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Agricultural Biotechnology Annual

Philippine Biotechnology Situation and Outlook

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Report Highlights:
The Philippine biotechnology regulatory system remains science-based and the country is increasingly being looked up to for guidance on biotechnology policy and regulations by other developing countries. Commercialization of the first locally developed genetically enhanced crop (Bt eggplant) will likely take place by early 2013, and Golden Rice is likely to follow shortly there after. There have been no reported biotechnology related trade disruptions, and U.S. exports of GE products continued to grow in 2010. Philippine agricultural policy remains food security oriented and policy developments have been positive. However, in the recently approved Philippine Development Plan, there are provisions that support the labeling of foods derived from GE products, as well as a precautionary approach to environmental risk assessments.

Section I. Executive Summary:

The Philippine biotechnology regulatory system continues to evolve but remains science-based. Under the current regulatory regime as provided for by the Philippine Department of Agriculture's Administrative Order No. 8 (DA-AO 8)**,** 32 transformation events (TEs) and 27 stacked-trait products have been approved for direct use as food, feed or for propagation. There are eight (8) biotech crop varieties approved for propagation while 13 field tests have been allowed since 2004. Guided by DA-AO 8, the first genetically enhanced (GE) crop being developed locally, the Fruit and Shoot Borer (FSBR) Resistant or *Bacillus thuringiensis* (Bt) eggplant, will likely be commercialized by early 2013. The commercial release of Golden Rice is expected to follow shortly there after.

The adoption of GE corn, the only GE crop currently approved for cultivation in the Philippines, has been phenomenal. Since 2003, the area devoted to GE corn has increased 50-fold. In 2010, despite overall corn area declining from the previous year's level as a result of an El Nino weather disturbance, area cultivated with GE corn still increased. GE corn in 2010 comprised 22 percent of overall Philippine corn area and is poised to again increase in 2011, weather permitting. The dramatic increase in adoption rate of GE corn seed use is a testament to the benefits it brings to local corn farmers, in addition to its positive contribution to the economy and the environment.

U.S. agricultural exports to the Philippines with possible derivation from modern agricultural biotechnology continued to grow in 2010. From 2003-2010, U.S. exports increased more than 245 percent from $142 million to $492 million. Soybean-based products accounted for the majority share (73 percent) of exports in 2010 while sweeteners posted the greatest increase (693 percent) from the 2003 level. In 2010, U.S. exports of soybean meal, feeds and fodders, sweeteners and vegetable oil all reached their highest export levels since at least 1970.

The country continues to be a regional leader in biotechnology and other developing countries are increasingly looking to the Philippines for guidance on biotechnology policy and regulations. Despite the gains realized since its introduction in 2003, there are still isolated pockets of resistance to modern agricultural biotechnology in the Philippines. In the recently approved 2011-2016 Philippine Development Plan, there are also provisions that support the labeling of foods derived from GE products, as well as a precautionary approach to environmental risk assessments.

Section II. Plant Biotechnology Trade and Production:

As of July 2011, there were eight (8) GE crop varieties approved for commercial production. This consisted of five (5) TEs and three (3) stacked or combined trait products (refer to Annex II and Annex II-A, respectively). All the GE crop varieties approved for propagation were corn. Since 2003, when the first GE corn crop was planted, the area devoted to GE corn has increased 50-fold through 2010.

In 2010, the Philippine Bureau of Plant Industry (BPI) estimated the total area planted with GE corn at 543 thousand hectares, a significant 66 percent increase from the 327 thousand hectares planted in 2009. About 75 percent of all GE corn planted in 2010 was located in the main island of Luzon. Stacked trait GE corn comprised over 90 percent of all Philippine GE corn planted during the year. It is noteworthy that while GE corn area in 2010 increased from the previous year's level, the area devoted to overall corn production declined from the 2009 level due to an El Nino-induced drought. According to the January 2011 Rice and Corn Situation and Outlook of the Philippine Bureau of Agricultural Statistics, the aggregate corn area harvested in 2010 was 2.5 million hectares or 7 percent

below the 2.7 million hectares of area recorded in 2009. In 2010, GE corn accounted for roughly 22 percent or over a 5th of all Philippine corn areas, compared to the 13 percent share during the previous year. For 2011, continued rains are again likely to encourage more corn production and an increase in share of GE corn seed. The following is a table on GE corn area from 2003 to 2010.

AGGREGATE DATA OF GE CORN PLANTED 2003-2010 (hectares)								
	2003	2004	2005	2006	2007	2008	2009	2010
				Bt Corn				
LUZON	10,158	48,516	43,735	85,702	103,438	68,301	38,507	37,115
VISAYAS	24	534	445	405	2,551	298	0	0
MINDANAO	587	10,706	5,829	10,693	16,604	13,053	9,516	3,120
Total	**10,769**	**59,756**	**50,009**	**96,800**	**122,593**	**81,652**	**48,023**	**40,235**
				RR Corn				
LUZON				11,685	54,509	5,471	3,518	642
VISAYAS				4,424	8,925	4,571	2,790	0
MINDANAO				10,384	56,589	41,443	40,501	8,048
Total				**26,493**	**120,023**	**51,485**	**46,809**	**8,690**
				Stacked (Bt + RR)				
LUZON				3,879	59,346	158,520	183,771	373,079
VISAYAS				232	2,472	7,074	8,006	5,366
MINDANAO				469	9,461	48,844	40,618	115,153
Total				**4,580**	**71,279**	**214,438**	**232,395**	**493,598**
GRAND TOTAL	**10,769**	**59,756**	**50,009**	**127,873**	**313,895**	**347,575**	**327,226**	**542,522**

