



USDA Foreign Agricultural Service

# GAIN Report

Global Agriculture Information Network

Template Version 2.09

Required Report - public distribution

**Date:** 7/18/2007

**GAIN Report Number:** TH7090

## Thailand

## Biotechnology

## Annual

## 2007

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**Report Highlights:**

Thailand is edging closer to removing the 2001 ban on field testing for agricultural biotech products, and developing a national biosafety framework that would support the expansion of research and commercialization of biotechnology in Thailand. Until these milestones are reached, Thailand risks being at a competitive disadvantage from neighboring countries that have produced successful outcomes through their research in biotechnology.

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Includes PSD Changes: No  
Includes Trade Matrix: No  
Annual Report  
Bangkok [TH1]  
[TH]

**SECTION I: EXECUTIVE SUMMARY**

There has been little progress in development of agricultural biotechnology in Thailand since the latest report in 2006. However, the Thai Ministry of Agriculture recently announced their intent to remove the 2001 ban on field testing for agricultural biotech products. On May 2, 2007, the Minister of Agriculture and Cooperatives met with representatives from the Ministry of Science and Technology, the Ministry of Natural Resources and Environment, and Kasetsart University to discuss guidelines for re-opening field trials of biotech crops. These draft guidelines are expected to go to the Cabinet sometime in September 2007. Until the 2001 ban on field trials is removed, Thailand risks being at a competitive disadvantage from neighboring countries that have produced successful outcomes through their research in biotechnology. Additionally, the National Biotechnology Policy Framework (2004-2009) remains vague, and the finalization of the National Biosafety Law has been delayed by repeated public comment periods.

## **SECTION II: BIOTECHNOLOGY TRADE AND PRODUCTION**

There has been no change in biotechnology trade and production in Thailand since the latest annual report in 2006. More details about the historical development of biotechnology are discussed in Appendix A of TH6077.

## **SECTION III: BIOTECHNOLOGY POLICY**

### **3.1 The Current Biotechnology Policy**

The Department of Agriculture (DOA) is currently finalizing proposed guidelines for allowing field trials of biotech crops, effectively removing the 2001 ban. Although a draft is currently unavailable, the contents reportedly focus on the country's need to advance research on biotech crops, the readiness to use the current biosafety guidelines to ensure the biosafety, or containment, of researched crops, and encouraging broader public participation in conducting biotechnology research and development. The Minister of Agriculture plans to call a meeting among stakeholder Ministries, including Ministry of Agriculture and Cooperatives (MOAC), Ministry of Science and Technology (MOST), and Ministry of Natural Resources and Environment (MONRE), to review the proposed guidelines prior to submitting for Cabinet approval in the end of September, 2007.

The 2001 ban on biotechnology field trials effectively placed a moratorium on the dialogue and advancement of biotechnology in Thailand. Although Thailand does allow for limited biotechnology research, all research conducted must be contained in laboratories or greenhouses. Thailand does not allow importation and production of any transgenic plants for commercial purpose and field trials except for: (1) processed food; and (2) imports or sales of soybeans and corn for feed use, human consumption, and industrial use.

Processed foods containing biotech products, must comply with the 2003 Ministry of Public Health's labeling law, which maintains a five percent tolerance (see GAIN TH6077) for biotech materials/products. Processed products containing more than five percent biotech materials require additional labeling.

### **3.2 Responsible Government Agencies and Institutes and Agricultural Biotechnology**

There have been no changes to the government agencies and institutes/universities involved in biotechnology research and development and regulating the use of biotechnology at different levels. Please see GAIN TH6077.

### **3.3 National Biosafety Framework**

Existing Biosafety Guidelines, including Biosafety Guidelines in Genetic Engineering and Biotechnology for Laboratory Work, Field Work, and Planned Release, are voluntary. Prior to the 2001 ban, several transgenic crops underwent biosafety testing and assessment in accordance with these Biosafety Guidelines, including virus resistant papaya.

In 2003, Thailand began drafting the National Biosafety Framework to monitor and enforce laws on biosafety management. The legislation seeks to establish the necessary framework for ensuring the safety of agricultural biotech products in Thailand, and is being developed in

relationship to their commitments as a party to the Cartagena Protocol. The Framework covers eight concepts:

- 1.) Sustainable use and conservation of biotechnology
- 2.) Risk assessment and management
- 3.) Risk classification
- 4.) Risk communication
- 5.) Cautionary preparedness
- 6.) Freedom of choice
- 7.) Domestic capacity building
- 8.) Encouraging education and public comment

The draft legislation was finalized in February 2006 and is targeting for implementation sometime in 2008.

### **3.4 National Biotechnology Policy Framework**

On March 18, 2003, the Cabinet agreed to set up the National Biotechnology Policy Committee (NBPC), chaired by the Prime Minister, and assigned National Science and Technology Development Agency (NSTDA) as the Committee's Secretariat. In December 2003, the NBPS approved the National Biotechnology Policy Framework (2004-2009), which was proposed by the NSTDA. However, the framework has lost momentum under the deadlock on biotechnology research and development.

