

**Required Report:** Required - Public Distribution

**Date:** November 14, 2022

**Report Number:** SG2022-0013

**Report Name:** Agricultural Biotechnology Annual

**Country:** Senegal

**Post:** Dakar

**Report Category:** Biotechnology and Other New Production Technologies

**Prepared By:** Fana Sylla

**Approved By:** Barrett Bumpas

**Report Highlights:**

This is a regional report on West Africa that primarily covers Senegal, Burkina Faso, and Mali, but also provides brief overviews in certain sections for Niger, The Gambia, Guinea, Guinea-Bissau, and Mauritania. Senegal and Mauritania passed new biosafety laws on June 14, 2022, and August 4, 2022, respectively. While legislative bodies in the FAS Dakar region are taking steps to allow the entry and commercialization of GE products, public perception of agricultural biotechnology tends to be distorted due to disinformation. Future market acceptance will depend on efforts to inform and educate the public about the safety and benefits of agricultural biotechnology.

## TABLE OF CONTENTS

|  |         |
|--|---------|
| SECTION I: EXECUTIVE SUMMARY.....                      | Page 3  |
| SECTION II: PLANT, ANIMAL, AND MICROBIAL BIOTECHNOLOGY |         |
| CHAPTER 1: PLANT BIOTECHNOLOGY.....                    | Page 3  |
| Part A: Production and Trade                           |         |
| Part B: Policy   |         |
| Part C: Marketing                                      |         |
| CHAPTER 2: ANIMAL BIOTECHNOLOGY.....                   | Page 16 |
| Part D: Production and Trade                           |         |
| Part E: Policy   |         |
| Part F: Marketing                                      |         |
| CHAPTER 3: MICROBIAL BIOTECHNOLOGY.....                | Page 18 |
| Part G: Production and Trade                           |         |
| Part H: Policy   |         |
| Part I: Marketing                                      |         |

## SECTION I. EXECUTIVE SUMMARY

Regionally, the Economic Community of West African States (ECOWAS) developed a draft regional biosafety law for all members in March 2016. The law was approved at the Fifty-Seventh Ordinary Session of the ECOWAS Authority of Heads of State and Government on September 7<sup>th</sup>, 2020, along with a regional environmental action plan for the 2020-2026 period.

Historically in the FAS Dakar covered region, Burkina Faso has the most prominent biosafety regulatory system. In 2012, Burkina Faso adopted a new Biosafety Law to facilitate the research and commercialization of GE products. This facilitated the approval of GE cotton for cultivation, as well as research and development for three GE products: pod borer resistant (Bt) cowpeas, GE mosquitos, and recently, GE rice lines developed using genome editing techniques for resistance to bacterial blight disease.

Since 2021 and the approval of the ECOWAS regional law, both Senegal and Mauritania have passed new biosafety laws and Niger has established a National Technical and Scientific Committee in 2021. Though this represents progress, many West Africans are not well informed about the benefits of biotechnology and public skepticism remains relatively high. Gaining future market acceptance will depend on efforts to inform and educate the public about the safety and benefits of biotechnology products.

For more information on biosafety laws in the FAS Dakar region please see the following reports:

- Senegal Biosafety Law: [GAIN SG2022-0009](#).
- Niger National Biosafety Law: [GAIN SG2020-0002](#), and the CTSNB: [GAIN SG2021-0013](#).
- Burkina Faso Biosafety Law: [GAIN SG2020-0001](#).
- Mali Biosafety Law: [GAIN SG2018-2189](#).

## SECTION II. PLANT, ANIMAL, AND MICROBIAL BIOTECHNOLOGY

### CHAPTER 1: PLANT BIOTECHNOLOGY

#### Part A: Production and Trade

##### a) RESEARCH AND PRODUCT DEVELOPMENT

##### **Burkina Faso**

Burkina Faso is the third largest producer of cowpeas after Nigeria and Niger. Since 2005, research and confined field trials on Bt cowpea containing the Cry1Ab gene have been conducted. However, no further action has been taken regarding dissemination, and it is still unclear when Bt cowpea will be released for commercialization. For the past three years there has been ongoing research on the introduction of the Cry2A gene into Bt cowpea with the possibility to stack with the first gene (Cry1Ab).

In 2011, INERA tried to develop a GE sorghum product (sorghum ABS188) with higher levels of vitamin A, zinc, and iron, but this effort has been discontinued.

In 2016, Burkina Faso conducted confined field trials for Bt maize and a stacked insect resistant and herbicide resistant maize (Bt X RRF). However, field trials have been reportedly suspended.

Recently, INERA started research at the greenhouse level with GE rice lines using genome editing techniques for resistance to bacterial blight disease, which is the major threat to rice. The African Union Development Agency- African Biosafety Network of Expertise (AUDA-NEPAD / ABNE) reported that some of the most virulent strains of the bacteria that carry the disease, *Xanthomonas oryzae*, are found in Burkina Faso. Greenhouse tests have been completed, but confined field trials are paused until regulators validate drafts for the regulation of genome editing.

