

8. Maize with vestigial-glume ears and normal tassels.

Recent attempts to separate the tassel and ear effects of the Vg (vestigial glume) gene have been successful. In a cross with Chapalote, a primitive popcorn from western Mexico, the Vg gene acts differentially upon the tassel and ear with respect to glume length. Thus, the advantage of glumeless ears (for canning) may be realized on plants with normal tassels.

In an F₂ population of 49 plants from this Vg-Chapalote hybrid, there were some Vg plants in which the ear glumes were longer than the tassel glumes as they are in vestigial glume-tunicate hybrids. Mangelsdorf has previously found that the Chapalote race carries a weak tunicate, tu^w, allele. This tu^w gene is probably involved along with other modifying factors. The anthers of Vg-Tu hybrids usually have difficulty in exerting, although no such effect was noted in the Vg-Chapalote hybrid. The tassel glumes of Vg-Chapalote plants are not completely normal in all respects, however, since they are decidedly flatter in their general aspect.

Prior to the discovery of the effect of Chapalote germplasm on the expression of the Vg gene, the longest Vg tassel glumes that had been obtained were only slightly longer than the non-exserted anthers. Such tassels were often sterile in the absence of heterosis and especially in lines with a low resistance to tassel blasting.

Walton C. Galinat