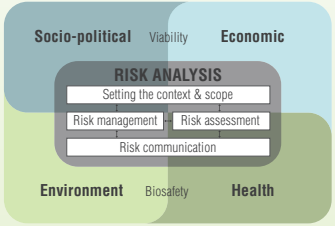
THE EFFECTIVE REGULATION AND SUSTAINABLE USE OF GMOs IN SOUTH AFRICA

SUSTAINABLE BIO-ECONOMIC DEVELOPMENT

Through its recently established National Bio-economy Strategy, South Africa is investing in its bio-economy to generate sustainable economic, social and environmental development. GM technology is one of the science-based bio-solutions with which to achieve this. Relevant policies and legislation have been put in place to promote the responsible and sustainable development, production, use and application of GMOs.

ENSURING SUSTAINABILITY

Modern biotech innovations promise great benefits to humankind if they are developed and used within a framework that ensures their sustainability; i.e. when their potential socio-political, economic, environmental and health impacts are proactively assessed and managed within acceptable limits. Thorough science-based risk analyses are the basis of these evaluations and ensure approved GM products are at least as safe as their conventional counterparts.



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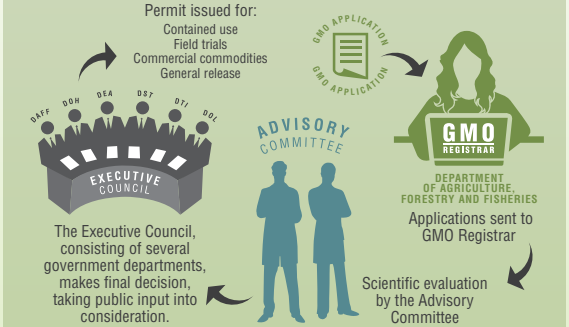
SOUTH AFRICA's GM REGULATORY MILESTONES

- **1979** – Establishment of SAGENE - a scientific advisory committee to oversee GMO R&D
- **1992** – 1st field trial with GM crop (IR cotton)
- **1994** – Member of Codex
- **1995** – Member of World Trade Organisation
- **1996** – 1st commercial GM crop planted (IR Maize)
- **1996** – Field trials with locally developed GM sugarcane (HT)
- **1997** – GMO Act signed into law
- **1997** – 1st commercial GM cotton planted (IR)
- **2001** – 1st commercial GM soya planted (HT)
- **2001** – National Biotechnology Strategy
- **2003** – Acceded to the Cartagena Protocol on Biosafety
- **2004** – Department of Health's labelling regulations
  National Environmental Management: Biodiversity Act
- **2005** – 1st commercial stacked crop planted (IR-HT cotton)
- **2011** – Department of Trade & Industry's Consumer Protection Act labelling regulations
- **2013** – National Bio-economy Strategy

South Africa has a well-established, evolving regulatory framework for GMOs and a wealth of institutional memory that could benefit other developing countries.

IR = Insect resistant HT = Herbicide tolerant

THE GMO APPLICATION PROCESS



STATUS OF GM PRODUCTS IN SOUTH AFRICA

In addition, many GM-derived medicines, including anti cancer agents, vaccines, insulin, cytokines and growth factors are on the South African market.

- In 2013 **2.9 million** hectares of GM crops were planted in South Africa.
- **87%** of maize is GM (HT and/or IR)
- **92%** of soybean is GM (HT)
- **100%** of cotton is GM (HT and/or IR)
- Since 1999, **393** permits for confined field trials on 10 different crops have been issued.

IR = Insect resistant HT = Herbicide tolerant

THE BENEFITS, CHALLENGES AND FUTURE OF GM PRODUCTS IN SA

Benefits

- More efficient agronomic management
  - Conservation tillage and associated reduced input costs
  - Reduced insecticide application
  - Additional time for planting, growing and harvesting
- Increased profitability
- Less insect damage results in lower fungal / mycotoxin levels
- Reduced labour of particular importance to small-scale and subsistence farmers

Challenges

- A mass of inaccurate information
- Value-adding labelling
- Risk appropriate management systems
- Clear and transparent risk communication policies
- Locally developed products for the local market

Future developments

- Improved abiotic stress tolerance for several crops, e.g. water efficient maize
- GM crops developed specifically for small-scale farmers, e.g. water efficient maize
- Crops with enhanced nutritional content, e.g. sorghum containing increased levels of essential nutrients such as lysine, vitamin A, iron and zinc
- Crops with increased yields
- Work is being done on plantation trees to improve productivity and marketability

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