REGISTRATION OF ‘GNOME 85’ SOYBEAN

‘GNOME 85’ SOYBEAN [Glycine max (L.) Merr.] (Reg. no. CV-281, PI 543857) was jointly developed by the USDA-ARS and the Ohio Agricultural Research and Development Center. It was released in 1985 as a Phytophthora rot-resistant backcross version of the determinate cultivar ‘Gnome’ (4), with specific adaptation to highly productive environments where lodging is frequently a problem with tall indeterminate cultivars.

Gnome 85 was developed using Gnome as the recurrent parent and ‘Williams 82’ (1) as the source of the Rps6 resistance gene. Five backcrosses were made: Gnome6 × Williams 82. The initial cross was made in 1979. Three backcross cycles were completed each year, one in the field and two in the greenhouse. Hypocotyl inoculation with culture suspension (injected with a hypodermic needle) was used in the greenhouse (5,7). The detached cotyledon inoculation technique was used on field-grown plants (6). Race 5 Phytophthora megasperma Drechs. f. sp. glycinea T. Kuan & D.C. Erwin was used as the source of inoculum. Resistant plants were used as parents in the next cycle of backcrossing. In 1981, 20 BC3 F1 plants were grown in the field and 35 homozygous resistant BC F2-derived lines were identified in the 1981–1982 fall and winter greenhouse. These 35 lines were tested for seed yield in Ohio in 1982 and 1983. Twenty-three of these lines were bulked to form breeder seed of Gnome 85 for planting in 1984. Gnome 85 was tested in the Uniform Test II of the Uniform Soybean Tests Northern States in 1984 under the designation Gnome-Rps6.

Gnome 85 is a determinate cultivar of Group II maturity that matures =3 d later than ‘Century 84’ (8). It carries the Rps6 gene, which conveys resistance to all currently prevalent races of Phytophthora rot. Gnome 85 has purple flowers, tawny pubescence, tan pods at maturity, and shiny yellow seeds with black hila. Plant height averages 60 cm, compared with 90 cm for Century 84, resulting in greater lodging resistance for Gnome 85 than Century 84 (2,3). Gnome 85 is recommended specifically for high-yielding environments (>3300 kg ha–1) and is adapted to 41 to 42° N lat.

Breeder seed of Gnome 85 was distributed to foundation seed organizations in Illinois and Ohio for planting in 1985. Breeder seed of Gnome 85 will be maintained by the Ohio Agricultural Research and Development Center, Wooster, OH 44691. Gnome 85 has been protected under Title V of the Plant Variety Protection Act (No. 870097).


References and Notes


Tall indeterminate cultivars.

REGISTRATION OF ‘NEWTON’ SOYBEAN

‘NEWTON’ SOYBEAN [Glycine max (L.) Merr.] (Reg. no. CV-282, PI 543855) was developed cooperatively by the USDA-ARS and the Puerto Rico Agricultural Experiment Station. It was released in 1990 because of its resistance to the soybean cyst nematode (SCN) (Heterodera glycines Ichinohe, Race 3), moderate resistance to bacterial brown stem rot on calcareous soils, and superior performance in fields infested with SCN compared with similar maturity that have SCN resistance.

Newton was derived from an F3 plant of a single cross of ‘BSR 101’ × ‘CN210’ (4), from which Newton was selected was across the Iowa State University–University of Puerto Rico at Isabela, PR, by harvesting in bulk three seeds from each F2 plant. A random sample of the F3 seeds from the Agronomy Research Center at Ames, IA, was used in generation. Each F3 plant was threshed and evaluated for resistance to Race 3 of the SCN soil in a greenhouse. Newton was among the F3 and F3:5 lines tested for yield in noninfested fields in Iowa in 1986 and 1987. Newton, under the designation 195032, was tested for yield under SCN-infested conditions in Iowa in 1990 and in the Soybean Cyst Nematode Regional Tests in 1988 and 1989; in the Uniform Soybean Tests, Northern States, 1990.

Newton is of Maturity Group II, average 30 d later than ‘Kenwood’ (3). It has purple flowers, gray pods at maturity, and a shiny yellow seed with black hila. Compared with ‘Jack’ (2), a resistant cultivar released in 1989, Newton has 22% higher seed yield in SCN-infested field conditions and 6% higher seed yield in the absence of the SCN. Newton also has better seed quality, 16 mg seed–1 heavier seeds, 1.9 percent seed protein, and 0.5 percentage units better oil.


Newton derives its SCN resistance from ‘Peking’.