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## Taiwan

### Agricultural Biotechnology Annual

**Taiwan continues to be a significant market for U.S. food and agricultural products, including U.S. corn and soybeans.**

**While these products enter the market with relative ease, Taiwan remains extremely hesitant to approve the domestic commercialization of any GE food or feed product.**

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**Report Highlights:**

In CY2012, Taiwan was the seventh largest export market for U.S. food and agriculture products, of which biotech products corn, soybeans and cotton accounted for 38 percent share of the total export value of \$3.2 billion. To date, Taiwan has continued to grant premarket approvals for imports of biotech corn and soybeans in timely fashion, and there have been no disruptions in trade. As of May 7, 2013, Taiwan has granted registration approvals for a total of 28 single biotech events. Still regulators

and authorities remain highly cautious and Taiwan has yet to approve a single domestic genetically engineered GE plant product for cultivation.

### **Section I. Executive Summary:**

In CY2012, Taiwan was the seventh largest export market for U.S. food and agriculture products, of which biotech products corn, soybeans and cotton accounted for 38 percent share of the total export value of \$3.2 billion. To date, Taiwan has continued to grant premarket approvals for imports of biotech corn and soybeans in timely fashion, and there have been no disruptions in trade. As of May 7, 2013, Taiwan has granted registration approvals for a total of 28 single biotech events. Still regulators and authorities remain highly cautious and Taiwan has yet to approve a single domestic GE plant product for cultivation.

Taiwan authorities recognize that agricultural biotechnology is a potential tool for addressing food security concerns resulting from climate change and population growth. However, Taiwan regulators remain very cautious about domestic cultivation of biotech crops. Coexistence farming among organic, biotech and conventional crops is a sensitive topic especially given the fact that the average farm size in Taiwan is just over one hectare, and Taiwan's arable land accounts for only about one-fourth of the total land area. As a result, Taiwan's self-sufficiency rate hovers around 30 percent and is amongst the lowest in Asia. The agricultural authority's goal is to raise this rate to 40 percent by 2020 through programs focused on reinvigorating the farming system and rescheduling the (paddy) fallow plans. However, there has not been any indication this would be accomplished through domestic approval of GE product cultivation.

The environmental release for cultivation and marketing of any unapproved biotech product would be in violation of the Taiwan Plant Varieties and Plant Seeds Act. The Regulation on Field Trials of Biotech Plants was promulgated in June 2005, based on Article 52 of the Plant Varieties and Plant Seeds Act. However, the regulation governing propagation and production of GE crops is still in drafting stage. In other words, field trials may be conducted under a permit scheme but the regulatory system has not provided approval for cultivation.

While there is considerable ongoing biotech research in Taiwan, environmental release for commercial cultivation is unlikely in the near future and only biotech products for non-food or ornamental use are likely to be approved. Taiwan is expected to approve production of its first biotech product, a fluorescent ornamental fish, in the next few years.

Taiwan's existing biotech regulatory scope, in terms of approval for food, feed and processing (FFP) use, includes only corn and soybeans and their products. In other words, Taiwan only accepts premarket approval applications for GE corn and GE soybeans, other GE food products will not be approved for FFP.

## **Section II. Plant Biotechnology Trade and Production:**

### ***CHAPTER 1: PLANT BIOTECHNOLOGY***

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

- a. **PRODUCT DEVELOPMENT:** Taiwan has the implied technology to develop biotech rice,

broccoli, potato, bitter melon, tomato, papaya, banana, calla lily, and orchid varieties such as phalaenopsis, and oncidium. Although permits for conducting field trials have been granted for several rice, fruit, and vegetable events, none of these products has gone through the regulatory process for commercial cultivation approval or for food and/or feed approval.

- b. **COMMERCIAL PRODUCTION:** Not applicable. Taiwan is very cautious about coexistence farming among organic, biotech and conventional crops especially given the fact that the average farm size is just over one hectare, and Taiwan's arable land is only about one-fourth of the total land area. While there is considerable ongoing research in Taiwan, commercial cultivation on the island is unlikely in the near future.
- c. **EXPORTS:** Not applicable.
- d. **IMPORTS:** In CY2012, Taiwan was the seventh largest export markets for U.S. corn, soybeans, and cotton, which combined accounted for 38 percent share of the total U.S. agricultural exports. To date, Taiwan has continued to grant premarket food and feed approvals for imports of biotech corn and soybeans in timely fashion, and there have been no disruptions in trade.
- e. **FOOD AID RECIPIENT COUNTRIES:** Not applicable. Given its ample domestic supply of staple rice and its overall economic strength, Taiwan is not currently and is not likely to become a food aid recipient under existing economic conditions.

### **Section III. Plant Biotechnology Policy:**

#### ***PART B: POLICY***

- a. **REGULATORY FRAMEWORK:** Taiwan has adopted a U.S.-style interagency coordination approach to regulate biotechnology. The Taiwan Department of Health and Welfare's (DOHW) Food and Drug Administration (TFDA) resembles the U.S. FDA and is responsible for food safety assessment for premarket approval and GE food labeling for food products. TFDA conducts mandatory import inspections and market surveillance inspection on biotech soybeans and corn and their products. Although feed ingredients derived from GE products are under the Council of Agriculture's (COA, USDA equivalent agency) portfolio, as a practical matter, TFDA is the agency that approves GE corn and soybeans for both food and feed use. The existing biotechnology regulations enforced by TFDA stipulate that all bioengineered varieties of soybeans and corn must be registered and granted pre-market approvals for FFP use. No bioengineered soybeans or corn may be produced, processed, prepared, packed, and imported or exported unless registered. As Taiwan has not approved any GE products other than soybeans and corn for FFP use, there are currently no approvals for cultivation or environment release.

