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Agricultural Biotechnology Annual

Efforts to Strengthen the Cartagena Protocol

Approved By:

Lashonda V. McLeod, Agricultural Attaché

Prepared By:

Karla Tay, Agricultural Specialist

Report Highlights:

Guatemala does not allow commercialization of genetically engineered (GE) plants. There is a “de facto moratorium” in place. The National Council of Protected Areas (CONAP), representing the Cartagena Protocol in Guatemala, continues its work with the Global Environmental Facility of the United Nations Environment Program to “strengthen” the guidelines of the Protocol. In November 2014, the Guatemalan Congress approved the “Nagoya Protocol for the Fair and Equal Participation and Access to Genetic Resources, and their associated benefits.” A biosafety regulation (led by CONAP) is presently under discussion, based on the 2014 National Biosafety Policy approved by Presidential Decree.

Section I. Executive Summary:

Presently, Guatemala allows the importation of genetically engineered (GE) agricultural and food products, but has not approved the use of GE plants for agricultural production. Guatemala is a net importer of animal feed. The Council of Protected Areas, which represents the Cartagena Protocol in the country, permanently raises concerns on risk of biodiversity losses due to the potential introduction of GE plants. Guatemalan society's priorities and concerns seem rather centered on civilian and food security.

Section II. Author Defined:

Plant and Animal Biotechnology

CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: Trade and Production

- a) **PRODUCT DEVELOPMENT:** There is no legal cultivation of GE crops in Guatemala. Local development is not incentivized under present regulation.
- b) **COMMERCIAL PRODUCTION:** Guatemala allows for commercial production of GE plants for seed production and export purposes exclusively.
- c) **EXPORTS:** Though Guatemala allows for GE seed exports, it has not produced nor exported any GE seeds.
- d) **IMPORTS:** Guatemala continues to be a net importer of animal feed. In CY2014, Guatemala imported close to 788,000 metric tons (MT) of corn valued at \$165 million, from the United States, its main supplier. Imports of soybean meal from the United States reached 377,000 MT valued at \$168 million. Corn is the most widely imported grain: the United States exported 699,000 MT of yellow corn and 67,000 MT of white corn. Other suppliers include Argentina and Brazil.
- e) **FOOD AID RECIPIENT COUNTRIES:** Guatemala is a major food aid recipient country because Guatemala has the highest rate of chronic malnutrition in Latin America and has the fourth highest rate in the world. Guatemala receives roughly \$200 million on a yearly basis in food aid from the United States alone that is a mixture of donated and monetized commodities. Food donations, which consist largely of beans, corn-soy blend, rice, and vegetable oil, account for almost 50 percent of the value of food aid received by Guatemala. As a result of such food aid, acute and chronic malnutrition has decreased in the areas of intervention, and food donations that contribute to school feeding programs have increased school retention rates in primary schools.

PART B: Policy

- a) **REGULATORY FRAMEWORK:** The Ministerial Agreement 386-2006 allows for field trials and the commercial production of GE seeds for export purposes only. The Guatemalan Ministry of Agriculture, Livestock, and Food (MAGA) is responsible for approving risk analysis conducted by

interested parties. The Institute of Agricultural Science and Technology (ICTA) of MAGA is responsible for verifying on-site trial protocols presented as part of the risk analysis. Guatemala has a general environmental law applicable to any commercial activity including agriculture and calls for an environmental study to approve any commercial operation. Environmental studies can be less or more complex and costly depending on the risk-category of the economic activity. At present, the environmental law considers GE plants as a high-risk category activity potentially placing a greater amount of scrutiny on the technology.

b) APPROVALS: Guatemala has not approved any GE plant events for commercialization, as the present regulation does not allow it.

c) FIELD TESTING: In 2004, MAGA approved field trials of the YieldGard gene in corn for Lepidopteron resistance, and the Liberty gene in cotton for glufosinate resistance, which are both deregulated events in the United States. The field trials were carried out but the process was so lengthy and time consuming that once finalized, the products were no longer of commercial interest. University Del Valle of Guatemala (UVG) developed ring-spot resistant papaya which has not received approval to be tested in the fields, resulting in a discouraging environment for Guatemalan biotech research. During 2012/2013, Herculex corn (Bt, RR) was tested in the South Coast of Guatemala. The Biosafety Committee was pleased with the results of the technology, but commercialization is not yet an option.

d) STACKED EVENT APPROVALS: Ministerial Decree 386-2006 does not refer to single or stacked events.

e) ADDITIONAL REQUIREMENTS: Guatemalan regulations allow MAGA to consider any additional requirements during the process of field trial approvals, including carrying out additional research to establish biodiversity base lines. Prior to the approval of Herculex field trial in 2012, a weed and floral study of the species present in the field plot, together with neighboring species surrounding the plot, was requested by the Ministry of Agriculture. The baseline study included: a) General description of vegetables species, b) Identifying dominant, constant, accompanying, characteristic, differential, and accidental species, and c) Determine the association and relation between species close to maize.