*Bt –*Bacillus thuringiensis*
*RR – Roundup Ready

Source of Data: Bureau of Plant Industry

The dramatic adoption of GE corn in the Philippines mirrors the global trend in overall GE crop adoption. In its 2010 annual report, the International Service for the Acquisition of Agri-biotech Applications (ISAAA) noted that GE crops were planted in 148 million hectares by an estimated 15.4 million farmers from 29 countries. The accumulated area since the first GE crop was planted in 1996 exceeded 1 billion hectares in 2010. The ISAAA report describes the dramatic growth as "the fastest-adopted crop technology in the history of modern agriculture". In the report, the Philippines ranked 13th among 209 countries (including several EU countries) with the largest GE crop planted area. Additionally, developing countries were expected to have the most increase in GE crop adoption in the near future. Highlights of the 2010 ISAAA report are provided in the following link:

http://www.isaaa.org/resources/publications/briefs/42/executivesummary/default.asp

A similar report entitled "GM crops: global socio-economic and environmental impacts 1996-2009" by Graham Brookes, (director of UK-based PG Economics Ltd) and co-authored by Peter Barfoot, was released in April 2011. According to the report, biotech crops provided for less fuel use and an increase in no-till farming, thus leading to reduction of CO_2 emission by 17.7 billion kg in 2009 (equal

to removing 7.8 million cars from the road for one year). Also according to the report, GE crops have reduced pesticide spraying (1996-2009) by 393 million kg (-8.7%) and as a result, have decreased the environmental impact associated with herbicide and insecticide use on the area planted to biotech crops by 17.1 percent. Without biotechnology, the report notes, maintaining global production at the 2009 level would have needed plantings of an additional 3.8 million hectares of soybeans, 5.6 million hectares of corn, 2.6 million hectares of cotton and 0.3 million hectares of canola. The total area requirement would be about 7 percent of the arable land in the United States, or 24 percent of the arable land in Brazil. Excerpts from the Brookes and Barfoot report are provided in the following link:

http://www.bsba.ag/BSBA/NewsBg/Entries/2011/4/13_GM_crops__global_socio-economic_and_environmental_impacts_1996-_2009.html

The latest list of regulated articles approved for field testing in the Philippines is provided in the following table. As of July 2011, there were 13 GE crop field trials approved, (i.e., 11 corn and 2 papaya field tests), up from 11 recorded in the previous annual report.

APPROVAL REGISTRY FOR FIELD TESTING OF REGULATED ARTICLES

(As of July 6, 2011)

Proposal	Technology Developer	Date Approved
1. Demonstration of Weed Control Performance of Roundup Ready Corn (RRC) System DK818 NK603 *vis-a-vis* Farmers' Practices	Monsanto Philippines	Nov. 26, 2004
2. Performance of Roundup Herbicide (360 g ae/L IPA Salt) Against Weeds in Glyphosate-Tolerant corn	Monsanto Philippines	Nov. 26, 2004
3. Field Verification of the Agronomic Performance of the Transgenic Corn (*Zea mays* L.) Hybrid Stacked (NK603/MON810) Expressing the *Bacillus thuringiensis Cry1Ab* Protein for Resistance against the Asiatic Corn Borer (*Ostrinia furnacalis* Guenee) and *CP4EPSPS* for Tolerance Against the Herbicide Roundup	Monsanto Philippines	Dec. 10, 2004
4. Performance of Herculex 1 Bt Transgenic Corn Hybrids Against Asiatic Corn Borer (*Ostrinia furnacalis* Guenee) Under Field Conditions in the Philippines	Dow AgroSciences	May 2, 2006
5. Field Testing of Transgenic Papaya with Delayed Ripening Trait	Institute of Plant Breeding - Crop Science Cluster, UP, Los Baños, Laguna	Mar. 20, 2007
6. Multi-location Field Efficacy Verification Trial of Herbicide Tolerant Maize Expressing Event GA21 Against Glyphosate Herbicide in the Philippines	Syngenta Philippines	Nov. 19, 2007
7. Agronomic Equivalency Trial of MON89034 Hybrids with Regulatory Framework in the Philippines	Monsanto Philippines	Aug. 1, 2008
8. Field Verification of the Agronomic Performance of Transgenic Corn (*Zea mays* L.) line MON89034 Expressing *the Bacillus thuringiensis* Cry1A.105 and Cry2Ab Proteins for Efficacy Against Lepidopterous Pest of Corn	Monsanto Philippines	Aug. 1, 2008
9. Field Verification for the Agronomic Performance of Stacked Hybrid Corn (*Zea mays* L.) MON89034 x NK603 Expressing the *Bacillus thuringiensis* Cry1A.105 and Cry2Ab2 Proteins for Efficacy Against Lepidopterous Pests of Corn and CP4EPSPS for Tolerance of Round up Herbicide	Monsanto Philippines	Aug. 1, 2008
10. Multi-location Field Efficacy Trial of Corn Hybrid Expressing the Stacked Trait BT11 x GA21 Against the Asiatic Corn Borer and Glyphosate Herbicide in the Philippines	Syngenta Philippines	Oct. 28, 2009
11. Development and Commercialization of Philippine Fruit and Shoot Borer (FSB) Resistant Eggplants Containing MAHYCO Bt Eggplant Event, EE-1: Multi location Field Trials for Biosafety Assessment, Variety Accreditation and Fertilizer and	University of the Philippines Los Banos	Mar. 16, 2010 and

Pesticide Authority (FPA) Registration		June 28, 2010
12. Field Verification of the Agronomic Performance of Transgenic corn (Zea mays L.) Line TC1507 Expressing the Bacillus thuringiensis Proteins for Efficacy Against Asiatic Corn Borer and the PAT Proteins for tolerance to Glufosinate Herbicide	Pioneer Hi-Bred Philippines	April 19, 2011
13. Field Verification of the Agronomic Performance of Transgenic Corn (Zea mays L.) Hybrid Stacked (TC1507 x MON810 x NK603) Expressing the Bacillus thuringiensis Proteins for Efficacy Against Asiatic Corn Borer and the Proteins PAT and CP4-EPSPS for Tolerance to Glufosinate and Glyphosate Herbicides	Pioneer Hi-Bred Philippines	April 19, 2011

Source of Data: Bureau of Plant Industry

The multi-location trials of the FSBR eggplant (no. 11) by the University of the Philippines at Los Banos are expected to produce the first commercialized GE crop developed locally. According to industry contacts, FSBR eggplant should be commercially available by 2013. Commercialization would have been earlier had it not been for resistance and opposition due to the lack of public consultations and support as required by existing biotechnology rules.