A summary of the framework was discussed in TH6077. The full report on National Biotechnology Policy Framework can be downloaded from <http://www.biotech.or.th/document/W-Eng/FrameWork9-11-2548.pdf>.

## **SECTION IV: MARKETING ISSUES**

Thai producers, retailers, and consumers remain misinformed about the safety and human health and the environmental benefits of transgenic plants or foods. Anti-biotechnology groups, such as Green Peace Thailand and Organization of the Poor, strongly oppose field-testing or introduction of transgenic crops. Mass media in Thailand, including newspapers and television, usually provide largely unbalanced reporting by enlarging the negative views while minimizing the positive views about modern biotechnology.

A 2003 survey conducted by THAI TOPIC had consumers rank a series of food characteristics by order of priority. Consumers ranked "free of chemical residue" first while "non-GM" came in second to last. Although "non-GM" was lower in priority, 80 percent of consumers surveyed wanted food products containing biotech ingredients to be labeled accordingly. Much like producers, Thai consumers are highly uneducated about the safety and benefits of GM crops. A 2005 survey by the Agricultural Economics Office showed more than 90 percent of Thai consumers felt they had no access to information on the costs and benefits of biotech crops, and consequently were skeptical of any health benefits derived from biotech food products. Further impeding their ability to obtain information is the Thai media, whom often portray biotechnology

negatively. Only 10 percent of journalists surveyed reported they had researched reference material on biotechnology.

The Biotechnology Alliance Association (BAA), a Thai biotechnology advocacy group, presented their Study of Agricultural Biotechnology Benefits in Thailand, in early 2007. BAA found biotechnology would primarily benefit small farmers through improving yields and reduced costs. The reduced chemical use would to improved farm income and possibly increase rural employment. The full report can be downloaded from:

[http://www.croplifeasia.org/ref\\_library/biotechnology/Study\\_AgBiotech\\_Benefits\\_in\\_Thailand\\_07May2007.pdf](http://www.croplifeasia.org/ref_library/biotechnology/Study_AgBiotech_Benefits_in_Thailand_07May2007.pdf).

#### **SECTION V: CAPACITY BUILDING AND OUTREACH**

In recent years, the U.S. Government (USG) has conducted several capacity building and outreach activities in Thailand in the biotechnology area. These activities were funded by USDA, State Department, and other affiliated entities. The activities in 2007 include:

- Annual biotechnology training program at Michigan State University under the Cochran Fellowship Program.
- USDA sponsored Thai participants to the Asian Pacific Economic Cooperation (APEC) dialogue on biotechnology in Australia in January 2007.
- USDA Senior Biotechnologist shared the U.S. experience with implementing biotechnology and biosafety regulations at an international forum organized by the Asian Development Bank (ADB) in Bangkok in June 2007.
- FAS sponsored GM papaya producer from the U.S. shared experiences in growing papaya with a group of Thai farmers and academic groups throughout Thailand in July 2007.

Country-specific needs or strategies that would be useful in raising the capacity of Thailand to apply transparent, science-based regulations to agricultural biotechnology should include:

- Thailand is in the process of developing a National Biosafety Framework. Biosafety issues are new to many relevant government officials and scientists. As a result, short course training in the areas of risk assessment and of various policy and legal aspects should be continued for both local scientists and policy makers;
- Although public education has been conducted frequently, it has been very difficult to change misperceptions about modern biotechnology. As a result, new strategies to better educate or understand this technology are needed, along with more frequent, sustained efforts to do so;
- The various biotech-related agencies are developing a biosafety database for Thailand and could benefit from training or capacity building in this task;

**SECTION VI: REFERENCE MATERIAL**

## Websites:

- Ministry of Science and Technology: <http://www.most.go.th/>
- National Center for Genetic Engineering and Agricultural Biotechnology (BIOTEC): <http://policy.biotech.or.th/>
- Thailand Biosafety Information Network: <http://biosafety.biotech.or.th/>
- Office of Environmental Policy and Planning, Ministry of Natural Resources and Environment: <http://www.onep.go.th/>
- Department of Agriculture, Ministry of Agriculture and Cooperatives: <http://www.doa.go.th/th/>
- CropLife Asia: <http://www.croplifeasia.org>
- International Service for the Acquisition of Agri-Biotect Applications: <http://www.isaaa.org>
- Biothai (An NGO in Thailand which is against GM crop introduction): <http://www.biothai.org/>
- Greenpeace South East Asia: <http://www.greenpeace.org/seasia/en/>

## Publications:

Biotechnology Alliance Association (BAA), The Study of Agricultural Biotechnology Benefits in Thailand, March 2007.