All research collaboration on GE cotton with Monsanto in Burkina Faso was suspended after local cotton ginning mills in Burkina Faso collectively agreed to stop the distribution of Bt cotton seeds during marketing year (MY) 2016/17 (please see below: Chapter 1, Part A, section b) [Commercial Production]). This included research on a Stacked Bollgard II x Roundup Ready Flex (insect resistant and herbicide tolerant) product.

## **Mali**

In 2011, the Board of Directors of Mali's National Rural Economy Institute authorized research on GE cotton in collaboration with Compagnie Malienne pour le Développement du Textile (CMDT); however, Post is not aware of any further developments.

## **Other Countries**

Senegal, The Gambia, Niger, Mauritania, and Guinea are not conducting any GE plant research currently.

### **b) COMMERCIAL PRODUCTION**

Senegal, The Gambia, Mali, Niger, Guinea, Mauritania, and Burkina Faso are not currently planting any GE seeds for commercial production. The only country that has approved a GE product for cultivation is Burkina Faso, which has approved Bt cotton.

From MY 2009/10 to MY 2015/16 Burkina Faso farmers planted Bt cotton seed that was developed by Société Burkinabé des Fibres Textiles (SOFITEX) in partnership with Monsanto. Since MY 2016/17, according to Post contacts, local cotton ginning mills collectively agreed to stop the distribution of Bt cotton seeds due to its short fiber length, which did not garner a high price on the international market. Sources believe that both farmers and local cotton ginning companies are supportive of agricultural biotechnology; however, they added that the introduction of a new Bt cotton variety would need to meet industry requirements.

### **c) EXPORTS**

Senegal, The Gambia, Mali, Niger, Guinea, Mauritania, and Burkina Faso do not export GE commodities.

#### d) IMPORTS

Current biosafety regulations in Senegal, Mali, Mauritania, and Niger require biosafety approval to import GE commodities or derived products for food, feed, or processing. Burkina Faso requires biosafety approval for GE commodities; it does not require import authorization for derived products that are not considered living modified organisms (LMOs). Post is not aware of any biosafety approvals for importation in Burkina Faso, Senegal, and Mali.

#### e) FOOD AID

Previous or current food aid recipient countries include Burkina Faso, The Gambia, Guinea, Guinea-Bissau, Mauritania, Niger, Mali, and Senegal. Some recipient country governments may require advanced notification or pre-approval to import GE commodities or food derived from a GE commodity as food aid. Food assistance programs may contact FAS Dakar for information about specific countries and commodities.

#### f) TRADE BARRIERS

Many West African countries lack a clear or formal decision-making process, which can inhibit the trade of GE products or foods derived from GE products into the West African region. In Senegal, the implementing decree, once signed, should provide more information about the process to review GE imports.

### Part B: Policy

#### a) REGULATORY FRAMEWORK

| Country             | Legal term (in official language)     | Legal Term (in English)             | Laws and Regulations where term is used | Legal Definition (in English)  |
|---------------------|---------------------------------------|-------------------------------------|---|--|
| <b>Mauritania</b>   | Organisme Génétiquement Modifié (OGM) | Genetically Modified Organism (GMO) | Law # 2022-015 related to Biosafety     | Any organism whose genetic material has undergone a deliberate modification which does not occur naturally, neither by multiplication nor by natural recombination and obtained by modern biotechnology. |
| <b>Mauritania</b>   | Produit dérivé                        | Derived product                     | Law # 2022-015 related to Biosafety     | Any product obtained by the physical or chemical transformation, or any other means, of a GMO.   |
| <b>Burkina Faso</b> | Organisme Génétiquement               | Genetically Modified                | Law # 064-2012/AN on the                | Any organism whose genetic material has been modified other  |

|                     |                                       |                                     |   |  |
|---------------------|---------------------------------------|-------------------------------------|---|--|
|                     | Modifié (OGM)                         | Organism (GMO)                      | safety regime in biotechnology  | than by multiplication or natural recombination.   |
| <b>Burkina Faso</b> | Organisme Vivant Modifié (OVM)        | Living Modified Organism (LMO)      | Law # 064-2012/AN on the safety regime in biotechnology   | Any living organism possessing a novel combination of genetic material obtained through the use of modern biotechnology.   |
| <b>Senegal</b>      | Organisme Génétiquement Modifié (OGM) | Genetically Modified Organism (GMO) | Law #2022-20 of June 14, 2022, related to biosafety   | Any biological entity or organism whose genetic material has been modified through the use of modern biotechnology. The terms genetically modified organism and living modified organism are synonymous for the purposes of this law.  |
| <b>Senegal</b>      | Produit dérivé                        | Derived product                     | Law #2022-20 of June 14, 2022, related to biosafety   | Any product extracted or manufactured from a genetically modified organism, which can be used in human or animal food, transformed or released into the environment.   |
| <b>Mali</b>         | Organisme Génétiquement Modifié (OGM) | Genetically Modified Organism (GMO) | Law # 08-042 RM of December 1, 2008, related to safety in Biotechnology in the Republic of Mali | Any biological organism capable of reproducing or transferring genetic material, in particular plants, animals, microorganisms (viruses, bacteria, fungi), cell cultures, all gene transfer vectors (plasmids, viruses, artificial chromosomes) and naked nucleic acids such as viroid or DNA sequences in which the genetic material has been altered by modern biotechnological techniques.  |
| <b>Mali</b>         | Organisme Vivant Modifié (OVM)        | Living Modified Organism (LMO)      | Law # 08-042 RM of December 1, 2008, related to safety in Biotechnology in the Republic of Mali | Any biological entity capable of transferring or replicating genetic material, including sterile organisms, viruses and viroid, possessing a novel combination of genetic material obtained through the use of modern biotechnology. It follows from this definition that GMOs are one of the two main categories of LMOs, that is to say those whose genetic material, or DNA, has been transformed in a way that is not carried out by natural multiplication or |