As mentioned in the previous annual report, the Golden Rice Project is under the supervision of the National Committee on Biosafety of the Philippines (NCBP) and, therefore, is not listed in the approval registry for field testing of regulated articles. According to contacts, the submission of the full application for its commercial planting may happen by 2013 or following the FSBR eggplant commercialization.

The following table shows U.S. agricultural exports to the Philippines that possibly were derived from modern agricultural biotechnology from 2003-2010. U.S. exports to the Philippines increased more than 245 percent from $142 million to $492 million. Soybean-based products accounted for the majority share (73 percent) of exports in 2010 with sweeteners posting the greatest increase (272 percent) from the 2009 level. In 2010, U.S. exports of soybean meal, feeds and fodders, sweeteners and vegetable oil all reached their highest export levels since at least 1970.

CY US Exports to the Philippines (In Thousand $) 2003-2010										
									% Change	
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**03/10**	**09/10**
Soybean Meal	56,658	75,049	119,829	123,329	189,872	243,909	317,075	325,917	475.24	2.79
Feeds & Fodders	9,224	13,690	17,899	33,265	41,715	53,026	50,376	72,286	683.67	43.49
Soybeans	41,872	51,831	48,042	25,525	26,814	26,297	24,761	30,261	-27.73	22.21
Sweeteners	10,071	7,400	5,431	9,842	11,492	15,751	11,287	41,950	316.54	271.67
Coarse Grains	148	214	14,179	192	776	802	3,922	842	468.92	-78.53
Cotton	21,073	32,080	19,836	13,295	11232	8,360	19,187	13,922	-33.93	-27.44
Vegetable Oil	3,071	3,733	3,347	3,506	4,694	4,756	4,689	5,971	94.43	27.34
Soybean Oil	82	148	105	138	115	1,020	825	650	692.68	-21.21
TOTALS	**142,199**	**184,145**	**228,668**	**209,092**	**286,710**	**353,921**	**432,122**	**491,799**	**245.85**	**13.81**

Source: BICO Reports

The current biotechnology regulations require all shipments of regulated articles to the Philippines be accompanied by a corresponding declaration of genetically modified organism (GMO) content. The GMO declaration may be issued by a responsible officer from the country of origin; an accredited laboratory; the shipper; and/or the importer. A list of these regulated articles is provided in Annex I and Annex I-A.

Section III. Plant Biotechnology Policy:
The Philippine agricultural biotechnology regulatory regime is embodied in the DA-AO 8. The responsible Philippine government regulatory agencies and their roles in relation to Philippine biotechnology regulations remain unchanged as reported in the previous annual report. The BPI continues to be the lead-agency in implementing the science-based DA-AO 8. Under the current regulations, 32 TEs have been approved for food, feed or processing materials (see Annex I), marginally higher than the 31 approved TEs posted in the previous annual report. In addition, there were 27 approved stacked trait products as of July 2011, up from the 22 approved products reported in the previous annual report. A summary of approved stacked or combined trait products is provided in Annex I-A.

Philippine elections were held May 2010 and President-elect Benigno Aquino III officially assumed office in July 2010. In a message issued during the November 2010 Philippine National Biotechnology Week, President Aquino recognized and extolled the vital role of biotechnology in the national economy, particularly the agriculture sector.

On May 13, 2011, President Aquino signed Executive Order No. 43 creating five (5) Cabinet clusters that will direct all efforts to address the key priority areas of his Administration. The clusters are: Good Governance and Anti-Corruption; Human Development and Poverty Reduction; Economic Development; Security, Justice and Peace; and Climate Change Adaptation and Mitigation (CCAM).

The CCAM cluster is chaired by the Secretary of the Philippine Department of Environment and Natural Resources, with the Climate Change Commission (CCC) as Secretariat, chaired by President Aquino. The CCAM cluster has the following as members:

- Chair, Housing and Urban Development Coordinating Council
- Secretary, Department of Science and Technology
- Secretary, Department of the Interior and Local Government
- Secretary, Department of Public Works and Highways
- Secretary, Department of Social Welfare and Development
- Secretary, Department of Agriculture
- Secretary, Department of Agrarian Reform
- Secretary, Department of Energy
- Secretary, Department of National Defense
- Chair, Metropolitan Manila Development Authority

Ensuring food security continues to be a major priority of the GPH and as a result, the DA and the CCC

have placed adaptation and disaster management at the top of its agricultural climate change concerns. This observation was confirmed by the recent visit to the Philippines by an inter-agency team under the USG's Enhancing Capacity for Low Emissions Development Strategies initiative.

On the issue of halal certification of GE food products, foods derived from GE products are now subject to halal certification, according to the amended Philippine National Standard or PNS 2067/2008 Amd 01:2011. Halal is a term used to designate food seen as permissible according to Islamic law (Sharia,). Previously, the PNS for Halal Food did not allow halal certification of GE foods. The Philippine DA is also drafting the Halal Standards on Agriculture and Fishery Products; the Code of Halal Slaughtering Practices for Poultry, and the Code of Halal Slaughtering Practices for Large Ruminants. All 3 standards are expected to help the Philippines penetrate the lucrative halal market.

Increased global trade of GE products will also be enhanced once a low-level presence policy is established in the Philippines. The Philippine DA, according to contacts, is set to hold sectoral and regional consultations in the near future where GE threshold levels are expected to be discussed.

Other recent GPH development issuances, however, have not been as encouraging. In the recently approved 2011-2016 Philippine Development Plan (PDP), which outlines the legislative agenda of the Aquino government, a provision calling for the labeling of raw materials sourced from GE products is included as part of efforts to standardize the food safety and certification system in the Philippines. A proposed bill called the "Genetically Engineered Food Right to Know Act" is currently pending in the Philippine Senate and the House of Representatives. The PDP likewise supports a precautionary approach in environment risk assessments.

