Required Report - public distribution

Date: 12/28/2018

GAIN Report Number: ET1901

Ethiopia

Agricultural Biotechnology Annual

Ethiopia approved the first GE cotton for commercialization.

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Report Highlights:
In 2018, the Government of Ethiopia (GOE) authorized cultivation of genetically engineered (GE) cotton by granting official approvals for environmental release. The government has identified cotton as a strategically important commodity crop to supply raw material for the rapidly growing textile sector and to generate thousands of jobs along the cotton subsector value chain. Ethiopia is now part of the Water Efficient Maize for Africa (WEMA) project to develop conventional and GE drought resistant maize varieties for smallholder farmers and planted its first GE maize field trial in 2018.

Section I. Executive Summary:

Executive Summary:

Ethiopia has experienced significant growth for more than a decade and is ready to carry out political reforms and further economic recovery. Ethiopia is already one of the top investment destinations in Africa due to modern industrial parks and low priced electricity and labor costs. Agriculture still

dominates the economy of the country, accounting for about 40 percent of the country's GDP and employing 85 million of the population out of 105 million inhabitants.The Ethiopian government's efforts to commercialize traditional subsistence agriculture are already paying off. Even more dynamic is the industrial sector, which can benefit from the improved power supply and new industrial parks with which Ethiopia hopes to become Africa's leading industrial manufacturer. The government has taken required steps to increase domestic cotton production to support the textile industry in the year 2018 through official approval for environmental release and authorizing cultivation of GE cotton in the commercial farms.

The revised Biosafety Proclamation on August 2015, in addition to cotton, has also opened the door for legalized confined field trials (CFTs) of insect resistant and drought tolerant maize through the WEMA project, to be undertaken for the coming five years. This is the first food crop to obtain CFT approval since the 2015 revised Biosafety Proclamation. The WEMA maize has been planted at the Ethiopia Institute of Agricultural Research (EIAR) Melkassa Agricultural Research Center on October 10, 2018 and is performing well during this reporting period. Maize is one of the most important cereals in terms of human consumption, production and cultivated area coverage in the country.

The organized Biotechnology Council, EIAR and Ethiopia Biotechnology Institute (EBTi) have role in bringing changes in biotech policy and research in the country. The country is looking ahead with further biotechnology development and introduction of the technology in other crops in the years to come.

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Section II. Author Defined:

CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: PRODUCTION AND TRADE

a. PRODUCTION DEVELOPMENT:

In 2017, the Ministry of Agriculture and Livestock (MoA&L)/ Ethiopia Institute Agricultural Research (EIAR) completed the second round of confined field trials (CFTs) for Bt cotton in six different locations of the cotton growing belt. Confined field trials conducted under the supervision of the Biosafety Affairs Directorate of the Ministry of Environment, Forest and Climate Change (MOEFCC),

the newly structured Environment Forest and Climate Change Commission and biosafety technical working team drawn from different institutions have evaluated the final report submitted by the applicant EIAR. The Government of Ethiopia in the year 2018 authorizes cultivation of cotton by granting official approvals for environmental release. The country is now ready to start with two Bt cotton hybrids namely JKCH1050 and JKCH1947 from India. Cotton is strategically very important in Ethiopia's economy because of the high demand by the expanding textile sector and it can also create jobs along the cotton value chain. Conventional cotton production is facing a major problem due to pest attacks mainly by the African bollworms and low fiber quality.

In 2018, Environment Forest and Climate Change Commission and biosafety technical working team authorized CFTs on GE maize under the WEMA project to be undertaken for the coming five years. The first trial of GE WEMA maize was planted at EIAR, Melkassa Agricultural Research Center on October 10, 2018. Maize is one of Ethiopia's most important cereals in terms of production and cultivated area coverage and is planted by more than 8 million small scale farmers.

Photo: GE maize (right) with control non-GE maize (left) at the Melkassa Agricultural Research Center.

1) COMMERCIAL PRODUCTION:

The Ethiopian Government has approved cultivation of GE cotton. The first commercialized GE cotton is on track to be planted on 3-5 ha of land during the first week of the planting season in the western part of the country. The price and availability of the Bt cotton seed is an outstanding issue from the farmers and the seed supplier side due to limited foreign currency access.