|               |                                       |                                      |  |  |
|---------------|---------------------------------------|--------------------------------------|--|--|
|               |                                       |                                      |  | recombination. In conclusion, an LMO is a GMO.   |
| <b>ECOWAS</b> | Genetically Modified Organism (GMO)"  | Genetically Modified Organism (GMO)" | Regulation CIREG.4/09/20 Relating to the Prevention of Risk in Biotechnology in ECOWAS                                       | Any biological entity or organism whose genetic material has been modified through the use of modern biotechnology.                                      |
| <b>ECOWAS</b> | Living Modified Organism (LMO)        | Living Modified Organism (LMO)       | Regulation CIREG.4/09/20 Relating to the Prevention of Risk in Biotechnology in ECOWAS                                       | Any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology.                             |
| <b>ECOWAS</b> | Derivative                            | Derived                              | Regulation CIREG.4/09/20 Relating to the Prevention of Risk in Biotechnology in ECOWAS                                       | Any product extracted or manufactured from an LMO, which may be used in human or animal food, and which is transformed or released into the environment. |
| <b>Niger</b>  | Organisme Génétiquement Modifié (OGM) | Genetically Modified Organism (GMO)  | Law # 2019-48 from October 30, 2019, laying down the fundamental principles of prevention of biotechnological risks in Niger | Any biological entity or organism whose genetic material has been modified through the use of modern biotechnology.                                      |
| <b>Niger</b>  | Organisme vivant modifié (OVM)        | Living Modified Organism (LMO)       | Law # 2019-48 from October 30, 2019, laying down the fundamental principles of prevention of biotechnological risks in Niger | Any GMO in its living form and capable of reproduce and spread naturally in the environment.   |

## **Burkina Faso**

In 2012, Burkina Faso adopted a new Biosafety Law to facilitate the research and commercialization of GE products. The National Biosafety Authority (NBA), which is under the Ministry of Higher Education, Scientific Research, and Innovation, is the country's biotech authority and has two main functions: 1) approving the use, importation, or exportation of GE commodities and 2) approving the research of GE products, including confined field trials. The NBA includes two advisory bodies: the National Biosafety Scientific Committee (NBSC) and the National Biosafety Observatory (NBO).

The NBSC has twenty-six members (thirteen permanent members and thirteen alternate members) from nine ministries (Ministries of Scientific Research, Secondary and Higher Education, Health, Defense, Environment, Agriculture, Animal Resources, Trade, and Justice) which specialize in various fields such as GE technology, environmental protection, and human and animal health, and three representatives from the NBA, the National Laboratory of Biosafety, and the Ethics Committee for Research. The NBSC evaluates dossiers for biotech products and provides a recommendation to the NBA for approval.

The NBO has 33 members including 19 from different ministries and 13 from civil society; membership also includes the NBA and the Social and Economic Council. It monitors the use of GE products in accordance with Burkina Faso's laws and regulations and raises public awareness on agricultural biotechnology. NBO members have a mandate of three years (up to a maximum of six years).

To initiate the approval process for a GE product (for importation or environmental release), an applicant must send a dossier to the NBA that, according to the Biosafety Law, will be reviewed within 150 days. The NBA could request additional information during this process. If the NBA believes there is no significant risk for human and animal health, biodiversity, or the environment, it may utilize a simplified process that will expedite the period for approval.

Burkina Faso's 2012 Biosafety Law requires import authorization for GE commodities, but not for derived products that are not LMOs.

From August 16-20, 2021, a first draft of a genome editing guidance document was developed and pre-validated by participants of a workshop organized by ABNE in partnership with the National Biosafety Agency (NBA) in Burkina Faso. Participants included Biosafety regulators from the NBA, scientists from the Agriculture Research Institute (INERA) and the Health Research Institute (IRSS), members of the University, and Ethics Committee Officers. Discussions are still ongoing.

