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Seed harvested from the above disease nurseries was bulked with seed of CC XXXVI which had undergone selection for scald resistance in California, Georgia, Mexico, Syria, Turkey, France, and Korea, and with seed of CC XXVIII which had undergone selection for net blotch resistance in California, Mexico, Egypt, and Korea. In the winter of 1980-1981, this bulked seed was planted in isolation at El Centro, Calif. A strip of CC XXXVI-80 and CC XXXVIII-80 was planted around the outside of this isolation. Seeds on the male sterile plants (excluding the outside strip) was harvested.

In 1981 the seed harvested from the above isolation was planted in disease nurseries at Bozeman and Fairfield, Mont. The Bozeman nursery was inoculated with Montana isolates of *R. secalis* and *P. teres.* Plants susceptible to scald (approx. 50%) and net blotch (approx. 5%) were rogued. The Fairfield nursery had a heavy natural infection with a spot form of *P. teres.* Approximately 95% of the plants were rogued. The remaining fertile plants in both nurseries were harvested and bulked. Seed of CC XXXVI and CC XXXVIII from plants selected for resistance in a disease nursery at Davis, Calif., was added to the bulk.

The above bulk was planted in isolation at Scottsdale, Ariz. in 1981-1982. Seeds on male sterile plants were harvested.

In 1982 seed harvested from the above isolation was planted in a disease nursery at Bozeman and inoculated with Montana isolates of *R. secalis* and *P. teres.* Plants susceptible to net blotch (about 50%) were rogued (scald symptoms failed to develop). The remaining fertile plants were harvested in bulk. Seed of CC XXXVI harvested from a scald nursery at Davis was added. Population sizes were maintained above 10 000 plants in each generation.

CC XLIII contains high levels of resistance to scald and net blotch and should be a good source of plants with multigenic resistance. Agronomically, CC XLIII is quite variable, but presently it is best adapted to semiarid conditions.

Seed of CC XLIII can be obtained in 500 g quantities from the authors or from the Curator, World Collection of Small Grains, USDA-ARS, Beltsville Agric. Res. Ctr., Beltsville, MD 20705.

H. E. Bockelman, R. F. Eslick, and E. L. Sharp (3)

References and Notes

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3. Postdoctoral fellow in plant pathology, professor of plant and soil science, and professor of plant pathology, respectively, Montana State Univ., Bozeman, MT 59717. Contribution from the Montana Agric. Exp. Stn., Journal Series Paper no. 1394. Registration by Crop Sci. Soc. of Am. Accepted 12 July 1983.

REGISTRATION OF DIPLOID AND DERIVED TETRAPLOID RED CLOVER GERMPLASM

Diploid and tetraploid populations of red clover (*Trifolium pratense* L.) (Reg. no. GP12 and GP13) germplasm were released by the Kentucky Agric. Exp. Stn. in 1983. These populations were developed by diallel crossing 10 parental clones of 'Kenstar' and treating crossed flowers with nitrous oxide (2). About 70% of the treated flowers produced tetraploid seeds which formed the basis for the tetraploid population. Diploid seeds from the same crosses constituted the diploid population. Plants were separated into the two populations based on root-tip chromosome counts. Seeds of these two populations were increased separately under cages without selection for six generations to produce the corresponding diploid and tetraploid germplasms (1). Seed yield of the tetraploid population was about half that of the diploid population. Forage yields and persistence of the two populations were similar in tests over 4 years but neither germplasm was superior to the Kenstar cultivar.

About 40% of the plants of the tetraploid germplasm are aneuploid (4X = 27, 29, 30, 31). Apparently, a stable equilibrium was reached and aneuploidy was not a factor in the lowered seed yields of the tetraploid germplasm (1).

Although these germplasms are not superior to the highest yielding diploid cultivars, they may have considerable value for further breeding and genetic investigations and for comparisons of pest resistance and other factors at the diploid and tetraploid levels.

Up to 10 grams of seed of each of the two germplasms may be obtained from the Dep. of Agronomy, Agric. Sci. Bldg.-N., Univ. of Kentucky, Lexington, KY 40546-0091.

Norman L. Taylor (3)

References and Notes

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2. Taylor, N.L., M.K. Anderson, K.H. Quesenberry, and Linda Watson. 1976. Doubling the chromosome number of *Trifolium* species using nitrous oxide. Crop Sci. 16:516–518.
3. Professor of agronomy, Univ. of Kentucky, Lexington. The investigation reported in this paper (no. 83-3-63) was in connection with a project of the Kentucky Agric. Exp. Stn., Lexington, KY 40546-0091 and is published with approval of the director. Registration by Crop Sci. Soc. of Am. Accepted 2 June 1983.

