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Report Highlights:

The production, trade, policy, and marketing for plant and animal biotechnology in Thailand has remained unchanged for several years. However, the Thai Food and Drug Administration (TFDA) is developing two new genetically engineered (GE) food regulations regarding GE food import, production, and labelling.

EXECUTIVE SUMMARY

While Thailand's current regulations prohibit the cultivation of GE crops, it allows the import of processed food containing GE ingredients, GE soybeans and corn for feed and industrial uses, and GE cotton lint. Thailand's imports of soybeans and cotton from the United States totaled $924 million in 2018, nearly all of which are GE products.

The Ministry of Natural Resources and Environment (MONRE) is still working on the Biodiversity Law, which will include biosafety regulations. However, MONRE does not yet have a timeline for when it will be submitted to the Cabinet for approval.

Thailand notified the World Trade Organization (WTO) of a draft GE food notification regulation for comments from member countries. Developers of GE crops and Thai industry stakeholders are concerned that, if implemented, the regulation would delay or disrupt the trade flow of soybeans and corn, and all processed foods containing GE organisms and microorganisms into Thailand. In addition, TFDA is drafting a new GE food labelling regulation. TFDA plans to implement these two new regulations in early 2021.

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CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: PRODUCTION AND TRADE

a. PRODUCT DEVELOPMENT: Although there were field trials for several transgenic plant varieties in the 1990s, the Thai government issued a blanket ban in 2003 on further field trials after public opposition. In 2007, the Cabinet gave permission for GE crop field trials to be conducted in Thailand under certain restrictions. However, despite the change in regulations, no GE crop field trials have been conducted in Thailand since the 2003 ban. Although Monsanto Thailand planned to conduct a field trial for NK603 herbicide-resistant corn in 2013, this field trial has not taken place after Naresuan University changed its mind on hosting the project. As a result, Monsanto discontinued the project. In addition, Syngenta Thailand and Pioneer Thailand have also discontinued their projects to conduct greenhouse trials of GE corn seeds.

b. COMMERCIAL PRODUCTION: Thailand has a de facto ban on GE crop cultivation.

c. EXPORTS: As there is no legal domestic cultivation of GE crops, Thailand does not officially export GE products. However, according to the European Union (EU) Rapid Alert System for Food and Feed (RASFF) report, more than 40 shipments of papayas originating from Thailand were detected positive for GE contamination and rejected from 2013-2017. There were no detections in 2018 but two shipments were detected and rejected in 2019. In 2014, the Department of Agriculture (DOA) regulated that all fresh or dried papaya or food products containing papaya exported to the EU and Japan are subject to GE detection testing prior to shipping. In 2016, the DOA set up formal criteria that exporters of Thai fresh papaya must meet in order to export to the EU, Switzerland, Norway, Iceland, China, and Japan.

d. IMPORTS: Thailand limits the importation of GE plants to processed food, soybean and corn for feed and industrial uses, and cotton lint. It is estimated that 95 percent of total soybean imports and 85-90 percent of cotton imports in 2018 came from GE plants. According to the Thai Customs Department, in 2018 Thailand imported $1.2 billion of soybeans and $523 million of cotton from all sources. The same year, cotton and soybean imports from the United States totaled $924 million.

e. FOOD AID: Thailand is not a food aid recipient and does not provide food aid on a regular basis. Rice has occasionally been used for disaster relief in other neighboring countries.

f. TRADE BARRIERS: Currently, there are no additional biotechnology-related trade barriers. TFDA is in the process of finalizing two new Genetically Modified (GM[1]) food

[1] It is specifically denoted in the Thai notification.

regulations. The industry is concerned that, if enforced, the regulations will delay or disrupt the trade flow of soybeans and corn, and all processed foods containing GM organisms and microorganisms into Thailand.

PART B: POLICY

a. REGULATORY FRAMEWORK: The four main government agencies involved in the regulation of agricultural biotechnology are the: 1) DOA, Ministry of Agriculture and Cooperatives (MOAC), responsible for regulating imported GE seed for planting, conducting GE research and development, and conducting risk assessment.; 2) National Center for Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST), responsible for conducting GE crop research and development including DNA technology laboratory development and providing technical advice and research funding; 3) Ministry of Natural Resources and Environment (MONRE), responsible for drafting the National Biosafety Law and representing as a national focal point for Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety (CPB); and 4) TFDA, Ministry of Public Health (MOPH), responsible for regulating and monitoring the use of GE food including labeling and regulating imports of GE-contained food products. In addition, the National Bureau of Agricultural Commodity and Food Standards (ACFS) under MOAC represents the Thai Government in negotiating all SPS issues in international organizations (i.e., WTO, Codex, OIE, etc.), including the safety of GE products.