## **Mali**

In December 2008, Mali adopted its Biosafety Law which regulates GE products and derived products. The main bodies include the National Competent Authority (NCA), the National Biosafety Committee (NBC), the National Focal Point / National Correspondent, and the Public Institutional Biosafety Committees (PIBC). The NCA is the Minister of the Environment, and manages the implementation of the Biosafety Law, including approving GE products. The NCA is also in charge of approving GE research activities. The NBC provides recommendations to the NCA on whether to approve GE products and issues directives on how to implement biosafety regulations. These directives are informed by Specialized Commissions such as the Commission for Management and Risk Assessment, the



Commission for Public Participation, and the Commission for Legal and Regulatory activities. The NBC is composed of a president (the Minister of Environment or his/her representative), a vice president (the Minister of Agriculture or his/her representative), and 37 members from various ministries, as well as researchers, scientists, members of the public, farmers associations, and the media. The National Focal Point for the Cartagena Protocol helps facilitate the exchange of information between the NCA and other government bodies and manages environmental issues. The PIBCs ostensibly include a variety of bodies that, according to the law, would focus on monitoring whether actors are following the Biosafety Law and regulations. However, their function is not clear since there has been no decree to define their exact role or to officially nominate members and form PIBCs.

To initiate the approval process for a GE product, an applicant must send a dossier to the NCA. The NCA will give the dossier to the NBC, which oversees reviewing proposals and providing a recommendation for approval to the NCA within a period not exceeding 270 days. According to the Biosafety Law, the NCA will then provide a final decision in 90 days. The NCA could request additional information during this process. If the NCA believes there is no significant risk for human and animal health, biodiversity, or the environment, it may utilize a simplified process that will expedite the period for approval. Before commencing GE research in country, the biosafety law requires that this research be approved by the NCA. After approval, the research must be monitored by a government body. At the present time, the NBC is assuming the role of monitoring all GE research in country.

A prior informed consent (PIC) or a written authorization from the NCA is required before importation, transit, confined use, release, and/or commercialization of a GE commodity or product derived from a GE commodity. This authorization is required for any GE product or derived product, including products that are not LMOs.

## **Senegal**

In July 2009, Senegal adopted its first Biosafety Law, and two decrees were issued in December 2009, describing the function, mission, and organization of the two main bodies: The National Biosafety Authority (NBA) and National Biosafety Committee (NBC), both of which are under the Ministry of Environment. On May 19, 2017, the Government of Senegal (GoS) issued a decree that modified the structure of the NBA by splitting it into two bodies: The Orientation Council (OC) and the Executive Bureau (EB). Also, in addition to the NBC, the decree added one new consultative committee: The Scientific and Technical Committee (STC).

The NBA is divided into two bodies: the OC and the EB. The OC advises and ensures that the EB's overall activities follow government policies and priorities. It also approves the organization of the NBA, the rules of procedures, and the draft budget. The OC has nine members: six representatives from the Ministries of Economy and Finance, Environment, Agriculture, Fisheries, Livestock, and Scientific Research, one representative from the General Secretary of the Office of the President, one representative from the General Secretary of the Office of the Prime Minister, and one OC Chairman nominated by the President. The OC members have a term of three years (maximum of two terms). The EB, which is the competent authority on biotechnology, coordinates dossiers for GE products for cultivation or food, feed, or processing, provides a recommendation to the Minister of Environment for approval, and distributes notifications on those decisions. The EB includes an executive director who specializes in biotechnology and a permanent secretary, as well as 17 members from different ministries.

Two additional ministerial decrees have been issued in January 2021 to define the organization, composition, and function of the STC and the National Biosafety Committee (NBC). The NBC is charged with scientifically evaluating dossiers (i.e., risk assessments for the importation, exportation, handling, transit, confined use, release, or commercialization of GE commodities and/or foods derived from a GE product) and providing a GE product approval recommendation to the NBA.

On June 2014, 2022, Senegal signed a new biosafety law that repealed the 2009 biosecurity law. The new 2022 law establishes a process to allow the entry, research, and commercialization of GE products in Senegal. The functionality of the law will depend on the approval of 18 implementing decrees. The NBA has drafted several implementing decrees which have been adopted during a national workshop by stakeholders. They have all been incorporated into one decree and should be submitted for approval by the President.

Regarding the approval process, which currently follows the 2022 Biosafety Law, all activity linked to GE or derived products is subject to a prior approval of the competent authority. The Minister of Environment is the national competent authority. It will provide a decision on a dossier based on the recommendation of the NBA; the law notes the approval process could take from 180 to about 270 days following the date of notification of reception of the dossier to the applicant based on whether the request is for introduction to the environment, use directly for animal or human consumption, confined trials, dissemination in open environment, or commercialization. The authorization is for a fixed period and should be renewed four months before its expiration date.

Some GE or derived products are exempted from the prior informed agreement procedure and follow a simplified procedure. A list should be drafted by the competent authority.

In addition, the contained uses of GE or derived products for the purposes of teaching, research and/or experimentation in universities, institutes or public research organizations are subject to the obtention of a favorable opinion issued by the competent authority in the situation that it is established that the concerned GE or derived products do not present significant risks for human and animal health, for biological diversity and for the environment. In this case a prior authorization is not necessary.

Any intentional transboundary movement of a GE product intended for intentional introduction into the environment is subject to the advance informed agreement procedure except for intentional transboundary movements of GE products which, in a decision of the Conference of the Parties, are identified as unlikely to have adverse effects on the conservation and sustainable use of biological diversity, and risks to human health.