Section IV. Plant Biotechnology Marketing Issues:

The overall support on the responsible use of modern agricultural biotechnology remains strong although there are still some pockets of resistance. There are currently six (6) municipal or provincial resolutions that restrict GE crop testing and/or cultivation. While some provinces have instituted these bans, many farmer groups want better access to GE seeds. This is particularly the case with GE corn. The fact that multiple international corn seed companies have made sizeable investments in the country in 2010 corroborates this observation.

Section V. Plant Biotechnology Capacity Building and Outreach:

Other developing countries are increasingly looking to the Philippines for guidance on biotechnology policy and regulations. The country has hosted delegations from Indonesia and Nigeria and has provided key speakers in several international biotechnology events. More international events that feature Filipino scientists and the Philippine biotechnology experience are expected in the near future.

In the Philippines, communication strategies that inform the public on the economic, environmental and food security benefits of agricultural biotechnology are encouraged. This strategy is consistent with the recommendation of the 2010 Asia Pacific Economic Cooperation (APEC) High Level Policy Dialogue on Agricultural Biotechnology held in Sapporo, Japan, which highlighted the importance of strategic communication to gain widespread acceptance of biotechnology. The fact that there has been no ill-health related incident in its 15 years of use is also used to promote biotechnology in the country.

A FY2010 EMP agricultural biotechnology regulatory outreach activity was successfully carried out in late September 2010 wherein local regulators met and discussed with their U.S. counterparts pertinent

biotechnology issues and developments. The Philippine delegation was also able to meet technology developers and provided a preview on what to expect in the near future in relation to pipeline projects soon to be commercialized. A follow up activity has been proposed.

Section VI. Animal Biotechnology:

There are currently no Philippine research and development projects on transgenic animals, although there is local interest in the topic. A Philippine team is set to participate in a GE animal workshop organized by the International Centre for Genetic Engineering and Biotechnology and the United Nations-University Program for Biotechnology in Latin America and the Caribbean. The workshop will be held in Argentina on September 2011. An APEC GE Animal Regulatory and Risk Communication Workshop for APEC-member countries is expected to optimize the participation of delegates from the Philippines during the Argentina event.

Section VII. Author Defined:

ANNEX I - APPROVAL REGISTRY FOR THE IMPORTATION OF REGULATED ARTICLES FOR DIRECT USE AS FOOD AND FEED OR FOR PROCESSING

(As of July 5, 2011)

Transformation Event	Introduced Trait and Gene	Date Approved	Safety Assessment		Technology Developer	Other Countries with Similar Approval
			Food	Feed		
1. Alfalfa J101 and J163	Contains *cp4epsps* coding sequence from *Agrobacterium* sp strain, CP4 which confers tolerance to the Roundup family of agricultural herbicides	08/09/2006	✓	✓	Monsanto Philippines	USA and Canada
2. Corn 59122	Contains *cry34Ab1* and *cry35Ab1* from *Bacillus thuringiensis*, which confers resistance to certain coleopteran pests such as corn rootworm, *Diabrotica* sp. and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate- ammonium herbicides	08/09/2006	✓	✓	Pioneer Hi-Bred and Dow AgroSciences	USA, Korea and Mexico
3. Corn MIR604	Contains modified cry3A (mCry3A) from *Bacillus thuringiensis* subsp. *tenebriones* which confers resistance to corn rootworm	10/08/2007	✓	✓	Syngenta Philippines	USA, South Korea, Australia and New Zealand
4. Soybean MON89788	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. Strain, CP4 which confers resistance tolerance to Round up family of agricultural herbicides	11/16/2007	✓	✓	Monsanto Philippines	USA
5. Corn MON810	Contains *cry1A(b)* gene from	12/03/2007			Monsanto	Canada, China,

	Bacillus thuringiensis var. *kurstaki* which confers resistance to corn borer	(renewal)	✓	✓	Philippines	European Union, Japan, Korea, Russia, Slovak Republic, Spain, south Africa, Switzerland, USA, Uruguay, Australia and New Zealand, Honduras, Mexico, Colombia and Taiwan (food and feed)
6. Corn 3272	Expresses a synthetic thermostable alpha amylase protein AMY797E that catalyzes the hydrolysis of starch into soluble sugars	02/07/2008	✓	✓	Syngenta Philippines	USA
7. Corn Bt11	Contains the *Bt* protein from *Bacillus thuringiensis* and *PAT* protein from *Streptomyces viridochromogenes* which confer resistance to corn borer and tolerance to herbicide respectively	07/22/2008 (renewal)	✓	✓	Syngenta Philippines	Argentina, USA Canada Japan, European Union, Switzerland, Republic of South Africa Korea, China, Colombia and Mexico (food and feed); United Kingdom, Taiwan and Russia (food); the Netherlands feed)
8. Soybean 40-3-2	Contains *cp4epsps* coding sequence from *Agrobacterium* sp strain, CP4 which confers resistance tolerance to Round up family of agricultural herbicides	07/22/2008 (renewal)	✓	✓	Monsanto Philippines	Argentina, Bolivia, Brazil, Canada, China, European Union, Japan, Mexico, Paraguay, Russia, south Africa, Switzerland, USA, the Netherlands, Denmark, Romania, Czech Republic, Poland (food and feed); Australia and New Zealand, Korea, Malaysia, Taiwan, Thailand (food)
9. Corn NK603	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. CP4 strain which confers tolerance to the Roundup family of agricultural herbicides	09/10/2008 (renewal)	✓	✓	Monsanto Philippines	Argentina, Australia, New Zealand, Canada, China, Colombia, EU, Honduras, Japan, Korea, Mexico, Russia, Singapore, South Africa, Taiwan and United States.
10. Corn MON863	Contains *cry3Bb1* gene from *Bacillus thuringiensis* subsp *kumamotoensis* which confers resistance to corn rootworm	10/07/2008 (renewal)	✓	✓	Monsanto Philippines	Australia and New Zealand, Canada, China, EU, Japan, Korea, Mexico, Russia, Singapore, Taiwan and United

