Registration of ‘ProSoy’ Soybean

‘ProSoy’ soybean [Glycine max (L.) Merr.] (Reg. no. CV-477, PI 638511) was developed by the North Dakota Agricultural Experiment Station, North Dakota State University, and released on 18 Jan. 2005. ProSoy was developed for the tofu specialty market and was found to be equal to ‘Proto’ (Orf et al., 1991b) for tofu quality in 3 yr of tofu evaluation (K.C. Chang, personal communication, 2004). ProSoy is a 0.8 relative maturity cultivar, has high yield with high seed protein content, is moderately resistant to iron-deficiency chlorosis, and is somewhat susceptible to lodging.

ProSoy is an F4-derived line, originally designated ND99–4022, with the pedigree Norpro × Kato (Helms and Chang, 1999; Orf et al., 1991a). The cross of ProSoy was made in the summer of 1996 at Casselton, ND. The F1 plants were grown in the 1996–1997 Chile winter nursery. The F2 population was grown in the summer of 1997 and advanced to the F3 generation by the single-pod bulk method (Fehr, 1991). The F3 population was grown in the 1997–1998 Chile winter nursery and advanced to the F4 generation by the single-pod bulk method. Individual F4 plants were grown in the Casselton nursery and threshed in the fall of 1998. F4:5 plant-rows were evaluated in 1999 at the Fargo, ND, nursery. ProSoy was first tested as ND99–4022 in replicated yield trials in North Dakota in 2000. ProSoy was not tested in the USDA Uniform Regional Trials.

ProSoy was evaluated by the North Dakota State University soybean breeding program for a total of 19 location–years that included 2001 to 2004. ProSoy yielded 16% more than Norpro and 3% less than ‘Sargent’ in North Dakota trials averaged across the years from 2001 to 2004 (Helms et al., 2002). ProSoy matured 29 September, which was 8 d later than Norpro and 1 d later than Sargent. Lodging was rated on a 1 to 5 scale with 1 the best and 5 the worst. ProSoy had a lodging score of 2.2, compared to Norpro with a score of 1.4. Plant height of ProSoy was 0.94 m, compared to Norpro with a plant height of 0.78 m and Sargent with a plant height of 0.76 m. Iron-deficiency chlorosis was rated on a 1 to 5 scale with 1 the best and 5 the worst. When ProSoy was evaluated for iron-deficiency chlorosis in 2004 at four high pH sites in North Dakota, ProSoy was classified as moderately resistant to iron-deficiency chlorosis with a score of 2.7 compared to a score of 3.4 for both Norpro and Sargent. Averaged across eleven location–years that included 2002 to 2004, protein concentration was 457 g kg⁻¹ for ProSoy, 466 g kg⁻¹ for Norpro, and 430 g kg⁻¹ for Sargent (dry weight basis). Oil concentration was 223 g kg⁻¹ for ProSoy and 222 g kg⁻¹ for Norpro, compared to 240 g kg⁻¹ for Sargent (dry weight basis). Seed size was 151 mg seed⁻¹, compared to Norpro with 156 mg seed⁻¹ and Sargent with 156 mg seed⁻¹.

ProSoy has indeterminate growth habit, purplish gray pubescence, brown pod color, and dull yellow hilum with yellow hila. ProSoy is a Maturity Group 0 cultivar and is generally adapted as a full-season cultivar from 44° to 46° N. lat.

ProSoy is not known to have a major gene for resistance to Phytophthora root rot and is susceptible to Phytophthora sojae M.J. Kaufmann & J.W. Gerdel, the cause of Phytophthora root rot.

Breeder seed of ProSoy will be maintained by the North Dakota State University. A small sample of seed for research purposes can be obtained from the corresponding author for at least 5 yr. Protection for ProSoy under the U.S. Plant Variety Protection Act Title V is pending.

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References


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