## **Mauritania**

On August 4, 2022, the President of Mauritania signed a new biosafety law. This law outlines the institutional framework, the principles of precautionary and prevention, and the notification process. There is established, under the supervision of the Minister for the Environment, a National Biosafety Authority (NBA) and a consultative body named the National Scientific Committee for Biosafety (NSCB). The NBA has a technical and administrative function related to GE and derived products. After the NSBC provide science-based recommendations, the NBA formulates proposition for the Minister of

the Environment. The NSBC act on the behalf of the NBA and is responsible for giving a reasoned opinion on risk assessments related to import, export, transit, transport, handling, use, including in a confined environment, dissemination, or placing on the market of GE and derived products.

The law specifies that the NBA should be notified in writing for all activities of GE and derived products. The NBA acknowledges receipt, in writing, of the notifier's request within 30 days of the registration of the request. If the notification is incomplete, the NBA must, within a period not exceeding 45 days, request additional information from the notifier. The Minister in charge of the environment takes the decision whether to grant authorization within a period of 180 days from the date of receipt of the notification. However, to reach a sufficiently informed decision, this period may be extended by 60 days, by letter sent by the NBA to the notifier.

## **Niger**

In October 2019, Niger's National Assembly passed its first Biosafety Law. The minister in charge of the environment is the National Competent Authority (NCA). Any natural or legal person wishing to develop, import, export, transport, release, use in a confined environment or place on the market GE or derived product and a Living Modified Organism (LMO) and/or a product derived from LMOs, is required to submit a written request to the NCA mentioning the information available at the Clearinghouse of the Cartagena Protocol on Biosafety. After notification to the applicant, the decision is communicated to the Biosafety Focal Point and made public under the conditions laid down by regulation.

In September 2021, Niger established a National Technical and Scientific Committee on Biosafety (CTSNB); The committee oversees the evaluation of the authorization request to introduce GE and/or derived products, and GE food and derived products, validation of the risk management plans related to the use of GE and derived products, examination, and proposition to the Minister in charge of the Environment the decision to be taken for import or export of GE and derived products, as well as GE food and derived products. The CTSNB is composed of the President who is the Secretary General of the Ministry of the Environment and the Fight Against Desertification ; First Vice-President: The General Secretary of the Ministry of Territorial Planning and Community Development; Second Vice-President: The General Director of the National Center for Scientific Research (Abdou Moumouni University of Niamey); and Third Vice-President: The General Director of the National Institute of Agronomic Research of Niger (INRAN). There are 14 other members of the committees composed of several ministries and universities.

## **The Gambia, Guinea-Bissau, and Guinea**

The Gambia has developed a draft biosafety law, but the law has not been passed by its National Assembly. Until the biosafety law is passed, The Gambia noted that it will use the Cartagena Protocol as a guide to regulate GE products and derived products, including imports.

Guinea-Bissau has a national biosafety law in effect.

No information is available on Guinea at the present time.

## Regional Initiatives

In 2016, a technical working group in ECOWAS used a regional biosafety law draft from West African Economic and Monetary Union (WAEMU) to develop a regional biosafety law for the ECOWAS community (i.e., Benin, Guinea-Bissau, Cote d'Ivoire, Burkina Faso, Mali, Niger, Togo, Senegal, Cape Verde, The Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone). ECOWAS' regional law has undergone revisions and was approved at the Fifty-Seventh ordinary Session of the Ecowas Authority of Heads of State and Government on September 7<sup>th</sup>, 2020, along with a regional environmental action plan for the 2020-2026 period. This regional law should enter into force within two years and country members have the option to adopt it or align their national biosafety to it. The ECOWAS biosafety law reportedly includes language that allows for the free flow of GE products within the region if they have been approved by an accredited member's competent national authority, as well as regional accreditation criteria for national biosafety authorities. The law reportedly contains a provision for mutual recognition and equivalence, that is, ECOWAS members have the option to formally recognize the biosafety assessment procedures of other accredited ECOWAS members as equivalent. This could potentially allow ECOWAS members to recognize one another's GE safety assessments for food, feed, processing, or cultivation without requiring additional approvals at the national level. The law establishes an institutional framework; the Regional Biosafety Authority (RBA), which is the ECOWAS Commission, the Regional Biosafety Committee (RBC), and the Regional Scientific and Technical Biosafety Committee (RSTBC). The ECOWAS Commission should provide secretarial services to the two committees.

The RBA is composed of the head of the competent national authority responsible for biosafety in every ECOWAS Member State; a representative from the ECOWAS Commission; a representative from the UEMOA Commission; a representative from CILSS; and the chairperson of the RSTBC. The RBA should work in collaboration with the regional bodies and Member States to:

- coordinate the actions led by the Member States,
- submit the draft decisions for the consideration of the regional bodies.
- establish the criteria for the selection of national reference laboratories,
- identify a regional reference laboratory from among the national reference laboratories,
- establish guidelines for the use of the regional reference laboratory, and
- create and administer an on-line regional Biosafety Clearing House.

