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Registration of Early-Maturing, Moderately Resistant to Rust Peanut Germplasm ICGV 94361

H.D. Upadhyaya *, S.N. Nigam, S. Pande, A.G.S. Reddy and N. Yellaiah

Int. Crops Res. Inst. for the Semi-Arid Tropics (ICRISAT), Patancheru P.O., Andhra Pradesh 502 324, India

ICGV 94361 (Reg. no. GP-101, PI 614086) 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 less susceptibility to rust (caused by Puccinia arachidis Speg.) than the popular cultivars in India TMV 2 and JL 24.

ICGV 94361 originated from a cross between ICGV 86124 and 'ICG (FDRS) 10' made in the 1990-91 postrainy season at ICRISAT. ICGV 86124 is an early-maturing, high-yielding Spanish breeding line developed at ICRISAT from 'JL 24'/(Dh 3-20/Robut 33-1 F8 breeding line) cross. ICG (FDRS) 10 ('ICGV 87160' PI 478787) is a Spanish peanut resistant to rust and tolerant to late leaf spot [caused by Phaeoisariopsis personata (Berk. & M.A. Curtis) Arx; syn. Cercosporidium personatum (Berk & M.A. Curtis) Deighton]. It was developed at ICRISAT from a cross between Ah 65, a Spanish germplasm, and a rust resistant valencia germplasm NC Ac 17090 (Subrahamanyam et al, 1980) and released for rainy season cultivation in peninsular India, where rust and late leaf spot are problems (Reddy et al, 1992). ICGV 94361 arose from a single plant selection made in the F2 generation of the cross ICGV 86124/ICG (FDRS) 10. Phenotypically similar early-maturing, high-yielding F3 plants in the progeny from the F2 plant were mass selected and bulked at harvest. The process of bulking phenotypically similar plants was repeated in following generations up to F7 when the bulk became homogeneous. Its pedigree is ICGV 86124/ICG (FDRS) 10 F2-P75-B1-B1-B1-B1 (where P refers to single plant selection and B refers to bulk selection).

ICGV 94361 was evaluated against rust and late leaf spot under artificially inoculation of spreader rows in 1995, 1996, and 1997 rainy seasons at ICRISAT. In six trials, 75 to 80 d after planting (DAP), ICGV 94361 showed an average rating of 4.4 on a field scale of 1 to 9 (where 1 = no disease and 9 = 81–100% foliage damaged) against rust compared with 5.6 of susceptible control 'TMV 2' and 2.3 of resistant control ICG (FDRS) 10 and 2.0 of ICGV 86699 (Reddy et al, 1996). Against late leaf spot, it showed an average rating of 5.3 compared with 5.8 of susceptible control TMV 2, 4.3 of resistant control ICGV 86699, and 5.3 of tolerant control ICG (FDRS) 10. ICGV 94361 was also evaluated under natural conditions in farmers' fields along with TMV 2 and farmers'

cultivars in districts of Anantpur, Kurnool, and Nalgonda, Andhra Pradesh, India in the 1996 rainy season. In 24 trials, ICGV 94361 showed an average rating of 4.0 for rust compared with 5.5 for TMV 2 and 5.6 for the farmers' cultivar, and 6.2 for late leaf spot compared with 7.5 for TMV 2 and the farmers' cultivars.

ICGV 94361 matures in 90-95 DAP at ICRISAT, 10 d earlier than the early-maturing popular cultivar JL 24. It was evaluated in two rainy and two postrainy seasons in replicated trials at ICRISAT, which were harvested when the crop accumulated 1240 °Cd (degree days) (equivalent to 75 DAP in the rainy season at ICRISAT) and 1470 °Cd (equivalent to 90 DAP in the rainy season at ICRISAT). ICGV 94361 produced an average pod yield of 1.66 t ha−1 at 1240 °Cd harvest, 33.9% more than JL 24, and 2.16 t ha−1 at 1470 °Cd harvest, 20.7% more than JL 24. The increase in pod yield from 1240 °Cd harvest to 1470 °Cd harvest was 30.1% in ICGV 94361 compared with 44.4% in JL 24. The lower increase in pod yield from 1240 °Cd harvest to 1470 °Cd harvest reflected inherent early-maturity of ICGV 94361 compared with JL 24.

In ICGV 94361, the number of primary branches ranges between six and seven. The average number of secondary branches is one. It has an erect growth habit and elliptical medium sized dark green leaves (IBPGR and ICRISAT, 1992). Its main stem is ≈17 cm long, with a canopy width of ≈31 cm when measured at 90 DAP in the postrainy season at ICRISAT. Its pods are mainly two seeded (3 rare), small in size averaging 30 mm length and 13 mm breadth, with a slight constriction, slight reticulation, and without beak. The average meat content is 70%. Its seed has a tan testa color, weigh 38 g 100 seed−1 and average 47.0% oil and 21.7% protein.

ICGV 94361 is an early-maturing rust and late leaf spot tolerant high-yielding germplasm. It can be grown in areas or situations where these diseases are problems, and the growing season is short. Because of its earliness, it can escape the build up of various diseases and insect pests late in the season. It can also be used as an improved source of earliness in a germplasm enhancement program.

Breeder seed of ICGV 94361 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 94361 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.