Registration of ‘Owens’ Vegetable Soybean

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‘Owens’ soybean [Glycine max (L.) Merr.] (Reg. No. CV-488, PI 633567), a maturity group (MG) V cultivar, was developed jointly by the Virginia State University, Agricultural Research Station and the USDA-ARS and was released on 8 May 2003 as a vegetable soybean cultivar. Developing seeds harvested at the green pod stage can be used for direct human consumption while seeds harvested at maturity may be useful for soyfood products such as roasted nuts (Mebrahtu et al., 1991; Carter and Shanmugasundaram, 1993; Konovsky et al., 1994; Rao et al., 2002). Owens was named in honor of Dr. George Washington Owens, a professor and director of the Agricultural School of Virginia State College.

Owens was developed from the cross of PI 417288 × T145 in 1989 by methods compatible with the USDA guidelines for organic production (USDA-ARS, 2000; USDA-AMS, 2000). PI 417288 is a MG V vegetable-type soybean from Japan and is reported to have moderate resistance to Mexican bean beetle (Epilachna varivestis Mulsant) defoliation (Kraemer et al., 1994). T145 is a glabrous mutant line found in Illini and maintained by the USDA at Urbana, IL (Palmer and Kilin, 1987). PI 417288 was used in the development of Asmara, Randolph, and Owens (Mebrahtu et al., 2005a, 2005b). As the only North American cultivars with PI 417288 in their pedigrees, Owens and its half sib cultivars Asmara and Randolph (Mebrahtu et al., 2005a, 2005b) increase genetic diversity in North American cultivars. The F2 through F5 generations from the hybridization of PI 417288 × T145 were advanced through single seed descent (Brim, 1966). At seed maturity, in 1994, F5 single plants were selected and threshed individually. Progenies of individual plants were grown in single rows at the Randolph Research Farm of Virginia State University, Petersburg, VA.

Owens was evaluated in replicated tests in 2001, 2002, and 2003 at the Randolph Research Farm, the three-year average height of Owens was 55 cm compared with 71 cm for Hutcheson, with 1 = no shattering and 5 = severe shattering. The seed shattering score for Owens was 3.5 compared to 1.0 for Hutcheson. Mature seed composition of Owens on a dry weight basis averaged 63.0 mg g⁻¹ sucrose, 350 g kg⁻¹ protein, and 45.3% of the oil as oleic acid. Oleic acid confers health benefits in reducing serum cholesterol levels (O’Byrne et al., 1997).

Owens and Moon Cake, a vegetable soybean cultivar (Devine et al., 2006), were planted 1 July 2004 at the Coastal Plain Experiment Station, Horticultural Hill Farm, Georgia, Tifton, GA. When harvested on 27 September, green pod yield for Owens was 6640 kg ha⁻¹ and for Moon Cake 7410 kg ha⁻¹. Owens was not characterized for the Mexican bean beetle (E. varivestis). Both green pod vegetable production and dry grain yield were measured. However, the grain-type cultivar, Moon Cake, was harvested only at dry grain stage. When planted in mid-May and harvested in late July (2001, 2002), Owens was characterized as possessing high levels of Hutcheson pods (R6–R7, Fehr et al., 1971) for Owens whereas Moon Cake was harvested only at dry grain stage. The decision to harvest was made when pods were green and nearly plump, and the seeds were green and nearly fully sized, approximately 35–40 d after 50% of the plants had flowering. Green bean composition of Owens on a dry weight basis from 1994–1996 was 2210 kg ha⁻¹ and Hutcheson was 2350 kg ha⁻¹. The three-year average dry bean composition of Owens on a dry weight basis averaged 63.0 mg g⁻¹ sucrose, 350 g kg⁻¹ protein, and 45.3% of the oil as oleic acid. Oleic acid confers health benefits in reducing serum cholesterol levels (O’Byrne et al., 1997).

At Virginia State University, the three-year average dry bean yield of Owens was 2210 kg ha⁻¹ compared to 1980 kg ha⁻¹ for Hutcheson. Mature seed composition of Owens was 441 g kg⁻¹ protein and 24.2% of the oil as oleic acid. Hutcheson had 350 g kg⁻¹ oil with 18.5% of the oil as oleic acid. Owens has white flowers, tawny pubescence, 24.2% of the oil as oleic acid. Hutcheson had 419 g kg⁻¹ protein and 18.5% of the oil as oleic acid. The three-year average height of Owens was 55 cm compared with 71 cm for Hutcheson, with 1 = no shattering and 5 = severe shattering. The seed shattering score for Owens was 3.5 compared to 1.0 for Hutcheson. Mature seed composition of Owens on a dry weight basis averaged 63.0 mg g⁻¹ sucrose, 350 g kg⁻¹ protein, and 45.3% of the oil as oleic acid. Oleic acid confers health benefits in reducing serum cholesterol levels (O’Byrne et al., 1997).

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