The specific regulations governed by TFDA regarding GE products can be found at the following link:

<http://www.fda.gov.tw/EN/law.aspx?pn=2&cid=16&cchk=d49032f6-b48e-4ab3-8fb9-223dad1b0407&subClassifyID=&pClass1>. Of specific interest may be the following:

- TFDA Announcement No.0900011745 which outlines premarket approval registration of all GE corn and GE Soybeans (issued 2001/02/22; effective 2003/01/01)
- TFDA Announcement No. 0900011746 which stipulates labeling requirements for food

derived from GE corn and GE soybeans, with a 5% tolerance (issued 2001/02/22, phase in 2003/01/01)

- "Guideline for Food Safety Assessment of Genetically Modified Foods derived from Recombinant-DNA Organisms" (announced 2001/02/22, updated 2010/09/09)
- "Guideline for Food Safety Assessment of Foods Derived from Genetically Modified Plants with Stacked Traits" (promulgated 2008/05/06).

The COA also administers trans-boundary movement of living modified organisms (LMOs) and bio-safety assessment for environmental release. The National Science Council (NSC) supervises the overall safety of laboratory work in biotechnology. The final authority for Taiwan's biotechnology regulatory system resides with the appointed Minister-Without-Portfolio who serves as the convener of the advisory committee for GE products and also oversees the office of Science and Technology Advisory Group (STAG) under the Executive Yuan. The STAG office serves as the Secretariat to the interagency advisor for GE products.

The specific regulations governed by COA regarding GE products can be found at the following link: <http://law.coa.gov.tw/GLRSnewsout/EngLawQuery.aspx>. Of specific interest may be the following:

- "Administrative Regulations for the Field Testing of the Transgenic Plants" (established 2005/06/29 and amended 2012/10/05)
- "The Regulations for Packaging and Labeling of Transgenic Plants" (established 2005/06/29)
- "Regulations for Approving Import/Export of Transgenic" (established 2005/07/07);

- b. **APPROVALS:** As of May 7, 2013, Taiwan has granted registration approvals for a total of 28 single biotech events, including 10 soybean and 18 corn events, as well as 34 stacked events, including two two-way stacked soybean events and 32 stacked corn events (14 two-way, 9 three-way, 7 four-way, and 2 five-way). New approvals include low saturated fatty acid and high-oleic soybean MON-87705-6, Dicamba-tolerant soybean MON-87708-9 and Imidazolinone herbicides-tolerant soybean BPS-CV-127-9.

Although the COA has not yet amended its Feed Control Act to regulate ingredients derived from biotechnology, it is highly likely that the COA will adopt a policy that all approved products for food use are also eligible for animal feed use. As a practical matter, TFDA currently approves biotech events for both food and feed use.

**The current approval list is included at the end of this report. For the most current list, please visit the Taiwan FDA website at <http://www.fda.gov.tw/TC/siteContent.aspx?sid=2197>**

- c. **FIELD TESTING:** Taiwan promulgated its field-testing regulation governing GE plants in May 2005. To date, nine events have been granted permits to conduct field trial testing. However, only one event - a ring spot virus-resistant papaya - completed the field trial; in July 2003, before the field trial regulations were promulgated. Upon completion of field trial testing, deregulation and environmental release for cultivation is not automatic, of course. Cultivation requires COA approval and no approvals have, thus far, been granted. If the product is intended for FFP use, application to TFDA for premarket approval is also required; however, only (imported) GE corn and GE soybeans are currently eligible to under TFDA's current regulatory

scope.

The remaining seven events listed below are still pending final biosafety reviews:

1. Sweet rice for processing (developed by Academia Sinica)
2. Lactoferrin rice (developed by National Chung Hsing University)
3. Delay-ripening broccoli (developed by Academia Sinica)
4. Phytase potato (developed by Academia Sinica)
5. Cucumber mottle mosaic virus-resistant tomato (developed by the World Vegetable Center)
6. Eucalyptus for pulping (developed by COA-affiliate Taiwan Forestry Research Institute)
7. Ring spot and leaf distortion mosaic virus-resistant papaya (developed by National Chung Hsing University)

Additionally, one ornamental calla lily event initially applied for field-testing, but the application process was not completed.

