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**Report Name:** Agricultural Biotechnology Annual

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**Report Highlights:**

Mozambique has not yet approved the use of GE crops. Mozambique planted its first genetically engineered (GE) corn trial in 2017 at the Chókwè Agricultural Station as part of the TELA project (formerly Water Efficient Maize for Africa) aimed to test drought and pest resistance. The trial came after the approval of Mozambique's biosafety regulation governing the management of "genetically modified organisms" (Decree no. 6/2007 of April 25), updated in late 2014. After two planting seasons, preliminary results were shared and have shown promise in containing pests. Mozambique intends to start additional trials in multiple locations to test GE corn under various climate and soil conditions around the country.

## **EXECUTIVE SUMMARY**

Mozambique has not yet approved the use of GE crops, but according to local authorities, Mozambique is poised to join the ranks of countries that produce GE products. Government figures, as well as most local farmers, particularly those moving into commercial production are convinced that biotechnology could help develop the national economy, although the focus has so far been limited to GE corn and cotton. The National Inter-Institutional Biosafety Working Group (known by the Portuguese acronym GIIBS) must authorize any activity involving GE products for research purposes.

Currently Mozambique allows the import of (GE) crops intended for direct use as food, feed, or for processing, pending approval from the National Biosafety Authority. Supermarkets sell imported GE products to consumers, who seem ready to accept these new technologies.

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## **CHAPTER 1: PLANT BIOTECHNOLOGY**

### **PART A: PRODUCTION AND TRADE**

#### **a) RESEARCH AND PRODUCT DEVELOPMENT**

Mozambique's agricultural sector is a principal part of the economy, with about 80 percent of the country's estimated 29 million people active in farming. Of those, only 10 percent are involved in commercial farming and the rest are subsistence farmers. Over 80 percent of Mozambique's total cultivated area is used to produce staple food crops for domestic consumption. The main crops produced in Mozambique include cassava, corn, rice, sorghum, and pulses.

GE corn was planted in confined field trials run by the Mozambican Agricultural Research Institute (Instituto de Investigação Agrária de Moçambique, IIAM) as part of the TELA maize

project (formerly Water Efficient Maize for Africa, WEMA), which is a public-private partnership designed to develop drought- and pest-tolerant corn varieties using biotechnology and conventional breeding. The project aligns with the Mozambican government's agricultural strategies to augment agricultural production and productivity with the use of modern technologies.

In two planting seasons, trials tested the tolerance of GE corn to pests during the first stage. It is expected that drought tolerance will be tested in the second stage, since the first stage trials were irrigated.

In February 2017, Mozambique started its GE trial in Chókwe district, Gaza province. This trial aimed to evaluate the efficiency of the Bt gene in controlling spotted stem borer (*Chilo partellus*) and maize stalk borer (*Busseola fusca*) in Mozambican corn by measuring the level of damage caused by insects.

Preliminary results were shared and concluded that the Bt gene is efficient at protecting corn against spotted stem borer/stalk borer (*C. partellus* and *B. fusca*) in Mozambique. The trials also found that the Bt gene protects corn from fall armyworm (*Spodoptera frugiperda*).

#### **b) COMMERCIAL PRODUCTION**

Mozambique does not currently permit commercial production of GE crops, but the country has appropriate legislation in place to approve commercial production in the future. The country's biosafety legislation specifies the process to import, export, and transport GE products, including specific requirements for testing samples, quarantine measures, and grain import for human consumption.

#### **c) EXPORTS**

Mozambique does not currently export any GE crops. However, exports are regulated by the country's biosafety legislation, which establishes regulations for production sites, transport, identification, and labeling.

#### **d) IMPORTS**

Mozambique allows imports of GE crops intended for direct use as food, feed, or processing, but prior approval from the National Biosafety Authority is required. The applicant must submit a report on the risk assessment and management for human health and the environment, including monitoring measures. The applicant may also be required to submit samples for testing purposes.

The Regulation on Biosafety on the Management of Genetically Modified Organisms, which includes both living modified organisms (LMOs) and derived products, adopted by Decree No. 71/2014 of November 28, 2014, prescribes in Article 13 (01) that the "import of genetically modified organisms and their products for human and animal consumption, as well as for food processing" must be first authorized by the National Biosafety Authority.

**e) FOOD AID**

The import of GE products for food aid is generally authorized in emergency situations but only for commodities destined for human consumption and only if there are no alternative sources to respond to emergencies on a timely manner. Any GE food grains imported need to be processed prior to distribution to the final recipients of food aid to avoid utilization as seed. Mozambique is a U.S food aid recipient country. Under the Food for Progress and McGovern-Dole Food for Education programs, the country has received corn-soy blend (CSB) and soybean cooking oil, both of which typically contain GE products.

**f) TRADE BARRIERS**

Post has not identified any other current or potential biotechnology-related trade barriers that may negatively affect U.S. exports.

