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Phytophthora megasperma Drechs. f. sp. glycinea Kuan & D.C. Erwin) and Race 3 of soybean cyst nematode (Heterodera glycines Ichinohe). L62-1251 is a 'Clark' (11) isoline that has a semideterminate growth habit.

R88-1259 is an F_5 selection from R82-4195 × 'Leflore' (9). R82-4195 resulted from an F_5 selection from 'Jeff' × R78-1188 (6). R78-1188 was selected in the F_5 generation from the cross (R74-402 × R72-219) × (R72-1382 × R74-1453). R72-219 is from D62-7816 × 'Davis' (3), and D62-7816 is a selection from D49-2491 × PI 181537. D49-2491 is a sister line to Lee. R74-1453 has the gene for the quin-tafoliolate trait and is an F_5 selection from (Dare^2 × T-143) × Mack, which was described above.

R85-395 and R88-1259 have a determinate growth habit and are Group VI maturity. R88-1259 is similar in maturity to Leflore and ≈1 wk later than R85-395. Yields of these germplasm lines have been similar to Leflore in Arkansas tests. Seeds of R85-395 are larger than Leflore or R88-1259. Seed quality of both lines are superior to that of Leflore. R88-1259 is similar in plant height to Leflore with R85-395 being ≈13 cm shorter than these genotypes. Both germplasm lines tend to lodge more than Leflore. R85-395 and R88-1259 have purple flowers, tawny pubescence and produce yellow seed with black hila.

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References and Notes


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REGISTRATION OF W2xiso-l AND W4xiso-l ISOGENIC POPULATIONS OF DIPLOID AND TETRAPLOID ALFALFA GERMPLASM

W2xiso-l (Reg. no. GP-239, PI 542967) and W4xiso-l (Reg. no. GP-240, PI 542968) alfalfa (Medicago saliva L.) germplasms were released by the Wisconsin Agricultural Experimental Station on Nov. 17, 1983. Both are isogenic populations of diploid and tetraploid cultivated alfalfa developed by chromosome manipulations as follows. First, cultivated tetraploids adapted to Wisconsin were scaled down to the diploid (2x) level by isolating maternal haploids (2.x). Then, the 2x haploids were used to breed cultivated alfalfa at the diploid level (CADL) (2), which is seed reproduced. Finally, 8 selected CADL plants (Cl, C4, C7, C14, C22, HG2, W32, and W315) were chromosomally doubled using colchicine to produce 4x isogenic lines of plants. Respectively 2x and 4x clonal sets of plants. Respective 2x and 4x clonal sets of plants. Respectively 2x and 4x clonal sets of plants.

Single cross plants were paired to make the DC (25 pairs for each DC). Similarly, DC plants were paired to make the DDC (25 pairs). Pollinations to produce DC plants were made by hand without emasculation of the female parent. Pairing the plants prevented sibbing, but some selfing could have occurred in the production of DC and DDC in the tetraploid. Diploid and tetraploid populations have the same genes and gene frequencies, in any case. Seed of W2xiso-l and W4xiso-l was produced by advancing the DDC one generation in a cage isolation seed increase at Prosser, WA, as part of Regional Project NC83.

Isogenic W2xiso-l and W4xiso-l were developed for comparative research on diploids and tetraploids and have not been screened for disease resistance or agronomic traits. It is known that W2xiso-l and W4xiso-l require different management under field conditions; the 2x is a two-cut alfalfa in Wisconsin, while the 4x tolerates three cuts. The 2x is lower in herbage yield and less tolerant of stress than the 4x. These factors may be due to the lower vigor and higher frequency of homozygous recessive genotypes segregating in the 2x population.

Most plants in both populations have blue or purple flowers. Some CADL parents were heterozygous for certain qualitative traits, however, and the generation of 2xiso-l used for seed increase segregated for the following traits in a 100-plant sample: cream flowers (2%), white flowers (1%), male sterile (2%), 2n pollen (2%), and dark brown seed (1%). In addition, there was one tetraploid from union of a 2n egg and 2n pollen. The 4xiso-l population has been observed to segregate for the same qualitative traits, but at a lower frequency than in 2xiso-l.

Ten grams of seed of W2xiso-l and W4xiso-l will be distributed until the supply is depleted. Seed will be sent upon written request and agreement to recognize the source of the materials when they are used in publication or development of new germplasm or a cultivar. Requests should be sent to E.T. Bingham, Agronomy Department, 1575 Linden Dr., University of Wisconsin, Madison, Wisconsin 53706.