- d. **STACKED EVENT APPROVALS:** Starting from May 2008, Taiwan implemented stacked event registration on the basis of the "Guideline for Food Safety Assessment of Foods Derived from GE plants with Stacked Traits". The guideline applies only to foods produced from GE plants with stacked traits obtained through conventional breeding of single events already approved in Taiwan. The submission of a dossier for any new stacked event will not be accepted by TFDA unless the single events are already approved in Taiwan. And the stacked event is not obtained thru conventional breeding is not eligible to apply for premarket approval.
- e. **ADDITIONAL REQUIREMENTS:** The TFDA registration is valid for five years and application for renewal of the approval registration is required before its expiry.
- f. **COEXISTENCE:** Currently Taiwan does not allow the production of GE crops outside of accredited field trial facilities. However, Taiwan has drafted regulations governing the commercial production of biotech plants, animals, and aquatic plants and animals. All draft regulations for domestic cultivation are still pending approval with the exception of the regulation on propagation and production of aquatic animals and plants, which was promulgated on April 13, 2011 and then revised on May 24, 2012.
- g. **LABELING:** Beginning in January 2005, all food made from biotech soybean or corn must be labeled. The labeling threshold level is 5%. The labeling regulations do not apply to products that do not contain pieces of transgene(s) or protein such as cornstarch, corn syrup, corn oil, soy oil, and soy sauce.

Starting on January 1, 2010, all unpacked products sold in bulk should indicate product name and the country of origin on a card, logo (label), sign or some other means of prominently displaying this information in retail venues so that the product can be clearly identified by consumers. So far, this regulation seems to have had no apparent impact on biotech soybeans and corn products sold in bulk because freshly baked and cooked products served for direct consumption at dining places are excluded from this labeling requirement. In Taiwan, it is common to see freshly milled and cooked soy milk at breakfast shops.

However, the labeling requirements have increased Taiwan's demand for non-GE foods for the small but growing segment of Taiwan's population that demands alternative, natural-grown or organic products as part of a larger movement for healthier eating/lifestyle.

Soybean and corn food products made of non-GE materials can be voluntarily labeled as "Non-GE" or "Not-GE". However, if there is no biotech alternative available, a product cannot be labeled "Non-GE" according to the labeling regulation.

- h. **TRADE BARRIER:** Despite incidences of commingled biotech corn such as StarLink and Event 32 corn, there have been no trade disruptions of U.S. biotech corn exports to Taiwan. U.S. corn exports to Taiwan are primarily for feed use and draw less attention from consumers. However, the LibertyLink rice incident did result in Taiwan's suspension of imports of U.S. long grain rice in August 2006. U.S. long grain rice remains suspended, though rice is a politically sensitive issue and the suspension may have little to do with biotech concerns. The recent discovery of GE wheat volunteers in Oregon resulted in Taiwan broad testing shipments of U.S. wheat, but no suspensions. See, section "m) Monitoring and Testing" section below for more information.

Taiwan's approval process has become increasingly efficient. The Genetically Modified Food Advisory Committee (GMFAC) has tried to enhance communication among committee members, government and industry groups. However, many stacked events and their component new concept single events are entering the regulatory pipeline. The TFDA recruits GMFAC members every two years. The current GMFSA committee serves January 2012-December 2013. It will take some time for the new committee members to become familiar with the approval process. Risk assessment capacity building for new committee members is essential according to TFDA authorities and the CropLife Taiwan.

- i. **INTELLECTUAL PROPERTY RIGHTS (IPR):** Taiwan does not grant patent protection to technology for development of GE plants and animals based on Article 24 of the Patent Act. This article stipulates that "an invention patent shall not be granted in respect of any of the following: animals, plants, and essential biological processes for the production of animals or plants, except processes for producing microorganisms; and that animals and aquatic plants and animals are not protected under this Act."
- j. **CARTAGENA PROTOCOL RATIFICATION:** Not Applicable. Given its unique political status, Taiwan cannot sign the Cartagena Protocol on Biosafety. However, Taiwan has implemented some international standards and has incorporated Cartagena guidelines into its Regulations Governing Transboundary Movements of Living Modified Organisms (LMOs.) The COA's Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ) is the lead agency on the biotechnology issues. In July 2005, BAPHIQ promulgated the "Regulations for Approving Import/Export of Transgenic Plant" on the basis of the "Plant Varieties and Seeds Act". The regulation stipulates that all LMOs must be submitted to BAPHIQ for import/export approvals for environmental release. In addition, the regulation governing propagation and production of aquatic plants and animals (fish) also stipulates that LMOs of aquatic plants and animals must be submitted to the COA Fishery Administration for a permit for trans-boundary movement. To date, only a few import/export records of LMOs have been reported for

experimental purposes. The COA has recently established a surveillance program for internal movement of LMOs. The first LMO internal movement surveillance target is GE papaya with batch-by-batch inspection for each commercial papaya seedling transaction.

- k. **INTERNATIONAL TREATIES/FORA:** Taiwan participates in APEC Activities such as High Level Policy Dialogue for Agricultural Biotechnology (HLPDAB).
- l. **RELATED ISSUES:** Not Applicable.
- m. **MONITORING AND TESTING:** TFDA conducts mandatory import inspections when necessary and regular market surveillance inspection on biotech soybeans and corn and their products. In response to the May 29, 2013, USDA announcement regarding the discovery of GE wheat volunteers on an Oregon wheat farm, TFDA implemented boarder inspection for GE material on all imports of U.S. wheat, effective June 4, 2013. There have been no positive results from this broader testing. TFDA uses real-time PCR testing methods that are validated by USDA/GIPSA for GE corn and soybeans. As for GE wheat MON71800, TFDA uses both its own established testing method and the GIPSA-validated method.
- n. **LOW LEVEL PRESENCE POLICY:** Not Applicable. Any unregistered biotech product is considered illegal. Similar to any other "illegal" product or product determined to be out of compliance with Taiwan's polices, unapproved GE products will be destroyed or rejected at the port of entry.

