REGISTRATION OF CROP GERMPLASMS

REGISTRATION OF FIVE PEARL MILLET GERMPLASM SOURCES WITH STABLE RESISTANCE TO RUST

Five pearl millet [\textit{Pennisetum glaucum} (L.) R.Br.] germplasm accessions; ICML 17 (IP 5030, 700481-21-8) (Reg. no. GP-20, PI 537582), ICML 18 (IP 537 B) (Reg. no. GP-21, PI 537583), ICML 19 (IP 11776) (Reg. no. GP-22, PI 537584), ICML 20 (IP 2084) (Reg. no. GP-23, PI 537585), and ICML 21 (IP 6132, P 24) (Reg. no. GP-24, PI 537586) with stable resistance to rust caused by \textit{Puccinia pennsisi} Zimm. in India; were made available by the ICRISAT in 1984. These accessions also possess moderate to high levels of resistance to downy mildew caused by \textit{Sclerospora graminicola} (Sacc.) Schroet. in India.

ICML 17, 18, 19, 20, and 21 were selected from bulk germplasm obtained from Nigeria, USA, Mali, India, and Cameroon, respectively. In 1974, bulked seed from the original sources was planted at ICRISAT Center, and single-plant selections showing little or no rust were made. Head-to-row progenies were grown and selections were again made of plants with low rust. This process was repeated three times. Thereafter, the seed was maintained by sibbing plants that were rust free or had low rust, showing a similar phenotype. Rust reactions were assessed from 1977 to 1983 in the International Pearl Millet Rust Nursery (IPMRN), which was operated multilocationally in India. Rust severity was recorded using Cobb’s modified scale (1). Data were recorded separately on lower and upper leaves (top four leaves). However, only data from the upper four leaves are presented here, as these leaves likely contribute most to yield (2). All the entries showed high levels of rust resistance across locations and years (0 to 13% mean rust severity on entries vs. 25 to 63% on susceptible check across the tests).

Accessions showed little or no downy mildew during multilocal testing. However, they were further tested for downy mildew during three postrainy seasons (1985-1987) in the downy mildew nursery at the ICRISAT Center. The plants that developed downy mildew were only disease-free plants were sibbed. Thus, through selection in the downy mildew nursery, levels of rust resistance were likely increased.

At the ICRISAT Center, these accessions are critical in 50 to 60 d after planting, have paniclike leaves, are long, and have 2 to 5 tillers plant$^{-1}$. Their seed color is greyish brown, seed shape is hexagonal, globular, or elliptical and endosperm texture is partly corneous.

Seed stocks of ICML 17 to 21 are being maintained and distributed by ICRISAT, Patancheru, A.P. 502324, India.

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References and Notes

3. Cereals Program, ICRISAT Center, Patancheru, A.P. 502324. Submitted as Journal Article no. 880 by ICRISAT. Reg. no. GP-20 (L.) composites

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REGISTRATION OF COMPOSITE GERMPLASMS WITH SHORT PLANT HEIGHT

PENNCOMP 36 (Reg. no. GP-40, PI 536612), Penncomp 37 (Reg. no. GP-41, PI 536613), and Penncomp 38 (Reg. no. GP-42, PI 536614) spring oat (\textit{Avena sativa} L.) composites were released by the USDA-ARS and Pennsylvania Agricultural Experiment Station in March 1989. These releases will provide breeders with populations that have a high frequency of genes conditioning semidwarf to moderately short plant height combined with improved kernel characteristics compared to Pennlo semidwarf cultivar and Pennline 6571 germplasm line, previously released from the cooperative program (1). All crosses in the bulk populations had either Pennlo, Pennline 6571, or Pennlo sibs as parents. 

Individual cross populations used to form the composites were advanced through generations in the field near University Park, PA, during which four cycles of mass selection were made. For crosses used to form Pennlo composites, the populations were sibbed, and possessing a relatively high frequency of genes conditioning for short plant height were not applied to the populations.

Seven crosses in this composite had Pennlo semidwarf as a parent and possessed a relatively wide range for kernel size compared to numerous other populations having Pennlo as a single parent. Cultivars and lines used in the crosses were: ‘Larry’, IL75-3389 Sel., Pennline 6571 (semidwarf), MI69-27403, PA7836-99 (PA Composite 24 selection). PA lines are relatively short and stiff-strawed and have larger seeded Pennlo. IL75-3389 is a relatively large-seeded, high specific gravity component (about 10% by weight) was sown to produce the next cycle. For crosses used to form Pennline 6571 composites had any significant lodging during 6 yr in field plots. Specifically short and stiff-strawed. MI69-27403 is a tall, relatively short and stiff-strawed. MI69-27403 is a tall, respectively. In 1974, bulked seed from the original sources was planted at ICRISAT Center, and single-plant selections showing little or no rust were made. Head-to-row progenies were grown and selections were again made of plants with low rust. This process was repeated three times. Thereafter, the seed was maintained by sibbing plants that were rust free or had low rust, showing a similar phenotype. Rust reactions were assessed from 1977 to 1983 in the International Pearl Millet Rust Nursery (IPMRN), which was operated multilocationally in India. Rust severity was recorded using Cobb’s modified scale (1). Data were recorded separately on lower and upper leaves (top four leaves). However, only data from the upper four leaves are presented here, as these leaves likely contribute most to yield (2). All the entries showed high levels of rust resistance across locations and years (0 to 13% mean rust severity on entries vs. 25 to 63% on susceptible check across the tests).

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At the ICRISAT Center, these accessions are critical in 50 to 60 d after planting, have paniclike leaves, are long, and have 2 to 5 tillers plant$^{-1}$. Their seed color is greyish brown, seed shape is hexagonal, globular, or elliptical and endosperm texture is partly corneous.

Seed stocks of ICML 17 to 21 are being maintained and distributed by ICRISAT, Patancheru, A.P. 502324, India.

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