REGISTRATION OF BROWN LOAM SYNTHETIC NO. 2 WHITE CLOVER GERMPLASM

BROWN LOAM SYNTHETIC No. 2 drought-tolerant white clover (Trifolium repens L.) germplasm (Reg. no. GP-1) (PI 512040) was released by USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in 1987. In 1976, N.C. Edwards selected 27 white clover clones from the site of a former white clover variety test following a severe drought at the Mississippi Brown Loam Experiment Station, Raymond, MS. These drought tolerant clones had survived from 1 July 1976 to 1 Nov. 1976 with 159 mm (6.3 in.) of rainfall. During this moisture deficit period, there were 63 d with only 23 mm (0.79 in.) of rainfall. Twenty replications of the clones were planted in a polycross nursery in the fall of 1977. Five clones with severe disease symptoms were eliminated prior to flowering. Polycross seed was harvested in 1978 and polycross progenies of the remaining 22 clones were evaluated for 3 yr and compared to 'Regal' and 'Tillman.'

Selection for drought tolerance and improved persistence. In addition to virus resistance, preliminary results indicated selection for drought tolerance and improved persistence. In general, polycross progenies were superior to Regal and Tillman. Equal amounts of seed by weight were combined from the 22 clones and named Brown Loam Synthetic No. 2. This synthetic was entered in white clover variety tests at Mississippi State, MS, in 1978, 1980, 1981, and 1982. Forage yield and persistence of the synthetic exceeded Regal and Tillman in the second, third, and fourth year of testing (3).

White clover is affected by virus diseases, which cause serious damage and reduce persistence. Alfalfa mosaic virus (AMV), clover yellow vein virus (CYVV), peanut stunt virus (PSV), red clover mosaic virus (RCVMV), and white clover mosaic virus (WCMV) are common in white clover. Of these, PSV is most destructive. The incidence of infection and damage caused by viruses increases with the age of a clover stand. Virus infections were monitored using the enzyme-linked immunosorbent assay (ELISA) (2, 4). The drought tolerant synthetic had significantly less PSV than Regal or Tillman. The synthetic also had significantly less CYVV than Regal and Tillman. Differences in infection with AMV, RCVMV, and WCMV were not significant. Selection for PSV resistance apparently occurred concurrently with selection for drought tolerance and improved persistence. In addition to virus resistance, preliminary results indicated moderate tolerance to a North Carolina population of the southern root-knot nematode (1).

When evaluated at Prosser, WA for seed production potential, 21 of the 22 clones produced adequate seed for commercial seed production in the West. The 22 clones and seed of Synthetic No. 2 will be maintained by USDA-ARS at Mississippi State, MS. Twenty grams of seed of Brown Loam Synthetic No. 2 are available to each applicant upon written request. Request seed from G.A. Pederson, Forage Research Unit, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 32352-5367.


References and Notes
2. -----, and M.R. McLaughlin. 1985. Apparent resistance to peanut stunt virus disease in white clover germplasm selected for drought tolerance. p. 60. In Agron. abstracts, ASA, Madison, WI.
5. W.E. Knight, M.R. McLaughlin, G.L. Windham, and G.A. Pederson, USDA-ARS, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367; C.M. Rincker, retired (formerly, USDA-ARS, Irrigated Pasture Res. and Extension Cir., P.O. Box 30, Prosser, WA 99350); N.C. Edwards, Mississippi Agric. and Forestry Exp. Sta., Brown Loam Branch Exp. Sta., Raymond, MS 39154. Joint contribution of USDA-ARS and the Mississippi Agric. and Forestry Exp. Sta. Registration by the CSSA. Accepted 30 Oct. 1987. *Corresponding author.

REGISTRATION OF SNLL-87, A SWEET NARROW-LEAVED (BLUE) LUPIN GERMPLASM

SNLL-87 is a winter-hardy, disease resistant, sweet (low alkoloid content), soft-seeded, narrow-leaved (blue) lupin (Lupinus angustifolius L.) germplasm (Reg. no. GP-3) (PI 511812) with seed shatter resistance. This germplasm was developed and released cooperatively by the USDA-ARS and the Georgia Agricultural Experiment Station, Coastal Plain Experiment Station on 12 June 1987. SNLL-87 and ‘Tifblue-78’ (1) were selected from the cross ‘65G-251’ × ‘Uniharvest’, an Australian cultivar. The strain 65G-251 was developed from the cross ‘WH-l’ (a winter-hardy selection of PI 168533 from Portugal) × ‘Rancher’ (2), a sweet cultivar with resistance to anthracnose (caused by Glomerella cingulata Ston), (Spauld. & Schenk) and gray leafspot (caused by Stemphylium solani Weber). Uniharvest has nonshattering seed pods. Strain 65G-251 has winterhardiness and gray leafspot and anthracnose resistance. Both 65G-251 and Uniharvest are sweet, soft-seeded, and have white flowers and seeds. Inoculations and screening for disease reactions were conducted on the F₁ through the F₅ generations in the greenhouse at Tifton and Experiment, GA. The F₁ and F₂ generations were screened for seed shatter resistance in Western Australia by the Western Australia Department of Agriculture. SNLL-87 was constituted by compositing equal amount of seed by weight of F₁ seed from four F₅ lines with similar winterhardiness and reactions to gray leaf spot and anthracnose.

The genotype of the strain is tardus plus lentus (seed-shatter resistance), gl₁, and/or gl₁ (gray leaf spot resistance), An (anthracnose resistance), t iaucan (sweetness), mollus (soft seediness), and leucospermus (white flowers and seeds and absence of purplish pigments in vegetative parts). The inheritance of winterhardiness is unknown; but appears to be conditioned by one major dominant gene and one or more modifiers. Winterhardiness of the germplasm is possibly related to slower plant growth at low temperatures. SNLL is of value for grazing and for use as a high protein grain. It is not greatly different from ‘Frost’, a narrow-leaved lupin, in herbage production, protein content, freedom of herbage...