

Yg^{}-N1582* is homozygous viable and has potential for use as a marker in haploid induction.

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Markers used for screening haploids in inducer lines presently include *RI-nj* (which gives a pigmented kernel crown and embryo) and *BI + PII* (which give pigmented plant tissues). These traits can also result in pigmented seedling roots (Chase, S. 1969. Monoploids and monoploid-derivatives of maize (*Zea mays* L.). *Bot Rev* 35:117-167; Rotarenco, V. et. al., 2010. New inducers of maternal haploids in maize. *MNL* 84:21-22). However, root color is neither strong nor consistent.

We've had several queries about potential alternative markers to use in a haploid inducer, since in some crosses the present markers are not useful. We've tested several of our mutants and recently came up with one that we feel has excellent potential. We have an uncharacterized dominant Yellow-green mutant (*Yg^{*}-N1582*, an EMS mutant isolated by Gerry Neuffer; see: <http://maizegdb.org/cgi-bin/displayvarrecord.cgi?id=77818> and Figure 1) that has excellent expression immediately upon coleoptile emergence (when light grown), the phenotype persists in the adult plant, and the trait is homozygous viable with no apparent decrease in vigor or in potential seed set (at least at a qualitative level).

So, with this mutant, screening for haploids would be just a bit later than with roots, but the results would be far more predictive. The haploid seedlings would have normal green leaves; the diploids would be yellow-green. The screening can be done in a sand bench, or in a thickly planted field row.

Most dominant Yellow-green seedling mutants behave like dominant *Oy1* mutants, in that when homozygous, they produce luteus seedlings that die within two weeks after emergence. The *Yg^{*}-N1582* mutant is unique in that the homozygous mutant apparently has no deleterious effect on the plant, other than it being yellow-green. We are not aware of any other dominant mutants that would be as visible at the germinating seedling stage and have no harmful effect on a potential inducer line when homozygous.

Other potential uses for this mutant include use as a border marker and in studies of photosynthesis.



Figure 1: Rows 1 and 2, homozygous *Yg*-N1582* seedlings. Rows 3 and 4, seedlings from a selfed ear segregating for *Yg*-N1582*.