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## Colombia

## Biotechnology

## Agricultural Biotechnology

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**Report Highlights:**

Colombian agricultural groups strongly support adoption of biotechnology, while some environmental groups have raised limited concerns. Over the past 12 months, Colombia has made significant progress in making favorable recommendations on living modified organisms (LMO) events for human consumption. However, the Ministry of Social Protection seems to be reluctant to issue approving resolutions. The current world food security situation may result in better prospects for approval of LMOs.

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Includes PSD Changes: No  
Includes Trade Matrix: No  
Annual Report  
Bogota [CO1]  
[CO]

## Section I. Executive Summary

Colombia is the largest market for U.S. agricultural products in Central and South America and is one of the top seven markets for U.S. corn. To date, Colombian biotechnology regulations do not impede commercial U.S. exports, although there is a pending approval issue with a living modified organism (LMO) that has delayed imports of U.S. rice for a Colombian food aid program.

The Colombian legal framework for mandating biotechnology regulations for agricultural products is under continual review. Colombia approved the Cartagena Protocol on Biosafety in 2002. In 2005, Decree 4525 was published to implement the Protocol, and since then, several other Ministerial resolutions were published to outline specific requirements and procedures for approving and using LMO products. To some extent, Colombia's biotechnology regulations are still a work in progress, which provides an opportunity to develop training activities that would facilitate the adoption of science-based regulations. Colombia has created three technical biotechnology committees to analyze environmental, biosafety and food safety impact of biotechnology products.

Prior to 2006, the only LMO products planted on a non-restricted commercial basis in Colombia were Bollgard and Roundup-Ready cotton varieties. In February 2007, the Colombian Government approved Bollgard/Roundup-Ready cotton, the first stacked LMO product. In addition, the GOC has approved plantings of LMO corn for limited commercial use. Biotech blue carnations continue to be approved for commercial production, but only for export. There are pending license applications for several other crops that are in varying phases of approval (see Appendices A and B). In 2007, Colombia planted 27,670 hectares of LMO commodities, up from 3,000 hectares in 2003.

## Section II. Biotechnology Trade and Production

Area planted to LMO cotton increased from 7,324 hectares in 2003, to 21,666 hectares in 2007, which represented 47% of total area planted to cotton in 2007. Although there are new technologies available, farmers continue to plant Bollgard for a total of 17,987 hectares. In addition to LMO cotton, 6,000 hectares of LMO corn were planted in 2007, of which, 4,919 hectares were planted to Yieldgard corn and the remaining to Herculex I. Given the current world food security situation, a better environment for plantings of LMOs is expected. In 2008, there has been an extension of areas approved for commercial plantings and for biosafety assessments. In addition, the Government of Colombia has provided subsidies to plant an additional 30,000 hectares of LMO cotton in 2008. Dutch blue carnations continue to be produced under greenhouse conditions for export to Europe. Only 4 hectares of blue carnations were produced in 2007.

In addition to the above-mentioned LMO events, Colombia is currently working on several biotechnology crops for regulatory approval. Information indicates that Flower Development, a private Dutch company, is working on roses with blue petals. (See Appendices A and B).

Due to the fact that Colombia has not developed any biotechnology crops as of this date, LMO seeds are imported mostly from the United States and occasionally from South Africa, Argentina and Australia. See Appendices A and B for more details. There are several Colombian organizations conducting specific research projects. The sugar cane research center (Cenicana) is looking to develop a sugar cane variety resistant to the yellow leaf virus; the International Center for Tropical Agriculture (CIAT) is working on rice, grazing grass, and cassava; and the Coffee Research Center (Cenicafe) is working on a coffee variety that is resistant to coffee borer (broca).