#### **Section IV. Plant Biotechnology Marketing Issues:**

##### ***PART C: MARKETING***

- a. **MARKET ACCEPTANCE:** There has been increasing media attention concerning GE food after an April 2012 visit by Jeffrey M Smith of the Institute for Responsible Technology and the author of the "Seeds of Deception". Some consumer groups now are looking for non-GE soybeans for food use and are petitioning to Taiwan government to produce non-GE soybeans locally. However, reports regarding the May 2013 GE wheat incident received minimal attention.
- b. **PUBLIC/PRIVATE OPINIONS:** In Taiwan, academics (scientists and non-scientists) always serve as opinion leaders who are split into two groups: pro-GE or anti-GE. Recently, the group who opposes to biotech became more active in media activities. They have stressed their concerns over GE soybeans for food use in Taiwan. Some anti-GE groups claim that GE soybeans and corn are not equal to conventional counterparts and are not regularly consumed in the United States. AIT/AGR has provided information to dispel these myths.
- c. **MARKETING STUDIES:** Taiwan's Department of Health conducted two consumer surveys in 2000 and 2002. Based on the results of these surveys, which revealed some consumer concerns about biotech products, Taiwan authorities promulgated the biotech food labeling regulation in 2003 to accommodate consumers' right to choose. CropLife Taiwan conducted a follow-up consumer survey in 2011 that indicated an increase in consumer awareness and a more positive view of biotech food products, according to this survey results.

## **Section V. Plant Biotechnology Capacity Building and Outreach:**

### **ACTIVITIES:**

- **September 15-16, 2011 - Risk Assessment Workshop for Products of Agricultural Biotechnology (U.S. government co-sponsored):**

AGR/AIT co-sponsored a Biotech Assessment Case Study Workshop in Taipei with about 50 Taiwan regulators and academia exchanging experiences on biotech risk assessment and regulation. Four visiting U.S. regulators explained to the audience how biotech products are reviewed and regulated in the United States, helping to provide a better understanding of the U.S. regulatory system.

- **September 20, 2011 - Seminar on Risk Management of Food Derived from Biotechnology (Taiwan government co-sponsored):**

A seminar co-sponsored by Taiwan authorities was held in Taipei, attracting 50 people from government agencies and academia. Mr. Paul Green of the Global Agricultural Policy Coalition gave a talk on Low Level Presence, and Mr. David Yeh, representing Crop Life Taiwan (CLT), talked about Industries' Excellence through Stewardship. "Low Level Presence" policy has an important role in preventing international agricultural trade interruptions.

- **November 4, 2011 - Symposium on Research, Development & Regulation of GE Plants with Abiotic Stress Tolerance (Taiwan government co-sponsored):**

This symposium was held in Taipei, drawing more than a hundred attendees. The target audience included regulators, academia, and students from research and educational institutes. The symposium was designed to provide updates on technology in terms of biotech risk management. Dr. Wayne Parrott of University of Georgia and Dr. Bruce Chassy of University of Illinois attended along with Taiwan scholars to deliver respective speeches on gene engineering and relating food safety of advances abiotic stress tolerant engineered plants.

- **June 28, 2012 - Seminar on Current Regulatory Perspectives on Stacked Events (Taiwan academic society co-sponsored):**

This seminar was also held in Taipei. Dr. Parrott again attended, along with biotech food reviewers from Australian and Japan, who made presentations on the principles of risk assessment for stacked events.

- **September 16-23, 2012 - Hawaii-based Biotech Papaya Study Mission (State EB funded project)**

Using U.S. Department of State biotech funds, FAS/Taipei organized a Biotech Papaya Study Mission to meet with Dr. Dennis Gonsalves, Director of the USDA's Agricultural Research Service Pacific Basin Agricultural Research Center in Hilo. Dr. Gonsalves provided an intensive three-day case study review of the successful effort to gain Japan market access for Hawaiian biotech papaya in December 2011 and visited the University of Hawaii at Manoa where they had the opportunity to meet with the lead researchers on papaya gene flow studies. This project provided a unique opportunity to fully explore

the Hawaiian biotech papaya experience from technology development and IPR protection through the regulatory process, plantation and field management, and marketing.

- **November 5, 2012 - Symposium on Research, Development and Regulation of Cisgenic Plants (Taiwan FDA sponsored):**

The seminar was held in Taipei. Taiwan invited two speakers from the Netherlands, Dr. Ir, Henk J. Schouten of Plant Breeding and Dr. Jack H. Vossen of Biodiversity and Breeding, Plant Research International Wageningen University and Research Center. The titles of their speeches included 1. "Cisgenesis: A Practical Example and Safety Aspects for Food, Feed and Environment"; 2. "Compilation of Cisgenic R Gene Stacks Providing Durable Resistance to Late Blight in Potato" and 3. "Legal Aspects of New Plant Breeding Techniques". Dr. Chen, Jen-Chih of National Taiwan University gave a talk on "Development of Virus-induced Gene Silencing tools for Functional Studies in Plants".

