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# Effect of Modifier Genes on Protein and Amino Acid Composition of *opaque*-2 Maize Endosperm.

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**The discovery of a system of modifier genes that cause formation of vitreous endosperm in *opaque-2* (*o2*) mutant seeds culminated with the development of germplasm with desirable endosperm phenotype and high nutritional quality. This achievement estimulated a series of efforts to unravel the process of seed modification and its effects in endosperm composition and physical structure. Comparison of endosperm proteins from normal, *o2* and modified *o2* genotypes indicated that independently developed modified *o2* genotypes have in common an increased accumulation of the storage protein gamma-zein. Also, the nutritional quality of the modified seed is apparently dependent upon a quantitative balance between gamma-zein, which is a lysine-poor protein, and non-zein accumulation. Even though no proof is available for the direct involvement of gamma-zein in *o2* endosperm modification, the consistent association between these traits is supportive of the hypothesis that during seed desiccation protein bodies may become closely packed and possibly crosslinked by the cysteine-rich gamma-zein protein, thus causing the vitreous phenotype of the mature modified *o2* kernels.**

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