Registration of Germplasms

REGISTRATION OF UC 123 AND UC 143 ALFALFA GERMPLASMS
(Reg. No. GP 124 and GP 125)¹

W. F. Lehman, D. L. Stuteville, M. W. Nielson, and V. L. Marble²

UC 123 (GP 124) and UC 143 (GP 125) alfalfa [Medicago sativa L.] germplasms were released by the Department of Agronomy and Range Science, University of California, Davis; Department of Plant Pathology, Kansas State University, Manhattan; and the USDA-ARS Forage Insects Research Laboratory, Tucson, Ariz., in October and November 1980. They are nondormant germplasms (derived from ‘CUF 101’) with more resistance than CUF 101 to downy mildew caused by Peronospora trifoliorum d By. CUF 101 has high levels of resistance to the spotted alfalfa aphid [Theroaphis maculata (Buckton)] and pea aphid [Acyrthosiphon pisum (Harris)].

UC 123 was derived by screening 7370 CUF 101 seedlings and selecting 1479 with resistance to isolates I5 and I7 (mixed) of the downy mildew fungus. These plants were screened for resistance to anthracnose caused by Colletotrichum trifolii Bain and the 60 survivors were transplanted in the field and pollinated by honey bees. The resulting seed was bulked to produce UC 123.

UC 143 was selected from a population of 13 476 UC 123 plants for resistance to isolate I8 of the downy mildew fungus. I8 was isolated from alfalfa from El Centro, Calif., and is virulent to some nondormant cultivars heretofore considered highly resistant to downy mildew. The 550 selected plants were planted in the field at El Centro, Calif. About 8% of these plants were discarded because they supported populations of the blue alfalfa aphid [Acyrthosiphon kondoi Shinji]. Selected plants were interpollinated by honey bees in a field cage to produce Syn 1 seed.

Mean percentages of seedlings free of mildew after inoculation with isolates I5 and I7 (mixed) and I8, respectively, were CUF 101, 28 and 2; UC 123, 66 and 5; UC 143, 63 and 67; ‘Caliverde’, 15 and 2, ‘Saranac’ (resistant), 18 and 51; and ‘Kanza’ (susceptible) 0 and 0. On a scale of 1 = least to 5 = most, blue alfalfa aphid damage at Tucson was 1.7, 1.0, and 5.0, respectively, for UC 143, BAA 15 (highly resistant), and Caliverde.

Resistance evaluation tests for Phytophthora root rot caused by Phytophthora megasperma Drechs. f. sp. medicaginis Kuan and Erwin and bacterial wilt caused by Corynebacterium insidiosum (McCull.) H. L. Jens. were conducted at St. Paul, MN. Mean seedling weights of plants resistant to Phytophthora root rot were UC 143, 28; ‘Agate’ (resistant), 58; and Saranac (susceptible), 3. Percentages of plants resistant to bacterial wilt were UC 143, 2; ‘Ranger’ (resistant), 30; and ‘Narragansett’ (susceptible), 0. Anthracnose resistance of UC 123 and UC 143 was not determined but probably is low since a population derived from UC 143 by backcrossing with a susceptible cultivar had 12% of the progeny resistant.

Contributes to the development of a new cultivar. Requests for seed should be directed to D. L. Stuteville, Univ. of California, 1004 E. Holton Road, El Centro, Calif. 92231.

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REGISTRATION OF EIGHT GERMPLASM LINES OF COTTON¹
(Reg. Nos. GP 210 to GP 217)

Joel F. Mahill, Johnie N. Jenkins, and J. C. McCarty

EIGHT semigametic virecent-7 cotton (Gossypium hirsutum, G. tomentosum, G. barbadense, G. herbaceum, G. arboreum, G. anomalum, G. longicalyx, and male sterile G. harknessii) were obtained from Vesta Meyer (Mississippi Agriculture and Forestry Experiment Station, Stoneville, Miss.). The cytoplasms from these species have been reported to influence agronomic traits. The strains with species cytoplasms were backcrossed two to three times with the semigametic, material serving as the male, recurrent parent; however, three have cytoplasms from tetraploid species and five have cytoplasms from diploid species. The backcross, progeny were rigorously selected for early, prolific fruiting types.

Each semigametic cytoplasm line was developed from seed plants which produced high frequencies of single plants (4 to 12%) in testcrosses. Testcrosses of each were made to determine days to first blooms for the germplasm lines. Table 2. Although the lines have been extensively backcrossed, early, prolific fruiting types, sufficient variation remains for further selection. These lines are homozygous for the semigamy trait and should produce about 50% haploids in future crosses. Each line has tetraploid nuclear genes of G. barbadense recurrent parent; however, three have cytoplasms from tetraploid species and five have cytoplasms from diploid species of Gossypium.

To obtain a cultivar in one of these cytoplasms, it would be necessary to produce a pure line of the desired cytoplasm and then develop a cultivar with a commercial value.