The RBC acts as an advisor to the RBA. Among its attributes, the RBC should:

- Provide opinions and make recommendations on projects and decisions,
- Examine draft decisions transmitted by the competent national authorities,
- Give opinions and formulate recommendations based on the findings of the RSTBC,
- Recommend issuance of approvals to the RBC,
- Contribute to strengthening cooperation between the ECOWAS Member States, ensuring alignment of their positions during negotiations and in relation to biosafety issues at the international level,
- Validate projects for the harmonization of joint risk analysis and assessment procedures and regulations, and
- Validate regional verification procedures for biosafety products and services, preparatory to their adoption by the RBA.

Members of the RSTBC are recruited from the Member States on merit, on a case-by-case basis. The role of the RSTBC is to:

- Check that the assessment of the potential risks of LMOs and/or derivatives is carried out at the national level prior to release into the environment and is in compliance with the Regulation on Biosafety in ECOWAS,
- act in an advisory scientific and technical capacity to the ECOWAS Commission and the RBC,
- check the accuracy, quality and reliability of the information received from the competent national authorities;
- propose to the RBC criteria and modalities for the approval of laboratories, greenhouses, and such facilities as may be used for work presenting risk levels 3 and 4, as identified under the terms of the Regulation on Biotechnical Risk Prevention in West Africa.

#### b) APPROVALS/AUTHORIZATIONS

Burkina Faso approved Bt cotton seed for cultivation and has approved confined field trials for Bt cowpea and GE maize. Mali, Guinea, Niger, Senegal, and The Gambia have not approved any GE products or derived products for importation or commercial production. .

#### c) STACKED EVENT APPROVALS/AUTHORIZATIONS

The maize varieties that were tested in Burkina Faso included a stacked insect resistant (Bt) and herbicide tolerant maize. However, Post is not aware whether a stacked trait will be treated differently from single trait events during the regulatory review.

#### d) FIELD TESTING

Burkina Faso has conducted field tests on Bt cowpeas (please see Production section) and has also conducted confined field trials of insect resistant (Bt) maize and stacked insect resistant and herbicide tolerant maize.

#### e) INNOVATIVE BIOTECHNOLOGIES

No information available.

#### f) COEXISTENCE

No information available.

#### g) LABELING AND TRACEABILITY

### **Burkina Faso**

The 2012 Biosafety Law notes that any GE product intended for commercialization in the national territory must be packaged and labeled. The label should state, “Produced on the basis of genetically modified organisms” or “Contains genetically modified organisms.”

## **Mali**

The 2008 Biosafety Law notes that any GE product or food derived from a GE product must be clearly identified and labeled.

## **Senegal**

The 2022 Biosafety Law states that any GE and/or derived product intended for deliberate release/including placing on the market must be clearly identified and labeled in an indelible and tamper-proof manner. It should be printed in a font large enough to be easily distinguished and read, and the following must appear on the label:

- "Product containing GMOs" if the presence of GE product is proven.
- "Product that may contain GMOs" if the presence of GE product cannot be excluded even if it is not demonstrated.
- "Product that may cause... (specifying the particular reactions, allergies or other side effects) when it is known that a particular reaction, allergy or other side effect may be caused by the product."

In addition, the labeling should mention the specific characteristic of each GE and/or its derived products.

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

The Senegalese Laboratory of Plant Biology at the Faculty of Science and Technology of the University Cheikh Anta Diop (UCAD) has been designated as the national reference laboratory for biosafety, which includes testing samples for GE products to support monitoring and surveillance at the border. However, it is unclear if this facility is fully functional. In 2012 and 2017, the laboratory received new equipment, which was funded by WAEMU and the NBA.

In September 2019, Burkina Faso launched a National Biosafety Laboratory hosted at the Agricultural, Environmental and Training Research Station of INERA. It is unclear how the facility will be used, but it will be managed by the NBA. The Government of Burkina Faso acquired a loan from the World Bank of approximately \$1 million to build the laboratory which also received a \$1.4 million grant from WAEMU for equipment.

Mali has a national biosafety laboratory funded by WAEMU, which can be used to conduct research or test samples for GE products to support monitoring and surveillance at the border.

Monitoring may be occurring unofficially or ad hoc for certain countries; others may have an official protocol for monitoring, but if it exists it may not be publicly available.

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

Senegal, The Gambia, Mali, Niger, Guinea, and Burkina Faso do not have a policy on low level presence.

#### j) ADDITIONAL REGULATORY REQUIREMENTS

Senegal, The Gambia, Mali, Niger, Guinea, and Burkina Faso are signatories to an ECOWAS agreement (adopted in May 2008) called Regulation C/REG.4/05/2008 on the Harmonization of the Rules Governing Quality Control, Certification, and Marketing of Plant Seeds and Seedlings in the ECOWAS Region. This agreement harmonizes all member country seed regulations concerning variety release, quality control, certification, and production, as well as “reciprocal recognition of national certification standards and labeling.” This regulation would also apply to GE seeds.

