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Allelism testing of Maize Coop Stock Center lines containing unknown brown midrib alleles

--Haney, LJ; Hake, S; Scott, MP

This report summarizes the allele testing of brown midrib stocks characterized by phenotype only in the Maize Coop Stock Center collection. Maize seeds obtained from the Maize Coop Stock Center were planted in the summer nursery of 2006 and 2007 at the Agronomy Farms of Iowa State University (Boone County, IA). Each of the lines containing a homozygous recessive unknown brown midrib allele was crossed to a series of lines, each containing a different homozygous recessive known brown midrib allele. The F1 plants were screened for reddish-brown pigmentation in the leaf midrib at the V8 stage of growth. Presence of this pigmentation was indicative of the brown midrib mutant phenotype. Two of the lines carrying "phenotype only" brown midrib alleles failed to complement a line carrying the *bm1* allele, one line failed to complement a line carrying the *bm3* allele, and three lines complemented lines carrying each of the four known brown midrib alleles. Proposed new designations have been assigned to the alleles tested. The three lines that complemented all four of the known brown midrib alleles were not crossed to each other so they may or may not be different brown midrib alleles. Further testing of these genetic stocks will provide insight into these brown midrib mutant alleles.

Positive tests:

Previous Designation	New Designation	MGSC Source Number
5803D <i>bm*</i> -PI251009	<i>bm1</i>	MGSC94-4844-9 ((M14 x W23) x <i>bm*</i>)self
5803L <i>bm*</i> -N2331B	<i>bm1</i>	MGSC2001-2659-4 ((B73 x Mo17) x <i>bm*</i>)self
5803K <i>bm*</i> -2001PR-1	<i>bm3</i>	MGSC2002-335-3 ((M14 x W23) x <i>bm*</i>)self

Negative tests:

Previous Designation	New Designation ^a	MGSC Source Number
5803F <i>bm*</i> -PI251930	<i>bm5</i>	MGSC94-4829-2 (<i>bm*</i>)self
5803H <i>bm*</i> -PI262485	<i>bm*</i>	MGSC94-4827-1 (<i>bm*</i>)self
5803J <i>bm*</i> -86-87-8875-6	<i>bm*</i>	MGSC2002P-22-2 ((W23 x M14) x <i>bm*</i>)self

^aThese lines complemented lines carrying alleles *bm1*, *bm2*, *bm3*, and *bm4*.