						States
11. Corn 1507	Contains *Cry1F* and *PAT* proteins which confer resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp)	10/07/2008 (renewal)	✓	✓	Pioneer Hi-Bred and Dow AgroSciences	USA, Japan, Canada, Australia, New Zealand, Taiwan, EU, South Korea, Mexico, China, South Africa, Argentina, Colombia
12. Corn DBT418	Contains *cry1Ac* gene from *Bacilllus thuringiensis* and the *bar* gene from *Streptomyces hrygroscopicus* that confers tolerance to the herbicide, phosphinotricin	10/22/2008 (renewal)	✓	✓	Monsanto Philippines	Argentina, Australia, New Zealand, Canada, Japan, Korea, Taiwan, United States.
13. Canola Rt 73	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. CP4 strain and the *GOXv247* coding sequence from *Ochrobactrum anthropi* strain LBAA that confers tolerance to the Roundup family of agricultural herbicides	10/22/2008 (renewal)	✓	✓	Monsanto Philippines	Australia, New Zealand, Canada, China, EU, Japan, Korea, Mexico, Singapore, United States.
14. Corn BT176	Contains Bt protein from *Bacillus thuringiensis* and *PAT* protein from *Streptomyces viridochromogenes* which confers tolerance to lepidopteran insect pest	10/24/2008 (renewal)	✓	✓	Syngenta Philippines	USA, Canada, Argentina, Japan, Netherlands, Switzerland, South Africa, Korea, China (food and feed) UK, Denmark, Australia, Taiwan (food)
15. Corn GA21	Contains modified *epsps* gene from corn which confers tolerance to herbicides	11/20/2008 (renewal)	✓	✓	Syngenta Philippines	USA, Canada, Japan, Korea, EU, China South Africa Mexico, Russia (food an feed); Australia and Taiwan (food)
16. Corn DLL25	Contains the *bar gene* from bacterium, *Streptomyces hygroscopicus* that confers to herbicide , phosphinotricin	10/22/2008 (renewal)	✓	✓	Monsanto Philippines	USA, Argentina, Canada and China
17. Corn T25	Contains *PAT* protein from *Streptomyces viridochromogenes* which encodes for tolerance to herbicide, phosphinotricin	12/05/2008 (renewal)	✓	✓	Bayer CropScience	USA, Europe, Switzerland, South Korea, South Africa, Argentina, Japan, Australia, New Zealand, China, Canada, Russia, Taiwan
18. Cotton 1445	Contains *cp4epsps* coding sequence from *Agrobacterium* sp strain, CP4 which confers tolerance to the Roundup family of agricultural herbicides	12/05/2008 (renewal)	✓	✓	Monsanto Philippines	Argentina, Australia, New Zealand, Canada, China, Colombia, EU, Japan, Korea, Mexico, Singapore, South Africa, United States
19. Cotton 15985	Contains the *cry2Ab2* and	12/05/2008			Monsanto	Australia, New

	cry1Ac genes which encode proteins that convey protection from lepidopteran insect pests	(renewal)	✓	✓	Philippines	Zealand, Canada, China, EU, Japan, Korea, Mexico, Singapore, South Africa, United States
20. Potato BT6 (RBBT 02-06) & SPBT 02-05	Contains *cryIIIA* coding sequence from *Bacillus thuringiensis* subsp. t*enebriones* for tolerance to Colorado potato beetle	12/05/2008 (renewal)	✓	✓	Monsanto Philippines	Canada, Mexico and USA (Food and Feed); Japan and Korea (food)
21. Potato RBMT15-101, SEMT 15-02 & SEMT 15-15	Contains *cryIIIA* coding sequence from *Bacillus thuringiensis* subsp *tenebriones* strain B1256-82, which confers resistance to Colorado potato beetle and the PVY coat protein (PVYcp) isolated from PVY infected potatoes which confers resistance to the potato virus Y (PVY)	12/22/2008 (renewal)	✓	✓	Monsanto Philippines	Australia, Canada, Mexico and USA (food and feed); Japan and Korea (food)
22. Soybean A2704-12	Contains *pat* gene which confers tolerance to glufosinate ammonium herbicide	01/23/2009	✓	✓	Bayer CropScience	Canada, Argentina, Australia, China, EU, Japan, Mexico, Russia, South Africa, USA (food and feed); New Zealand and Taiwan (food)
23. Cotton 531	Contains *cry1Ac* gene form *Bacillus thuringiensis* var. *kurstaki* which confers resistance to lepidopteran pests	02/05/2009 (renewal)	✓	✓	Monsanto Philippines	Argentina, Canada, China, Colombia, EU, Japan Singapore, USA (food and feed) Australia, New Zealand, Korea, Thailand (food)
24. Corn MON89034	Contains two genes (*cry1A.105 and cry2Ab2*) from *Bacillus thuringiensis* which protect the plant from Asiatic corn borer, common cutworm and corn earworm	04/29/2009	✓	✓	Monsanto Philippines	USA, Canada,, Japan, Mexico and Colombia
25. Potato RBMT21-129, RBMT21-350 and RBMT22-82	Contains *cryIIIA* coding sequence which confers resistance to Colorado potato beetle and resistance to potato leaf roll virus	10/16/2009 (renewal)	✓	✓	Monsanto Philippines	Australia, USA, Japan (food and feed); Canada and Korea (food)
26. Soybean DP356043	Contains the *gat4601* gene derived from *Bacillus licheniformis* conferring tolerance to glyphosate and ALS (acetolactate synthase) inhibiting herbicides	11/26/2009	✓	✓	Pioneer Hi-Bred	USA, Canada, Mexico, EU, Japan, Taiwan, China, Korea, (food and feed)
27. Corn MIR162	Contains two novel genes: vip3Aa20 gene from *Bacillus thuringiensis* resistance to	02/11/2010	✓	✓	Syngenta Philippines	Brazil and Mexico (food, feed), Japan (food), Canada (feed)