2) EXPORTS:

Ethiopia does not export GE crops to any country.

3) IMPORTS:

There are currently no imports of GE grains or oilseeds. However, Ethiopia does import processed agricultural products such as soybean and corn oils, as well as breakfast cereals made from GE ingredients. With respect to non-food products, Ethiopia imports GE cotton from India and the United States. Information on the Ethiopia's cotton situation can be found in our GAIN report, ET1613.

4) FOOD AID:

Ethiopia remains one of the largest recipient countries of U.S. food aid. U.S. food aid commodities made from GE products, such as corn-soya blend (CSB), are allowed to come to the country under a waiver.

5) TRADE BARRIERS:

The approval process for imports of GE grains and oilseeds for food and feed appears overly burdensome. At present, no GE grain or oilseed has been approved for import, nor has access been requested.

PART B: POLICY

a. REGULATORY FRAMEWORK:

The Environment Forest and Climate Change Commission, previously the Ministry of Environment & Forestry (MEF), is the designated competent authority within the Government of Ethiopia (GOE) that is responsible for the Biosafety Proclamation, which is the overarching legislation governing the use of the technology. The Ethiopian Institute for Agricultural Research (EIAR), which is housed under the Ministry of Agriculture and Livestock (MOA&L), provides technical expertise to support the research and development of the technology, safety assessments and field trials, as well as enforcing the provisions within the Proclamation and its subordinate implementing regulations. The Ethiopian Biotechnology Institute (EBTi), which is housed under the Ministry of Information, the Ministry of Agriculture, and the Ministry of Industry (MOI) also play a role in shaping the country's biotech regulatory framework.

After the amended Biosafety Proclamation of 2015 was signed by the president of Ethiopia, the government subsequently revised the proclamation's underlying implementing directives to spell out specific requirements regarding the research and application of the technology, but these regulations are not yet publicly available. These legal changes were due to stronger political push from the top officials based on the expectation that biotech cotton, particularly Bt cotton, would boost local production to satisfy the expected demands from the growing textile and apparel industry.

The Ethiopian Biotechnology Council, EIAR and EBTi are responsible for coordinating biotechnology policy and research in different sectors. At this reporting period EBTi has a total of 109 staff members

out of which 14 hold doctoral degrees, 40 with masters, and 49 with bachelor's degree. The rest are diploma holders.

b) APPROVALS:

In 2017, the MoA&L/EIAR completed its second round of Bt cotton field trials and approved for commercialization. The source of the seed was JK Agri Genetics limited from India.

A five years approval for the confined field trail of insect resistant and drought tolerant maize (WEMA/TELA) was obtained and planted early September 2018. From physical observation and monitoring, the researchers conformed that the WEMA treatment group was performing well despite the outbreak of a fall armyworm infestation in the adjacent non-WEMA/TELA treatment plots.

c) STACKED or PYRAMIDED EVENT APPROVALS:

It is unclear whether the yet-to-be-published directives contain provisions regulating stacked event approvals.

d) FIELD TESTING:

The second round of confined field trials and most of the preparation activities that have been undertaken in the North, South and Eastern parts of the country last year has shown better results. The overall results indicate that Ethiopia is in a position to have a Bt cotton variety is ready for environmental release.

e) INNOVATIVE BIOTECHNOLOGIES:

Ethiopia has not yet begun discussions about its approach to innovative technologies such as genome editing. Ethiopia considers tissue culture and molecular characterization under its broad definition of biotechnology.

f) COEXISTENCE: Not applicable (N/A)

g) LABELING:

Foods containing GE ingredients must carry a label with the following statement: 'genetically modified food'. The purpose of this statement is to inform consumers of the content of the product. The GOE does not have sufficient capacity to enforce this labeling requirement. For more details on labeling, please refer to GAIN ET1707.

h) MONITORING AND TESTING:

While the capacity exists, Ethiopia does not have uniform monitoring and testing mechanisms to detect GE products.

i) LOW LEVEL PRESENCE (LLP) POLICY: N/A

j) ADDITIONAL REGULATORY REQUIREMENTS:

The seed variety registration and release is one of regulatory requirement to be done by National Variety Release Committee (NVRC) before officially release the seed to the farmers.

