened by four stem- and leaf-inoculation techniques. Twenty-five phenotypically resistant plants were selected. These were polycrossed separately for the various techniques, in groups of 3 to 15 individuals, to produce four experimental populations. The populations were evaluated for resistance, in comparison with the parental cultivar, to determine the effectiveness of selection techniques and to identify additional resistant phenotypes. Nine progeny with the most resistant phenotypes, out of 2772 evaluated, were polycrossed to produce the Syn. 1 generation of MSR. These nine parents were derived from six maternal lines from Delta.