AGRI-BIOTECH COUNTRY SERIES

KENYA

TOP TEN FACTS ABOUT

AGRI-BIOTECH & BIOSAFETY BY 2014

ISAAA
INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH APPLICATIONS

FACT 1

Kenya was the First Country to Sign the Cartagena Protocol on Biosafety

Former President Daniel Arap Moi signed the international Protocol during the 5th Conference of Parties in May 2000 at UNEP headquarters. The country ratified the Protocol in 2003.

The Protocol's objective is to contribute to ensuring an adequate level of protection in safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health and specifically focusing on trans boundary movements.

You can download the Protocol on:
https://www.cbd.int/doc/legal/cartagena-protocol-en.pdf

FACT 2

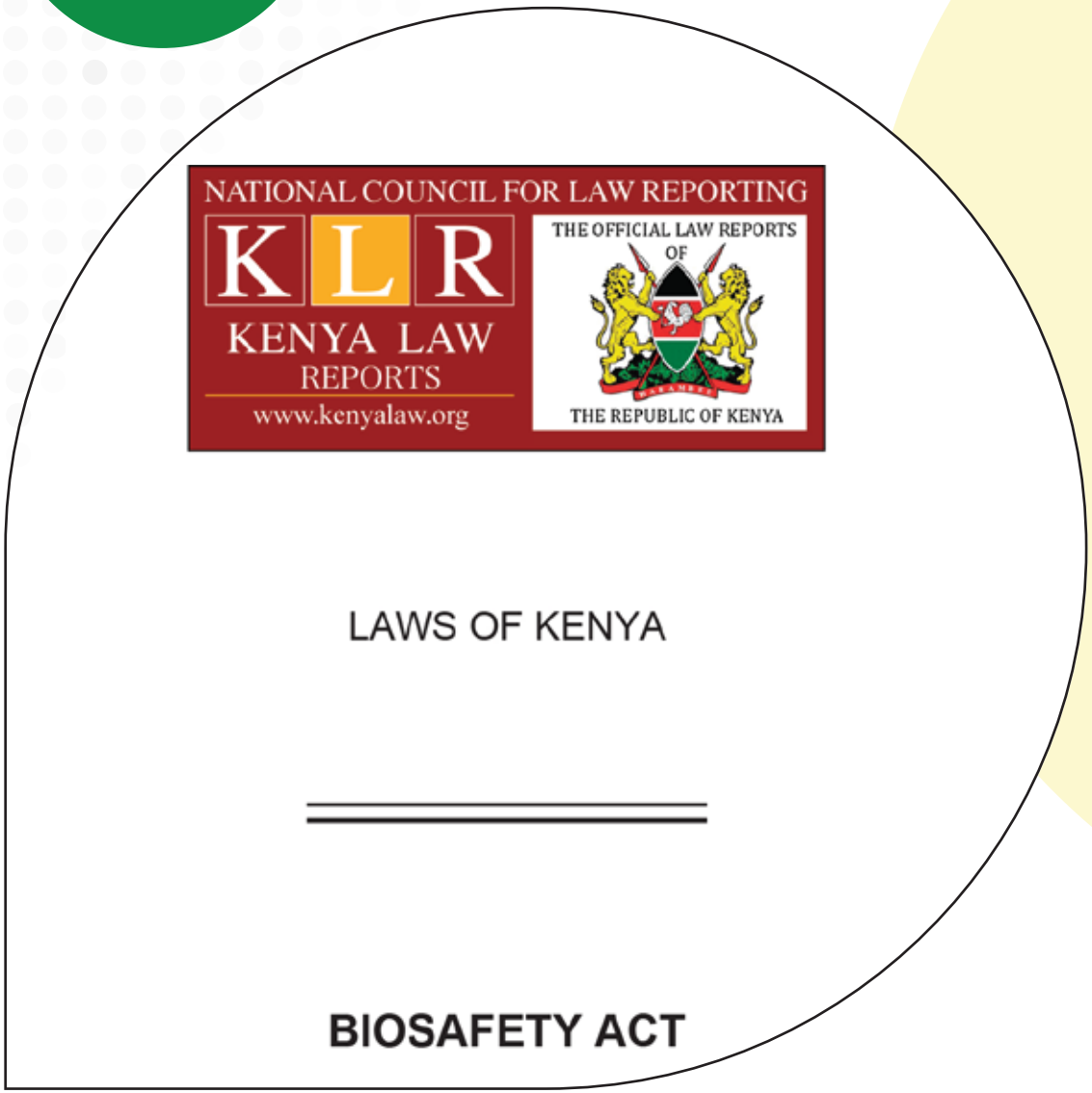
Kenya Approved a National Policy on Biotechnology Development in 2006