The National Biosafety Committee (NBC) was established in 1993 to serve as a coordination body with Institutional Biosafety Committee (IBC) to develop national biosafety guidelines, to oversee imports of living organisms, to review and direct research methodologies, etc. IBC is an internal organization in various institutions, mainly universities and government agencies, where GE research and development project is conducted. IBC is mainly responsible for controlling and monitoring GE projects in order to comply with national biosafety guidelines. IBC is also required to report project proposals and project evaluations to NBC. However, due to a lack of real field trial activities, the NBC is no longer active. The review of biosafety issues for GE plants and animals is currently being conducted by the Technical Biosafety Committee (TBC), an ad hoc technical advisor of BIOTEC.

According to the agreement by the Cabinet led by General Surayuth Chulanont in 2007, the proposed Biosafety Act legislation will provide the legal framework regulating the use of agricultural biotechnology including research, field trials, and commercialization. In November 2015, after receiving approval from the Cabinet, the draft Biosafety Act was rejected by the Prime Minister, stating that he did not see the legislation providing any benefit to Thailand.

On November 1, 2016, the Chairman of NLA's Science, Telecommunication, and Public Communication Committee created a new subcommittee to draft a new Biosafety Act. A revised draft was completed on December 27, 2016. The NLA assigned MONRE with task of approving their draft legislation and preparing it for a Cabinet review.

MONRE chose to include the draft NLA Biosafety legislation as a part of its draft Biodiversity Law. The draft legislation's definition of biosafety covers environmental safety, human health safety, and sustainable biodiversity. Some are concerned that this too-broad definition and the complicated organizational process might impede future GE field trials and GE commercialization. Although the final draft of the Biodiversity Law was reportedly completed, there is no timeframe for when it will be submitted to the Cabinet for approval.

b. APPROVALS: Currently, no GE crops have been approved for cultivation nor have any field trials been undertaken. Imports of GE crops are limited to corn, soybean, and cotton for feed and industrial use.

c. STACKED or PYRAMIDED EVENT APPROVALS: No GE crops with stacked or pyramided events have been approved for cultivation thus far. No additional requirements for imports of GE soybeans, corn, and cotton with stacked events for feed and industrial use are applied. Thailand currently lacks a specified regulatory framework for the approval of GE stacked/pyramided events. BIOTEC published its guidelines for safety assessment of GE stacked/pyramided events in 2014, but these guidelines have not been officially adopted by the TFDA, which is the agency responsible for food approval. Further details are discussed in the 'Labeling' paragraph that follows.

d. FIELD TESTING: According to the 2007 Cabinet's criteria, all field trials must be located on government properties, hold public hearings prior to implementation, and obtain approval from the Ministerial Cabinet.

e. INNOVATIVE BIOTECHNOLOGIES: Some academic and research institutes are unofficially conducting gene editing for a few crops (such as tomato, cucumber, sugarcane, orchid), but research is limited to laboratory experiments. Thailand lacks a regulatory framework for plants developed by this technology.

f. COEXISTENCE: Thailand has not established any framework or guidelines regarding coexistence with non-GE crops.

g. LABELING AND TRACABILITY: The TFDA under the MOPH enforces the labeling requirement for processed foods containing GE plant materials. Effective in 2002, the MOPH lists 22 food products that are subject to labeling requirements when their contents exceed the five percent threshold. The labeling requirements are:

a) Food containing only one main ingredient should include a statement of "genetically modified" in conjunction with, or in close proximity to, the name of foods such as "genetically modified corn," or "tofu produced from genetically modified soybean," etc.;
b) For multi-ingredient foods, labels should include a statement of "genetically modified" in conjunction with, or in close proximity to, or under the names of top three main ingredients of the food product such as "genetically modified corn starch," etc.

However, the regulation is not applied to small producers who produce and directly sell to consumers. The products subjected to labeling requirements are:

1. Soybeans
2. Cooked soybeans
3. Roasted soybeans
4. Bottled or canned soybeans or soybeans contained in retort pouch
5. Natto
6. Miso
7. Tofu or tofu fried in oil
8. Frozen tofu, soybean gluten from tofu or its products
9. Soybean milk
10. Soybean flour
11. Food containing product(s) from 1 to 10 as the main ingredient
12. Food containing soybean protein as main ingredient
13. Food containing green soybean as main ingredient
14. Food containing soybean sprout as main ingredient
15. Corn
16. Popcorn
17. Frozen or chilled corn
18. Bottled or canned corn or corn contained in heat-treated pouch
19. Corn flour or cornstarch
20. Snack foods deriving from corn as main ingredient
21. Food containing product(s) from 15 to 20 as the main ingredient
22. Food containing corn grits as main ingredient.

