REGISTRATION OF GERMINAL MALES OF WISCONSIN X691-1

H. L. Shands and R. A. Forsberg

Wisconsin X691-1 (C1 10515) barley (Hordeum vulgare L.) is a selection developed at the University of Wisconsin and released as germplasm for breeding purposes only. It has several desirable characteristics including stiff straw, large kernels, and resistance to stem rust, mildew, and spot blight caused by Helminthosporium sativum Parn., King and Bakke, but is not considered as a malting and brewing type.

Wisconsin X691-1 was selected from the 4-way cross 'Moore' 3x 'Wisconsin Barbless' 2x F1, 'Pillsbury' x 'CC12.' This parentage is revised from that given in an earlier USDA Mississippi Valley Barley Nursery report. The breeding history and performance of Moore and Wisconsin Barbless are well known, but not those of Pillsbury and CC12. Pillsbury is stem rust resistant, and CC12 is a selection from one of the USDA composite crosses.

The final cross involving Moore was made in 1949 and the F1 of X691 was grown in the greenhouse in the winter of 1949-1950. Pedigree selection was practiced until the F6 generation when a head row was harvested in 1954.

The selection was grown in Wisconsin adaptation tests for several years and demonstrated superior agronomic performance. Summarized yields and other agronomic data of six varieties and X691-1 for 5 years, 1964-1966, at several locations in Wisconsin showed that X691-1 had less lodging and higher (brighter) grain agtron values than some named varieties. It was second to 'Dickson' in yield. Kernels of X691-1 are heavier and wider than most varieties, with the possible exception of 'Larker.'

During 1958-1960, X691-1 was tested in the Mississippi Valley Barley Nursery, a test coordinated by personnel of the Plant Science Research Division, ARS, USDA. Yields of X691-1 were greater than those of 'Trophy' and Larker in 1959 and 1960 and similar to those of 'Trail' in 1958-1960. X691-1 had only half as much lodging as the three named varieties, even though it was somewhat taller. Visual grain color and agtron values exceeded those of the three varieties.

Small samples of X691-1 seed may be obtained from the Department of Agronomy, University of Wisconsin, Madison, Wis. 53706.

REGISTRATION OF GERMINAL MALES OF GP-NC343

PEANUT GERMPLASM

W. V. Campbell, D. A. Emery, and W. C. Gregory

'GP-NC343' (Arachis hypogaea L.) is a Virginia type peanut selected in a late generation from a cross between two F2 segregates of 'NC Bunch' x 'P.I. 121067' hybrid combination. The final hybridization was made in 1952.

GP-NC343 germplasm is resistant to the larval of the southern corn rootworm (Diabrotica undecimpunctata howardi Barber). It has been exposed to natural infestations of the southern corn rootworm in 28 field experiments conducted over the past 10 years. The average percentage of penetrated pegs and pods for GP-NC343 was 15.5%. The commercial variety NC2 had an average of 26.2% penetrations when used as a check in the same investigations. In nine tests conducted in the laboratory, the average number of penetrations per peg was 2.2 for GP-NC343. In contrast, NC2 had 7.1 penetrations per peg.

In six laboratory tests with the foliage feeding of adult insects, the average leaf damage of GP-NC343 was 27.7% compared with 45.00% damage to the leaves of NC2.

GP-NC343 is intermediate in growth habit and is not acceptable as a commercial variety. The kernels have unfavorable shapes and are generally unattractive. The selection produced yields comparable to NC2 in a six-year test conducted over three locations. In areas where the southern corn rootworm is a problem yields of NC2 may be considerably below that of GP-NC343. The proportion of mature kernels averaged 2% more and the extra large kernels approximately 15% more than the NC2 variety. The fruit are slightly larger than those of NC2.

This germplasm was released from the North Carolina Experiment Station on October 27, 1970. The official notice of release was submitted to all Southern Agricultural Experiment Stations February 18, 1971. Small quantities of the breeder seed of GP-NC343 are maintained by the Crop Science Department, North Carolina State University, Raleigh, N.C. 27607.

REGISTRATION OF TIFT 13 AND TIFT T13

PEARL MILLET GERMPLASM

Jerrel B. Powell and Glenn W. Burton

'TIFT 13' (Reg. No. GP 2) and 'TIFT T13' (Reg. No. GP 3) pearl millet (Pennisetum typhoides (Burm.) Stapf and C. E. Hubb.) inbreds were developed cooperatively by the Plant Science Research Division, U. S. Department of Agriculture, and the Georgia Coastal Plain Experiment Station at Tifton, Ga., and were released April 15, 1968.

Tift 13 is an inbred line of pearl millet with a standard chromosome arrangement. Tift 13 is morphologically very similar to Tift 13 except for a nonstandard chromosome arrangement. Hybrids of Tift 13 with most other inbreds are fully fertile. Hybrids of Tift T13 with Tift 13 or with other inbreds having a standard chromosome arrangement result in approximately 60% fertility. Pollen and ovule abortion, due to the fusion of duplicate and deficient segments of chromosomes, account for the semisterility. The interchanged chromosomes involve two of the larger chromosomes in the genome; and in hybrids, they form mostly rings of four chromosomes at diakinesis. The exact chromosome number designations for the chromosome pairs have not been assigned. The stock will be helpful in testing for genetic linkages and will also aid in identification of the seven chromosome pairs in pearl millet. Tift 13 will serve as a tester for the standard chromosome arrangement. Both inbreds are vigorous and grow to about 230 cm in height; they are fully fertile and prolific seed producers. Leaves and sheaths are nonpubescent, and tillers are numerous. The seeds are light grey with tan-colored germ. Tift T13 and Tift 13 are reselections and single-plant increases from inbred 13 (one of the four inbred lines used to produce 'Gahi-1'). Inbred 13 originated from common "cellul" millet grown in the Tifton nurseries in 1940. Seeds for the 1940 nursery were secured locally from a commercial seedman and were of domestic origin.

Pure inbred seed of Tift T13 and Tift 13 will be maintained and distributed in small quantities by the Georgia Coastal Plain Experiment Station.