The Kenya government's vision and commitment towards the promotion and application of biotechnology is articulated in the National Biotechnology Development Policy. The policy, endorsed by Cabinet in September, 2006, outlines the government's commitment to safe development and deployment of biotechnology for socio-economic development.

It charts a vision towards the development and safe application of biotechnology, to guide research and commercialization of modern biotechnology products in the country.

You can download the policy on:
http://en.biosafetyscanner.org/pdf/doc/350_allegato.pdf

FACT 3



Kenya Enacted its Biosafety Act in 2009

The Kenya Biosafety Bill was drafted in 2005. After several years of stakeholder consultations and parliamentary debates, the Bill was eventually passed by Parliament in 2008, and enacted into law in February 2009 as Biosafety Act No. 2 of 2009.

The Act lays down legal and institutional frameworks for governing modern biotechnology in the country. It has been carefully developed to ensure Kenya maximizes the benefits of modern biotechnology while safeguarding against any potential risks.

You can download the act on:
http://africenter.isaaa.org/wp-content/uploads/2015/07/Biosafety-Act-No.2-of-2009.pdf

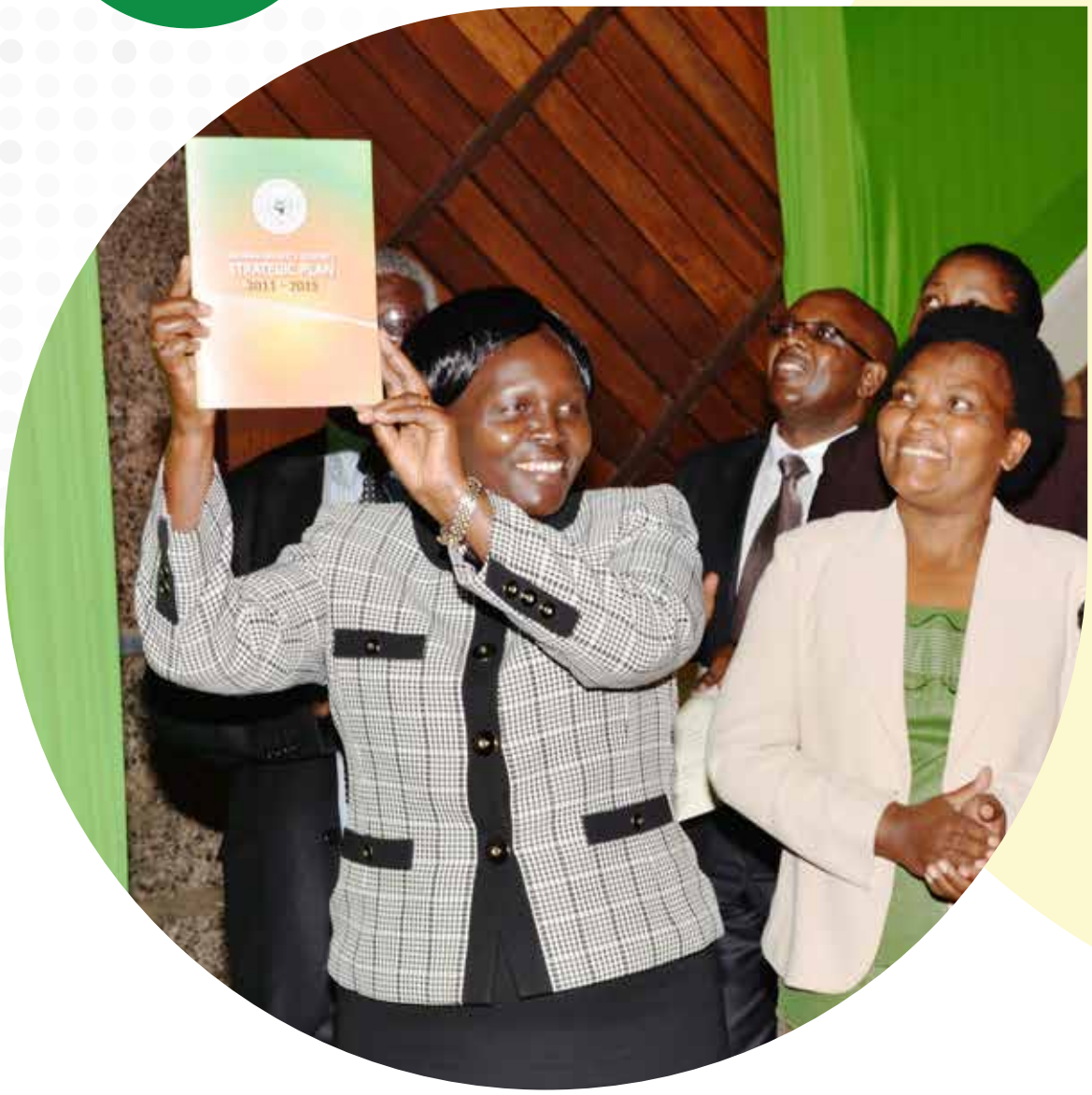
FACT 4

Majority of Biotech Research is Conducted by Public Institutions

The Kenya Agricultural and Livestock Research Organization (KALRO) is the premier national institution where most of the country's research in modern biotechnology is undertaken. This is done either individually or in collaboration with national, regional and international partners from both public and private sector.

Tertiary institutions, key among them national universities, have also established strong research programs on modern biotechnology.

FACT 5



The National Biosafety Authority was Officially Launched in May 2010

The National Biosafety Authority (NBA) was established through a provision of Biosafety Act 2009, as the competent authority to provide overall supervision and monitoring of GMO research and commercialization activities. NBA works closely with various regulatory agencies including:

