REGISTRATION OF ‘HARPER 87’ SOYBEAN

‘HARPER 87’ soybean [Glycine max (L.) Merr.] (Reg. no. 218) (PI 518667) was developed cooperatively by the Iowa Agriculture and Home Economics Experiment Station, the Ohio Agricultural Research and Development Center, and the Puerto Rico Agricultural Experiment Station. It was released in 1987 because of its resistance to specific races of phytophthora rot [caused by Phytophthora megasperma (Drechs.) f.sp. glycines Kuan & Erwin] to which the cultivar Harper is susceptible (1).

Harper 87 was a composite of progeny from BC$_3$F$_5$ from plants from the backcross Harper$^6 \times$ ‘Williams 82’. Williams 82 was the source of the Rps1-k allele for resistance to races 1 to 10, 13 to 15, 17, 18, 21, and 22 of P. megasperma. The backcrossing program was conducted in Iowa, Ohio, and Puerto Rico. The seeds of 40 selected BC$_3$F$_5$-derived lines were bulked to form Harper 87. The lines were homozygous for the Rps1-k allele, uniform for agronomic characters, and similar in plant type and maturity to Harper. Harper 87 was tested for seed yield in the Uniform Soybean Tests, Northern States, during 1985 and 1986 under the designation Harper BC.

Harper 87 has purple flowers, tawny pubescence, brown pods at maturity, and shiny yellow seeds with black hilum. It is of Maturity Group III and best adapted to approximately 40 to 42° N Lat. Harper 87 is similar to Harper for all agronomic and seed characteristics in the absence of Phytophthora rot, including seed yield, maturity, height, lodging resistance, seed weight, seed quality, seed protein and oil content, and shattering resistance. Both cultivars are moderately susceptible to Fe-deficiency chlorosis when grown on calcareous soil.

Harper 87 is moderately susceptible to Phytophthora megasperma f.sp. glycines, and is also resistant to SCN races 3 and 4. Seed protein averaged 0.8% higher in oil content (21.9%) than seed of Douglas.

In addition to resistance to races 3 and 4 of SCN, Harper 87 has moderate resistance to the common root-knot nematode [caused by Meloidogyne incognita (Kofoid & White)] (Chitwood). Also, it has resistance to bacterial leaf spot by Xanthomonas phaseoli (E. F. Smith) Dow (Hedges) Starr & Burk. and moderate resistance to bacterial tan spot [caused by Cercospora kikuchii (T. Matsu & Tomoyasu) Gardner].

Breeder seed was released in May 1986 to foundation seed organizations in Illinois, Indiana, Kentucky, Missouri, Nebraska, and Ohio for planting in 1987. Breeder seed of Harper 87 will be maintained by the Iowa Agriculture and Home Economics Experiment Station, Ames.


REGISTRATION OF ‘TN 4-86’ SOYBEAN

‘TN 4-86’ soybean [Glycine max (L.) Merr.] (Reg. no. 219) (PI 518668) was developed by the Tennessee Agricultural Experiment Station and released in 1986 because of its high seed yields and resistance to races 3 and 4 of the soybean cyst nematode (SCN) [Heterodera glycines Ichinohe]. TN 4-86 is the increase from a F$_5$ line from the cross, ‘Bedford’ X ‘Crawford’. A single pod was harvested from each plant in the F$_2$ and F$_3$ generations and composited for growing bulk F$_5$ and F$_4$ populations. Single plant selections were made in the F$_5$ and F$_6$ generations and the line was composited in the F$_7$ generation. Resistance to SCN was determined by evaluating plants of the F$_5$ line in the greenhouse for reaction to races 3 and 4 and on a field site infested with race 4. TN 4-86 was more productive than Douglas in 1985 because of its resistance to specific races of Phytophthora rot (caused by Phytophthora megasperma f.sp. glycines Kuan & Erwin). It is also resistant to bacterial leaf spot [caused by Xanthomonas phaseoli (E. F. Smith) Dow (Hedges) Starr & Burk.] and moderate resistance to bacterial tan spot [caused by Cercospora kikuchii (T. Matsu & Tomoyasu) Gardner].

Breeder seed was released in May 1986 to foundation Seeds, Inc. The Tennessee Agricultural Experiment Station will be responsible for the maintenance of breeder seed.

References and Notes


2. W. R. Fehr and B. K. Voss, Dep. of Agronomy, Iowa State Univ., IA 50011; S. R. Cianzio, Dep. of Agronomy, Iowa State University of Agriculture and Soil Sci, Univ. of Puerto Rico, Mayaguez; A. K. Walker, Dep. of Agronomy, Ohio State Univ.; and R. L. Riehl, Dep. of Plant Pathology, Ohio State Univ., Wooster. Contribution from the Iowa Agric. Home Economics Journal, Project no. 12875; Project no. 2475; and the Agricultural Experiment Center, Wooster, OH 44691; and the Agricultural Experiment Station, Mayaguez, PR 00708. The research was supported by the Iowa Soybean Promotion Board. Registration was filed 30 Apr. 1988. *Corresponding author.

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