Registration of Five Spanish Peanut Germplasm Lines with Fresh Seed Dormancy

ICGV 86155, ICGV 86156, ICGV 86158, ICGV 87378, and ICGV 87921 are Spanish peanut lines (Arachis hypogaea L. subsp. fastigiata Waldron var. vulgaris Harz) that were bred at the Asia Center of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh, India.

These five lines were released in 1995 by the Plant Materials Identification Committee of ICRISAT for their fresh seed dormancy.

ICGV 86155, ICGV 86156, and ICGV 86158 originated from ICGS 30/TMV 10/Chico F₂ breeding line) cross, and ICGV 87921 from ICGS 21/TMV 2/Chico cross, made in the 1983 rainy season and 1983-1984 postrainy season, respectively. ICGS 30 (ICGV 87126) and ICGS 21 (ICGV 87124) are high-yielding medium-duration Spanish varieties developed at ICRISAT Asia Center. TMV 10 and TMV 2 are released cultivars in India (2).

ICGV 87921 is a mass-selected population from Kanto No. 40 (also known as ICG 7261 and EC 123074), a Japanese Spanish germplasm line. Chico is a Spanish short-duration germplasm line selected from P1 268661 in the USA (1). In F₂ progeny rows from high-yielding F₂ plants of each cross, phenotypically similar plants were selected and bulked at harvest. This process of bulking phenotypically similar plants was repeated each generation until the F₄ generation, when the bulk were phenotypically homogeneous. The pedigrees of four of the germplasm lines are as follows: ICGV 86155, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 86156, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 86158, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 87921, ICGS 21/TMV 2/Chico F₂-P₂-B₂-B₁-B₁-B₁-B₁. The fifth line, ICGV 87378, is heterogeneous. The pedigrees of four of the germplasm lines are as follows: ICGV 86155, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 86156, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 86158, ICGS 30/TMV 10/Chico F₂ F₂-P₂-B₂-B₁-B₁-B₁; ICGV 87921, ICGS 21/TMV 2/Chico F₂-P₂-B₂-B₁-B₁-B₁-B₁-B₁. The fifth line, ICGV 87378, is heterogeneous.

These improved germplasm lines were evaluated after harvest in the laboratory for germination of fresh seeds in the 1991-1992 and 1992-1993 postrainy seasons, and of 1-wk-cured seeds in the 1991-1992 and 1992-1993 postrainy and the 1993 rainy seasons. Each test was repeated three times. The average cumulative fresh seed germination after 4 wk of incubation was 9.3% in ICGV 86155, 5.3% in ICGV 86156, 15.2% in ICGV 86158, 6.4% in ICGV 87378, and 3.7% in ICGV 87921, compared with 13.6% in the dormant control 'M 13' and 81.5% in the nondormant control 'JL 24'. The average cumulative cured seed germination after 2 wk of incubation was 5.9% in ICGV 86155, 1.0% in ICGV 86156, 8.0% in ICGV 86158, 5.9% in ICGV 87378, and 5.1% in ICGV 87921, compared with 8.3% in M 13 and 88.1% in JL 24. Further, these lines were evaluated for in situ sprouting in the field after maturity by repeated irrigation in the 1991-1992 and 1992-1993 postrainy seasons. The average cumulative in situ field sprouting 2 wk after maturity was 1.0% in ICGV 86155, 0.2% in ICGV 86156 and ICGV 86158, and 0.0% in ICGV 87378 and ICGV 87921, compared with 0.6% in M 13 and 9.4% in JL 24. All except ICGV 86155 produced 18 to 52% higher pod yield than the popular cultivar JL 24 in 4 to 10 trials conducted in four rainy (1986, 1987, 1992, and 1993) and three postrainy (1987–1988, 1991–1992, and 1992–1993) seasons at ICRISAT Asia Center, India (4).

Breeder seed of these germplasm lines is maintained by the Germplasm Resources Division, ICRISAT Asia Center. Limited quantities of seed of these lines are available upon request. Seeds of the lines are deposited with the U.S. National Seed Storage Laboratory, Fort Collins, CO 80521-4500.


References and Notes

4. ICRISAT. 1996. Groundnut elite germplasm ICGV 86155, ICGV 86156, ICGV 86158, ICGV 87378, and ICGV 87921. ICRISAT Plant Material Description 69, ICRISAT, Patancheru, AP, India.

Published in Crop Sci. 37:1027 (1997).