- Kenya Plant Health Inspectorate Service
- Directorate of Veterinary services
- Department of Public Health
- Kenya Bureau of Standards
- National Environment Management Authority
- Kenya Wildlife Services
- Kenya Industrial Property Institute
- Pesticides Control Products Board

As of December 2014, NBA had handled a total of 19 applications for contained use 10 applications for confined field trials, and approved 28 GM products for trans-boundary movement through Kenya for humanitarian assistance and relief supplies.

FACT 6

The National Biosafety Authority has Published Four Sets of Biosafety Regulations

I. The Environmental Release Regulations (2011). These regulations provide guidance during the environmental release of GMOs, and aim to ensure that potential adverse effects are addressed so as to protect human health and the environment.

II. The Import, Export and Transit Regulations (2011). The objective of these regulations is to ensure safe movement of genetically modified organisms into and out of Kenya while protecting human health and the environment.

III. The Contained Use Regulations (2011). The objective of these regulations is to ensure that potential adverse effects of genetically modified organism are addressed to protect human health and the environment when conducting research under containment.

IV. The Labeling Regulations (2012). These regulations aim to facilitate the tracking of GM products at all stages in the food supply chain as well as inform consumers whether a certain food, feed or product is genetically modified.

FACT 7

One of the Seven African Countries that Continued to Conduct Field Trials on Biotech Crops in 2014

Kenya is steadily gearing towards adoption and commercialization of GM crops. As of 2014, the country had undertaken confined field trials (CFTs) on various crops including insect resistant cotton, drought tolerant maize, insect resistant maize, virus resistant cassava, and biofortified sorghum. Most of the trials are on important food security crops and they focus on traits of high relevance to challenges facing Africa.

