THE
UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

AND

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

AND

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

ANNOUNCE

THE RELEASE OF 'RELIANT' INTERMEDIATE WHEATGRASS

Parent clones for 'RELIANT' intermediate wheatgrass [*Thinopyrum intermedium* (Host) Barkw. & Dewey subsp. *intermedium*] were selected by personnel at the USDA-ARS Northern Great Plains Research Laboratory, Mandan, ND. RELIANT has been performance tested as Mandan I1813 by USDA-ARS at Mandan, ND; by the North Dakota Agricultural Experiment Station at Fargo, Streeter, and Williston, ND; and by Agriculture Canada at Indian Head and Swift Current, Saskatchewan; Lethbridge, Alberta; and Kamloops, British Columbia. The USDA-SCS Plant Materials Center, Bismarck, ND is responsible for production of foundation seed. The name RELIANT reflects the consistent success of this cultivar in seedling establishment and in production of high hay and seed yields. RELIANT is being released jointly by USDA-ARS, USDA-SCS, and the North Dakota Agricultural Experiment Station.

RELIANT, a six-clone synthetic, traces to a source population of 2500 individually spaced plants that was derived by intermating plants from 24 different hexaploid ($2n = 6x = 42$) intermediate wheatgrass cultivars and experimental strains and bulking equal quantities of seed from each parent plant. Eighty-one clones were selected from this source population based on visual observations of plant vigor, heading date, and resistance to leaf-spot diseases, primarily *Cochliobolus sativus* Ito & Kurib. These 81 clones were then evaluated for 3 years using replicated clonal tests and half-sib progeny tests to select for resistance to leaf-spot and root-rot diseases (*C. sativus*), spring recovery, heading date, nutritional quality, lodging resistance, and forage and seed yields. Six of the 81 clones were selected and intermated in isolation to produce the synthetic strain, Mandan I1813 (RELIANT). Performance of Mandan I1813 was compared with other experimental strains and check cultivars in local, state, and regional tests. Cultivar release of Mandan I1813 and the name RELIANT were recommended September 13, 1990 by the Cultivar Review Committee of the North Dakota Interagency Research and Education Liaison Group.

RELIANT has had high forage yields relative to other intermediate wheatgrass cultivars, particularly in tests that have been established over 3 years. In regional tests, relative forage yields measured three or more years following the establishment year were 100, 96, 88, and

82%, respectively, for RELIANT, 'Chief', 'Clarke', and 'Greenleaf'. In state tests, forage yields of RELIANT averaged 6% higher than the commonly grown cultivar, 'Oahe'. In regional tests, RELIANT had 3% higher seed yields than Chief, a cultivar with an established record for high seed yields. In a dryland test at Mandan, seed yields of RELIANT averaged 396 kg per hectare, the highest of all 14 entries and 33% higher than the overall test mean. At Mandan, in vitro digestibility averaged 63.0, 61.0, 58.6, and 57.9%, respectively, for reselected 'Mandan 759', RELIANT, Oahe, and Chief.

Persistence and sustained productivity of RELIANT under hay management have been excellent. RELIANT is recommended in mixtures with alfalfa (*Medicago sativa* L.) for hay in regions of the northern Great Plains where annual precipitation averages more than 14 inches. Although no grazing data are available, persistence of RELIANT under grazing is expected to be as good or better than other intermediate wheatgrass cultivars based on sustained productivity in standard performance tests. Maintenance of RELIANT at a high stand density under grazing would likely require prudent management to insure adequate fall-season recovery.

Breeder seed of RELIANT intermediate wheatgrass will be maintained at the USDA-ARS Northern Great Plains Research Laboratory, P.O. Box 459, Mandan, ND 58554. Foundation and certified generations of seed increase beyond breeders seed are authorized. Foundation seed will be available from the USDA-SCS Plant Materials Center, P.O. Box 1458, Bismarck, ND 58502.

Release date for publicity purposes shall be effective on the date of final signature on this release notice.

MAR 2 0 1991

Administrator — Date
United States Department of Agriculture
Agricultural Research Service
Washington, DC

3/12/91

Chief — Date
United States Department of Agriculture
Soil Conservation Service
Washington, DC

2-28-91

Director — Date
North Dakota Agricultural
Experiment Station
Fargo, ND

3/4/91

State Conservationist — Date
United States Department of Agriculture
Soil Conservation Service
Bismarck, ND