How are GM foods different from their non-GM counterparts?

GM crops include one or more genes that were transferred directly to the crop using genetic engineering techniques. These genes could originate from another organism such as bacteria, other crops or plants or even from the same plant. The inserted transgenes usually encode for a beneficial trait that could improve the agronomic performance of the crop, e.g. drought tolerance or insect resistance, or enhance the nutritional value of the crop, e.g. increased vitamin A content.

To date, only GM crops with improved agronomic traits have been commercialised in South Africa. Their GM traits were therefore NOT aimed at changing the properties of the foods derived from these crops and they are in fact considered *substantially equivalent* – basically the conventional and GM derived foods are indistinguishable from each other.

Because foods are complex, variable mixtures of thousands of chemical compounds it is not easy to design scientific experiments to proof their safety. Remember, conventional foods have never been “scientifically proven” to be safe, they are considered safe, purely based on their history of safe use. GM foods in contrast have to undergo formal, rigorous food safety assessments to ensure their safety. The concept of substantial equivalence was therefore developed to use as a framework in the safety assessment of GM foods – i.e. comparing the GM food to its unmodified counterpart, which has a history of safe use. This approach allows regulatory authorities to compare the chemical compositions of the two versions of the food to aid in identifying potential safety and/or nutritional changes in the GM version.

When GM foods with altered compositions are commercialised in future they will have to be labelled accordingly to ensure consumers are aware of these differences – an issue formally regulated under the Department of Health.