Status of Confined Field Trials in Kenya in 2014

Crop	Trait/Constraint	Institutions Involved	Confined Field Trial Stage as of October 2014
Maize	Drought Tolerance (WEMA)	KALRO, AATF, CIMMYT	6th season ongoing
	Insect Resistance	KARLO, AATF, CIMMYT	3rd season ongoing
Cotton	Insect Resistance	KALRO, Monsanto	CFTs completed; Awaiting submission of application for commercial release
Cassava	Cassava Mosaic Disease	KALRO, DDPSC, IITA	1st season completed
	Cassava Brown Streak Disease	KALRO, DDPSC, IITA	1st season completed
	Vitamin A enriched	KALRO, DDPCS	1st season completed
	Cassava Brown Streak Disease and Cassava Mosaic Disease	MMUST	1st season completed
SweetPotato	SweetPotato Virus Disease	KALRO, DDPSC	CFT approved by NBA; Mock trials successfully completed
Sorghum	Enhanced Vitamin A Levels, Bioavailable Zinc and Iron	Africa Harvest, Pioneer Hi-Bred, a DuPont business and KALRO	5th season ongoing

Acronyms

- African Agricultural Technology Foundation (AATF)
- Danforth Plant Science Center (DDPSC)
- International Center for Maize and Wheat Research (CIMMYT)
- International Institute of Tropical Agriculture (IITA)
- Kenya Agricultural and Livestock Research Organization (KALRO)
- Masinde Muliro University of Science and Technology (MMUST)
- Water Efficient Maize for Africa (WEMA)

FACT 8

Kenya has Several Outreach Strategies aimed at Creating Awareness on Biotech Crops

In September 2008, the Government launched a National Biotechnology Awareness Strategy (BioAWARE), a platform aimed at improving public understanding and awareness on biotechnology. ISAAA pioneered awareness creation activities in the early nineties. Over the last decade, together with the African Agriculture Technology Foundation through OFAB, the *Afri*Center continues to be at the forefront in raising awareness on agricultural biotechnology.

Other organizations involved in awareness creation initiatives include the African Biotechnology Stakeholders Forum, Africa Harvest, various universities under the Kenya University Biotechnology Consortium (KUBICO), the Center for Biotechnology & Bioinformatics (CEBIB) at the University of Nairobi, as well as the private sector, mass media and several civil society groups.

FACT 9

Kenya has the Scientific Infrastructure and Human Capacity Needed to Adopt GM Crops

Kenya has the infrastructure and capacity needed for research and regulation of biotech crops. Currently, there are over 100 scientists engaged in research and development (R&D) activities countrywide, with 45% of these scientists working in the public sector. Biosafety facilities for modern biotechnology include a state-of-the art Level II Greenhouse at the Kenya Agricultural and Livestock Research Organization (KALRO) and Kenyatta University.

The country hosts various international research organizations under the CGIAR group working on GM research and is home to the Biosciences Eastern and Central Africa (BeCA) regional hub, a world-class research facility nestled at the International Livestock and Research Institute (ILRI).