**PART B: POLICY**

**a) REGULATORY FRAMEWORK**

<b>Legal term (in official language)</b>	<b>Legal term (in English)</b>	<b>Laws and regulations where term is used</b>	<b>Legal definition (in English)</b>
Organismo Geneticamente Modificado (OGM)	Genetically Modified Organism (GMO)	Decree No. 71/2014 of November 28	Any plant living organism that possesses a novel combination of genetic material obtained using modern biotechnology

The government of Mozambique acknowledges the contributions that modern biotechnology can make to meet the country’s critical needs for food and nutritional security. At the same time, the government insists that the use of modern biotechnology in Mozambique needs to be governed by appropriate regulations to maximize benefits while minimizing potential risks.

**b) APPROVALS/AUTHORIZATIONS**

No plants or crops have been approved or registered in Mozambique for cultivation, import, or export, except for food aid in emergency situations. However, GE corn trials started in 2017, and preliminary results have been shared. Mozambique intends to start additional trials in multiple locations to test GE corn under various climate and soil conditions around the country.

**c) STACKED OR PYRAMIDED EVENT APPROVALS/AUTHORIZATIONS**

Mozambique’s biosafety legislation does not indicate how it will handle stacked event approvals. The TELA maize varieties currently under trial include stacked events with insect resistance and drought tolerance traits.

#### **d) FIELD TESTING**

Mozambique's biosafety regulations allow the public and private sectors to research GE crops. Research is subject to prior application, field and greenhouse inspections, confined research project submission, monitoring measures, and risk control. The first confined trial started in the 2016/17 cropping season, and preliminary results were shared in 2018.

#### **e) INNOVATIVE BIOTECHNOLOGIES**

Until very recently, developing countries, including Mozambique, were isolated in applying and reaping the benefits of the potential of modern biotechnology. However, a growing commitment on the part of the Mozambican government has led to a change in attitude, with emphasis being placed on biotechnology as a transformative factor. Mozambique is considering using innovative biotechnologies in product development, such as plant disease diagnosis (cassava and tomatoes viruses) and biofortified crops (orange sweet potatoes). Mozambique is also considering biodiversity studies on forestry innovative biotechnologies. For this purpose, the Government of Mozambique created the National Biotechnology and Biosciences Center (Centro Nacional de Biotecnologia e Biociências, CNBB) by Decree No. 64/2011, implemented on December 21, 2011. The current challenge is the establishment of an adequate technical infrastructure so that the country can implement the use of innovative biotechnology that bolsters production and income and increases Mozambique's competitiveness in the global market.

#### **f) COEXISTENCE**

To date, there is no specific guideline for coexistence, and Mozambique does not have a national organic standard in place.

#### **g) LABELING AND TRACEABILITY**

Mozambique's Biosafety Legislation specifies compulsory labeling of GE products and food containing GE ingredients. However, Mozambique does not have full control measures of GE products entering the country due to a lack of resources for testing and inspection, especially considering its many entry points.

#### **h) MONITORING AND TESTING**

There is no system in place for testing and monitoring of GE products.

#### **i) LOW-LEVEL PRESENCE (LLP) POLICY**

There is currently no low-level presence policy in Mozambique.

#### **j) ADDITIONAL REGULATORY REQUIREMENTS**

According to Mozambique's biosafety legislation, there are no additional product and/or seed registration requirements, beyond GE crop approval, prior to use. Re-registration is not required.

#### **k) INTELLECTUAL PROPERTY RIGHTS (IPR)**

The last two chapters of Mozambique's biosafety legislation discuss confidentiality, intellectual property, public participation, and access to information. The regulation protects research information and intellectual property while allowing public participation and information access.

#### **l) CARTAGENA PROTOCOL RATIFICATION**

Mozambique ratified the Cartagena Protocol on Biosafety on December 20, 2001 (Resolution No. 11/2001) and created the National Inter-Institutional Biosafety Working Group (Grupo Inter-Institucional Sobre Bio-Segurança, GIIBS) to coordinate the process of developing a national biosafety framework for Mozambique. The Ministry of Science and Technology was designated to serve as the National Biosafety Authority.

#### **m) INTERNATIONAL TREATIES AND FORUMS**

Mozambique is a signatory to the:

- Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization (WTO-SPS)
- Codex Alimentarius Commission (Codex)
- International Plant Protection Convention (IPCC) of the United Nations Food and Agricultural Organization (FAO)

#### **n) RELATED ISSUES**

There are no other issues related to plant biotechnology that are not captured under the current headings.

### **PART C: MARKETING**

#### **a) PUBLIC/PRIVATE OPINIONS**

The Government of Mozambique is committed to adopting new agricultural technologies to reduce hunger and poverty by increasing agricultural production. The government understands that this is only possible if the country adopts new agricultural technologies, including biotechnology. The Mozambican public has little awareness of GE products and biotechnology in general. Widespread awareness through outreach programs and capacity building among civil society and subsistence farmers is required.