k) INTELLECTUAL PROPERTY RIGHTS (IPR):

There is an established legal regime for the protection of intellectual property rights in Ethiopia. The country is also a member of the World Intellectual Property Organization. However, the country has yet to sign a number of major international intellectual property rights (IPR) treaties. As a consequence, IPR protection of commercially-planted GE crops is uncertain.

l) CARTAGENA PROTOCOL RATIFICATION:

The Environment Forest and Climate change commission is the Competent National Authority (CNA) for the Cartagena Protocol, and the national biosafety regulation. Ethiopia is a party to the Cartagena Protocol on Biosafety (CPB). According to their most recent submission (2016) to the CPB secretariat, the country has a regulatory framework, which is underpinned by the newly-revised Biosafety Proclamation and implementing directives, in place to implement the protocol.

m) INTERNATIONAL TREATIES/FORUMS:

Ethiopia was known for the vanguard of the anti-GE movement in Africa and, to a certain extent, set the tone for the rest of the continent. In fact, while working with the African Union Commission, Ethiopia helped pen the restrictive Africa Model Law which has contributed to the delayed adoption of the technology on the continent. However, Ethiopia now appears to have broken from its past and approves for environmental release of Bt cotton and research trials on biotech maize. This paradigm shift, however, has not resulted in changes to the Africa Model Law, nor does the GOE appear to be actively promoting the technology in international fora, such as Codex.

n) RELATED ISSUES: N/A

PART C: MARKETING

a) PUBLIC/PRIVATE OPINIONS:

There are no officially known active campaigns to dissuade or scare consumers from eating food products containing GE ingredients. This is in part because there is little consumer awareness of this technology combined with the fact that there are so few foods in the marketplace that are made from GE crops. That said, leading up to Parliament's ratification of the newly-revised Biosafety Proclamation in August of 2015, there were efforts within the activist community to discourage the GOE from moving ahead with the new legislation. These groups cited concerns that the introduction of the technology, even GE cotton, would cause Ethiopia to sacrifice its rich biodiversity and cause irreparable damage to the environment. These claims continue to receive periodic coverage by the local press. At the same time, the GOE and other proponents of the technology have also raised their voices to dispel these rumors and to promote the introduction of the technology. These opinions and views as well receive

periodic coverage in the local press.

b) MARKET ACCEPTANCE/STUDIES:

Bt cotton is commercialized, and depending on positive response from commercial farmers and consumers, Ethiopia is expected to move ahead with introducing other GE crops, such as drought and insect-resistant maize. The WEMA maize CFT is already started. The country's historic counter-stance against the technology, pressures from the anti-GE community, and perceived consumer concern will be tackled depending on the performance of Bt cotton and maize CFTs.

CHAPTER 2: ANIMAL BIOTECHNOLOGY

PART D: PRODUCTION AND TRADE

a) PRODUCT DEVELOPMENT: There are no current plans to develop genetically engineered or cloned animals.

b) COMMERCIAL PRODUCTION: N/A

c) EXPORTS: N/A

d) IMPORTS: N/A

e) TRADE BARRIERS: N/A

PART E: POLICY

a) REGULATORY FRAMEWORK: No clear regulatory framework exists to govern the use of animal-related biotechnology. The current regulations appear to primarily deal with plant-based biotechnologies.

b) INNOVATIVE BIOTECHNOLOGIES: Under Ethiopia's definition of biotechnology, there is research and work being done in the areas of embryo transfer, reproductive synchronization, on quality of semen and sexed cattle semen. For more information, please refer to the Ethiopian Institute of Ag Research list of biotech-related research activities.

c) LABELING AND TRACEABILITY: N/A

d) INTELLECTUAL PROPERTY RIGHTS (IPR): Refer to corresponding section in plant biotechnology section.

e) INTERNATIONAL TREATIES and FORUMS: Refer to corresponding section in plant biotechnology section.

f) RELATED ISSUES: N/A

PART F: MARKETING

a) PUBLIC/PRIVATE OPINIONS: Public awareness of biotechnology is limited. Nonetheless, the public is thought to be generally less supportive of animal biotechnology applications compared to those of plant biotechnology.

b) MARKET ACCEPTANCE/STUDIES: N/A