REGISTRATION OF AP9(S1)C2 SOYBEAN GERMPLASM
(Reg. No. GP33)

W. R. Fehr and S. Rodriguez de Ciancio

The soybean germplasm population, AP9(S1)C2, was developed by the Iowa Agriculture and Home Economics Experiment Station and the Puerto Rico Agric. Exp. Stn. It was developed as a genetically diverse population with superior resistance to iron-deficiency chlorosis on calcareous soils.

AP9 was derived from 10 high-yielding cultivars or experimental strains and 10 plant introductions with the best resistance to iron-deficiency chlorosis in Iowa tests. Selection of the parents was based on a replicated test in 1975 on Harps soil with a pH of 7.4 located at the Agronomy Res. Ctr., Ames, Iowa. The high-yielding parents were chosen from an evaluation of entries in the Iowa Soybean Yield Test and the Uniform Soybean Tests, Northern States. The plant introductions were chosen from an evaluation of accessions that had demonstrated some resistance to iron-deficiency chlorosis in tests by the U.S. Regional Soybean Laboratory, Urbana, Ill. Entries were scored for yellowness of the first and second trifoliate leaves, and scores ranged from 1, no yellowing, to 5, severe yellowing. The 20 parents selected did not have a score greater than 2 in any of the three replications. The 10 high-yielding parents were Agripro Ex 12 from Agripro Associates, Carroll, Iowa; IVR 15003 from Improved Variety Research, Inc., Adel, Iowa; ‘SRF 200’ from the Soybean Research Foundation, Inc., Mason City, Ill.; M68-94 from the Minnesota Agric. Exp. Stn., U1912 from the Nebraska Agric. Exp. Stn.; and A75-10502, A75-102028, A75-203001, and A75-204005 from the Iowa Agric. and Home Economics Exp. Stn. The 10 plant introductions were PI 58722, PI 70456, PI 150235, PI 153514, PI 180508, PI 189999, PI 189999, PI 194625, PI 227334, and PI 291320A.

In the development of AP9, each of the high-yielding lines was crossed to one of the plant introductions for the first intermating. The 10 single crosses were intermated in a diallel, and S0 seed from the second intermating was bulked. S1 plants from the second intermating were grown, and plant-to-plant crosses were used for the third intermating.

The S0 seed from the third intermating was used to obtain 100 S1 lines (cycle 0). The lines were evaluated for chlorosis symptoms on calcareous soil in three replications at each of two locations in Iowa during 1977. The 10 lines with the least symptoms were crossed in a diallel, and the S0 plants from the crosses were grown in Puerto Rico to obtain 100 S1 lines (cycle 1). The 100 S1 lines of cycle 1 were evaluated for chlorosis symptoms in the same manner as in 1977, the 10 best lines were crossed in a diallel, and the S0 plants from the crosses were grown in Puerto Rico to obtain 100 S1 lines (cycle 2). In 1979, 100 S1 lines from cycle two were replicated twice on calcareous soil at each of three locations in Iowa. Seventy-one of the lines had an average chlorosis score of 1.2 or better and a score not greater than 1.5 in any of the six replications. ‘Hark,’ a cultivar susceptible to iron-deficiency chlorosis, had an average score of 3.9 in the same tests.

Two replications of each of the 71 lines were harvested. A bulk was prepared for distribution to soybean breeders by mixing equal quantities of S0 seed from each line. The S0 seed of AP9(S1)C2 is available upon request from the Committee for Agric. Dev., Iowa State Univ., Ames, IA 50011.

REGISTRATION OF NC 744 TOBACCO GERMPLASM
(Reg. No. GP18)

J. F. Chaplin, L. G. Burk, G. V. Gooding, and R. L. Cross

NC 744 is a potato virus Y (PVY) resistant flue-cured tobacco (Nicotiana tabacum L.) developed and released by AR-SEA-USDA and the North Carolina Agric. Res. Serv. NC 744 is a potential destructive disease of tobacco in the United States and other countries. NC 744 is a doubled haploid line developed from the F1 of ‘Coker 86’ × VY 32. Coker 86 is a disease resistant flue-cured tobacco cultivar that is susceptible to PVY. VY 32 is a PVY-resistant line obtained from the United States and other countries. The doubled haploid line was in the S2 generation at the time of release. NC 744 was derived from 10 high-yielding cultivars or experimental strains and 10 plant introductions with the best resistance to iron-deficiency chlorosis in tests by the U.S. Regional Soybean Laboratory, Urbana, Ill. Entries were scored for yellowness of the first and second trifoliate leaves, and scores ranged from 1, no yellowing, to 5, severe yellowing. The 20 parents selected did not have a score greater than 2 in any of the three replications. The 10 high-yielding parents were Agripro Ex 12 from Agripro Associates, Carroll, Iowa; IVR 15003 from Improved Variety Research, Inc., Adel, Iowa; ‘SRF 200’ from the Soybean Research Foundation, Inc., Mason City, Ill.; M68-94 from the Minnesota Agric. Exp. Stn., U1912 from the Nebraska Agric. Exp. Stn.; and A75-10502, A75-102028, A75-203001, and A75-204005 from the Iowa Agric. and Home Economics Exp. Stn. The 10 plant introductions were PI 58722, PI 70456, PI 150235, PI 153514, PI 180508, PI 189999, PI 189999, PI 194625, PI 227334, and PI 291320A.

In the development of AP9, each of the high-yielding lines was crossed to one of the plant introductions for the first intermating. The 10 single crosses were intermated in a diallel, and S0 seed from the second intermating was bulked. S1 plants from the second intermating were grown, and plant-to-plant crosses were used for the third intermating.

The S0 seed from the third intermating was used to obtain 100 S1 lines (cycle 0). The lines were evaluated for chlorosis symptoms on calcareous soil in three replications at each of two locations in Iowa during 1977. The 10 lines with the least symptoms were crossed in a diallel, and the S0 plants from the crosses were grown in Puerto Rico to obtain 100 S1 lines (cycle 1). The 100 S1 lines of cycle 1 were evaluated for chlorosis symptoms in the same manner as in 1977, the 10 best lines were crossed in a diallel, and the S0 plants from the crosses were grown in Puerto Rico to obtain 100 S1 lines (cycle 2). In 1979, 100 S1 lines from cycle two were replicated twice on calcareous soil at each of three locations in Iowa. Seventy-one of the lines had an average chlorosis score of 1.2 or better and a score not greater than 1.5 in any of the six replications. ‘Hark,’ a cultivar susceptible to iron-deficiency chlorosis, had an average score of 3.9 in the same tests.

Two replications of each of the 71 lines were harvested. A bulk was prepared for distribution to soybean breeders by mixing equal quantities of S0 seed from each line. The S0 seed of AP9(S1)C2 is available upon request from the Committee for Agric. Dev., Iowa State Univ., Ames, IA 50011.

1 Registered by the Crop Sci. Soc. of Am. Accepted 24 June 1980. Cooperative investigations of the Oxford Tobacco Research Laboratory, AR-SEA-USDA, Oxford, NC. PI 189999, PI 194625, PI 227334, and PI 291320A.