### Section III. Biotechnology Policy

The Ministry of Agriculture is a strong supporter of agricultural biotechnology and as such, is developing a regulatory framework to implement the Cartagena Biosafety Protocol. The Cartagena Protocol specifically focuses on trans border movement of any LMO resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity. Colombia approved the Biosafety Protocol, Law 740 in 2002, which became fully enforced in September 2003. As of today, regulations to implement the above mentioned law are outlined in decree 4525 of December 6, 2005; Colombian Agricultural Institute (ICA) resolution 1063 of March 22, 2005; ICA resolution 000946 of April 17, 2006; and Ministry of Social Protection resolution 0227 of February 1, 2007. The following entities are responsible for biotechnology risk assessments:

1. Ministry of the Environment, Housing and Territorial Development.
2. Ministry of the Social Protection.
3. Ministry of Agriculture and Rural Development.
4. Colciencias (Colombian Entity for the Development of Science and Technology).
5. National Institute for the Surveillance of Food and Medicines (INVIMA).
6. Colombian Agricultural Institute (ICA).

Decree 4525 of December 6, 2005, established three interagency committees composed of the above-mentioned entities that are responsible for evaluation and approval of biosafety issues:

**National Technical Committee for Agriculture, Fishery, Forestry and Agro-industry (CTN-Bio):** The committee's role is to assess LMO events for the listed sectors. The committee has been historically slow in approving new-to-market LMO products creating problems for U.S. seed exports. In order to be approved, each variety with a specific gene must go through a lengthy approval process with rigid step-by-step procedures. Colombia allows field-testing for biotechnology crops (see Appendix A) after a risk assessment is submitted to CTN-Bio. The time taken to conduct the risk assessment varies: all dissenting concerns by the different ministries must be resolved before a product is approved.

Regarding "stacked" events, CTN-Bio requires running the field-testing again as if the seed were a completely new one. Even though the individual traits were already accepted, the "stacked" variety has to begin the process all over. In addition, the coexistence between biotechnology and non-biotechnology crops in Colombia does not have a written regulation. However, ICA has carried out an evaluation of cross-pollination on cotton and found that both LMO and non-LMO crops may coexist. Nevertheless, farmers continue to use buffer areas (a natural barrier of fallow terrain between the two plantings). On labeling, ICA resolutions 3492 of December 22, 1998 and 2935, October 23, 2001 were superseded by ICA resolution 946 of April 17, 2006, which requires labeling biotechnology materials (seeds or other plant reproductive materials and animal products). It should read in Spanish: "ORGANISMO MODIFICADO GENETICAMENTE". The requirement is justified as being needed consumer information.

**National Technical Committee for Environment (CTN-Environment).** The committee function is to assess biotechnology events for introduction of LMO events that impact the environment. This CTN is not yet operational.

**The National Technical Committee for Health and Human Nutrition (CTN-Health):**

CTN-Health's function is to assess the impact of genetically modified events in LMO products and by-products on human health. On February 1, 2007, the Ministry of Social Protection issued resolution 0227 to establish the functions of the committee making it fully operational. In fact, CTN-Health has submitted 5 recommendations of approval to the Ministry of Social Protection, who has delayed the issuance of the corresponding resolutions with no further explanation. Such is the case of LLRice62 and 601. This reluctance is affecting the approval of 2,700 metric tons of U.S. rice for the World Food Program to use in a feeding program in Colombia. FAS/Bogota is currently working with the Ministry of Social Protection and other GOC agencies to find a solution. The rice case may set a precedent by the GOC to evaluate other U.S. commercial imports, i.e. feed corn and soybeans. Regarding labeling, CTN-Health has not implemented any labeling requirement on finished packaged foods and feeds as of this date. However, select congressmen submitted a proposed law mandating LMO product labeling on select LMO products. A joint effort by FAS and the Colombian private sector delayed final approval by the full Congress. Congress resumed on July 20 but is not expected to resubmit the proposed labeling legislation any time soon.

Although Colombia's approach to biotechnology has been favorable, some environmental groups are pressing government officials to reject biotech products. In addition, some indigenous groups have been inspired by NGOs to oppose the introduction of LMOs based on land tenure and biodiversity concerns. The GOC's structure for biotechnology regulations is based on science-based decisions of accepting or rejecting new biotechnology events. The basic principle is to adopt the technologies that may help the economic/social development of Colombia. The Ministry of Environment has been the most controversial voice on biotechnology approvals.