REGISTRATION OF UARK-1 AND UARK-2 EARLY-MATURING COTTON GERMPLASM

UArk-1 (Reg. GP225) and UArk-2 (Reg. GP226) were released as early-maturing cotton (*Gossypium hirsutum* L.) germplasms by the University of Arkansas Agricultural Experiment Station in March of 1983. UArk-1 and UArk-2 originated in 1977 as single plant selections in the F_2 generation of the cross 'Auburn M' × PD 6520. Progeny rows in the F_3 and subsequent generations were rogued of late-maturing or morphological off-types. Auburn M is a cultivar released from the Missouri Agricultural Experiment Station and PD 6520 is a breeding line released from the USDA and South Carolina Agricultural Experiment Station. Plants of UArk-1 and UArk-2 are typical Delta types with smaller than average leaves. Plants are rapid fruiting with excellent horizontal sympodia development under a range of plant densities in Arkansas.

Yields of UArk-1 and UArk-2 have been equivalent to commercial checks in Arkansas with a definite trend toward greater percent first harvest in all yield trials when compared with presently grown cultivars. UArk-1 was significantly earlier than UArk-2 which was significantly earlier than 'Deltapine 61' at Marianna in 1981; UArk-2 was significantly earlier than 'Stoneville 825' and 'Gumbo 500' at Jackson, Tenn. in 1982. Yields have been comparable to the commercial checks at Clarkedale, Ark. where the test site is infested with verticillium wilt (*Verticillium albo-atrum* Reinke and Berth).

UArk-1 and UArk-2 have shorter 2.5% span length, averaging 27.4 and 28.4 mm, respectively, than Mid-South commercial cultivars. UArk-2 averages T_1 strength of 230 mN/tex (2-year average) while UArk-1 is slightly weaker at approximately 200 mN/tex (four location years).

Limited quantities of breeder seed of UArk-1 and UArk-

2 are available upon request to C. Wayne Smith, P. O. Box 789, Cotton Branch Exp. Stn., Marianna, AR 72360.

C. WAYNE SMITH (1)

References and Notes

1. Associate professor of agronomy, Univ. of Arkansas Cotton Branch Exp. Stn. Marianna, AR 72360. Investigations of the Arkansas Agric. Exp. Sta., Cotton Branch Exp. Stn. Marianna, AR 72360. Registration by Crop Sci. Soc. of Am. Accepted 22 June 1983.

REGISTRATION OF NDSAB AND NDSF MAIZE GERMPLASM

TWO MAIZE (*Zea mays* L.) (Reg. no. GP125 & GP126) breeding populations developed at the Agricultural Experiment Station, North Dakota State University, were released in 1983 for breeding programs for short growing season areas. Breeder seedstocks are maintained by the North Dakota Agricultural Experiment Station and can be obtained in germplasm quantities from H.Z. Cross, Agronomy Dep., North Dakota State Univ., Fargo, ND 58105.

NDSAB (Reg. no. GP125) is a yellow dent endosperm maize synthetic developed by one cycle of full-sib family selection among 100 full-sib families between NDSA and NDSB, synthetics released in 1979 (1). Twenty families were recombined to form the original population, which was then mass selected for three cycles for yield and standability. Equal numbers of seeds from 30 ears (half-sib families) were composited to give an improved population each cycle. Selection intensity was approximately 1%. NDSAB plants are tall with ears borne slightly above midplant. NDSAB is similar in maturity, shelling percentage, and test weight to NDSC, which has been previously described (2). NDSAB is higher yielding than NDSC, but may be slightly more susceptible to root lodging. It is AES300 maturity.

NDSF (Reg. no. GP126) is a yellow dent synthetic which was developed by intercrossing approximately 65 inbreds. Parental inbreds were selected for very early maturity and prolificacy. This population was then intermated for two generations. NDSF plants are moderately short with ears placed slightly below midplant. NDSF has higher shelling percentages and test weights than NDSAB. Yields and lodging resistance are similar to NDSC. NDSF is much earlier than either NDSC or NDSAB with an AES 100 to 200 maturity.

