Registration of ‘Freeborn’ Soybean

‘Freeborn’ soybean [Glycine max (L.) Merr.] (Reg. no. CV-359, PI 592389) was developed by the Minnesota Agric. Exp. Stn. It was released because of its combination of earliness, resistance to soybean cyst nematode (SCN) (Heterodera glycines Ichinohe) Race 3, resistance to Race 1 of phytophthora root rot (caused by Phytophthora sojae M.J. Kaufmann & J.W. Gerdemann), and improved yield compared with other public cultivars with SCN resistance.

Freeborn was derived from an F5 plant from the cross ‘Ozzie’ × ‘Fayette’ (3,1). The population was advanced by the single pod bulk method to the F4 generation in Chile and Minnesota. The F5 plants were screened in the field against Race 3 of SCN. F6 plants were screened in the greenhouse against Race 3 of SCN. Freeborn was yield tested in Minnesota under both SCN infested and noninfested conditions from 1988 through 1994 under the designation M87-1621. It was evaluated in the Regional Soybean Cyst Nematode Test, Group I from 1990 through 1994 (2). M87-1621 also was evaluated in the Uniform Soybean Tests, Northern States, Uniform Test I from 1992 through 1994 (6).

Freeborn is classified as Group I maturity (relative maturity 1.4), the same as ‘Faribault’ and 5 d earlier than ‘Sturdy’ (4,5). It is best adapted to latitudes 43° to 46° N. Freeborn has an indeterminate growth habit, white flowers, tawny pubescence, and tan pods at maturity. Seeds are yellow, with black hilum and dull seed coat luster. Under SCN-infested conditions Freeborn exhibited a 25% yield advantage over Sturdy and a 5% advantage over Faribault. Under noninfested SCN conditions, Freeborn yielded 12% less than Sturdy and 2% more than Faribault. Freeborn has a lodging score similar to Sturdy (2.3 vs. 2.2 on a scale of 1 = all plants erect to 5 = all plants prostrate). Freeborn is 7 cm shorter than Sturdy. Seeds of Freeborn are 10 mg lighter, 14 g kg⁻¹ higher in protein, and 2 g kg⁻¹ higher in oil concentration than seeds of Sturdy. Seed quality of Freeborn and Sturdy is similar. Freeborn is moderately resistant to Fe-deficiency chlorosis.

Freeborn is resistant to Race 3 of SCN, deriving its resistance from PI 88788 through Fayette. It carries the Rps1 gene for phytophthora root rot and is resistant to powdery mildew (caused by Microsphaera diffusa Cooke & Peck) and brown stem rot (caused by Phialophora gregata (Allington & D.W. Gams)).

Freeborn was released on 15 Feb. 1995 to growers in Minnesota. Breeder seed of Freeborn is available for research and educational purposes through the Minnesota Agricultural Experiment Station for at least five years by writing to the corresponding author.

J. H. ORF* AND N. D. YOUNG (7)

References and Notes

7. J.H. Orf, Dep. of Agronomy and Plant Genetics, and Dept. of Plant Pathology, Univ. of Minnesota, St. Paul; supported in part by grants from the Minnesota Promotion Council and Minnesota Seed Producers Association. *Corresponding author: J.H. Orf, Department of Agronomy, 1905 St. Paul Rd., St. Paul, MN 55108; phone: 612-624-2235; fax: 612-625-0357; e-mail: johannes.orf@umn.edu.

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Crops Registered in Crop Science

Table 1. CSSA crop registration subcommittees charged with review of registration manuscripts for cultivars, germplasm, parental lines, and genetic stocks, along with the common and scientific names of the crops.

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<th>Crop subcommittee [crop names]</th>
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<tr>
<td><strong>Single-Crop Subcommittees</strong></td>
<td><strong>Multiple-Crop Subcommittees</strong></td>
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<td>alfalfa [Medicago sativa L.]; barley [Hordeum spp.]; cotton [Gossypium spp.]; maize [Zea mays L.]; oat [Avena sativa L.]; peanut [Arachis hypogaea L.]; rice [Oryza sativa L.]; sorghum, including sudangrass [Sorghum bicolor (L.) Moench]; soybean [Glycine max (L.) Merr.]; sugarbeet [Beta vulgaris L.]; sugarcane [Saccharum spp.]; tobacco [Nicotiana tabacum L.]; wheat [Triticum spp.; and genetic stocks, along with the common and scientific names of the crops.</td>
<td>Grasses, other [bentgrass, Agrostis spp.; bermudagrass, Cynodon spp.; Miscellaneous crops [buckwheat, Fagopyrum spp.;</td>
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