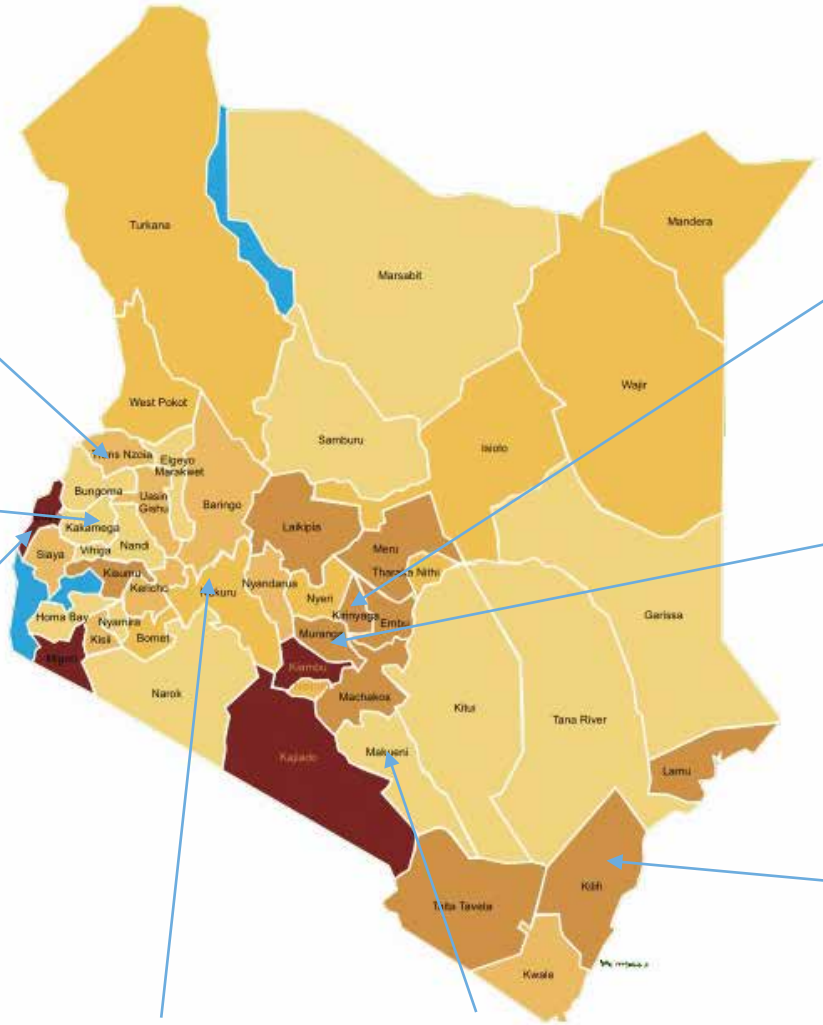
FACT 10

The Government Needs to Fast-track Implementation of Current Policies to Safeguard Kenya's Scientific Leadership in the Region

While the Government has put in place all the necessary policies, legal and institutional frameworks for safe and responsible use of modern biotechnology, progress is hampered by a slow implementation process.

Moreover, a ban on importation of GM foods in 2012, contradicts the clear-laid out mechanisms of ascertaining safety of GM foods. This should be addressed urgently to facilitate transitioning of current research work into products for farmers and address the serious challenges affecting agricultural productivity and environmental degradation.

GM Crops Research and Field Trials in Kenya



TRANS NZOIA – KITALE
Improved Maize for African Soils (IMAS)

KAKAMEGA
Virus Resistant Sweetpotato

BUSIA -ALUPE
Virus Resistant Cassava (VIRCA)
BioCassava Plus (BC+)

