Comments on Plant Biotechnology
Ronald Kleinman, M.D.

As a pediatrician, I know that food safety is critically important to moms and to children, and I am called upon to help parents understand facts and the fictions around food and nutrition, including GMOs. Plant biotechnology has been with us- safely- for 20 years. Not a single human illness or adverse effect has been documented. GM technology allows us to move a handful of carefully selected genes and traits among species and to achieve characteristics that conventional breeding will not permit. Commercial GM crops undergo testing and safety assessment that far exceeds the little-if-any testing of conventional varieties- despite the fact that GM technology is far more precise. Genes- DNA, RNA and resulting proteins- are part of every living thing and thus every whole food we consume. Undue concern regarding a few carefully selected genes makes no biological sense when considered against the hundreds of thousand of untested genes and gene products in the natural diet.

In my professional opinion, existing GM crops are safe based on the fundamental science of DNA, RNA, and protein in foods, upon extensive safety and compositional testing, and upon an extensive body of scientific studies- both short and long term. Our current system for the review and safety assessment of GM crops by FDA and EPA is robust and comprehensive- they are the most studied foods in history. The science and risk-based regulatory system we have in place is robust and provides a solid food safety and environmental affirmation to the American people. The nutritional value of GM crops is assured via extensive compositional testing. Food labeling on GM content conveys no useful nutrition or safety information to consumers, is often misleading, and will simply present confusing and confounding information to consumers, including the parents I personally advise.

Nutritional enhancement through GM technology is a reality. Globally, vitamin A deficiency afflicts millions of children annually with blindness, stunting, or death. That GM golden rice, which provides this essential nutrient, remains on the shelf is an incalculable tragedy. In the developed world, we know that adult heart disease has its origins in the diet of children. Existing, approved, but currently unavailable GM offerings for heart health include vegetable oils very low in saturated fats and plant-derived oils providing benefits of long chain fatty acids found mainly in fish, the latter being under-consumed, expensive, and in short supply.

Globally, we must sustainably feed a growing population while conserving limited land, water, and other resources. GM crops have resulted in dramatic reductions in chemical insecticide use, support conservation tillage to retain soils and conserve water, and reduce fuel use and carbon footprint. Traits in development include improved water and nitrogen utilization and enhanced yield which, in combination with breeding and hybrid technology, will be essential to providing ongoing food security. The next generation of insect control traits will include RNA-based control strategies which can control pests down to the genus and species level, limiting adverse environmental and health impacts.

Much of the recent controversy surrounding GM crops revolves around the concomitant use of glyphosate. Improved techniques allow detection of minute quantities of chemicals in body fluids- but presence does not equal risk. Measurement of glyphosate demonstrates that intakes in the general population are far below allowable daily intakes determined to be safe by the EPA and by similar agencies globally. Reports of glyphosate in breast milk have not been replicable using validated techniques. The recent opinion from the International Agency for Research on Cancer (IARC) that glyphosate is a probable human carcinogen is not supported by the data and flies in the face of comprehensive assessments from the US EPA, Japan, Australia, and other organizations with in WHO as well as the new EU safety assessment. Older allegations, suggesting that glyphosate and GMOs are somehow associated with food allergy, autism, and other medical conditions are unfounded speculation. Thus, concerns regarding glyphosate residues are unsupported and the fear-mongering surrounding them unjustifiable.

Despite the obesity problem, hunger remains a challenge in the US today, often driven by economic limitations and often afflicting the most vulnerable- children and the elderly. Sub-optimal nutrition remains common in adults- with excessive intakes of saturated fats and inadequate intakes of long chain omega-3 fatty acids. In the developing world, malnutrition and food security remain daunting challenges- highlighted by the recent mass displacements of refugees not seen since the Second World War. The malnourished child surviving to adulthood is saddled with life-long deficits in physical and cognitive ability, with lasting medical, social and economic impacts. For economically limited consumers and for small landholders around the globe who constitute the majority of GM crop farmers, improvements in disposable income invariably are invested back into the most valued resource of all- our children and the communities that support them.

Enhanced, sustainable food production is essential in both the developed and developing world. Advanced agricultural technology, including GM technology, is and will remain essential to meeting global production demands and to not just meeting, but optimizing global nutrition. This is essential not just for personal health, but for community health, global economic development, social order, and transnational security.