	lepidopteran pests and *pmi* gene from Escherichia coli encoding the enzyme phosphomannose isomerase present as a selectable marker					
28. Sugarbeet H7-1	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. Strain, CP4 which confers tolerance to glyphosate herbicide	07/28/2010 (renewal)	✓	✓	Monsanto Philippines and KWS SAAT AG	Australia, Canada, China, Columbia, European Union, Japan, Korea, Mexico, Singapore, USA
29. Soybean CV127	Contains gene csr-2 from *Arabidopsis thaliana* which encodes the imidazoline herbicide tolerant acetohydroxyacid synthase (AtAHAS)	10/29/2010	✓	✓	BASF Philippines, Inc.	Australia, Brazil Canada, China, EU, Japan, Korea, Mexico, South Africa, Taiwan, USA
30. Cotton MON88913	Contains *cp4epsps* coding sequence from *Agrobacterium* sp strain, CP4 which confers tolerance to the Roundup family of agricultural herbicides	11/26/2010 (renewal)	✓	✓	Monsanto Philippines	USA, Australia, Canada, China, Colombia, Japan, Korea, Mexico, Singapore, South Africa
31. Corn MON88017	Contains *Cry3Bb1* protein for resistance to the corn rootworm, *Diabrotica* spp and *CP4EPSPS* protein for tolerance to glyphosate herbicide	03/21/2011 (renewal)	✓	✓	Monsanto Philippines	USA, Japan, Australia, Canada. European Union, Korea, Singapore
32. Soybean A5547-127	Contains a synthetic phosphinothricin acetyltransferase *(pat gene)* from *Streptomyces viridochromogenes* expressing tolerance to glufosinate ammonium herbicide	06/23/2011	✓	✓	Bayer CropScience, Inc.	Argentina, Australia, Brazil, Canada, Japan, Mexico, New Zealand, Russia, USA

Source of Data: Bureau of Plant Industry

ANNEX II - APPROVAL REGISTRY OF REGULATED ARTICLES FOR PROPAGATION

(As of July 6, 2011)

Transformation Event*	Introduced Trait and Gene	Date Approved	Safety Assessment			Technology Developer	Other Countries with Similar Approval
			Food	Feed	Environ-ment		
1. Corn GA 21	Contains modified *epsps* gene from corn which confers tolerance to herbicides	11/24/2009				Syngenta Philippines	USA, Canada, Argentina,
2. Corn MON810	Contains *cry1Ab* gene from *Bacillus thuringiensis* var	12/03/2007 (renewal)				Monsanto Philippines	Argentina, Canada, EU,

	kurstaki which confers resistance to corn borer						Japan, South Africa, USA
3. Corn NK603	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	03/16/2010 (renewal)				Monsanto Philippines	Brazil, Canada, Argentina, USA, Japan, South Africa,
4. Corn Bt 11	Contains the *cry1Ab gene* from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide, respectively	04/23/2010 (renewal)				Syngenta Philippines	USA, Canada, Argentina, Japan, Republic of South Africa, Uruguay, Brazil, and Colombia
5.Corn MON89034	Contains the *cry1A.105* and *cry2Ab2* genes from *Bacillus thuringiensis* that are active against lepidopteran insects	11/19/2010				Monsanto Philippines	Canada, Japan, USA

* Transformation events approved for propagation are also approved for direct use for food and feed or for processing.

Source of Data: Bureau of Plant Industry

ANNEX I-A - APPROVAL REGISTRY FOR THE IMPORTATION OF COMBINED TRAIT PRODUCTS FOR DIRECT USE AS FOOD, FEED AND FOR PROCESSING

(As of July 6, 2011)

Combined Trait Product*	Introduced Trait and Gene	Date Approved	Interaction of the resulting gene products		Technology Developer	Other Countries with Similar Approval
			Yes	No		
1. Corn LY038 x Corn MON810	Contains *cordapA* coding sequence which is under the control of the maize Glb1 promoter that expresses the *Corynebacterium glutamicum* derived lysine insensitive dihydrodipicolinate synthase enzyme in the germ to increase the level of lysine in grain for animal feed applications and *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer	08/09/2006			Monsanto Philippines	USA
2. Corn 59122 x Corn NK603	Contains *cry34Ab1* and *cry35Ab1* from *Bacillus thuringiensis*, which confers resistance to certain coleopteran pests such as corn rootworm, *Diabrotica* sp. and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate- ammonium herbicides and *cp4epsps* coding	12/20/2006			Pioneer Hi-Bred, Philippines	USA, Canada, Japan, Australia, New Zealand and Korea

	sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides.					
3. Corn Bt11 x Corn GA21	Contains the *cry1Ab gene* from *Bacillus thuringiensis* and *pat gene* from *Streptomyces viridochromogenes* which confer resistance to corn borer and tolerance to herbicide respectively and modified *epsps* gene from corn which confers tolerance to herbicides	01/23/2007			Syngenta Philippines	United States and Canada (food and feed), Korea (food)
4. Corn TC1507 x Corn 59122	Contains *cry1F* which confers resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp) and *cry34Ab1* and *cry35Ab1* from *Bacillus thuringiensis*, which confers resistance to certain coleopteran pests such as corn rootworm, *Diabrotica* sp. and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate- ammonium herbicides	01/23/2007			Pioneer Hi-Bred, Philippines and Dow Agro Sciences	USA, Canada, Japan, Australia, New Zealand Korea and Mexico
5. Corn 59122 x Corn TC1507 x Corn NK 603	Contains *cry34Ab1* and *cry35Ab1* from *Bacillus thuringiensis*, which confers resistance to certain coleopteran pests such as corn rootworm, *Diabrotica* sp. and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate- ammonium herbicides Contains *cry1F* from *Bacillus thuringiensis* (*Bt*) var. *aizawai* controlling certain lepidopteran pests such as European corn borer, southwestern corn borer, fall armyworm and black cutworm. Contains *cp4epsps* coding sequence from *Agrobacterium* sp. CP4 strain which confers tolerance to the Roundup family of agricultural herbicides	02/07/2007			Pioneer Hi-Bred, Philippines	USA, Canada, Japan, Australia, New Zealand Korea and Mexico
6. Corn Bt11 x Corn MIR604	Contains the *cry1Ab gene* from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively and modified *cry3A* (*mCry3A)* from *Bacillus thuringiensis* subsp. *tenebriones* which confers resistance to corn rootworm	12/13/2007			Syngenta Philippines	Korea, Japan and USA
7. Corn MIR604 x Corn GA21	Contains modified cry3A (mCry3A) from *Bacillus thuringiensis* subsp. *tenebriones* which confers resistance to corn rootworm and modified *epsps* gene	12/13/2007			Syngenta Philippines	Korea and Japan

