Registration of MSRedFl Red-Flowered White Clover Germplasm

MSRedFL red-flowered white clover (Trifolium repens L.) germplasm (Reg. no. GP-5, PI 583377) was developed by the USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station and released in November 1993. MSRedFL was developed from an intercross of white clover plants expressing the recessive red flower trait.

The original red-flowered white clover plant was collected from a residential lawn in Lincoln Township, Audubon County, Iowa, in 1983 (2). The red flower trait appeared identical to a double recessive cyanidin-red mutant discovered in 1950 (Reference 1, and J.L. Brewbaker, 1993, personal communication). The cyanidin-red white clover is no longer available for direct comparison with the red-flowered plant or for genetic use. Identical characteristics of the two mutants include a spinel red or rose opal flower color (3), little change in pigment intensity due to sunlight or environment, brown-black seeds, red or rose opal flower color (3), little change in pigment intensity due to sunlight or environment, brown-black seeds, and recessive inheritance.

The red-flowered plant was crossed by hand pollination with three normal white-flowered plants of 'Tillman'. The F2 generation was produced by intercrossing plants from each F1 cross in cages using honey bees (Apis mellifera L.) as pollinators. Backcrosses of F1 plants to the red-flowered plant were made by hand pollination. Selfed seed was produced by rolling the heads of the red-flowered plant. The red-flowered plant had some self-compatibility, as Si seed was relatively easy to obtain. The F1, F2, BC1, and Si plants were grown in the greenhouse at Mississippi State in October 1990 and scored in May 1991 for expression of the red flower trait. All F1 plants had white flowers, indicating the red flower trait is recessive. All Si plants produced red flowers. The BC1 segregated in a 3:1 ratio, suggesting double recessive inheritance; however, the F2 generation had more red-flowered plants than expected and was significantly different from the expected 15:1 ratio \( \chi^2 = 7.5, P < 0.01 \). Additional crosses have been made to further clarify the inheritance of the red flower trait. Eighty-eight plants with red flowers from the F2 or BC1 generations were intercrossed in cages with honey bees to produce MSRedFL. MSRedFL should be useful in genetic studies as a marker, in pollination and controlled crossing studies, and may have potential as an ornamental.

A small amount of MSRedFL seed will be provided for research and breeding purposes upon written request from the corresponding author while supplies last. Recipients of seed are asked to make appropriate recognition of the source of the germplasm if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.

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Registration of Insect-Resistant Soybean Germplasm Line HC83-193

HC83-193 soybean [Glycine max (L.) Merr. GP-172, PI 583295] was released jointly by the USDA-ARS and the Ohio Agricultural Research and Development Center as an insect-resistant germplasm line with significantly improved agronomic characteristics.

HC83-193 is a selection from the cross D75-10169 × (Bragg × P1229358) (Double-Flowering), released in 1984 (6). HC83-193 is a near-true-breeding (dryer) line of mid-Group IV maturity, homozgyous for resistance to Mexican bean beetle (Epilachna varivestis Mulsant). It has purple flowers, tawny pubescence, tan and yellow seedcoat with black hila. HC83-193 is a line derived from the pedigree process, resistant plants (identified in the laboratory by Mexican bean beetle larvae bioassay [7]), to the next generation until homozygosity for resistance was obtained. HC83-193 was released because of its significant improvement in agronomic characteristics over previously resistant germplasm lines (2,5). Compared with previous releases (HC83-123-9, HC84-46-1, and HC84-123), HC83-193 has averaged 9 d earlier in maturity and 520 kg ha\(^{-1}\) higher yield. Seed shattering, a problem in these germplasm lines, has been significantly reduced and seed quality improved. HC83-193 has shown exceptional performance in some environments (5702 kg ha\(^{-1}\)), but generally it is lower in yield than the mid-Maturity Group IV cultivar Ripley (3).

In an intensive laboratory bioassay, 100% of Mexican bean beetle larvae feeding on the leaves of HC83-193, compared with 28 and 16% mortality for the susceptible cultivars Pixie (4) and Elf, respectively. However, some mortality occurred at a later growth stage (instar) than for the susceptible, PI 229358, and the germplasm line HC83-123-9, suggesting a slightly lower level of resistance.

Small quantities of seed for research purposes can be obtained from the corresponding author for a small charge.

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References and Notes


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Published March, 1995