f) COEXISTENCE: The subject of coexistence has not been addressed by legal means; however, it continues to be a subject that is closely associated with biotechnology. At present, commercially available GE corn is most suitable for Guatemala's lowlands and not for the Western Highlands due to elevation. The lowland regions of Guatemala, mainly the South Coast and the Northern Department of Petén, have been home to the use of hybrid corn varieties for over 30 years and currently boast the highest yields. In comparison, there are currently no GE corn options for the Western Highlands. Corn production in this area is marked by the use of saved or a creole seed, with drastically lower yields when compared to hybrids, as they require a 9-10 month production cycle under high elevations and cold conditions (compared to the 3 month cycle of the hybrids in the low lands).

g) LABELING: Guatemala is a member of the World Trade Organization (WTO) and actively participates in Codex. Guatemala largely implements Codex guidelines regarding food safety and standards.

h) **TRADE BARRIERS:** Guatemala has a de facto moratorium in place for importation of GE plants and production for commercialization purposes.

i) **INTELLECTUAL PROPERTY RIGHTS (IPR):** IPR in Guatemala has gone through several amendments as a result of global trade and free trade agreements. As a result of such commercial engagement, Guatemala became a member of the International Union for the Protection of New Varieties of Plants (UPOV) in 2009. The UPOV law in Guatemala was temporarily approved by Congress on June 26, 2014. Prior to entering into force, Congress disapproved the law, due to significant opposition from environmental and social groups and activists.

j) **CARTAGENA PROTOCOL RATIFICATION:** The Guatemalan Congress approved the Cartagena Protocol in September 2003 by Legislative Decree 44-03, which was published in the official newspaper, the Diario de Centro America, Volume CCLXXII N. 72, on October 13, 2003. The Protocol was ratified and took effect in January 2005. The point of contact for the Cartagena Protocol in Guatemala is the Technical Office for Biodiversity (OTECBIO), which is part of the National Council of Protected Areas (CONAP).

The Agreement on Biological Diversity was ratified by the Guatemalan Congress in 1996. The Cartagena Protocol was later approved in 2003. On March 2014, the Congress of Guatemala approved Legislative Decree 6-2014 on “Nagoya Protocol for the Fair and Equal Participation and Access to Genetic Resources, and their associated benefits”. On November 2014, a “GMO Biosafety National Policy”, via the Ministry of Environment, was published as Presidential Decree 207-2014. The policy mandates CONAP to coordinate regulatory efforts with the different ministries, such as Ministry of Agriculture, Ministry of Environment, and Ministry of Health.

During the first semester of 2015, CONAP has discussed with different sectors the need for the approval of a GMO Biosafety Regulation for Guatemala, as a Presidential Decree, in response to the already approved National Biosafety Policy.

k) **INTERNATIONAL TREATIES/FORA:** Guatemala is a member of the World Trade Organization (WTO) and its bodies World Organization for Animal Health (OIE), International Plant Protection Convention (IPPC), World Food Safety Organization (CODEX Alimentarius), including Intellectual Property Rights (IPR), and the International Unit for the Protection of New Variety Plants (UPOV).

Guatemala has an active trade policy agenda which has resulted in the signing and implementation of free trade agreements with many countries over the recent years including, the United States, Central America, the Dominican Republic, Mexico, Panama, Taiwan, Colombia, Chile, Peru, and the European Union (EU). Guatemala has partial agreements with Belize, Cuba, and Venezuela. Guatemala has a Preferential System with Canada and EU, together with investment agreements with Germany, France, Israel, Italy, Holland, the Czech Republic, Switzerland, Sweden, Argentina, Belgium, Luxemburg, Chile, Taiwan, Korea, Cuba, Spain, and Finland. Guatemala also participates within the United Nations and the Organization of American States.

l) **RELATED ISSUES:** Guatemalan commercial farmers strongly support adoption of biotechnology, especially the corn producers. They are aware of the lack of competitiveness growing hybrids without biotechnology events, compared to their Honduras neighbors. Honduras has been producing higher quality corn (low grain damage with low aflatoxin and mycotoxin levels) and at lower prices for the past fourteen years due to biotechnology, for which the food industry and even the corn flour producers

prefer Honduran corn. Fumonisin and aflatoxin levels in Guatemala are 10 to 50 times above world average levels. An implication of this high level occurrence of mycotoxins in Guatemala is just starting to rise as a health concern. The World Health Organization, in its publication No. 158 – “Improving Public Health through Mycotoxin Control” recommends planting transgenic Bt maize for fumonisin control (https://scabusa.org/pdfs/IARC_STP-158_Dec-2012.pdf, page 133-134). At present, the Government of Guatemala is not considering this recommendation as an option, despite strong scientific suggestion, according to 40 years of mycotoxins studies (Ron Riley, ARS, 2014) that stunting in Guatemala might be highly correlated with mycotoxin contamination in the corn staple based diet.

m) **MONITORING AND TESTING:** Given the fact that biotechnology is not an issue in Guatemala because of more pressing priorities, Guatemala has no monitoring and testing for GE products. The pending Biosafety Regulation drafted by CONAP proposes mandatory monitoring and testing for GE products, together with labeling.

n) **LOW-LEVEL PRESENCE POLICY:** Guatemala doesn't have a policy in place, but low-level presence is being considered in the present regulatory proposal under consideration.

