Registration of LG96–1797 Soybean Germplasm

The soybean [Glycine max (L.) Merr.] germplasm line LG96–1797 (Reg. no. GP-316, PI 639282) was cooperatively developed and released in 2000 by the USDA-ARS and the Illinois Agricultural Experiment Station for use as a parental line in yield improvement programs. This late maturity group III line combines high yield with unique genetic diversity not currently present in the commercially used gene pool in the USA.

LG96–1797 is an F2 selection from LG89–8665 × LG89–7657. LG89–8665 is an F2 selection from Jilin 15 (PI 436682) × ‘Ripley’ (Bernard et al., 1987; Cooper et al., 1990) and LG89–7657 is an F2 selection from Ripley × PI 438206 (Bernard et al., 1987). This is the first high yielding germplasm released in the USA that has either Jilin 15 or PI 438206 as a progenitor. LG96–1797 was developed through an early generation testing procedure. The progenitor population was tested for yield as an F2 family in the F1 and F2 generations. The released line was derived from a single-plant selection made in the F5 generation and bulk harvested in the F6.

LG96–1797 has indeterminate stem termination and is classified as late group III maturity. LG96–1797 has purple flowers, gray pubescence, brown pods, and yellow hilum and seed coat. In 1999, it was tested at nine locations in the USDA Uniform Preliminary Test IVB. LG96–1797 matured at the same time as ‘Macon’ (Wilcox, 1999). LG96–1797 was 71 cm tall, 10 cm shorter than Macon; seed size was 147 mg seed–1, 7 mg seed–1 less than Macon; and the lodging score was 1.7 for LG96–1797 and 1.4 for Macon on a scale of 1 to 5, where 1 is erect and 5 is prostrate (Wilcox, 1999). LG96–1797 was nearly the same in protein (417 vs. 411 g kg–1) and slightly lower in oil (191 vs. 204 g kg–1) when compared to Macon (Wilcox, 1999). It was challenged with race 7 of Phytophthora sojae Kaufmann & Gerdemann and was resistant (Wilcox, 1999).

Jilin 15 (PI 436682) (maturity group I) is a Chinese cultivar released from Jilin Academy of Agricultural Sciences in 1978. It was derived from three Chinese landraces, two of which are among the 12 most important ancestral lines of modern Chinese cultivars in northeastern China (Cui et al., 1999). PI 438206 (maturity group I) was introduced from the Soviet Union in 1980 (Bernard et al., 1987). It was originally from northeast China but the record of its genetic history has been lost. The exotic parents in this release have been characterized using random amplified polymorphic DNA (RAPD) fragments and compared to the major ancestral lines of current U.S. cultivars.

Based on analysis of the RAPD data, these two introductions were classified into two different genetic groups (Brown-Guedira et al., 2000). Jilin 15 is in genetic group D and none of the major U.S. ancestral lines are in this group. PI 438206 is in genetic group F. Capitol is the only ancestral line in this group and it contributes less than 2% of the genes to the current gene pool based on pedigree analysis (Gizlice et al., 1994).

Seeds of LG96–1797 have been deposited in the National Plant Germplasm System and small amounts for research purposes, including development and commercialization of new cultivars, are available from the corresponding author. E-mail requests are welcome. This line is not intended for commercial use. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

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References