TFDA is in the process of drafting two new GM food regulations, namely: 1) Notification on Genetically Modified Foods (GMFs); and 2) Notification on Principles, Conditions, and Food Labeling for Food Derived from GM Organisms.

Thailand notified a draft of the Notification on GMFs to the WTO on July 5, 2019 (G/SPS/N/THA 264), and a deadline of comments from WTO member stakeholders was

September 3, 2019 (Note: Thailand agreed to the United States' request to extend the deadline to September 17, 2019, and the U.S. comments were sent to Thailand before the extended deadline ended).

The main contents of the GMF Notification include the following:

- The notification covers all products of GM plants, GM microorganisms, and GM animals;
- GMFs are meant to cover all materials used as food ingredients, food additives, and products for human consumption;
- Once the regulation is implemented, the import and/or production of food derived from GM organisms would be allowed only for:
    1. Food derived from GM organisms/events which are on a list of approved organisms (a positive list), and, the current positive list provided in Annex I of this notification covers only 26 GM plant organisms (all belong to soybeans and corn).
    2. As for food derived from GM plant organisms which have not been approved, TFDA will grant a grace period of 5 years from the effective date of the regulation, but this waiver is subject to the following criteria:
        a. Importers/processors must present evidence that that particular GM plant organism(s) is(are) approved in at least 3 countries, excluding countries which developed that GM plant organism(s);
        b. In the meantime, importers/exporters/plant developers must prepare and provide reference material, method of analysis, and other necessary information for analysis to the Thai Department of Medical Science or a government agency accredited by TFDA for food safety risk assessment; and
        c. Each shipment of imported grain/products must be accompanied by a certificate that states the food is derived from a GM organism or events which are on waiver under 2); and,
- No grace period or waiver has been provided for cases of food derived from GM animal organisms and GM microorganisms.

Since a positive list of 26 organisms or events is not fully comprehensive and a 5-year grace period waiver is likely to prove unpractical, GM crop developers and Thai industry stakeholders are tremendously concerned that, if implemented, this regulation would delay or disrupt the trade flow of soybeans, corn, and all processed foods containing GM organisms and microorganisms into Thailand.

The industry groups that are likely to be affected by this new regulation proposed to TFDA to: (1) detach submission of approval from 3 countries from the dossier submission; (2) accept CropLife's global list as the official temporary approval list to ensure no trade interruptions happen while the tech providers have reasonable lead time to submit all dossiers; (3) clarify the

requirements regarding reference material, method of analysis submission, and detection method for labelling. In August 2019, TFDA unofficially responded that it would take the request of the industry groups and comments from different WTO member countries, including U.S. comments, into its consideration.

The current draft of Notification on Principles, Conditions, and Food Labeling for Food Derived from GM Organisms requires that: 1) all food containing GM plant or animal organisms more than 5 percent in composition must be labeled; and 2) all food containing GM microorganism must be labeled. However, TFDA has been challenged by anti-biotech non-government organizations (NGOs) to apply the requirement for labeling on all food containing GM organisms, not just the more than 5 percent threshold. In August 2019, TFDA sent the draft notification back to its technical committee for a review. It is also noted that the labelling regulation has not yet been notified to the WTO.

TFDA plans to implement these two regulations in early 2021.

h. MONITORING AND TESTING: Although Thailand has laboratory facilities to test GE products, sources indicate that officials do not closely test or monitor manufacturers' compliance of the biotech food labeling requirements.

i. LOW LEVEL PRESENCE (LLP) POLICY: Thailand has not established any framework or guidelines regarding low level presence.

j. ADDITIONAL REGULATORY REQUIREMENTS: None.

k. INTELLECTUAL PROPERTY RIGHTS (IPR): Seed developers believe that the current Thai Plant Variety Protection Act (PVP) does not fairly protect patents for a new plant varieties derived from genetic engineering. In particular, the PVP regulates that the use of foreign plant varieties to develop new breed seed in Thailand, including GE crop seeds, is subject to a benefit sharing requirement for local communities. The Thai Seed Trade Association (THASTA) and other stakeholders continue to work with MOAC in the past couple years to revise these provisions under the Act to align the PVP Act with the International Union for the Protection of New Variety of Plants' (UPOV) guidelines.