PART C: Marketing

a) **MARKET ACCEPTANCE:** Guatemala's agricultural markets are marked by asymmetric information, which lays the groundwork for market failures at all levels. Knowledge of biotechnology by farmers varies from the well informed to those who have had access to the myths only. Given Guatemala's food security concerns and high level of chronic malnutrition, marketing and labeling of food products is not a priority at present. Food safety concerns are related to microbiological contamination of food due to contaminated water sources for agriculture. Food poisoning due to Salmonella, E. coli, and other food borne pathogens, including parasites are of concern.

b) **PUBLIC/PRIVATE OPINIONS:** Both at the public and private level, opinions on biotechnology have grown more educated with time. Guatemalan universities, both public and private, support the technology. Overall, there is a generalized concern for the low agricultural productivity and low technology adoption, which if modified could increase production and support resolving food security issues. The public and private sector, including the academia, have strongly opposed law proposals or policies that discourage potential adoption of the technology.

PART D: Capacity Building and Outreach

a) **ACTIVITIES:** The private sector, government officials, teachers, and students in Guatemala have received capacity building through different institutions. Some researchers and government officials have applied for short course scholarships in U.S. universities in order to understand both the technology and its science based regulation. Since 2004, the GEF-UNEP has financed CONAP with different projects in Guatemala aimed at developing a national biosafety framework.

In the frame of the FAS Emerging Market Program (EMP), in coordination with University of Missouri

– Columbia Economics and Management of Agro biotechnology Center (EMAC), USDA supported the “Technical Assistance in Biotechnology Conference for Central American Regulatory Decision Makers”, which took place in November, 2014.

In August 2015, IICA (with USDA funding) will provide a Risk Analysis Workshop to address traits of concern (such as Bt in corn, staple through the region) vs. new traits (drought resistance) with the Central American biosafety regulators.

UNEP-GEF has been funding for more than 10 years, through CONAP, biotechnology and biosafety outreach activities. The latest financing was a four-year initiative (August 2010 to April 2015) to “strengthen” Guatemala’s capacity to define a policy, law, and regulation for biotechnology. The policy provides a framework for 10 years (2013-2023), raising biodiversity conservation as the clear main asset, limiting biotechnology adoption as much as possible (via complex bureaucratic decision bodies and processes).

In 2015, CONAP facilitated the “Science, Rights, Biodiversity and Multiculturalism in Mexico” video with the participation of Dr. Juan Pablo Guidño (General Director for Equalitarian and Human Rights from the Social Participation and Transparency Coordination Unit of the Environmental and Natural Resources Secretariat of Mexico (UCPAST-SEMARNAT, for its Spanish initials)).

b) STRATEGIES AND NEEDS: Biotechnology is not high on any political agenda at the government level. Academia and the private sector are supportive of the technology. IICA and the Economic Commission for Latin America (ECLA) reported in 2013 that agricultural productivity in Guatemala had been stagnant for the past ten years. As a result, the needs to invest in agricultural technologies, including biotechnology, should be a major concern. Both San Carlos National State University and private University Del Valle of Guatemala have publicly requested support to advance biotechnology research. Collaborative work with U.S. universities is highly welcomed. Both the academia and the private sector are strongly interested in experts’ support to guide regulators towards a sound adoption of biotechnology and end with the “de facto moratorium.”

CHAPTER 2: ANIMAL BIOTECHNOLOGY

PART E: Production and Trade

a) BIOTECHNOLOGY PRODUCT DEVELOPMENT: Guatemala has no GE animal research or development.

b) COMMERCIAL PRODUCTION: Guatemala has no production of GE animals.

c) BIOTECHNOLOGY EXPORTS: Guatemala is not a GE animal exporter.

d) BIOTECHNOLOGY IMPORTS: Guatemala has not imported nor shown interest in importing GE animals.

PART F: Policy

- a) REGULATION: Guatemala has not discussed GE animal regulation.
- b) LABELING AND TRACEABILITY: Guatemala has not started to discuss GE animals.
- c) TRADE BARRIERS: Guatemala has not started discussions on GE animal commerce.
- d) INTELLECTUAL PROPERTY RIGHTS: Guatemala has no regulations in place for GE animal IPR.
- e) INTERNATIONAL TREATIES/FORA: As member of the WTO, Guatemala reports to the OIE and follows its guidelines.

PART G: Marketing

- a) MARKET ACCEPTANCE: There is no awareness of GE animals within the Guatemalan society.
- b) PUBLIC /PRIVATE OPINIONS: The Academia has shown interest in GE mosquitoes, in response to malaria control, but has not considered raising the inquiry with the government.
- c) MARKET STUDIES: No studies performed.

PART H: Capacity Building and Outreach

- a) ACTIVITIES: No activities have been carried out in relation to GE animals.
- b) STRATEGIES AND NEEDS: Discussions and capacity building on GE animals could start at the Veterinary School of San Carlos National University.