REGISTRATION OF OCTOPLOID HYBRID CLOVER GERMPLASM FROM THE CROSS OF TRIFOLIUM AMBIGUUM X T. REPENS

An octoploid (2n = 8x = 64) hybrid clover from the cross of T. ambiguum M. Bieb. (2n = 4x = 32) × T. repens L. (2n = 4x = 32) was jointly released by the Kentucky Agricultural Experiment Station and Grasslands Division, DSIR, New Zealand, in 1990. The octoploid hybrid clones (designated 8x-435) were produced by doubling the chromosome number of Hybrid 435 by in vitro colchicine methods (1).

Pollen stainability of the octoploid hybrid averaged 33.6% in greenhouse-grown plants and the pollen was tetrahedral. The chromosomes of the octoploid hybrid associated in meiosis as 2.64 univalents, 27.62 bivalents, 0.74 trivalents, 0.86 quadriavals, and 0.10 pentavalents (2).

The 8x-435 hybrid is morphologically intermediate between the two parents, very similar to Hybrid 435, and does not exhibit the rhizomatous root habit of T. ambiguum or the stoloniferous habit of T. repens. Under field conditions, 8x-435 clover is slightly less vigorous than Hybrid 435 but apparently is nodulated by field strains of Rhizobium spp. Under greenhouse conditions, it flowers similarly to Hybrid 435 and is more self-fertile than Hybrid 435, producing 86 seeds from ~2000 florets selfed. Very few seeds were produced from crosses among 10 8x-435 clones under field conditions in 1990. Backcrosses to T. ambiguum or T. repens have not been attempted.

The 8x-435 hybrid is not directly usable as a cultivar, but may be useful in breeding because it has higher pollen fertility than Hybrid 435. Up to five rooted propagules of an 8x-435 hybrid clone may be obtained from the Department of Agronomy, Agricultural Science Bldg. N, University of Kentucky, Lexington, KY 40546-0091.

N. L. Taylor,* J. A. Anderson, E. G. Williams, and W. M. Williams (3)

References and Notes


REGISTRATION OF THREE GERMPLASMS OF WINTERHARDY LENTIL

Three germplasms, WH8449085, WH8449090 and WH8449041, of lentil (Lens culinaris Medik.) (Reg. no. GP-2 to GP-4, PI 547037 to PI 547039), with sufficient winterhardiness for use as a fall-sown crop in the Palouse region, were selected on the basis of differences in seed size and cotyledon color to avoid releasing indistinguishable germplasms. Final selections were based on data from replicated trials.

The site for evaluation of winterhardy lines was an exposed ridge at the Washington State University Spillman Agromony Farm, Pullman, Washington. Lines were sown in late September or early October in 1984, 1985, 1986, 1988, and 1989. Winter and spring temperatures were sufficient to kill the fall-sown spring check cultivar 'Brewer' each year. All three germplasms had better survival than WH-2040, the only previously released winterhardy lentil germplasm (Wilson and Hudson, 1978). Fall growth of these germplasms tended to be prostrate, which may have contributed to their winter survival. Growth in the spring and summer was more upright, as in conventional spring-sown types.

In contrast to other fall-sown crop species in the Palouse region, seed yield of these germplasms did not differ from the current best spring-sown lentil cultivar, Brewer, despite earlier canopy development by the germplasms. These fall-sown germplasms matured 7 to 10 d earlier than typical spring-sown cultivars. The seed quality of the fall-sown germplasms was visually indistinguishable from that of spring-sown cultivars.

The three germplasms are distinct from one another. Plants of WH8449085 (GP-2) are ~25 cm in height, flower in mid-May, and have a tendency to lodge. Seeds are large (7.5 g 100 seed-1) with yellow cotyledons. Plants of WH8449090 (GP-3) are ~21 cm in height, flower in late May, and have a slight tendency to lodge. Seeds are small (3.1 g 100 seed-1) with yellow cotyledons and a blunted or rounded edge. Plants of WH8449041 (GP-4) are ~34 cm in height, flower in early June, and have a slight tendency to lodge. Seeds are small (2.8 g 100 seed-1) with red cotyledons.

The major use expected for these germplasms is as sources of winterhardiness. Small samples of seed are available upon written request to the USDA-ARS, Legume Genetics and Physiology Research Unit, 215 Johnson Hall, Washington State Univ., Pullman, WA 99164-6421. Recipients of the germplasm are requested to acknowledge its source when it contributes to the development of a new cultivar or other improved germplasm.

S. C. Spaeth* and F. J. Muehlbauer (2)

References and Notes


REGISTRATION OF KY M-2 ZIGZAG CLOVER GERMPLASM

Ky M-2 Zigzag Clover (Trifolium medium L.) (Reg. no. GP-96, PI 547905) germplasm was released by the Kentucky Agricultural Experiment Station in 1990. This germplasm is the sixth cycle of phenotypic recurrent selection for first-year winterhardy. Surviving plants from the PI lines were bulk harvested and grown in 1984–1985. About 100 individual plant selections were made from this material and grown during the 1985–1986 season. Six lines were selected for winter survival and grain yield. Selection for grain yield was based on results from the 1985–1986 and 1986–1987 yield trials. The three germplasms were selected on the basis of differences in seed size and cotyledon color to avoid releasing indistinguishable germplasms. Final selections were based on data from replicated trials.