REGISTRATION OF GERMPLASMS

REGISTRATION OF IL 83-2 ALFALFA GERMPLASM

IL 83-2 (Reg. no. GP-193) is an eight-clone alfalfa (Medicago sativa L.) synthetic developed and released March 1985 as a germplasm source by the University of Illinois Agricultural Experiment Station at Urbana-Champaign. This germplasm was derived from ramets of plants from a four-year-old alfalfa cultivar trial at Brownstown, IL. These cultivars consisted of 'WL303', 'Saranac', 'Honeyeye', and 'Vernal'. The original 15 ramets possessed distinctive branched roots. These were intercrossed and progeny exhibiting at least three branched roots within 2.5 cm of the crown and with no major tap root were selected during the first year (1). Selected progeny were backcrossed to two of the original clones. Backcross progeny were grown for 1 yr and selected for branched roots. IL 83-2 resulted from intercrossing 55 plants from the BC-3 generation.

IL 83-2 has over 35% branched-rooted plants and has good resistance to heaving. It has good winter hardiness with a rating of 5.2 compared to 7.5 for 'Ladak' and 4.5 for Saranac. In a test for bacterial wilt [caused by Corynebacterium insidiosum (McCull) H. L. Jens] it was 58% resistant. It possesses the same level of resistance to phytophthora root rot [caused by Phytophthora megasperma f. sp. cactorum (caused by Phytophthora megasperma f. sp. medici) sesses]. It was 54% resistant. While 'Apollo IF' was 54% resistant and Saranac was 3% resistant. IL 83-2 has over 35% branched-rooted plants and has good resistance to heaving. It has good winter hardiness with a rating of 5.2 compared to 7.5 for 'Ladak' and 4.5 for Saranac.

In a test for bacterial wilt [caused by Corynebacterium insidiosum (McCull) H. L. Jens] it was 58% resistant. It possesses the same level of resistance to phytophthora root rot [caused by Phytophthora megasperma f. sp. cactorum (caused by Phytophthora megasperma f. sp. medici) sesses]. It was 54% resistant.

IL 83-2 exhibited rapid establishment under less than ideal conditions. It should be adapted to shallow soils, hard pan areas and poorly drained soils (2). Three-year average dry matter yield of the BC-2 generation grown at the Browns- town Agricultural Research Center, Brownstown, IL was 110% of the average of the four check cultivars—'Baker', 'Rily', 'Saranac AR', and 'Vernal'. At the end of the third year the percent stand was 92%. This site has a Cisne silt loam soil (Mollic Albaqualf) with a poorly drained subsoil. First-year dry matter yield of IL 83-2 (BC-3) at Brownstown was 128% of the mean of the same four cultivars, while at Urbana, IL the first-year yield was only 101% of the checks. The soil type at Urbana was a Drummery silty clay loam soil (Typic Hapludoll) a fairly well drained soil with no impermeable subsoil.

IL 83-2 may be useful as a source of branched root characteristics for future breeding programs in the development of cultivars for shallow soils or resistance to heaving (3). Up to 2 g of seed of IL 83-2 may be obtained from the Department of Agronomy, AE108 Turner Hall, 1102 S. Goodwin Ave., University of Illinois, Urbana, IL 61801.

D. A. MILLER (4)

References and Notes
3. Seed was increased in cooperation with NC-83 project.
4. Professor of plant breeding and genetics, Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801. Registration by the Crop Sci. Soc. of Am. Accepted 6 Feb. 1986.

REGISTRATION OF MU-81 BIRDSFOOT TREFOIL GERMPLASM

MU-81 birdsfoot trefoil (Lotus corniculatus L.) germplasm, (Reg. no. GP-61) cooperatively developed by USDA-ARS and the Missouri and Minnesota Agricultural Experiment Stations, was released in May 1985. MU-81 is a randomly mated, highly heterogenous population that provides a diverse genetic source to those involved in the study and genetic improvement of birdsfoot trefoil.

This germplasm is the seed resulting from three cycles of intercrossing plants that trace to 56 foreign introductions and 35 experimental synthetics, or cultivars. Included were the germplasms MO-20, T-68, and NC-83, and the cultivars 'Leo', 'Maitland', 'Dawn', 'Empire', 'Carroll', 'Viking', 'Fargo', 'Fergus', 'Norcen', 'Tretana', 'Granger', 'Mansfield' and 'Cascade'. The foreign introductions were collected in 20 countries and obtained from USDA Regional Plant Introduction Stations at Geneva, NY, and Ames, IA. The experimental synthetics, germplasms, and cultivars were obtained from public and private sources in the USA and Canada.

In 1981, the source materials were established as space-planted transplants on 0.5-m centers at Rosemount, MN, in isolation from other birdsfoot trefoil. Most entries were represented by 15 plants randomly assigned within the crossing block. The 1200 plants flowered over sufficient time to be interpollinated by colonies of honey bees (Apis mellifera L.). Fifty open-pollinated seeds were harvested from every plant

and bulked to form Cycle 1 seed. Cycle 2 seed was generated in an identical manner from 2000 randomly chosen plants produced from Cycle 1 seed. Cycle 3 was generated by bulkling the seed of 2000 randomly chosen plants produced from Cycle 2 seed. Cycle 3 constitutes MU-81. Seed was increased through the Technical Committee, NC-83.

No selection was practiced in any cycle. The source materials were intercrossed to increase the frequency of new gene combinations, and to provide the genetic constitution in MU-81 that would allow studies of gene action and selection. The foreign introductions included in Cycle 0 were, however, chosen for moderate to high winterhardiness at Geneva, NY, Ames, IA, and Columbia, MO.

The merit of MU-81 germplasm is attributable to the broad genetic base compiled into a single source. Fifteen grams of MU-81 are available to each applicant upon written request. It is requested that this source of germplasm be appropriately recognized if it contributes to the development of a cultivar. Request seed from P.R. Beuselinck, Agronomy Department, 216 Waters Hall, University of Missouri, Columbia, MO 65211.

P. R. BEUSELINCK AND R. L. MCGRAW (1)

References and Notes
1. Research geneticist, USDA-ARS, and assistant professor of agronomy, Univ. of Missouri, Columbia, MO 65211; and research agronomist, USDA-ARS, and assistant professor of agronomy and plant genetics, Univ. of Minne-