Biotechnology and Biosafety: Building Functional Regulatory Systems in Africa

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History of domestication

Selection for Higher yield, Pest Resistance, Hardiness, and other trait change the genetic make-up of Crops long before Science of genetics was understood.

Source: http://journeytohistory.com
What we know......

This include:
selecting and sowing the seeds from the strongest, most desirable plants to produce the next generation of crops

Source: www.b4fa.org

The challenge of feeding Billions

9 BILLION BY 2050

Challenge of plant improvement

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This Technology
• Use of microorganism, Biochemistry, Biocatalysts, Fermentation

• Discovery & use of novel genes, processes and materials in fresh water and marine organisms

• Discovery & use of novel drugs, vaccines, clinical technologies & stem cell applications

• Discovery & use of novel genes, molecules, processes and materials in land plants, agricultural crops and forestry

1. Synthetic biology
2. Gene drive
GMO Technology

- Precision breeding
  - Introducing the specific gene not set
- To improve performance
Biosafety
Biosafety System

Goals
- Prevent
- Manage
- Minimize/eliminate hazards

To human health and to protect the environment

Risk Assessment is core to Biosafety System
What is Risk Assessment

Risk Assessment

Risk Management

Risk Communication

Risk Analysis

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• A functional biosafety system of a country on the continent at minimum should entail policy provisions regarding:
  – biotechnology and its safe deployment
  – a legislative framework
  – the administrative establishment
  – the infrastructure in place
  – the capacity to review biosafety applications and make decisions
  – the capacity to monitor and evaluate
National Regulation: Generic Steps

1. National Biosafety Focal Points
2. Operational Biosafety Decrees/Act/Law
3. Biosafety Implementing Guidelines
4. Confined Field Trials
5. Multi-locational Trials
6. Deregulated status & Commercial Release
Expertise

- Environmental biosafety
- Agric-biotechnology
- Food Safety
- Legal and Policy
- Socio-economic
- Communication
What we have done to build confidence to African regulators in decision making

Neutrality
1. Policies and regulations to promote safe development, diffusion, and adoption of agricultural GMOs
2. Risk assessment techniques and their application to inform decision-making
3. Training to improve critical mass of regulators with enhanced competencies in biosafety regulation
4. Enhanced biosafety communication and cooperation
5. Exposing regulators to best practices
Sustainability

Creation of Networks
- Lawyer’s Network
- Food Safety Network
- Environmental Network
- Socio-economic Network
- Laboratory Network
Asante Sana!!!

http://nepad-abne.net/

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