- **November 11-17, 2012 - USGC LLP Mission to Taiwan**  
(U.S. cooperator sponsored):

USGC Taiwan brought Marta Zuluage Zilbermann of COCERAL, Janice Tranberg of CropLife Canada, Andrew Conner of USGC headquarters visited Taiwan agencies at the COA, TFDA and research institutes to introduce the updated development of Low Level Presence (LLP) in the world.

**STRATEGIES AND NEEDS:** Given Taiwan's unique political status, it is not a member of Codex. Taiwan generally adopts Codex guidelines but seeks greater understanding of the decision making process. Post would encourage having more biotech related international fora/discussions or workshops in Taiwan, which would provide Taiwan more exposure and enhanced familiarity with updated safety assessment technologies.

## **Section VI. Animal Biotechnology:**

### ***CHAPTER 2: ANIMAL BIOTECHNOLOGY***

#### ***PART E: PRODUCTION AND TRADE***

- a. **BIOTECHNOLOGY PRODUCT DEVELOPMENT:** The Animal Technology Institute Taiwan (ATIT) has successfully transferred a technology, which is using the mammary gland of transgenic-cloned pigs as a bioreactor to produce coagulation factor IX, to a private company for continued development for hemophilia treatment. Taiwan has set its research focus on biopharmaceutical uses, using biotech animals as molecular ranches. GE livestock (to include fowl) for food animals in Taiwan is not foreseen in the near future.

Taiwan National University and the Academia Sinica transferred ownership of GE fluorescent fish production to two private companies. These fluorescent fish are currently under field trial and are likely to be Taiwan's first commercialized biotech product. All of these fluorescent fish are infertile and are intended for ornamental use only.

- b. **COMMERCAIL PRODUCTION:** Currently, no GE animals are in commercial production.

- c. **BIOTECHNOLOGY EXPORTS:** Not applicable
- d. **BIOTECHNOLOGY IMPORTS:** Not applicable

#### ***PART F: POLICY***

- a. **REGULATION:** The Department of Animal Industry of COA is responsible for regulating GE livestock. To date, Taiwan has established only one regulation regarding animal biotechnology, "Regulations for Field Trial of Genetic Breeding Livestock (Fowl) and Bio-safety Assessment" in November 2002. The agency responsible for aquatic animals and plants is the Fisheries Agency of COA. Taiwan has established two regulations guiding biotech fishery products, the "Rules for the Field Trial of Transgenic Aquatic Animals and Plants", which was first promulgated in April 2009 and revised on May 27, 2012; and the "Management Rules for Breeding and Production of Transgenic Aquatic Animals and Plants" in May 24, 2012.

**The link for COA's Rules and Regulations is:**

**<http://law.coa.gov.tw/GLRSnewsout/EngLawQuery.aspx>**

**(Be noted that some regulations or administrative rules are not listed in this link and not all are in English.)**

- b. **LABELING AND TRACEABILITY:** Taiwan regulation requires a traceability labeling system and records must be kept for 5 years.
- c. **TRADE BARRIERS:** Not applicable.
- d. **INTELLECTUAL PROPERTY RIGHTS (IPR):** Taiwan does not grant patent protection to technology for development of GE plants and animals based on Article 24 of the Patent Act. This article stipulates that "an invention patent shall not be granted in respect of any of the following: animals, plants, and essential biological processes for the production of animals or plants, except processes for producing microorganisms; and that animals and aquatic plants and animals are not protected under this Act."
- e. **INTERNATIONAL TREATIES/FOR A:** Not applicable.

#### ***PART G: MARKETING***

- a. **MARKET ACCEPTANCE:** There have been minimal public conversations or debates on this issue.
- b. **PUBLIC/PRIVATE OPINIONS:** Not applicable, but, per consumer's general perception at this time, it seems that biotech products not for food use are easier to be accepted than that for food use by consumers.
- c. **MARKET STUDIES:** Not applicable.

#### ***PART H: CAPACITY BUILDING AND OUTREACH***

- a. **ACTIVITIES:** Not applicable. The United States and Taiwan engage at an annual "Scientific and Technology" meeting where scientific research proposals are reviewed for potential funding. The results of some of these projects may be relayed to third-market countries as outreach efforts.
- b. **STRATEGIES AND NEEDS:** Not applicable. Unless there is a product set to enter the commercial chain, Taiwan is unlikely to devote attention to the issue, resources are dominated by conversations regarding maximum residue levels and domestic food safety issues.

