

A *Wc1* allele isolated from the maize variety Caragua.

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O. E. White (1917. Amer Jour Bot 4:396-406) isolated a dominant white endosperm mutant that he named “*A*” from the maize variety *Zea Caragua*. Emerson, Beadle, and Fraser (1935. Cornell Univ Agric Exp Stn Memoir 180:1-83) list a dominant white endosperm mutant called “*Wh*” and cite both White (1917) and Hayes (1933. Am Nat 67:75) as references in their gene list. Emerson, Beadle, and Fraser present linkage data of Hayes (1933 and unpublished) placing *Wh* on chromosome 7 (33% recombination with *g11* and 40% recombination with *s11*). However, Hayes (1933) does not describe the origin of *Wh* or cite White (1917) as a source, so the relationship between *A* of White and *Wh* of Hayes is unknown, despite the Emerson, Beadle, and Fraser citations.

If the linkage data of Hayes is correct, there exists the possibility of two independent dominant white endosperm loci in maize, *A/Wh* on chromosome 7, and *Wc1* on chromosome 9. Since stocks of *A* and *Wh* are no longer in existence, and since Hayes does not cite the source of *Wh*, the only remaining possibility for reisolating this gene is to examine accessions of *Zea Caragua*. For this purpose, the only accession of Caragua maize available from the North Central Regional Plant Introduction Station (PI 485411 - *Zea mays subsp. mays* - Chile 311 - Santiago, Chile), an accession with white endosperm, was obtained, and crosses were made to a *Wc1* stock. If the Caragua line carries a dominant white endosperm mutant independent of *Wc1*, then 3:1 segregation for dominant white to yellow should be observed when the F1 is crossed by a yellow endosperm line. We performed this cross last summer. Of a total of 5245 progeny kernels obtained from this cross, all were dominant white capped—no yellow kernels were observed. On the basis of this test, we conclude that the dominant white from Caragua maps to the same location as *Wc1*, with a separation of less than 0.038 +/- 0.027 centiMorgans, and is undoubtedly allelic to *Wc1*, if not identical to it. We have named the *Wc1* allele isolated from PI 485411 *Wc1-Caragua*. We have not disproved the existence of a second dominant white endosperm in maize, but it seems unlikely at this point.