ululations to produce Syn 1 seed. About 2000 progeny from each population were grown in nil-nitrate sand benches to identify the ineffectively nodulated plants. Sixty-eight ineffectively nodulated plants were found in the Agate population and 128 were found in the Saranac population. These plants were sent to Prosser, WA for the production of Syn 2 seed. About 13,000 selected plants of Ineffective Agate were transplanted into a 0.1 ha isolation and about 7000 selected plants of Ineffective Saranac were transplanted into a 0.1 ha isolation at Prosser, WA to produce Syn 3 seed.

The performance of the two near-isogenic pairs of alfalfa germplasms was evaluated in a 3-yr field study at four N application rates: 0, 70, 140, and 210 kg N/ha−1 harvest−1. There was sufficient soil N at the Rosemount, MN location to permit establishment of the study with no yield differences between the ineffectively and effectively nodulated alfalfa at the 0 N rate during the seeding year. The relative yields of the ineffectively nodulating germplasm as a percentage of the effectively nodulating control cultivar were similar at each N application rate for both germplasm sources. The 3-yr-mean yield of the ineffectively nodulating controls was 66% at 0, 85% at 70, 95% at 140, and 102% at 210 kg N/ha−1 harvest−1. After 3 yr in this study, the percentage stands were similar for the near-isogenic ineffectively and effectively nodulating pairs of germplasms. Effective Agate is a dormant alfalfa and Ineffective Saranac is a moderately dormant alfalfa. Choice of the ineffective nodulating germplasm for use as controls in measurements of N2 fixation should depend on the dormancy of the germplasm to be evaluated and the expected severity of winter injury. About 1.5% of the plants in each ineffectively nodulated germplasm will have some N2 fixation. Under low soil N conditions, these effective plants will appear dark green compared to the yellow-green ineffective plants and can be removed for critical comparisons.

Sufficient seed was produced to consider requests for seed quantities necessary to conduct routine agronomic, plant physiology, and plant breeding field and greenhouse research. It is requested that applicants give appropriate recognition when this germplasm contributes to a research project. Request seed of the ineffectively nodulating germplasms (and the effectively nodulating parent cultivars) from D.K. Barnes, Department of Agronomy and Plant Genetics, 411 Borlaug Hall, University of Minnesota, 1991 Buford Circle, St. Paul, MN 55108.

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References and Notes


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REGISTRATION OF ALFALFA GERMLASM REPRESENTING EIGHT DIVERSITY GROUPS AND A VERY FALL DORMANT POPULATION

BROAD based populations representing eight of the nine historical genetic diversity groups in alfalfa (Medicago spp.), as described by Barnes et al. (1), and a very fall dormant population containing some M. falcata L. parentage, were released by the New Mexico Agricultural Experiment Station in April 1989. Very Fall Dormant (Reg. no. GP-230, PI 536531), Ladak (Reg. no. GP-231, PI 536532), M. varia (Reg. no. GP-232, PI 536533), Persian (Reg. no. GP-233, PI 536534), Peruvian (Reg. no. GP-234, PI 536535), Indian (Reg. no. GP-235, PI 536536), Turkistan (Reg. no. GP-236, PI 536537), Flemish (Reg. no. GP-237, PI 536538), and African (Reg. no. GP-238, PI 536539) populations are recommended as source materials for basic studies related to genetic diversity, heterozygosity, and heterosis in alfalfa. The Very Fall Dormant population is intended as a source population to be used to develop a M. falcata L. population.

Seed for these populations originated from the inventory maintained by the National Seed Storage Laboratory, alfalfa breeders in Montana, California, and Arizona, and from the New Mexico Alfalfa seed collection. The origin of the populations and numbers of seed lots (in parentheses) are as follows:

Very Fall Dormant:
- 'Spredor II' (13)
- 'Rhizoma' (9)
- 'Maverick' (13)
- 'Norseman' (11)

Ladak:
- 'Ladak' (11)
- 'Ladak 65' (8)

M. varia:
- 'Grimm' (9)
- 'Delta'
- 'Hardigan'
- 'Meeiker Baltic'
- 'Cossack'

Miechowski (PI 255178)

Chilean:
- 'Caliverde' (3)
- 'Cal. Common 49'
- 'Cal. Common'
- 'Chilean Common'

Chilean 21-5
- Chilean 21-5-5

Chilean 21-5-5

Peruvian:
- 'Coastal Hairy Peruvian'
- 'Hairy Peruvian' (4)

Indian:
- 'Sirs No. 9' (5)
- 'Arizona Indian'
- 'Mesa Sirsa' (3)

Turkistan:
- 'Orestan' (17)
- 'Deseret'
- 'Washoe' (17)
- 'Lahontan'
- 'Lahontan PGL'

Flemish:
- 'Socheville' (7)
- 'G 777'
- 'Strie', 'Europea'
- 'Apex'
- 'Anchor'

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