

Registration of Early-Maturing Fresh Seed Dormant Peanut Germplasm ICGV 93470

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ICGV 93470 (Reg. no. GP-102, PI 614087) is an improved Spanish peanut (*Arachis hypogaea* L. subsp. *fastigiata* var. *vulgaris*) germplasm, developed at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Center, Patancheru, Andhra Pradesh, India. This improved germplasm was released by the Plant Materials Identification Committee of ICRISAT in 1999 for its early-maturity and fresh seed dormancy in a Spanish background.

ICGV 93470 originated from a cross between ICGV 86015 (PI 585005) and ICGV 86155 (PI 594969) made in the 1990 rainy season at ICRISAT. ICGV 86015 is an early-maturing, high-yielding Spanish germplasm developed at ICRISAT from a cross between ICGS 44 and TG 2E (Nigam et al, 1995). ICGV 86155 is an improved Spanish germplasm with 4-wk postmaturity fresh seed dormancy developed at ICRISAT from ICGS 30/('TMV 10'/Chico F6 breeding line) cross (Upadhyaya et al, 1997). ICGV 93470 arose from a selection made in the F3 generation of progeny from a single F2 plant. Phenotypically similar early-maturing, high-yielding F4 plants in the progeny from F3 plants were mass selected and bulked at harvest. The process of bulking phenotypically similar plants (mass selection) was repeated until the F6 generation when the bulk became phenotypically homogeneous. Its pedigree is ICGV 86015/ICGV86155 F2–P46–P2–B1–B1 (where P refers to single plant selection and B refers to bulk selection).

ICGV 93470 matures in 95 to 100 d after planting (DAP) at ICRISAT, 5 to 10 d earlier than the early-maturing popular cultivar in India 'JL 24.' ICGV 93470 was evaluated for yield in 1994, 1995, 1996, and 1997 rainy seasons, and 1994-1995, 1995-1996, and 1996-1997 postrainy seasons at ICRISAT. It produced an average pod yield of 2.11 t ha⁻¹, 29.4% more than JL 24.

ICGV 93470 was evaluated after harvest in the laboratory for germination of fresh seeds in 1994, 1995, 1996, and 1997 rainy seasons, and 1994-1995, 1995-1996, and 1996-1997 postrainy seasons. One-week cured seed of ICGV 93470 were also evaluated for germination in the laboratory in all the seasons except 1995 rainy season. Each test was repeated three times with 30 seeds in each repeat. The average cumulative fresh seed germination was 4.0% after 3 wk and 6.1% after 4 wk, compared with 0.8 and 1.5% in the dormant control 'M 13' and 64.4 and 70.3% in the nondormant control JL 24, respectively. The average cumulative cured seed germination after 2 wk of incubation was 22.6% in ICGV 93470, compared with 16.7% in M 13 and 86.7% in JL 24. Further, ICGV 93470 was also evaluated for insitu sprouting in field after maturity by repeated irrigation in the 1996 and 1997 rainy seasons and 1994 to 1995 and 1995 to 1996 postrainy seasons. The average cumulative insitu field sprouting 10 d after maturity was 0.7% in ICGV 93470, compared with 0.0% in M 13 and 43.0% in JL 24.

In ICGV 93470, the number of primary branches ranges between five and six. The number of secondary branches is two. It has an erect growth habit and elliptical medium sized dark-green leaves (IBPGR and ICRISAT, 1992). Its main stem is 14 cm long, with a canopy width of 39 cm when measured at 90 DAP in the postrainy season at ICRISAT. Its pods are mainly two seeded, small in size averaging 27 mm length and 13 mm breadth, with a slight beak, moderate constriction, and slight reticulation. The average meat content is 71% compared with 63% of JL 24. Its seed has a tan testa color, weigh 47 g 100 seed⁻¹ compared with 42 g 100 seed⁻¹ for JL 24. Seed of ICGV 93470 average 46.3% oil and 23.8% protein.

ICGV 93470 is an early-maturing, high-yielding germplasm with fresh seed dormancy in a Spanish background. It can be used as an improved source of earliness and fresh seed dormancy in germplasm enhancement programs. Because of its postharvest fresh seed dormancy, it can also be cultivated in areas where the crop is often caught in rains at harvest resulting in insitu germination, loss of yield, and deterioration of seed quality.

Breeder seed of ICGV 93470 will be maintained by the Genetic Resources Unit, Genetic Resources and Enhancement Program, ICRISAT Center, Patancheru P.O., Andhra Pradesh 502 324, India. Limited quantities of seed of ICGV 93470 are available upon request for research. Seed of this line are also deposited with the U.S. National Seed Storage Laboratory, 1111 S. Mason St., Fort Collins, CO 80521-4500.