#### **b) MARKET ACCEPTANCE/STUDIES**

Post is not aware of any market studies conducted in Mozambique regarding GE products. Commercial farmers are eager to use Bt cotton and drought-tolerant corn seeds, should they become available.

## **CHAPTER 2: ANIMAL BIOTECHNOLOGY**

### **PART D: PRODUCTION AND TRADE**

#### **a) RESEARCH AND PRODUCT DEVELOPMENT**

There are no development activities regarding GE, genome-edited, or cloned animals in Mozambique. However, Mozambique is considering using innovative biotechnologies in product development, such as disease diagnoses on animals (Newcastle disease, parasitic diseases, and tick-borne diseases), animal genetic improvement (including poultry and ruminants), and biodiversity studies, subject to the establishment of adequate technical infrastructure at CNBB or any other biotechnology laboratory, including the National Agricultural Research Institute (IIAM) and the Biotechnology Center of the Eduardo Mondlane University (CB-UEM).

#### **b) COMMERCIAL PRODUCTION**

Mozambique does not commercially use or produce any livestock clones, offspring clones, GE animals, or products derived from animal biotechnologies. However, the country does use artificial insemination.

#### **c) EXPORTS**

Mozambique does not export GE animals, livestock clones, or products from these animals.

#### **d) IMPORTS**

Mozambique does not import of GE animals, livestock clones, or products from these animals. There is no regulation in place governing these animals or their products.

#### **e) TRADE BARRIERS**

Post has not identified any other current or potential biotechnology-related trade barriers that may negatively affect U.S. exports.

### **PART E: POLICY**

#### **a) REGULATORY FRAMEWORK**

Mozambique's Biosafety legislation applies only to plants.

#### **b) APPROVALS/AUTHORIZATIONS**

Not applicable

**c) INNOVATIVE BIOTECHNOLOGIES**

Mozambique is considering using innovative biotechnologies in product development, such as disease diagnoses on animals (Newcastle disease, parasitic diseases, and tick-borne diseases), animal genetic improvement (including poultry and ruminants), and biodiversity studies. For this purpose, the Government of Mozambique created the National Biotechnology and Biosciences Center.

**d) LABELING AND TRACEABILITY**

Not applicable

**e) ADDITIONAL REGULATORY REQUIREMENTS**

Not applicable

**f) INTELLECTUAL PROPERTY RIGHTS (IPR)**

Not applicable

**g) INTERNATIONAL TREATIES AND FORUMS**

Mozambique has been a member of the World Organization for Animal Health (formerly OIE) since March 16, 1949.

**h) RELATED ISSUES**

Not applicable

**PART F: MARKETING**

**a) PUBLIC/PRIVATE OPINIONS**

The Government of Mozambique is committed to adopting new agricultural technologies to reduce hunger and poverty by increasing agricultural production. The government understands that this is only possible if the country adopts new agricultural technologies, including biotechnology. The Mozambican public has little awareness of GE products and biotechnology in general.

**b) MARKET ACCEPTANCE/STUDIES**

There are no market acceptance studies on animal biotechnology in Mozambique.



## **CHAPTER 3: MICROBIAL BIOTECHNOLOGY**

### **PART G: PRODUCTION AND TRADE**

#### **a) COMMERCIAL PRODUCTION**

Mozambique does not commercially produce food ingredients derived from microbial biotechnology.

#### **b) EXPORTS**

There are neither official statistics nor estimates on any exports of microbial biotechnology products from Mozambique. However, Mozambique exports alcoholic beverages and processed products that may contain microbial biotech-derived food ingredients.

#### **c) IMPORTS**

There are neither official statistics nor estimates on Mozambique's imports of microbial biotechnology products. However, Mozambique imports alcoholic beverages, dairy products, and processed products that may contain microbial biotech-derived food ingredients.

#### **d) TRADE BARRIERS**

Post has not identified any current or potential biotechnology-related trade barriers that may negatively affect U.S. exports.

### **PART H: POLICY**

#### **a) REGULATORY FRAMEWORK**

Mozambique's biosafety legislation does not apply to GE microbes or products thereof.

#### **b) APPROVALS**

Not applicable

#### **c) LABELING AND TRACEABILITY**

Not applicable

#### **d) MONITORING AND TESTING**

Not applicable

**e) ADDITIONAL REGULATORY REQUIREMENTS**

Not applicable

**f) INTELLECTUAL PROPERTY RIGHTS (IPR)**

Not applicable

**g) RELATED ISSUES**

Not applicable

**PART I: MARKETING**

**a) PUBLIC/PRIVATE OPINIONS**

The Government of Mozambique is committed to adopting new agricultural technologies to reduce hunger and poverty by increasing agricultural production. The government understands that this is only possible if the country adopts new agricultural technologies, including biotechnology. The Mozambican public has little awareness of GE products and biotechnology in general.

**b) MARKET ACCEPTANCE/STUDIES**

There are no market acceptance studies on microbial biotechnology in Mozambique.

**Attachments:**

No Attachments