NAKURU – NAIVASHA
Purple Gypsophilla flower

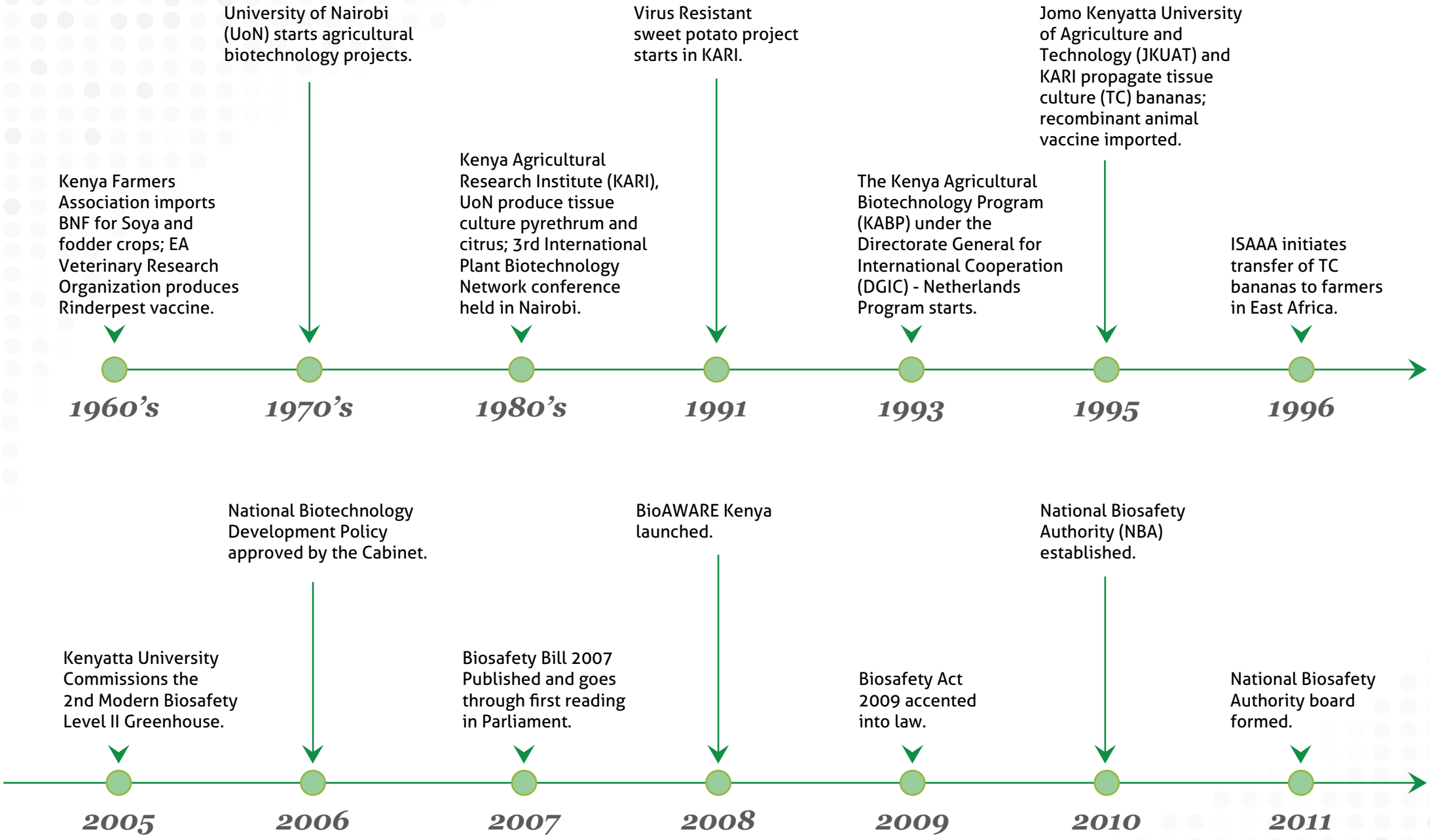
MAKUENI – KIBOKO
Water Efficient Maize for Africa (WEMA)
African Biofortified Sorghum (ABS)

