

URBANA, ILLINOIS
USDA/ARS/MWA
Maize Genetics Cooperation • Stock Center

brachytic3 is allelic to *brevis1*.

--Stinard, PS

James Brewbaker recently indicated in an email to the Maize Genetics Stock Center that the phenotypes of the mutants *br3* and *bv1* in an Hi27 inbred background are nearly identical, and he asked us whether we had ever conducted a test of allelism between them. Both mutants map to chromosome 5, but they had never been tested against each other. To resolve this question, we set up crosses to test allelism in our 2011 winter nursery. We included *na2* in our tests as well since it has a short plant stature and also maps to chromosome 5. The crosses were set up as follows: Known heterozygotes for *br3* in coupling with *pr1*, known heterozygotes for *bv1* in coupling with *pr1*, and known heterozygotes for *na2* in coupling with *pr1* were intercrossed in all possible combinations. Homozygous *pr1* (red) kernels from each ear were planted in the observation block of our 2012 summer nursery, and observed at maturity. Progeny grown from the cross of *br3* heterozygotes by *bv1* heterozygotes segregated for brachytic (*brevis*) plants in a high proportion due to coupling with *pr1*. Crosses of *br3* heterozygotes to *na2* heterozygotes and crosses of *bv1* heterozygotes to *na2* heterozygotes resulted in nonmutant progeny. We conclude therefore that *br3* and *bv1* are allelic, and *na2* represents a separate locus. Since *bv1* (first report Li, HW. 1931. J Hered 22:14-16) has precedence over *br3* (first report Singleton, WR. 1959. MNL 33:3-4), the *br3* locus has been lapsed and the *br3* data has been merged with the *bv1* data in MaizeGDB. The old '*br3*' reference allele is now called '*bv1-br3*'.