## Section VII. Author Defined:

### APPENDIX 1:

#### Biotech Products for Food, Feed, and Processing approved in Taiwan, as of May 7, 2013

##### Single trait approvals:

	UNIQUE IDENTIFIER	PRODUCT	NAME	EVENT	APPLICANT	DATE OF APPROVAL	DATE OF EXPIRATION
1	MON-Ø4Ø32-6	Soybean	Glyphosate tolerant Roundup Ready Soybean	40-3-2 (RRS)	Monsanto Far East Ltd., Taiwan Branch	July 22, 2002	<b>July 22, 2017</b>
2	MON-ØØ81Ø-6	Corn	Insect-resistant YieldGard Corn	MON810	Monsanto Far East Ltd., Taiwan Branch	October 15, 2002	<b>October 15, 2017</b>
3	MON-ØØ6Ø3-6	Corn	Glyphosate tolerant Roundup Ready Corn	NK603	Monsanto Far East Ltd., Taiwan Branch	April 11, 2003	<b>April 11, 2018</b>
4	SYN-BTØ11-1	Corn	Insect-resistant & Glufosinate tolerant Corn	Bt11	Syngenta Taiwan Ltd.	June 2, 2004	<b>June 2, 2013</b>
5	SYN-EV176-9	Corn	Insect-resistant & Glufosinate tolerant Corn	Event176	Syngenta Taiwan Ltd.	June 2, 2004	<b>June 2, 2013</b>
6	ACS-ZMØØ3-2	Corn	Glufosinate tolerant Corn	T25	Bayer Taiwan Ltd.	August 16, 2002	<b>August 16, 2017</b>
7	DAS-Ø15Ø7-1	Corn	Insect-resistant & Glufosinate tolerant Corn	TC1507	DuPont Taiwan	November 17, 2003	<b>November 17, 2013</b>
8	MON-ØØ863-5	Corn	Insect-resistant, YieldGard Rootworm Corn	MON863	Monsanto Far East Ltd., Taiwan Branch	October 16, 2003	<b>October 16, 2013</b>
9	DAS-59122-7	Corn	Insect-resistant & Glufosinate tolerant Corn	59122	DuPont Taiwan	December 21, 2005	<b>December 21, 2015</b>
10	MON-88Ø17-3	Corn	YieldGard Rootworm/	MON88017	Monsanto Far East Ltd.,	March 20, 2006	<b>March 20, 2016</b>

			Roundup Ready Corn		Taiwan Branch		
11	ACS- GM005-3	Soybean	Glufosinate tolerant Soybean	A2704-12	Bayer Taiwan Ltd.	May 1, 2007	<b>May 1, 2017</b>
12	SYN-IR604- 5	Corn	Insect-resistant Corn	MIR604	Syngenta Taiwan Ltd.	October 22, 2007	<b>October 22, 2017</b>
13	MON-89788- 1	Soybean	Roundup Ready 2 Yield Soybean	MON89788	Monsanto Far East Ltd., Taiwan Branch	December 28, 2007	<b>December 28, 2017</b>
14	MON- 00021-9	Corn	Glyphosate tolerant Corn	GA21	Syngenta Taiwan Ltd.	July 23, 2008	July 23, 2013
15	MON-89034- 3	Corn	Insect-resistant Corn	MON89034	Monsanto Far East Ltd., Taiwan Branch	July 25, 2008	July 25, 2013
16	SYN-IR162-4	Corn	Insect-resistant Corn	MIR162	Syngenta Taiwan Ltd.	April 20, 2009	April 20, 2014
17	DP-356043- 5	Soybean	Glyphosate and Acetolactate Synthase (ALS)- Inhibiting Herbicides Tolerant Soybean	DP- 356043-5	DuPont Taiwan Ltd.	May 11, 2009	May 11, 2014
18	DP-305423- 1	Soybean	High Oleic Soybean	DP- 305423-1	DuPont Taiwan Ltd.	July 23, 2010	July 23, 2015
19	SYN-E3272- 5	Corn	$\alpha$ -Amylase Corn	Event 3272	Syngenta Taiwan Ltd.	July 26, 2010	July 26, 2015
20	ACS- GM006-4	Soybean	Glufosinate tolerant Soybean	A5547-127	Bayer Taiwan Ltd.	August 31, 2010	August 31, 2015
21	MON-87701- 2	Soybean	Insect-Protected Soybean	MON87701	Monsanto Far East Ltd., Taiwan Branch	July 6, 2011	July 6, 2016
22	MON-87460- 4	Corn	Drought Tolerant Corn	MON87460	Monsanto Far East Ltd., Taiwan Branch	November 3, 2011	November 3, 2016
23	DAS-40278- 9	Corn	DAS-40278-9 Corn	DAS- 40278-9	Dow AgroSciences Taiwan Ltd.	November 7, 2011	November 7, 2016
24	MON-87427- 7	Corn	Maize with Tissue- Selective Glyphosate Tolerance Facilitating the	MON87427	Monsanto Far East Ltd., Taiwan Branch	October 24, 2012	October 24, 2017

			Production of Hybrid Maize Seed				
25	SYN-Ø53Ø7-1	Corn	Insect-resistant Corn	Event 5307	Syngenta Taiwan Ltd.	December 17, 2012	December 17, 2017
26	MON-877Ø5-6	Soybean	Low Saturated Fat and High Oleic Acid Soybean	MON87705	Monsanto Far East Ltd., Taiwan Branch	February 8, 2013	February 8, 2018
27	MON-877Ø8-9	Soybean	Dicamba-Tolerant Soybean	MON87708	Monsanto Far East Ltd., Taiwan Branch	April 2, 2013	April 2, 2018
28	BPS-CV-127-9	Soybean	Imidazolinone herbicides tolerant soybean	BPS-CV-127-9	BASF Taiwan Ltd.	April 16, 2013	April 16, 2018