For additional information, please visit this [website](#).

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

Burkina Faso, Guinea, Mali, Niger, Mauritania, and Senegal are members of the African Intellectual Property Organization (OAPI), which includes 15 African French-speaking countries that are treated as one state in trademark law. There is no national trademark law for member states; therefore, it is not possible to obtain national registrations in these countries. Trademark protection is obtained via registration in OAPI. It is valid for 10 years from the date of application and renewable for the same period. Foreign applicants need a local agent. A non-legalized power of attorney is sufficient.

For additional information, please visit this [website](#).

#### l) CARTAGENA PROTOCOL RATIFICATION

- Mali ratified the Cartagena Protocol in September 2003
- Burkina Faso ratified the Cartagena protocol in November 2003
- Senegal ratified the Cartagena Protocol in January 2004
- Mauritania ratified the Cartagena Protocol in October 2005
- Niger ratified the Cartagena Protocol in September 2004
- Guinea ratified the Cartagena Protocol in December 2004
- The Gambia ratified the Cartagena Protocol in June 2004

#### m) INTERNATIONAL TREATIES AND FORUMS

Mali, Burkina Faso, Guinea, The Gambia, Niger, and Senegal are members of ECOWAS, as well as the International Plant Protection Convention (IPPC) and the Codex Alimentarius (Codex). Senegal, Burkina Faso, Niger, and Mali are members of WAEMU. All are members of the World Trade Organization including Mauritania.

#### n) RELATED ISSUES

None.

### **Part C: Marketing**

#### a) PUBLIC/PRIVATE OPINIONS

Post believes there is some government support for agricultural biotechnology in Senegal and Burkina Faso.

Because of disinformation, public perception of agricultural biotechnology tends to be distorted. Anti-GE groups have a stronger presence in Mali and Burkina Faso, but also exist in other West African countries. Gaining future market acceptance will depend on efforts to inform and educate the public about the safety and benefits of biotechnology products.

#### b) MARKET ACCEPTANCE/STUDIES

No information available.

### CHAPTER 2: ANIMAL BIOTECHNOLOGY

#### Part D: Production and Trade

##### a) RESEARCH AND PRODUCT DEVELOPMENT

Mali and Burkina Faso are part of the Target Malaria Project funded by the Bill and Melinda Gates Foundation and the Open Philanthropy Project Fund. Under the project, researchers are developing GE sterile male and gene drive mosquitos to prevent the spread of malaria. The Scientific Research Institute in Health in Burkina Faso and Université de Sciences et Techniques in Mali are partners in this project.

In Burkina Faso, GE *Anopheles gambiae* eggs were imported from Italy; three genes (the homing endonuclease gene and two fluorescent marker genes) from these mosquitos were backcrossed into *Anopheles coluzzii*. In August 2018, the NBA provided a permit to release up to 10,000 sterile male GE mosquitoes within a defined area. Almost one year later, in July 2019, the permit was used to release 6,400 non gene drive GE sterile male mosquitoes of the *Anopheles gambiae* species and approximately 8,500 non-GE mosquitoes in the framework of a comparative study in a village called Bana located in the southwest of the country. The main objective of the research is to reduce the population of three mosquito species (*Anopheles gambiae*, *Anopheles coluzzii* and *Anopheles arabiensis*) that spread malaria. The release was monitored in 2019 and 2020 and now the project is working on the request for permission to import another non gene drive GE called the non-gene drive male bias. The goal is to develop and share a GE mosquito with gene drive technology that will allow the modification to persist among the population of malaria vector mosquitoes for generations. According to the project, it is only this type of mosquito that would be able to control malaria and while the results so far are promising, it will take years of research before having a gene drive mosquito that can be used in the fight against malaria. The Target Malaria project said that they have no plans to release a gene drive mosquito in Burkina Faso soon and uses a cautious and step wise approach to co-develop and share a long-term, cost-effective, and sustainable technology for fighting malaria.

The Target Malaria project in Mali works in collaboration with the Malaria Research and Training Center (MRTC), based at the University of Science Techniques and Technologies in Bamako. In September 2019, the GE mosquitoes were imported from Italy into the laboratory of the University of



Bamako for studies in a confined environment. For more information, please visit the Target Malaria [website](#) or download this [PDF](#) (French only).

- b) COMMERICAL PRODUCTION – None.
- c) EXPORTS – None.
- d) IMPORTS – Burkina Faso and Mali have imported GE mosquito for research purposes.
- e) TRADE BARRIERS – Same as for plant biotechnology.

