Registration of BARC-13
Vegetable Soybean Germplasm

BARC-13 is an F3 population of soybean \([Glycine max (L.) Merr.]\) germplasm (Reg. no. GP-258, PI 596596) released by the USDA-ARS on 15 Nov. 1996. This population is segregating for unique and unusual combinations of genes, including genes for exceptional height and vegetative vigor, large seed size, green seed coat and green embryo. It contains plants that vary in maturity group from III to VI, vary in height from about 60 to 150 cm (24-60 inches), and produce seed sizes varying from 15 to 29 g 100 seed\(^{-1}\). Seed coat color and cotyledon color in BARC-13 varies from yellow to green. Lodging resistance varies from susceptible to resistant.

BARC-13 was developed by compositing F3 seed harvested from F2 field-grown plants derived from crosses of the vegetable-type soybean ‘Emerald’, that has large seed and green seed coat, with four F3 forage-type soybean lines bred for exceptional height, vegetative vigor, and good lodging resistance. The seed from the four crosses was bulked to provide greater genetic diversity. Unequal quantities of seed of each of the four crosses was bulked. The four forage parents were PA7-1-1 (derived from the cross ‘Burlison’ (1) \(\times\) PA4-11g-l), PA10-1-1 [derived from the cross PA4-11b \(\times\) ‘BSR 201’ (2)], PA20-1-1 and PA24-1-1 [both derived from the cross PA4-11b \(\times\) ‘Tracy M’ (3)]. PA4-11b and PA4-11g-l were F1 lines derived from the intercrossing of ‘Wilson 6’, ‘Perry’ (4), ‘Forrest’ (5) and L76-0253. Wilson 6 is a black-seeded hay-type selection made by Virginia Polytechnic Institute and State University from Wilson, which was derived from PI 19183, an introduction from Niuzhuang, Liaoning, China, received in 1907. L76-0253, developed by R.L. Bernard (USDA-ARS, Urbana, IL), is an F6 segregate with resistance to leaf-feeding lepidopterous insects derived from the cross Williams (6) \(\times\) PI 229358. The F1 hybrids of Wilson 6 \(\times\) Forrest and Perry \(\times\) L76-0253 were intercrossed and the progeny were planted in the greenhouse for generation advance. Seeds produced by this greenhouse increase were planted at State College, PA, for selection for height, vegetative vigor, and lodging resistance. Succeeding generations were selected for the same traits at Beltsville, MD, and State College, PA, alternating locations between generations in order to select for adaptation to both locations. Emerald is a Maturity Group IV cultivar growing to approximately 75 cm (30 inches) in height. The four forage lines are Maturity Group V lines and may grow to heights exceeding 150 cm (60 inches).

BARC-13 is a highly heterogeneous population segregating for maturity, height, lodging resistance, seed size, and seed coat and embryo color. It is intended to be used by soybean breeders for selection of vegetable-type soybeans of superior vegetative vigor adapted to a variety of environmental conditions and maturity ranges.

Seed of BARC-13 will be distributed in small quantities (300 seeds) upon written request to the author. Requests should include agreement to make appropriate recognition of its source a matter of open record when this germplasm contributes to either a new cultivar or a new breeding line or hybrid.

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