Copyright protection for GE crops is covered under Trademark Act (No.2) B.E. 2543 (2000), which is regulated by the Ministry of Commerce's Department of Intellectual Property.

l. CARTAGENA PROTOCOL RATIFICATION: Thailand signed the Convention on Biological Diversity (CBD) in 1992. Thailand signed the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety in March 2012. In March 2015, the Thai Cabinet approved the Master Plan for Integrated Biodiversity Management B.E. 2558-2564 (2015-2021). The master plan has been implemented under National Biodiversity Targets, which are divided into three phases, i.e., by 2016, by 2020, and by 2021. Details of the master plan and national biodiversity targets can be found in https://www.cbd.int/doc/world/th/th-nbsap-v4-en.pdf.

m. INTERNATIONAL TREATIES and FORUMS: Thailand regularly participates in international organization conventions such as the International Plant Protection Convention (IPPC) and Codex Alimentarius (Codex). However, Thailand has not taken any clear positions on issues relating to GE crops and related products.

n. RELATED ISSUES: The Thai government, especially the MOAC, promotes organic production and self-sufficient agricultural production. Most Thais perceive organic crops as being safer than GE crops and view farmers who adopt self-sufficiency in agricultural production as being less dependent on expensive agricultural practices.

PART C: MARKETING

a. PUBLIC/PRIVATE OPINIONS: The latest survey on this issue available is from 2010. According to the 2010 survey, 66 percent of the 340 surveyed respondents said they would not purchase GE foods. On specific health risks, 40 percent of respondents believed that consumption of GE foods could create an allergic reaction and 56.2 percent believed that consumption could lead to antibiotic resistant diseases. On consumption benefits, 59.7 percent felt that GE foods could enhance food traits while 54.4 percent believed that consumer could pay less for GE foods. Regarding the environment, 68.3 percent believed that GE crops could cause an unbalanced ecosystem, and 75.1 percent agreed that the flow of GE crops into other traditional crops could occur.

b. MARKET ACCEPTANCE/STUDIES: In general, Thai producers, retailers, and consumers remain misinformed about the safety and use of transgenic plants or related foods. Contrary to public perceptions, Thailand consumes large amounts of biotech crops either directly (such as soybean oil) or indirectly (through the garments and processed foods that use biotech inputs). Although mandatory labeling is required for food products with more than five percent GE content, unpackaged products or products packaged in bulk are exempt from the rules. This has led to public misinformation about the amount of biotech products that they consume.

CHAPTER 2: ANIMAL BIOTECHNOLOGY

PART D: PRODUCTION AND TRADE

a. PRODUCT DEVELOPMENT: Thailand does not engage in the development or production of genetically engineered animals. Cloning research in cattle, buffalo, goats, and pet animals has been conducted in some universities, such as Chulalongkorn University, Kasetsart University, and Suranaree University of Technology, but FAS/Bangkok is unaware of initiatives to develop this technology for commercial purposes.

b. COMMERCIAL PRODUCTION: None.

c. EXPORTS: None.

d. IMPORTS: None.

e. TRADE BARRIERS: Although no regulatory framework on trade has been established, trade of GE animals is subject to a de facto import/export ban.

PART E: POLICY

a. REGULATORY FRAMEWORK: The TBC, an ad hoc technical advisor of BIOTEC, has responsibility for the review of biosafety issues for GE animals.

b. APPROVALS: None.

c. INNOVATIVE BIOTECHNOLOGIES: There has been no research on gene editing in Thailand, and Thailand lacks a regulatory framework for animals developed by this technology.

d. LABELING AND TRACEABILITY: None.

e. INTELLECTUAL PROPERTY RIGHTS (IPR): None.

f. INTERNATIONAL TREATIES and FORUMS: None.

g. RELATED ISSUES: None.

PART F: MARKETING

a. PUBLIC/PRIVATE OPINIONS: There has been no survey on public or private opinions. However, FAS/Bangkok believes that the majority of the Thai population is not aware of developments in animal biotechnology, including both GE and cloned animals. If any, most private opinions would be negative due to prevailing campaigns by anti-biotech NGOs regularly delivering misinformation to the public.

b. MARKET ACCEPTANCE/STUDIES: FAS/Bangkok believes that market acceptance for the sale and use of livestock clones and GE animals in Thailand is very low and probably non-existent.

Attachments:

No Attachments