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12 Kansas locations. Lamed has consistently outyielded Scout, averaging 7% more in Kansas. Lamed is the first variety available for western Kansas that provides both Hessian fly resistance and top yield performance.

Breeder seed of Lamed is maintained at the Ft. Hays Branch Exp. Stn., Hays, KS.

REGISTRATION OF GREENLEAF PUBESCENT WHEATGRASS¹
(Reg. No. 12)
D. B. Wilson and S. Smoliak²

'GREENLEAF' pubescent wheatgrass [Agropyron trichophorum (Link) Richt.] was developed at the Agriculture Canada Research Station, Lethbridge, Alberta. It received License No. 1043 on 28 June 1966, but a complete description of this cultivar and its performance has only recently been published.²

Stands of pubescent wheatgrass were established at Lethbridge in 1956 with commercial seed obtained from Davenport, Washington, and Bismarck, North Dakota. In 1958, a total of 2,024 selections were placed in a plant observation nursery. Open-pollinated progenies of 57 superior forage types were grown in the greenhouse and rated for seedling vigor and early plant growth. Of the highest yielding lines with superior seedling vigor and early plant growth, 14 were evaluated in the field and 12 of these were combined to form a synthetic strain. The strain was designated LT747 during subsequent testing before being licensed as Greenleaf.

Greenleaf was developed primarily as a winterhardy cultivar for pasture and hay production on dryland or irrigated land in southern Alberta. It has good seedling vigor and also has some tolerance to saline soils and areas of low soil moisture. It is a perennial, creeping-rooted, sod-forming grass and is adapted to the Brown and Dark Brown Chernozem soils.

Glumes, lemmas, and rachises of Greenleaf are more pubescent than those of 'Topar' pubescent wheatgrass. The foliage is green to bright green.

Seed of Greenleaf is being multiplied through the breeder, foundation, and certified seed classes. Breeder seed is being maintained by the Agriculture Research Station at Lethbridge.

REGISTRATION OF K577 ALFALFA GERMPLASM¹
(Reg. No. GP 94)
E. L. Sorensen, D. L. Stuteville, and E. Horber³

K577 alfalfa [Medicago sativa L.] was released by the Kansas Agric. Exp. Stn. and FR-SEA-USDA in November 1977. It provides resistance to Phytophthora root rot [Phytophthora megasperma Drechs.], downy mildew [Peronospora trifoliorum d'By.], anthracnose [Colletotrichum trifolii Bain], pea aphid [Acyrthosiphon pisum (Harris)], and spotted alfalfa aphid [Theroaphis maculata (Buckton)] in one germplasm pool.

K577 was derived from 'Arc' alfalfa by recurrent phenotypic selection in the seedling stage. Successive elimination under controlled conditions in the laboratory included one cycle of selecting for resistance to Phytophthora root rot, two cycles for downy mildew, and three cycles each for the pea aphid and spotted alfalfa aphid. More than 75 resistant plants were used to initiate each cycle. Eighty-three plants for the last cycle were intercrossed by hand in the greenhouse to produce syn 1 seed. Syn 2 seed was produced in an isolated field plot.

Based on percentage resistant plants in a field test at St. Paul, MN, K577 has a level of Phytophthora root rot resistance about equal to that of 'Agate': K577 = 31%, Agate = 34%, and 'Saranac' = 2%. Resistance to downy mildew, in a severe seedling test under controlled conditions in the laboratory, was 23% percent that of Saranac, which shows a high level of field resistance (K577 = 43%, Arc = 7%, Saranac = 18%, and 'Kanza' = 1% resistant). Under field conditions at Manhattan, KS, anthracnose resistance of K577 and Arc did not differ significantly (K577 = 3.0, Arc = 2.5, Saranac = 5.0; L.S.D. (a0.05) = 1.7; rated 1 = least to 9 = most damage).

K577 is resistant to the pea aphid based on percentages of seedling survival after infestation: K577 = 88%, Arc = 45%.

₁ Registered by the Crop Sci. Soc. of Am. Accepted 6 July 1978.
² Research scientists, Agriculture Canada Research Station, Lethbridge, Alberta.

Registration of Germsplasms

REGISTRATION OF COTTON GERMPLASM
LINES, CA 1020 LT-76B AND CA 1371 LT-76B¹
(Reg. No. GP 37 and GP 38)
J. R. Gipson and L. L. Ray²

Beginning in 1972 and continuing through 1976, from six to 12 experimental lines of cotton (Gossypium hirsutum L.) have been evaluated each year for fruiting and fiber development under varying night temperature regimes (2, 3). Night temperatures of 13, 25, and 37°C were maintained in field growth chambers which were mounted on tracks so they could be rolled off the plots during daylight hours (2).

Two experimental lines, CA 1020 LT-76B (GP 37) and CA 1371 LT-76B (GP 38), showed an insensitivity to night temperature relative to the other entries, which included three standard cultivars in addition to the experimental lines. The response of CA 1020 LT-76B was in the fiber fineness parameter, as measured by the micronaire instrument. At the lowest temperature, 13°C, the micronaire reading was higher for this line than for any other entry but it was relatively low at the high temperature (5). Gipson and Joham (1) showed that the fiber fineness parameter is sensitive to temperature with low micronaire readings associated with low temperatures. Cotton fiber with a very low micronaire is not desirable and is penalized in the market.

CA 1371 LT-76B initiates fruit three to four nodes lower than most standard cultivars. This character is also sensitive to temperature (4). Although some of the other experimental lines fruiting at a low node under optimal temperatures, CA 1371 LT-76B was the only line which gave a consistent response across all temperatures (2). The fruiting stage was reached in fewer days with this line and with less variation due to temperature.