	from corn which confers tolerance to herbicides					
8. Corn Bt11 x Corn MIR604 x Corn GA21	Contains the *cry1Ab gene* from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confer resistance to corn borer and tolerance to herbicide respectively and modified *cry3A* (*mCry3A)* from *Bacillus thuringiensis* subsp. *tenebriones* which confers resistance to corn rootworm and modified *epsps* gene from corn which confers tolerance to herbicides	03/03/2008			Syngenta Philippines	Korea
9. Corn MON89034 x Corn NK603	Contains two genes (*cry1A.105 and cry2Ab2*) from *Bacillus thuringiensis* which protect the plant from Asiatic corn borer, common cutworm and corn earworm and *cp4epsps* coding sequence from *Agrobacterium* sp CP4 strain which confers tolerance to the Roundup family of agricultural herbicides.	07/22/2009			Monsanto Philippines	USA, Canada and Japan (food) and feed): Taiwan (food)
10. Corn MON89034 x Corn MON88017	Contains two genes (*cry1A.105 and cry2Ab2*) from *Bacillus thuringiensis* which protect the plant from Asiatic corn borer, common cutworm and corn earworm and contains Cry3Bb1 protein for resistance to the corn rootworm, *Diabrotica* spp and *CP4EPSPS* protein for tolerance to glyphosate resistance	10/19/2009			Monsanto Philippines	USA, Canada and Japan (food) and feed); Taiwan (food)
11. Corn MON810 x Corn NK603	Contains *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer and *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	01/08/2010 (renewed)			Monsanto Philippines	USA, Canada Argentina, Brazil, El Salvador, EU, Japan, Korea, Mexico, South Africa (food and feed), Taiwan (food)
12. Corn MON810 x Corn MON863	Contains *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer and *cry3Bb1* gene from *Bacillus thuringiensis* subsp *kumamotoensis* which confers resistance to corn rootworm	01/08/2010 (renewed)			Monsanto Philippines	USA, Canada Japan, Korea, Mexico, (food and feed), Taiwan (food)
13. Corn NK603 x Corn MON863	Contains *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides and *cry3Bb1* gene from *Bacillus thuringiensis* subsp *kumamotoensis* which confers resistance to corn rootworm	01/08/2010 (renewed)			Monsanto Philippines	USA, Canada, Japan and Mexico (food); USA, Canada and Japan (feed)
14. Cotton 531 x Cotton 1445	Contains *cry1Ac* gene from *Bacillus thuringiensis* var. *kurstaki*, which confers resistance to lepidopteran pests	01/08/2010 (renewed)			Monsanto Philippines	Argentina Australia, Brazil, Canada,

	and *cp4epsps* coding sequence from *Agrobacterium* sp strain, *CP4* which confers tolerance to the Roundup family of agricultural herbicides					Columbia, EU, Japan, Korea, Mexico, and South Africa
15. Cotton 15985 x Cotton 1445	Contains the *cry2Ab2* and *cry1Ac* genes which encode proteins that convey protection from lepidopteran insect pests and *cp4epsps* coding sequence from *Agrobacterium* sp strain, CP4 which confers tolerance to the Roundup family of agricultural herbicides	01/08/2010 (renewed)			Monsanto Philippines	USA, Canada Japan, EU, Korea, Mexico
16. Corn MON863 x Corn MON810 x Corn NK603	Contains *cry3Bb1* gene from *Bacillus thuringiensis* subsp *kumamotoensis* which confers resistance to corn rootworm and *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer and *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	02/05/2010 (renewed)			Monsanto Philippines	USA, Canada and Japan
17. Corn MON 810 x Corn GA21	Contains *cry1Ab* gene from *Bacillus thuringiensis* var. *kurstaki* which renders resistance to corn borer and *modified epsps* gene from corn which confers resistance to herbicide	02/08/2010 (renewed)			Monsanto Philippines	USA, Canada, EU, Japan, Korea, and south Africa
18. Corn MON89034 x Corn 1507 x Corn 88017 x Corn 59122	Contains two genes (*cry1A.105 and cry2Ab2*) from *Bacillus thuringiensis* which protect the plant from Asiatic corn borer, common cutworm and corn earworm Contains *cry1F gene from Bacillus thuringiensis* which confers resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp) and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate-ammonium herbicide. Contains *cry3Bb1* gene from *Bacillus thuringiensis* which confers resistance to the corn rootworm, *Diabrotica* spp and *cp4epsps* gene from *Agrobacterium* sp. which confers tolerance to glyphosate Contains *cry34Ab1* and *cry35Ab1* genes from *Bacillus thuringiensis*, which confers resistance to certain coleopteran pests such as corn rootworm, *Diabrotica* sp.	02/09/2010			Monsanto Philippines and Dow Agro Sciences	USA, Canada and Japan
19. Corn	Contains *cp4epsps* coding sequence	04/22/2010			Monsanto	USA and