H. Z. CROSS (3)

References and Notes

1. Cross, H.Z. 1980. Registration of maize germplasm. Crop Sci. 20:418.
2. ----. 1983. ND249, ND250, ND251, NDSC, and NDSD: Three new inbred lines and two germplasm sources of early corn. N. Dak. Farm Res. 40(4):7–11.
3. Professor of agronomy, North Dakota State Univ., Fargo, ND 58105. Published with the approval of the director of the North Dakota Agric. Exp. Stn. as Journal Article no. 1261. Registration by the Crop Sci. Soc. of Am. Accepted 23 June 1983.

REGISTRATION OF AN EARLY MATURITY, HESSIAN FLY RESISTANT SOFT RED WINTER WHEAT GERMPLASM

A SEMIDWARF, soft red winter wheat (*Triticum aestivum* L.) (Reg. no. GP221) breeding line, GA73-1-1-2), PI470928 was developed by the Georgia Agri. Exp. Stn., Georgia Station.

PI470928 was bred for resistance to Hessian fly [*Mayetiola destructor* (Say)] and for early maturity. PI470928 was selected from the cross 'McNair 1813'/Purdue 67130. The pedigree of Purdue 67130 ('Beau' sib *2/4/'Arthur'*2/3/'Riley 67'*2/2/'Riley'/'Bulgaria 88', PI94407) is similar to 'Oasis'.

PI470928 has resistance to Hessian fly (H5 gene) to biotypes B and E from 'Ribeiro' via Beau in tests conducted at the USDA laboratory, Purdue University, West Lafayette, Indiana. PI470928 had the earliest heading date (107 days) in the Uniform Southern Wheat Nursery across locations in 1981 and 1982 which was approximately 3 days earlier than 'FL 301'. It is a short plant height (88 cm in height) at maturity, which is similar to 'Omega 78', and has high lodging resistance and displays a high level of winterhardiness similar to McNair 1813. PI470928 has exhibited excellent milling and baking quality characteristics in tests conducted at the Soft Wheat Quality Laboratory, Wooster, Ohio.

It has shown resistance to powdery mildew caused by *Erysiphe graminis* DC. f. sp. *tritici* E. Marchal and leaf rust caused by *Puccinia recondita* Rob ex. Desm similar to McNair 1813. However, it is now moderately resistant and susceptible to the new races of powdery mildew and leaf rust that occurred in the Southeast in 1982, respectively.

Spikes are middense, oblong, apically awnletted. Glumes are white, midlong and midwide and kernels are red. Because of its early maturity, Hessian fly resistance, and milling and baking performance, PI470928 should be an important germplasm source for soft red winter wheat improvement.

Seed will be maintained at the Georgia Station, Experiment, GA 30212. Small quantities (100 g) are available upon request from the senior author.

J. W. JOHNSON, B. M. CUNFER, D. D. MOREY, AND A. R. BROWN (1)

References and Notes

1. Associate professor, Dep. of Agronomy, Georgia Stn., Experiment, GA 30212; associate professor, Dep. of Plant Pathology, Georgia Station; professor, Dep. of Agronomy, Coastal Plain Stn., Tifton, Ga; and associate professor, Dep. of Agronomy, College Stn., Athens, Ga. Supported by State and Hatch funds allocated to the Georgia Agric. Exp. Stn. Registration by Crop Sci. Soc. of Am. Accepted 9 June 1983.

REGISTRATION OF WHEAT GERMPLASM PI 466704 AND PI 466705

PI 466704 (GP222) and PI 466705 (GP223) are soft white semidwarf common winter wheat (*Triticum aestivum* L.) germplasm lines with multigenic resistance to common bunt [*Tilletia caries* (DC.) Tul.] and dwarf bunt (*Tilletia controversa* Kuhn). They were developed cooperatively and released jointly as germplasm by the USDA-ARS and the Washington State Agricultural Research Center at Pullman, Wash. in 1982. PI 466704 (VHO78265) was selected from a head row in the F_4 generation from the cross, ('Omar'/1834//CI13438/3/PI19540/4/PI167822/CI13438/5/'Luke'. It has a bearded lax spike with long, midwide, white glumes. The kernels are elliptical, white, soft, and midlong, with a shallow crease. The germ is midsized. The response of PI 466704 to races of bunt suggest that it carries the resistance genes Bt_8, Bt_9, and Bt_{10} plus one or more unidentified genes.

It is susceptible to leaf rust caused by *Puccinia recondita* Rob. ex. Desm. F. sp. *tritici*, stripe rust caused by *Puccinia striiformis* West. and Cercosporella foot rot caused by *Pseudocercosporella herpotrichoidies* [Fron] Dei. PI 466704 ma-