REGISTRATION OF CROP GERMPLASMS

which has consistently been the highest yielding synthetic in previous tests (3,4), but NDSBF had lower ear moisture (2.63 percentage points) at harvest than NDSAB. NDSBF averaged almost 70% higher grain yield, and had lower ear moisture, stalk lodging, and root lodging percentagess than the mid-parental values for NDSB and NDSF in 1984 tests averaged over four locations in North Dakota. NDSBF is AES100 maturity.

Breeder seedstocks are maintained by the North Dakota Agric. Exp. Stn. and can be obtained in germplasm quantities (200 kernels) from H.Z. Cross, Agronomy Dep., North Dakota State Univ., Fargo, ND 58105.

H. Z. CROSS (5)

References and Notes
5. Professor of Agronomy, North Dakota State Univ., Fargo, ND 58105. Published with approval of the director of the North Dakota Agric. Exp. Stn. as Journal Article no. 1510. Registration by the Crop Sci. Soc. of Am. Accepted 30 Sept. 1986.

REGISTRATION OF THREE OAT GERMPLASM LINES RESISTANT TO THE CROWN RUST FUNGUS

OAT (Avena sativa L.) germplasm lines H632-518, H590-293, and H639-622 (Reg. no. GP-36, GP-37, and GP-38) were developed by USDA-ARS, in cooperation with the Iowa Agriculture and Home Economics Experiment Station and released in 1986. The primary reason for release is that these lines, even though lacking seedling resistance, are relatively resistant to crown rust (caused by Puccinia coronata Cda. var. avenae Fraser Led.) in the field. The field resistance was derived from strains of A. sterilis L. collected in Israel (1). Such field resistance usually is durable over time, and the three lines give adequate protection under conditions of natural infection. They will be useful as parents to produce cultivars with durable resistance to crown rust.

The three A. sterilis parental lines were all susceptible to common races of crown rust as seedlings in the greenhouse. They showed field resistance, however, when compared with susceptible cultivated oats (2). 'Clinton' was the female and recurrent parent in all crosses. H632-518, H590-293, and H639-622 usually are susceptible to common races of crown rust in the greenhouse, but reactions to some races are temperature sensitive. All are similar to Clinton in plant type, height, maturity, and seed traits.

H632-518 (PI 501522) (GP-36) was derived from a BC2 F2 plant that segregated from the cross Clinton X A. sterilis PI 309432. By visual observation, it usually appeared moderately susceptible to the crown rust fungus in the field. In 5 yr of testing under rust-free conditions, H590-293 yielded 80% as much as Clinton. With severe crown rust infection, yields of Clinton were reduced an average of 57%, whereas yields of H590-293 were reduced only 25%.

H639-622 (PI 501532) (GP-38) was derived from a BC2 F2 plant that segregated from the cross Clinton X A. sterilis PI 309561. Observed visually, it usually appeared moderately susceptible to the crown rust fungus in the field. In 5 yr of testing under rust-free conditions, H639-622 yielded 98% as much as Clinton, but with severe crown rust infection, yields of Clinton were reduced 57%, whereas yields of H639-622 were reduced only 15%.

Limited amounts of seed of H632-518, H590-293, and H639-622 are available upon request from K.J. Frey, Dep. of Agronomy, Iowa State University, Ames, IA 50011. The USDA has no seed for distribution.

M. D. SIMONS, L. J. MICHEL, AND K. J. FREY (3)

References and Notes

REGISTRATION OF LESAF 175 SAFFLOWER GERMPLASM LINE

LESAF 175 (Reg. no. GP-32) germplasm line is a high oil, rust resistant, white flowered, moderately early-maturing, striped hull selection of safflower (Carthamus tinctorius L.) originating from the cross PCA/Lesaf 34B (white). It was developed at the Agriculture Canada Res. Stn. at Lethbridge, Alberta, and released in April 1986.

The elite germplasm line PCA has moderate seedling resistance and high foliage resistance to rust, caused by Puccinia carthami Cda. This resistance was derived from a parent that carried the dominant allele of the A resistance gene (1). Lesaf 34B (white) is a white flowered, moderately early-maturing line resulting from mass selection in the bulk S6-5-219, which was selected from the introduction 'Indian'.

Plants in segregating generations from the cross PCA/Lesaf 34B (white) were evaluated for rust resistance in the seedling and in the pre-bloom stage in a phytotron, using rust spore suspensions as inoculant. Rust spores were collected in the field each year for use in the evaluation. Plants showing no rust pustules were selected.

Lesaf 175 originated from an F2 line selected for rust resistance in 1983 field plantings. A mixture of races thought to be representative of the rust population in southern Alberta was applied to field-grown plants at the prebloom stage, to ensure the development of a good epiphytotic. Ten F2 plants were caged at flowering to exclude pollinating insects and bulked at harvest. Seed increases followed in 1984 and...