### Stacked trait approvals

	UNIQUE IDENTIFIER	PRODUCT	NAME	EVENT	APPLICANT	DATE OF APPROVAL	DATE OF EXPIRATION
1	MON-89Ø34-3 x MON-88Ø17-3	Corn	YieldGard VT Triple PRO Corn	MON89034 x MON88017	Monsanto Far East Ltd., Taiwan Branch	February 17, 2009	February 17, 2014
2	MON-89Ø34-3 x MON-ØØ6Ø3-6	Corn	YieldGard VT PRO x Roundup Ready Corn 2	MON89034 x NK603	Monsanto Far East Ltd., Taiwan Branch	February 17, 2009	February 17, 2014
3	MON-88Ø17-3 x MON-ØØ81Ø-6	Corn	YieldGard VT Triple Corn	MON88017 x MON810	Monsanto Far East Ltd., Taiwan Branch	February 17, 2009	February 17, 2014
4	MON-ØØ81Ø-6 x MON-ØØ6Ø3-6	Corn	YieldGard x Roundup Ready Corn 2	MON810 x NK603	Monsanto Far East Ltd., Taiwan Branch	February 17, 2009	February 17, 2014
5	MON-ØØ863-5 x MON-ØØ81Ø-6x MONØØ6Ø3-6	Corn	YieldGard Plus x Roundup Ready Corn 2	MON863 x MON810 x NK603	Monsanto Far East Ltd., Taiwan Branch	March 04, 2009	March 04, 2014
6	MON-ØØ863-5 x	Corn	YieldGard Rootworm x Roundup Ready Corn 2	MON863 x	Monsanto Far East Ltd.,	May 25, 2009	May 25, 2014

	MONØØ6Ø 3-6			NK603	Taiwan Branch		
7	MON- ØØ863-5 x MON- ØØ81Ø-6	Corn	YieldGard Plus Corn	MON863 x MON810	Monsanto Far East Ltd., Taiwan Branch	July10, 2009	July10, 2014
8	SYN- BT011-1 x SYN-IR604- 5	Corn	Bt11 x MIR604 maize	Bt11 x MIR604	Syngenta Taiwan Ltd.	August 3, 2009	August 3, 2014
9	SYN- BT011-1 x MON- ØØØ21-9	Corn	Bt11 x GA21 maize	Bt11 x GA21	Syngenta Taiwan Ltd.	August 3, 2009	August 3, 2014
10	SYN-IR604- 5 x MON- ØØØ21-9	Corn	MIR604 x GA21 maize	MIR604 x GA21	Syngenta Taiwan Ltd.	August 3, 2009	August 3, 2014
11	SYN- BT011-1 x SYN-IR604- 5 x MON- ØØØ21-9	Corn	Bt11 x MIR604 x GA21 maize	Bt11 x MIR604 x GA21	Syngenta Taiwan Ltd.	August 3, 2009	August 3, 2014
12	MON- 89Ø34-3 x DAS- Ø15Ø7-1 x MON- 88Ø17-3 x DAS-59122- 7	Corn	MON89034 x TC1507 x MON88017 x DAS-59122-7 Corn	MON890 34 x TC1507 x MON880 17 x DAS- 59122-7	Monsanto Far East Ltd., Taiwan Branch	October 12, 2009	October 12, 2014
13	MON- 89Ø34-3 x DAS- Ø15Ø7-1 x MON- 88Ø17-3 x DAS-59122- 7	Corn	MON89034 x TC1507 x MON88017 x DAS-59122-7 Corn	MON890 34 x TC1507 x MON880 17 x DAS- 59122-7	Dow AgroScienc es Taiwan Ltd.	October 12, 2009	October 12, 2014
14	DAS- Ø15Ø7-1 x MON- ØØ603-6	Corn	TC1507xDAS-59122-7 Maize	TC1507 x DAS- 59122-7	DuPont Taiwan Ltd.	December 02, 2009	December 12, 2014
15	Ø15Ø7-1 x DAS-59122- 7	Corn	TC1507xNK603 Maize	TC1507 x NK603	DuPont Taiwan Ltd.	December 15, 2009	December 15, 2014
1	DAS-59122-	Corn	DAS-59122xTC1507xNK603	DAS-	DuPont	December	December

6	7 x DAS- Ø15Ø7-1 x MON- ØØ603-6		Maize	59122 x TC1507 x NK603	Taiwan Ltd.	15, 2009	15, 2014
1 7	DAS-59122- 7 x MON- ØØ603-6	Corn	DAS-59122xNK603 Maize	DAS- 59122 x NK603	DuPont Taiwan Ltd.	January 3, 2011	January 3, 2016
1 8	MON-ØØ6Ø 3-6 x ACS- ZMØØ3-2	Corn	NK603xT25	NK603 x T25	Monsanto Far East Ltd., Taiwan Branch	May 30, 2011	May 30, 2016
1 9	DAS- Ø15Ø7-1 x DAS-59122- 7 x MON- ØØ81Ø-6 x MON- ØØ6Ø3-6	Corn	TC1507xDAS-59122-7 xMON810xNK603	TC1507 x DAS- 59122-7 x MON810 x NK603	DuPont Taiwan Ltd.	May 30, 2011	May 30, 2016
2 0	DAS- Ø15Ø7-1 x MON- ØØ81Ø-6 x MON- ØØ6Ø3-6	Corn	TC1507xMON810xNK603	TC1507 x MON810 x NK603	DuPont Taiwan Ltd.	May 30, 2011	May 30, 2016
2 1	SYN- BTØ11-1 x SYN-IR162- 4 x SYN- IR6Ø4-5 x MON- ØØØ21-9	Corn	Bt11xMIR162xMIR604xGA21	Bt11 x MIR162 x MIR604 x GA21	Syngenta Taiwan Ltd.	May 30, 2011	May 30, 2016