**Section IV. Marketing Issues.**

Biotechnology has been in Colombia for the last 15 years, but regulations are a relatively new issue. Most press coverage is favorable to biotechnology. To date consumers have not voiced any concerns about biotechnology products or products containing biotechnology raw materials. There are no commercial barriers related to biotechnology products. However, the Ministry of Social Protection, is delaying the issuance of the resolution on the approval of 5 events which were already recommended for approval by CTN-Health. Regarding biotechnology fees, the Government of Colombia does not have legislation in place to collect technology fees.

**Section V. Capacity Building and Outreach**

Since Colombia is in the process of developing LMO regulations, FAS/Bogota has been working together with different groups to disseminate information on the benefits and to expand the application of agricultural biotechnology. Keeping this in mind, FAS has carried out the following activities in the previous years:

- September 2003: Three leading Colombian journalists attended a biotechnology tour in the United States.
- July 2004: Two Colombian officials attended a two-week "Biotech Short Course" on regulatory and trade issues at Michigan State University.

- August 2004: Farmer-to-Farmer Biotechnology Workshop at the University of Zamorano in Honduras. A leading Colombian cotton producer and agricultural leader attended.
- February, 2006: a Cochran candidate attended a tailor made program in the United States on biotechnology.
- July 23-25, 2007: FAS and State jointly sponsored a biotechnology conference for Government officials held in Bogotá and followed by meetings with research organizations in Cali.
- September, 2007: 2 Cochran candidates from INVIMA attended biotechnology training in Washington, St. Louis and Texas A&M.

## Section VI. Reference Material

### Government

ICA- Colombian Agricultural Institute

[www.ica.gov.co](http://www.ica.gov.co)

Ministry of the Environment, Housing and Territorial Development

[www.minambiente.gov.co](http://www.minambiente.gov.co)

Ministry of the Social Protection

[www.minproteccionsocial.gov.co](http://www.minproteccionsocial.gov.co)

Ministry of Agriculture and Rural Development

[www.minagricultura.gov.co](http://www.minagricultura.gov.co)

Colciencias (Colombian Entity for the Development of Science and Technology)

[www.colciencias.gov.co](http://www.colciencias.gov.co)

National Institute for the Surveillance of Food and Medicines (INVIMA)

[www.invima.gov.co](http://www.invima.gov.co)

### Private Sector

Agrobio

[www.agrobio.org](http://www.agrobio.org)

### Other Research Institutes

CIAT (the International Center for Tropical Agriculture)

[www.ciat.cgiar.org](http://www.ciat.cgiar.org)

Cenicaña (the sugar cane research center)

[www.cenicana.org](http://www.cenicana.org)

Cenicafe (the Coffee Research Center)

[www.cenicafe.org](http://www.cenicafe.org)

## Section VII. Follow-up Activities

While Colombia has made significant progress in opening its markets to biotechnology products, it can still greatly benefit from additional collaborations in the areas of developing risk-assessment policies and procedures and developing biotech-friendly regulations. In August/September 2008, FAS/Bogota will conduct a seminar followed by one-on-one meetings with Colombian government officials. Topics will include mandatory labeling for LMO products, the Cartagena Protocol compliance, and environmental risk assessments. We are also planning to take a group of congressmen to the United States to educate them on biotechnology.

If approved, Emerging Markets, Section 108, and Cochran funds will be used for the following activities:

- A follow-up media tour activity for promising leading journalists to help better understand some of the common misconceptions about biotechnology.
- A joint activity with Agrobio (an association of private companies producing biotechnology products) to educate Latin American researchers on LMO monitoring and detection.