## **Part E: Policy**

- a) REGULATORY FRAMEWORK – The biosafety laws for Senegal, Burkina Faso, Mauritania, Mali, and Niger apply to animal biotechnology, although there may not be decrees or guidance specific to animal biotechnology. The draft biosafety law for The Gambia references animal biotechnology. Post is not aware of any regulatory framework on animal biotechnology for Guinea.
- b) APPROVALS/AUTHORIZATIONS - No information available.  
In Mali, research on GE mosquitoes received in June 2019, the approval of the Environment and Sustainable Development Agency to import of sterile male GE mosquitoes. In 2016, Burkina Faso issued a decree to authorize GE mosquito research to help address the spread of malaria.
- c) INNOVATIVE BIOTECHNOLOGIES – No information available.
- d) LABELING AND TRACEABILITY – Same as plant biotechnology.
- e) ADDITIONAL REGULATORY REQUIREMENTS:
- f) INTELLECTUAL PROPERTY RIGHTS (IPR) – Same as plant biotechnology.
- g) INTERNATIONAL TREATIES AND FORUM – Senegal, The Gambia, Mali, Niger, Mauritania, Guinea, and Burkina Faso are members of the World Organization for Animal Health (OIE) and Codex.
- h) RELATED ISSUES – No information available.

## **Part F: Marketing**

- a) PUBLIC/PRIVATE OPINIONS

Public messaging on animal biotechnology is not as widespread in West Africa as its plant counterpart. However, in Burkina Faso, the NBA has engaged the public and visited two villages and other locations in the country to increase awareness about animal biotechnology and disseminate information on GE mosquitos and the field trial process for GE mosquitos. Post found a [media](#) report that in June 2021, the

National Council for Organic Agriculture (CNA-BIO) and its local partner, association Action Solidarité Tiers Monde, recently participated in a march “Burkinabè are not guinea pigs!” which is against GE products and GE mosquitoes. It was organized by the Citizen's Collective for Agroecology (CCAÉ) in Ouagadougou where more than a thousand people, farmers, students, women, and civil society organizations have come together to say no to ongoing biotechnology research.

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

In 2018, an African Union (AU) High Level Panel on Emerging Technologies (APET) published a [report](#) on deploying gene drive mosquitos for malaria control and elimination in Africa. The APET acknowledged that while existing interventions have significantly reduced the burden of malaria across Africa, complementary new and innovative interventions are required to eventually achieve malaria elimination on the continent. The Panel recommended that Africa invest in the development and regulation of gene drive technology and urged regulators to consider the value proposition as well as potential risks. The report encourages the AU, regional economic communities, and AU member states to facilitate the development, coordination and harmonization of regulations and guidelines for regulating the development, approval and use of the final product. Researchers and partners should establish a network of Africa-based scientists and developers to register their studies, self-regulate, share information regarding their technology, and peer-review all ongoing developments and field testing of the technology on the continent.

### **CHAPTER 3: MICROBIAL BIOTECHNOLOGY**

#### **Part G: Production and Trade**

- a) **COMMERCIAL PRODUCTION:** Currently, there is no report of Senegal’s production of food ingredients derived from microbial biotechnology.
- b) **EXPORTS:** There are neither official statistics nor estimates on exports of microbial biotechnology products. However, Senegal exports alcoholic beverages, dairy products, and processed products that may contain microbial biotech-derived food ingredients.
- c) **IMPORTS:** There are neither official statistics nor estimates on imports of microbial biotechnology products. Senegal imports microbial biotech-derived food ingredients, such as enzymes that are traditionally used in alcoholic beverages, dairy products, and processed products. Likewise, Senegal imports alcoholic beverages, dairy products, and processed products that may contain microbial biotech-derived food ingredients.
- d) **TRADE BARRIERS:** Not applicable

#### **Part H: Policy**

- a) **REGULATORY FRAMEWORK:** Same as for plant biotechnology.
- b) **APPROVALS/AUTHORIZATIONS:** Would not be any different from that for plant biotechnology.

- c) LABELING AND TRACEABILITY: Same as for plant biotechnology.
- d) MONITORING AND TESTING: Same as for plant biotechnology.
- e) ADDITIONAL REGULATORY REQUIREMENTS: Same as for plant biotechnology.
- f) INTELLECTUAL PROPERTY RIGHTS (IPR): Same as for plant biotechnology.
- g) RELATED ISSUES: Not applicable

## **Part I: Marketing**

- a) PUBLIC/PRIVATE OPINIONS: Not applicable
- b) MARKET ACCEPTANCE/STUDIES: Not applicable

## **References**

- Convention on Biological Diversity – <http://www.cbd.int/biosafety>
- Interstate Committee for Reducing Desertification in the Sahel (Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel) – <http://www.cilss.int/>
- African Intellectual Property Organization (OAPI) – <http://www.oapi.int/index.php/en/>
- Economic Community of West African States (ECOWAS) – <http://www.comm.ecowas.int/>
- West African Economic and Monetary Union (WAEMU) – <http://www.uemoa.int>

## **Acronyms**

|               |   |
|---------------|---|
| CILSS         | Permanent Interstate Committee for Drought Control in the Sahel |
| GE            | Genetically Engineered  |
| INERA         | Institut de l'Environnement et de Recherches Agricoles          |
| NBA           | National Biosafety Authority                                    |
| NBC           | National Biosafety Committee                                    |
| UEMOA/WAEMU   | West African Economic and Monetary Union                        |
| CEDEAO/ECOWAS | Economic Community of West African States                       |

## **Attachments:**

No Attachments

**Attachments:**

No Attachments