2 2	SYN- BTØ11-1 x SYN-IR162- 4 x MON- ØØØ21-9	Corn	Bt11xMIR162xGA21	Bt11 x MIR162 x GA21	Syngenta Taiwan Ltd.	May 30, 2011	May 30, 2016
2 3	MON- 89Ø34-3 x DAS- Ø15Ø7-1 x MON- ØØ6Ø3-6	Corn	MON89034xTC1507xNK603	MON890 34 x TC1507 x NK603	Dow AgroScienc es Taiwan Ltd.; Monsanto Far East Ltd., Taiwan Branch	August 22, 2011	August 22, 2016
2 4	SYN-E3272- 5 x SYN- BTØ11-1 x SYN- IR6Ø4-5 x MON- ØØØ21-9	Corn	3272xBt11xMIR604xGA21	3272 x Bt11 x MIR604 x GA21	Syngenta Taiwan Ltd.	September 5, 2011	September 5, 2016
2 5	SYN- BTØ11-1 x SYN-IR162- 4 x DAS- Ø15Ø7-1 x MON- ØØØ21-9	Corn	Bt11xMIR162xTC1507xGA21	Bt11 x MIR162 x TC1507 x GA21	Syngenta Taiwan Ltd.	October 14, 2011	October 14, 2016
2 6	DAS- Ø15Ø7-1 x SYN- IR6Ø4-5 x MON- ØØ6Ø3-6	Corn	TC1507xMIR604xNK603 Maize	TC1507 x MIR604 x NK603	DuPont Taiwan Ltd.	December 1, 2011	December 1, 2016
2 7	DP-3Ø5423- 1 x MON-	Soybean	DP-305423-1 x 40-3-2 Soybean	DP- 305423- 1 x 40-3-2	DuPont Taiwan Ltd.	June 11, 2012	June 11, 2017

	Ø4Ø32-6						
28	MON-8746Ø-4 x MON-ØØ6Ø 3-6	Corn	MON87460xNK603Corn	MON874 60 x NK603	Monsanto Far East Ltd., Taiwan Branch	July 27, 2012	July 27, 2017
29	MON-8746Ø-4 x MON-89Ø34-3 x MON-88Ø17-3	Corn	MON87460xMON89034xMON88017 Corn	MON874 60 x MON890 34 x MON880 17	Monsanto Far East Ltd., Taiwan Branch	July 27, 2012	July 27, 2017
30	MON-8746Ø-4 x MON-89Ø34-3 x MON-ØØ6Ø 3-6	Corn	MON87460xMON89034xNK603 Corn	MON874 60 x MON890 34 x NK603	Monsanto Far East Ltd., Taiwan Branch	July 27, 2012	July 27, 2017
31	SYN-BTØ11-1 x DAS-59122-7 x SYN-IR6Ø4-5 x DAS-Ø15Ø7-1 x MON-ØØØ21-9	Corn	Bt11xDAS-59122-7xMIR604xTC1507xGA21	Bt11 x DAS-59122-7 x MIR604 x TC1507 x GA21	Syngenta Taiwan Ltd.	July 27, 2012	July 27, 2017
32	DAS-Ø15Ø7-1 x DAS-59122-7 x MON-ØØ81Ø-6x SYN-IR6Ø4-5 x MON-ØØ6Ø3-6	Corn	TC1507xDAS-59122-7xMON810xMIR604xNK603	TC1507 x DAS-59122-7 x MON810 x MIR604 x NK603	DuPont Taiwan Ltd.	July 27, 2012	July 27, 2017
33	MON-877Ø1-2 x MON-89788-1	Soybean	MON87701 x MON89788 Soybean	MON877 01 x MON897 88	Monsanto Far East Ltd., Taiwan Branch	September 24, 2012	September 24, 2017

3 4	DAS- Ø15Ø7-1 x MON- ØØ81Ø-6x SYN-IR162- 4 x MON- ØØ6Ø3-6	Corn	TC1507 x MON810 x MIR162 x NK603 Corn	TC1507 x MON810 x MIR162 x NK603	DuPont Taiwan Ltd.	May 2, 2013	May 2, 2018
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### Discontinued Products or Expired Approvals

	UNIQUE IDENTIFIER	PRODUCT	NAME	EVENT	APPLICANT	DATE OF APPROVAL	DATE OF EXPIRATION
1	MON-ØØØ21-9	Corn	Glyphosate tolerant Roundup Ready Corn	GA21	Monsanto Far East Ltd., Taiwan Branch	July 22, 2003	July 22, 2008
2	DKB-89614-9	Corn	Insect-resistant & Glufosinate tolerant Corn	DBT418	Monsanto Far East Ltd., Taiwan Branch	October 16, 2003	October 16, 2008
3	DKB-8979Ø-5	Corn	Glufosinate tolerant Corn	DLL25	Monsanto Far East Ltd., Taiwan Branch	October 20, 2003	October 20, 2008
4	REN-ØØØ38-3	Corn	Lysine Maize	LY038	Monsanto Far East Ltd., Taiwan Branch	November 20, 2006	November 20, 2011