Registration of VGP 11 Peanut Germplasm

VGP 11 peanut (Arachis hypogaea L.) germplasm (Reg. no. GP-96, PI 584773) was developed and released cooperatively by the USDA-ARS and the Virginia Agricultural Experiment Station in 1997. VGP 11 was released because of its partial resistance to southern corn rootworm (Diabrotica undecimpunctata howardi Barber), good blanchability, and more desirable pink testa color. It was tested experimentally as VA 861101.

VGP 11 was developed from 'NC 6' (1). NC 6 is the only available cultivar with resistance to southern corn rootworm. NC 6 is a large-seeded Virginia-type peanut with seed that have a tan testa color. Seed with a pink testa color were selected in 1984 from a seed lot of NC 6 with both pink and tan seed and planted in the field at Suffolk, VA, in 1985. VGP 11 resulted from an individual plant selection in this initial nursery in 1985. The progeny have been uniform for plant, pod, and seed characteristics since the initial selection. Subsequent generations have been maintained by bulk seed from several plants each year. Plants of VGP 11 are similar to NC 6 and have a spreading growth habit with green stems, green to dark green leaves, and no flowers on the main stem. Pods are large, Virginia market type, slight to moderate in pod constriction, slight in pod reticulation, and mostly two-seeded. Pods mature in about 145 to 150 d in Virginia. Fatty acid composition, seed size distribution, and shell characteristics are also similar to those of NC 6 (4). VGP 11 differs from NC 6 in having larger seed (78.2 g vs. 73.7 g 100 seed), higher blanchability of Extra-large kernels (81.6% vs. 72.6% whole blanched seed), and a more desirable seed testa color (pink vs. tan).

VGP 11 is acceptable commercially, and yields from 482 to 1240 kg ha⁻¹ more than current cultivars on heavier soils usually infested with southern corn rootworm (2), but yields 59 to 464 kg ha⁻¹ less on lighter soils where southern corn rootworm is not a problem (3).

Resistance to southern corn rootworm by VGP 11 was good but variable in initial screening tests (2). Further studies in the field and laboratory indicate that resistance to southern corn rootworm by NC 6 is present in both developing peg and pod tissues, while resistance by VGP 11 may be present only in the developing peg tissues (5). VGP 11 should be a valuable source of germplasm to peanut breeders developing germplasm with increased levels of resistance to southern corn rootworm while maintaining high levels of blanchability and the pink testa color desired by industry.

Seed of VGP 11 will be maintained by the USDA-ARS Southern Regional Plant Introduction Station (SRPIS) at Griffin, GA. Small quantities of seed are available to qualified researchers upon written request to R.N. Pittman, Peanut Curator, USDA-ARS, SRPIS, Griffin, GA 30223. Appropriate recognition should be given when this germplasm contributes to research or development of new cultivars or breeding lines.


References and Notes

Published in Crop Sci. 38:1412 (1998).

REGISTRATION OF PARENTAL LINES

Registration of Pearl Millet Parental Lines
ICMA 89111 and ICMB 89111

ICMB 89111 (Reg. no. PL-34, PI 599191) pearl millet [Pennisetum glaucum (L.) R. Br.] is the maintainer line of ICMA 89111 (Reg. no. PL-35, PI 599192). ICMA 89111 and ICMB 89111 were released in 1997 by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh, India.

The male-sterile line, ICMA 89111, derives its A1 cytoplasm from ICMA-1 (1). ICMB 89111 was developed by crossing 843B (BKM 2068) with a high-tillering inbred line resistant to downy mildew [caused by Sclerospora graminicola (Sacc.) J. Schrbl.] derived from a cross between a Gero New Strain and an S₈ progeny from Sarja Synthetic, both from western Africa. The 843B was introduced from Fort Hays Experiment Station, Kansas State University, in the USA. The parental cross for ICMB 89111 was made during the 1983 dry season, and the F₁ was planted in the 1983 rainy season. Pedigree selection was made for high grain yield, high tillering, large seed size, good exsertion, and increased downy mildew resistance at Patancheru, which subsequently produced a maintainer F₁ progeny. Its male-sterile hybrid developed onto 861A, which derives its cytoplasm from ICMA-1, and the F₁ progeny were established as an A-B pair during the 1987 rainy season. Seven generations of backcrossing using bulk pollen from the maintainer line and concurrent pedigree bulk breeding in the maintainer line produced the male-sterile line ICMA 89111 and its maintainer counterpart ICMB 89111. ICMA 89111 is similar to ICMB 89111 for all characteristics except for the male sterility and earlier maturity (1 to 2 fewer days to reach 50% flowering).

In yield trials conducted in 11 year x location environments in India, the dwarf male-sterile line, ICMA 89111, had 1.94 t ha⁻¹ mean grain yield, 17% higher than the dwarf commercial male-sterile line, ICMA-1 (2). ICMA 89111 had a mean plant height of 1.1 m and required 54 d to 50% flowering, which were similar to ICMA-1. ICMA 89111 had 3.7 panicles plant⁻¹ (85% higher than ICMA-1) and 1000-seed mass of 8.7 g (26% higher than ICMA-1). Downy mildew incidence in a field downy mildew nursery and a greenhouse inoculation test at Patancheru varied from 3 to 5% in ICMA 89111, compared with 40 to 42% in ICMA-1. General combining ability of ICMA 89111 for grain yield is similar to that of ICMA-1. Due to its excellent tillering ability, ICMA 89111 has good potential for breeding forage hybrids as well.

Published September, 1998