## APPENDIX A. COLOMBIA: CURRENT STATUS OF BIOTECHNOLOGY PRODUCTS

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Authorized Activity</b>
Carnation	Flores Colombianas Ltda. (Holland)	Blue Carnation	Approved in 2000 for commercial production of cut flowers.
Carnation	Flower Development (Holland)	Blue Carnation	Approved for biosafety studies per risk assessment in 2005 (green house conditions).
Roses	Flower Development (Holland)	Blue Petal Roses	Approved for biosafety studies per risk assessment in 2005 (green house conditions).
Bollgard Cotton	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects.	Approved for commercial plantings since 2003 in the humid Caribbean region, the upper Magdalena river valley (Tolima and Huila) and Cauca river valley. Approved for commercial plantings in the dry Caribbean region in May, 2004.
Roundup Ready Cotton	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide.	Approved in 2004 for commercial plantings in the dry Caribbean and humid Caribbean regions. Approved in 2007 for commercial plantings in the upper Magdalena river valley (Tolima and Huila) and Cauca river valley.
Bollgard/Roundup Ready Cotton	COACOL-Monsanto (United States)	Resistant to a wider variety of lepidopterous insects and completely tolerant to Roundup herbicide.	Approved in 2007 for commercial plantings in the upper Magdalena river valley (Tolima and Huila) and Cauca river valley.

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Authorized Activity</b>
Bollgard II and Roundup Ready Flex Cotton	COACOL-Monsanto (United States)	Resistant to a wider variety of lepidopterous insects and completely tolerant to Roundup Total herbicide.	Approved for biosafety studies per risk assessment in 2005.
Roundup Ready Flex Cotton	COACOL-Monsanto (United States)	Tolerant to Roundup Total herbicide	Approved for biosafety studies.
Rice	CIAT (Colombia)	Resistant to White Leaf virus	Approved in 2000 for restricted research and small-scale plantings in open fields, in accordance with risk assessment.
Cassava	CIAT (Colombia)	Resistant to the borer of stem/stalk	Approved in 2000 for restricted research per risk assessment.
Cassava	CIAT (Colombia)	Modification of cytokine production	Approved in 2000 for restricted research per risk assessment.
Cassava	CIAT (Colombia)	Modification of amilopectin production	Approved in 2000 for restricted research per risk assessment.
Cassava	CIAT (Colombia)	Modification of cyanide content	Approved in 2000 for restricted research per risk assessment.
Brachiaria (grass)	CIAT (Colombia)	"frog hopper" resistant	Approved in 2000 for restricted research per risk assessment
Coffee	CENICAFE (Colombia)	Borer resistant	Approved in 2000 for restricted research per risk assessment.
Sugar cane	CENICAÑA (Colombia)	Resistant to the yellow leaf syndrome	Approved in 2003 for restricted research and small-scale plantings in open fields per risk assessment.
Yieldgard Corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects	Approved in 2007 for commercial plantings in the humid Caribbean region, upper Magdalena river (Tolima, Huila), Cauca river valley and eastern plains. Approved in 2007 for biosafety field trials in the dry Caribbean and the Coffee region.

Crop	Requesting Company	New Characteristics of Biotechnology	Authorized Activity
Yieldgard 2	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Risk assessment.
Yieldgard VPro Corn	COACOL-Monsanto (United States)	Resistant to a wider variety of lepidopterous insects	Approved in 2007 for biosafety field trials in the dry and humid Caribbean regions, the Coffee region, upper Magdalena river valley (Tolima, Huila), Cauca river valley and eastern plains.
Roundup Ready Corn (RR 2 corn)	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide.	Approved in 2007 for biosafety field trials in the dry Caribbean and the Coffee region. Approved in 2007 for commercial plantings in the humid Caribbean region (Cordoba), upper Magdalena river valley (Tolima, Huila), Cauca river valley and eastern plains.
Yieldgard Roundup Ready Corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Approved in 2007 for commercial plantings in the humid Caribbean region (Cordoba), upper Magdalena river valley (Tolima, Huila), Cauca river valley and eastern plains.
Herculex I Corn	Dupont (United States)	Resistant to some lepidopterous insects	Approved in 2007 for biosafety field trials in the dry Caribbean and the Coffee region. Approved in 2007 for commercial plantings in the humid Caribbean region (Cordoba), upper Magdalena river valley (Tolima, Huila), Cauca river valley and eastern plains.

