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DICKINSON, NORTH DAKOTA

Release of populations carrying Ga1s

--Kutka, FJ

Seeds of two new maize populations have been released into the public domain via a donation to the USDA National Plant Germplasm System in spring 2009. This donation was made to preserve the long known public use of the Ga1s allele for preventing unwanted outcrossing and to move forward research and breeding with this allele. The populations should serve as bases for further development of inbreds, populations, and/or hybrids (single crosses, three-way crosses, double crosses, top crosses, and population crosses) carrying Ga1s that have white, yellow or orange endosperm; that have colored and/or uncolored aleurone and/or pericarp; that have white capped and/or non-capped kernels; that have flint, dent, flour, opaque, waxy, shrunken, and/or sweet kernels; and/or are bred to exhibit any other obviously useful traits or morphological markers already selected for by maize breeders including but not limited to high yield, vigorous emergence, lodging resistance, drought tolerance, cold tolerance, heat tolerance, low fertility tolerance, low pH tolerance, disease tolerance or resistance, insect tolerance or resistance, fast drydown, and/or morphological and chemical traits expressed by alleles known and maintained by the Maize Genetic Cooperation Stock Center.

The first population was submitted as "Non-Stiff Stalk Ga1s." Mo508w, a white endosperm, non-elite inbred, was the source of the Ga1s allele. It was also used as the female parent in an old backcrossing procedure described by Walter Thomas in 1955. This procedure should render the population mostly homozygous for Ga1s. The other parents were non-elite, public non-stiff stalk inbreds first formed into two single crosses, N199/N152 and B97/Mo42. The population is 50% or less Mo508w by pedigree. It is a dent corn with white and yellow endosperm and is not inbred.

The second population was submitted as "Stiff Stalk Ga1s." Mo501w, a white endosperm, non-elite inbred, was the source of the Ga1s allele. It was also used as the female parent in the same backcrossing procedure described above. The other parents used were non-elite, stiff stalk inbreds, PHG80 and N28, and a B73/Cateto population from the GEM program. The population is 50% or less Mo501w by pedigree. It is a dent corn with white, yellow and orange endosperm and is not inbred. It also carries the Ga1s allele and should be mostly homozygous based on pedigree and the Thomas procedure.

Breeders, researchers, farmers, and others interested in using these populations should contact Mark Millard, the maize curator, at the USDA Plant Introduction Station in Ames, Iowa, USA. Access should become available via the USDA National Plant Germplasm System Genetic Resources Information Network sometime soon.