REGISTRATION OF PL-OGDR1 ORCHARDGRASS GERMPLASM

ORCHARDGRASS (Dactylis glomerata L.) germplasm PL-OGDR1 (Reg. no. GP-1, PI 537451) was developed at the U.S. Regional Pasture Research Laboratory and released by USDA-ARS in July of 1989. PL-OGDR1 provides resistance to purple leaf spot caused by Stagonospora arenaria Sacc.

PL-OGDR1 was developed by recurrent phenotypic selection for reduced lesion size. The base population consisted of approximately 2700 plants grown from 28 North American and European cultivars from which 128 plants were selected (3). Recurrent phenotypic selection was practiced for 5 cycles in the greenhouse using artificial inoculation with the purple leaf spot organism. In each of Cycles 1 through 4, between 11,900 to 17,600 plants were screened and 93 to 178 plants were selected. Seed for Cycle 1 was produced in the greenhouse, while seed for all subsequent cycles was produced in replicated polycross nurseries in the field near State College, PA. A greenhouse test, using seed of Cycles 1 through 4, showed that lesion size decreased with cycle (2). Less than 2% of the Cycle 1 plants were scored as highly resistant (small lesion size) while over 26% were scored as highly susceptible (large lesion size) to purple leaf spot. Over 47% of the Cycle 4 plants were scored as highly resistant, while less than 2% were scored as highly susceptible.

Cycle 3 and 12 half-sib families from Cycle 3 were tested for forage yield and quality (1). Breeding for resistance to purple leaf spot did not result in appreciable changes in yield or quality traits. However, the selected population contained some genetic variability for these traits, considerable variability for maturity, and agronomic traits.

Equal quantities of polycross seed from each of 93 clones were selected in the last cycle of selection (Cycle 4) to constitute PL-OGDR1.

Seed of PL-OGDR1 will be maintained and distributed by ICRISAT, Patancheru, A.P. 502 324, India.

Published in Crop Sci. 30:1164 (1990).

REGISTRATION OF FIVE PEARL MILLET GERMPLASM SOURCES WITH STABLE RESISTANCE TO DOWNY MILDEW

Five pearl millet [Pennisetum glaucum (L.) R.Br.] germplasm accessions; ICML 12 (IP 6118, P7) (Reg. no. GP-15, PI 537577), ICML 13 (IP 8215, SDN 503) (Reg. no. GP-16, PI 537578), ICML 14 (IP 4984, 700251) (Reg. no. GP-17, PI 537579), ICML 15 (IP 5082, 700516) (Reg. no. GP-18, PI 537580), and ICML 16 (IP 8198, 700651) (Reg. no. GP-19, PI 537581); with stable resistance to downy mildew caused by Sclerospora graminicola (Sacc.) Schroet. in India, Burkina Faso, and Senegal were identified and made available by the ICRISAT in 1985. These lines also possess moderate levels of resistance to rust caused by Puccinia pennisetii Zimm. in India.

ICML 12 was selected at the ICRISAT Center from bulk germplasm obtained from Mali and ICML 13, 14, 15, and 16 were selected from bulk germplasm obtained from National Plant Genetic Resources Program, New Delhi, India. These accessions are currently being screened at the U.S. Regional Pasture Research Laboratory for rust reactions at two locations in India, JCRISAT Center and Bhavanisagar, where rust occurs in moderate to severe form every year. The accessions developed from 14 sources were planted and tested for downy mildew resistance in the International Pearl Millet Downy Mildew Nursery (IPMDMN). Percent downy mildew severity was recorded on accessions ranging from <1 to 7% as compared to 60% in the susceptible check.

IPMDMN was continued each year through 1983 for 178 plants were selected from bulk germplasm obtained from Mali and ICML 13, 14, 15, and 16 were selected from bulk germplasm obtained from National Plant Genetic Resources Program, New Delhi, India. These accessions are currently being screened at the U.S. Regional Pasture Research Laboratory for rust reactions at two locations in India, JCRISAT Center and Bhavanisagar, where rust occurs in moderate to severe form every year. The accessions developed from 14 sources were planted and tested for downy mildew resistance in the International Pearl Millet Downy Mildew Nursery (IPMDMN). Percent downy mildew severity was recorded on accessions ranging from <1 to 7% as compared to 60% in the susceptible check.

ICML 12, 13, 14, 15, and 16 are the first pearl millet germplasm accessions obtained from Mali and West Africa to have stable resistance to downy mildew. At the ICRISAT Center they produce a moderate number of tillers, 60 to 70, 60 d after planting, and have panicles 20-25 cm long. Seed color is grey to grey brown; seed shape is obovate, or lanceolate; and seed mass is 6.1 to 7.8 g per 1000 seed.

Published in Crop Sci. 30:1164 (1990).