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Authorized Activity</b>
Herculex I X Roundup Ready corn	Dupont (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Approved for commercial plantings in the humid Caribbean region, Cauca river valley and eastern plains.
Bt 11 corn	Syngenta (Switzerland)	Resistant to some lepidopterous insects	Approved for biosafety trials in the humid Caribbean region and Cauca river valley.
CCR corn	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide and resistant to rootworm.	Approved for biosafety trials.
GA 21 Corn	Syngenta (Switzerland)	Tolerant to Roundup gene epsps	Approved for biosafety trials.
Potatoes	Corporacion de Investigaciones Biologicas (CIB) (Colombia)	Resistant to some lepidopterous insects	The National Biosafety Committee postponed the study of risk assessment.

## APPENDIX B. COLOMBIA: CURRENT STATUS OF BIOTECHNOLOGY PRODUCT APPLICATIONS FOR FOOD AND FEED.

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Approved Applications</b>	<b>Approval Date</b>
Bollgard cotton	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects	Raw material for food and feed	06/08/2003
Roundup Ready cotton	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide	Raw material for food and feed	11/12/2003
Bollgard II cotton	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects	Raw material for feed	Pending CTN's Health approval for food.
Roundup Ready Flex cotton	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide and to a wider spectrum of weeds	Raw material for feed	Pending CTN's Health approval for food.
Bollgard II+Roundup Ready Flex cotton	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects, tolerant to Roundup herbicide and to a wider spectrum of weeds	Raw material for feed	Pending CTN's Health approval for food.
Bollgard+Roundup Ready cotton	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Raw material for food and feed	Approved on June 16, 2008
Yieldgard corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects	Raw material for food and feed	02/26/2004
Roundup Ready corn	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide	Raw material for food and feed	04/22/2004
Yieldgard Rootworm Corn CRW	COACOL-Monsanto (United States)	Resistant to rootworm		Pending ICA's approval for feed and CTN's Health for food.

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Approved Applications</b>	<b>Approval Date</b>
Yieldgard+Roundup Ready Corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Raw material for feed.	Approved for feed on 06/04/2007. Pending Ministry of Social Protection's approval for food.
Bt Herculex I Corn	Dupont (United States)	Resistant to some lepidopterous insects	Raw material for food and feed	Approved on October 17, 2006
Herculex I X Roundup Ready corn	Dupont (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide		Pending CTN's Health approval for food.
Herculex RW	Dupont (United States)			Pending CTN's Health approval for food.
Yieldgard+Lysine corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects. High lysine content	Raw material for feed	Pending CTN's Health approval for food.
Yieldgard II corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects	Raw material for feed	Approved for feed.
Yieldgard VPro Corn	COACOL-Monsanto (United States)	Resistant to a wider variety of lepidopterous insects	Raw material for feed	Pending Ministry of Social Protection's approval for food.
CCR corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects and tolerant to Roundup herbicide	Raw material for feed	Pending CTN's Health approval for food.

<b>Crop</b>	<b>Requesting Company</b>	<b>New Characteristics of Biotechnology</b>	<b>Approved Applications</b>	<b>Approval Date</b>
CRW corn	COACOL-Monsanto (United States)	Resistant to rootworm		Pending ICA's approval for feed and CTN's Health for food.
Yieldgard+CCR corn	COACOL-Monsanto (United States)	Resistant to some lepidopterous insects, rootworm and tolerant to Roundup herbicide		Pending ICA's approval for feed and INVIMA's for food.
Lysine corn	COACOL-Monsanto (United States)	High lysine content		Pending ICA's approval for feed and CTN's health for food.
Bt 11 corn	Syngenta (Switzerland)	Resistant to some lepidopterous insects		Pending CTN's health approval for food.
Roundup Ready wheat *1	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide	Raw material for food on 3/29/2004	Pending ICA's approval for feed
Roundup Ready soybeans	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide	Raw material for food	Approved on 12/9/2005
Roundup Ready 2Yield soybeans	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide		Pending ICA's approval for feed and CTN's health for food.
GAT Soybeans	Dupont (United States)			Pending CTN's health approval for food
Roundup Ready sugar beet	COACOL-Monsanto (United States)	Tolerant to Roundup herbicide	Raw material for food	Approved on 12/9/2005
Liberty-link rice LLRice62, LLRice601	Bayer CropScience (United States)		Raw material for food and feed	Pending Ministry of Social Protection's approval.