NK603x Corn T25	from *Agrobacterium* sp CP4 strain which confers tolerance to the Roundup family of agricultural herbicides and *pat* gene from *Streptomyces viridochromogenes* which encodes for tolerance to herbicide phosphinotricin				Philippines	Canada
20. Corn Bt11 x Corn MIR162 x Corn GA21	Contains the *cry1Ab* gene from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively, *vip3Aa20* gene from *Bacillus thuringiensis* resistance to lepidopteran pests and *pmi* gene from phosphomannose isomerase present as a selectable marker and modified *epsps* gene from corn which confers tolerance to herbicides	07/28/2010			Syngenta Philippines	USA (food and feed), Japan (food)
21. Corn 3272 x Corn Bt11 x Corn MIR604 x Corn GA21	Expresses a synthetic thermostable alpha amylase gene, *amy797E* that catalyzes the hydrolysis of starch into soluble sugars; contains the *cry1Ab* gene from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively, *vip3Aa20* gene from *Bacillus thuringiensis* resistance to lepidopteran pests and *pmi* gene from *Escherichia coli* encoding the enzyme phosphomannose isomerase present as a selectable marker and modified *epsps* gene from corn which confers tolerance to herbicide	07/28/2010			Syngenta Philippines	USA (food and feed), Japan (food)
22. Corn BT11 x Corn MIR162 x Corn MIR604 x Corn GA21	Contains the *cry1Ab* gene from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively, *vip3Aa20* gene from *Bacillus thuringiensis* resistance to lepidopteran pests and *pmi* gene from *Escherichia coli* encoding the enzyme phosphomannose isomerase present as a selectable marker and modified *cry3A* (*mcry3A*) from *Bacillus thuringiensis* subsp. *tenebriones* which confers resistance to corn rootworm and modified *epsps* from corn which tolerance to herbicides	12/10/2010			Syngenta Philippines	USA (food and feed); and Japan (food)
23. Corn MON89034 x Corn TC1507 x Corn NK603	Contain two genes (*cry1A.105* and *cry2Ab2*) from *Bacillus thuringiensis* which protect the plant from Asiatic corn borer, common cutworm and corn	12/10/2010			Dow Agro Sciences and Monsanto Philippines	USA, Canada, Japan and Australia

	earworm Contains *cry1F* gene from *Bacillus thuringiensis* which confers resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp) and the *pat* gene from *Streptomyces viridochromogenes* which provides tolerance to glufosinate-ammonium herbicide Contains *cp4epsps* coding sequence from *Agrobacterium* sp CP4 strain which confers tolerance to the Roundup family of agricultural herbicides					
24. Corn Bt11 x Corn MIR162 x Corn TC1507 x Corn GA21	Contains the *cry1Ab* gene from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively. Contains the *vip3Aa20* gene *from Bacillus thuringiensis* which confers resistance to lepidopteran pests and *pmi* gene from *Escherichia coli* encoding the enzyme phosphomannose isomerase present as a selectable marker	12/22/2010			Syngenta Philippines	Japan
	Contains *cry1F* gene from *Bacillus thuringiensis* which confers resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp) and the *pat* gene from *Streptomyces viridochormogenes* which provides tolerance to glufosinate-ammonium herbicide. Contains the modified *epsps* gene from corn confers tolerance to herbicides					
25. Corn TC1507 x Corn NK603	Contains *cry1F* from *Bacillus thuringiensis,* which confer resistance to certain lepidopteran pests such as the Asiatic corn borer and pink borer (*Sesamia* spp) and *pat genes* from *Streptomyces viridochromogenes*, which provides tolerance to glufosinate-ammonium herbicides and *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	02/17/2011 (renewed)			Pioneer Hi-Bred and Dow AgroSciences	Argentina, Australia/ New Zealand, Brazil, Canada, Columbia, EU, Japan, South Korea, Mexico, Taiwan, USA,
26. Cotton 15985 x RR Flex Cotton	Contains the *cry2Ab2* and *cry1Ac* genes which encode proteins that convey protection from lepidopteran insect	04/20/2011 (renewed)			Monsanto Philippines	Australia, Canada, Colombia,

(MON88913)	pests and the *cry3Bb1* gene from *Bacillus thuringiensis* subs *kumamotoensis* which confers resistance to corn root worm and the *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides					Japan, Korea, Mexico, South Africa
27. Corn MON 88017 x Corn MON810	Contains *cry3Bb1* for resistance to the corn rootworm, *Diabrotica* spp and *cp4epsps* for tolerance to glyphosate resistance and *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer	07/01/2011 (renewed)			Monsanto Philippines	USA, EU, Japan , Korea (food/feed); Mexico, Taiwan (food); Canada (feed)

Source of Data: Bureau of Plant Industry

ANNEX II-A - APPROVAL REGISTRY OF COMBINED TRAIT PRODUCTS FOR PROPAGATION

(As of July 6, 2011)

Combined Trait Product*	Introduced Trait and Gene	Date Approved	Interaction of the resulting gene products		Technology Developer	Other Countries with Similar Approval
			Yes	No		
1.Corn MON810 x Corn NK603	Contains *cry1Ab* gene from *Bacillus thuringiensis* var *kurstaki* which confers resistance to corn borer and *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	07/19/2005		•	Monsanto Philippines	USA and Canada
2. Corn Bt11 x Corn GA21	Contains the *cry1Ab* gene from *Bacillus thuringiensis* and *pat* gene from *Streptomyces viridochromogenes* which confers resistance to corn borer and tolerance to herbicide respectively and modified *epsps* gene from corn which confers tolerance to herbicides	09/06/2010		•	Syngenta Philippines	USA, Canada, Brazil and Argentina
3. Corn MON 89034 x Corn NK603	Contains the *cry1A.105* and *cry2Ab2* genes from *Bacillus thuringiensis* that are active against lepidopteran insects and *cp4epsps* coding sequence from *Agrobacterium* sp. *CP4* strain which confers tolerance to the Roundup family of agricultural herbicides	03/04/2011		•	Monsanto Philippines	USA, Japan, Canada, Argentina, Brazil and South Africa

* Combined trait product approved for propagation is also approved for direct use as food and feed or for processing.

Source of Data: Bureau of Plant Industry