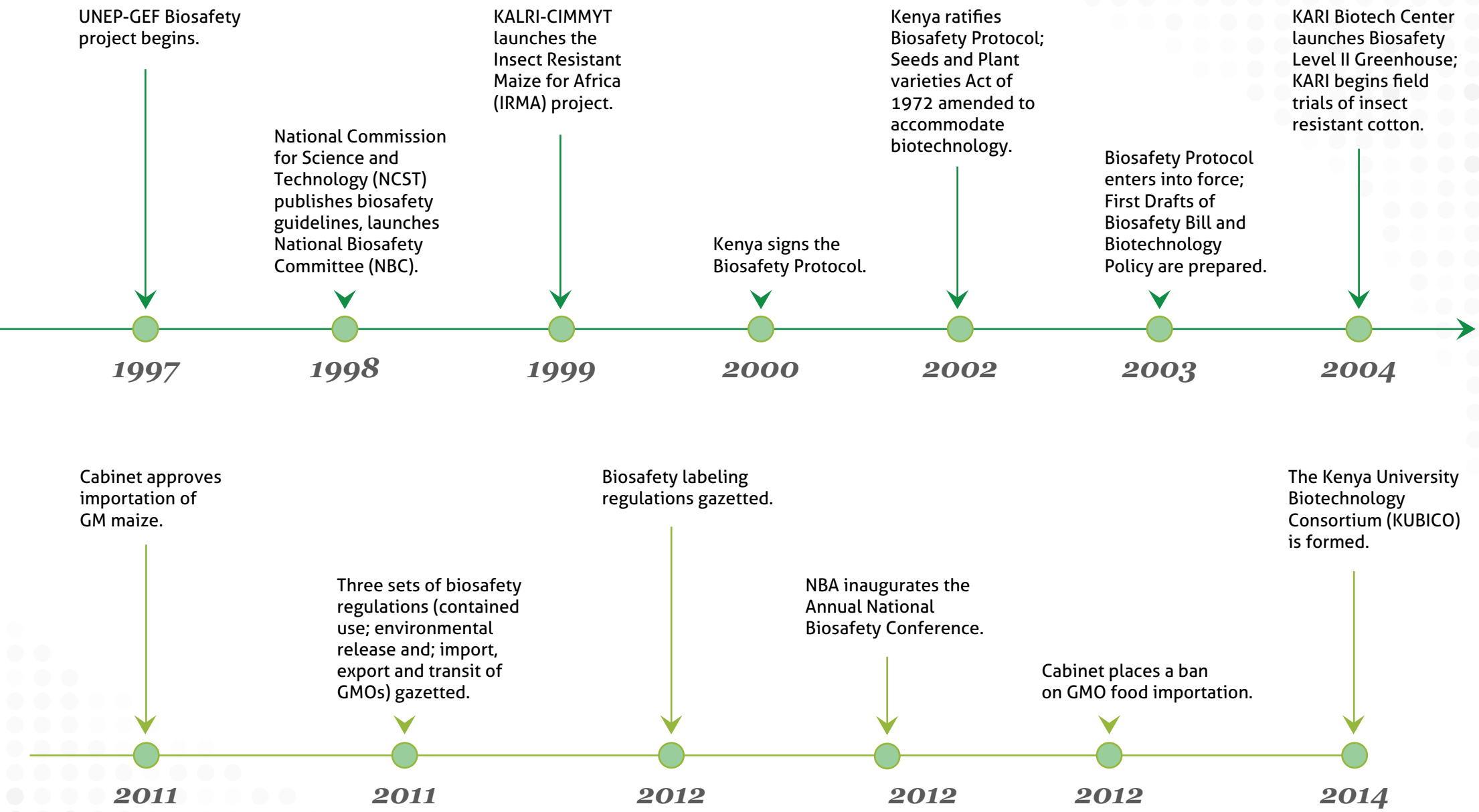
KIRINYAGA - MWEA
Bt Cotton

MURANGA – KANDARA (THIKA)
Virus Resistant Cassava (VIRCA)

KILIFI – MTWAPA
Virus Resistant Cassava (VIRCA)

Milestones in Agricultural Biotechnology Development in Kenya




UNEP-GEF Biosafety project begins.
1997
National Commission for Science and Technology (NCST) publishes biosafety guidelines, launches National Biosafety Committee (NBC).
1998
KALRI-CIMMYT launches the Insect Resistant Maize for Africa (IRMA) project.
1999
Kenya signs the Biosafety Protocol.
2000
Kenya ratifies Biosafety Protocol; Seeds and Plant varieties Act of 1972 amended to accommodate biotechnology.
2002
Biosafety Protocol enters into force; First Drafts of Biosafety Bill and Biotechnology Policy are prepared.
2003
KARI Biotech Center launches Biosafety Level II Greenhouse; KARI begins field trials of insect resistant cotton.
2004
Cabinet approves importation of GM maize.
2011
Three sets of biosafety regulations (contained use; environmental release and; import, export and transit of GMOs) gazetted.
2011
Biosafety labeling regulations gazetted.
2012
NBA inaugurates the Annual National Biosafety Conference.
2012
Cabinet places a ban on GMO food importation.
2012
The Kenya University Biotechnology Consortium (KUBICO) is formed.
2014

"Let those with the luxury to chose whether to have red meat, white meat or whatever other color meat not stand on the way of those who are simply asking to have a meal"

- Deputy President H.E William Ruto during the COP-MOP5 (2010) in Nagoya, Japan.

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