National Center for Genetic Engineering and Agricultural Biotechnology (BIOTEC), National Biotechnology Policy Framework 2004-2009 (in Thai), National Science and Technology Development Agency (NSTDA), 2004.

Napompeth Banpot. GMOs and GMO Derivatives under Trials in Containment and/or Small Scale Field Trials in Thailand: 1991-2003, National Biosafety Committee, BIOTEC, 2003.

Foreign Agricultural Service, U.S. Department of Agriculture, Ag Attache's reports on biotechnology issues in 2007 include: 1) The Benefit of Adopting GM Crops in Thailand (TH7015); 2) Public Perceptions of Biotechnology (TH7016), 3) Move to Revoke Ban on Biotech Field Trials (TH7056); 4) GMS Countries Meet to Discuss Biosafety Regulations (TH7086).

## APPENDIX A

## A List of Transgenic Plants that were under the Import Permit Requests (1994-2000)

Crop	Applicant(s)	Year of Request	Trait Description	Status
1. Squash	Asgrow Seed	1994	-	-
2. Tomato	Thai Pan Trading Co., Ltd	1994	-	Not permitted
3. Tomato	UpJohn Inc.	1995	Antisent RNA (delayed fruit ripening)	Trial completed
4. Tomato	Thai Pan Trading Co., Ltd.	1995	-	Not imported
5. Cotton	Monsanto Thailand Ltd.	1995	Bt Cry 1A ©	Trial completed
6. Corn	Novartis Thailand Co., Ltd.	1996	Bt	Approved under containment at Novartis experiment station
7. Cotton	Monsanto Thailand Ltd.	1996	Bt Cry 1A ©	Trial completed
8. Squash	Department of Agriculture	1996	Coat Protein PRSV	Trial contained in lab and greenhouse
9. Mali 105 Rice	Department of Agriculture	1997	Xa21	Trial contained in greenhouse
10. Papaya	Department of Agriculture	1997	CP-gene of PRSV	Trial in field planting in DOA's research station
11. Cotton (NUCOTN 33 B)	Monsanto Thailand Ltd.	1997	Bt Cry 1A © (Resistant to American ballworm)	Trial completed
12. Cotton (roundup 1445, 1698)	Monsanto Thailand Ltd.	1997	CP 4EPSPS	Trial completed
13. Corn	Pioneer Overseas Seeds Corp. Thailand	1997	Bt (Mon 810) Resistant to Asiatic corn stalk borer	Trail contained in greenhouse
14. Dry, Powdered Bt Corn	Dekalb Genetics Corp.	1997	Bt	Approved by NBC, no response
15. Corn	Monsanto Thailand Ltd.	1997	Bt	Inappropriate imports, destroyed
16. Corn (roundup)	Monsanto Thailand Ltd.	1997	Roundup resistant	Inappropriate imports, destroyed
17. Tomato	A local company	1997	SAVR	Not permitted

Crop	Applicant(s)	Year of Request	Trait Description	Status
18. Corn (Glyfosate herbicide resistance)	Monsanto Thailand Ltd.	1998	mEPSPS	Trial contained in greenhouse
19. Corn	Monsanto Thailand Ltd.	1998	Bt (Mon 810)	Trial completed in greenhouse
20. Corn (DLL25 Glyfosinate resistance)	Charoen Produce Co., Ltd.	1998	PAT	Not permitted
21. Corn (CHAW 9703 Bt)	Cargill Seed Co., Ltd.	1998	Bt Cry 1 A (b)	Trial suspended
22. Corn (Bt event 176)	Novartis Thailand Co., Ltd.	1998	Bt event 176	Not appropriate imports, destroyed
23. Hybrid Corn Bt. Event 176	Novartis Thailand Co., Ltd.	1998	Bt event 176	Trial completed
24. Hybrid Cotton non-Bt	Monsanto Thailand Ltd.	1999	Bt cry 1A ©	Trial completed
25. Cotton (roundup resistance, line 1445)	Monsanto Thailand Ltd.	1999	CP 4EPSPS	Trial completed in greenhouse
26. Corn GA-21 (roundup resistance)	Monsanto Thailand Ltd.	1999	mEPSPS	Trial completed in greenhouse
27. Corn	Monsanto Thailand Ltd.	1999	Bt (Mon 810)	Trial contained in small field plot
28. Corn Chaw 9703	Monsanto Thailand Ltd.	2000	Glyfosate resistance	-
29. Corn C-919 Bt	Monsanto Thailand Ltd.	2000	Bt Cry 1A (b)	Pending Request for field trial
30. Corn C-919 603 (roundup resistance)	Monsanto Thailand Ltd.	2000	CP-EPSPS	Pending request for trial lab and greenhouse
31. Papaya	Kasetsart University	2000	CP-gene of PRSV	Trial contained in lab and greenhouse
32. Cotton NUCOTN33 (American bollworm resistance)	Monsanto Thailand Ltd.	2000	Bt cry 1A ©	Field Trial completed

End of Report.