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Report Highlights:
Turkey's Biosafety Law (Law), published in March 2010, continues to cause substantial harm to Turkey's agriculture and food sectors. An estimated 150 violations of the Law are being prosecuted, some under the charge of "biological terror". Turkey amended its biotechnology regulation in May 2014 to remove some liability for responsible parties due to "contamination", or low level presence (LLP). The number of violations increased in 2014 following a High Court decision in December 2013 to suspend two biotech approvals (MON810 and MON88017xMON810). The Ministry of Food, Agriculture and Livestock (MinFAL) has effectively suspended the approval for NK603xMon810 due to testing limitations. And a new challenge was introduced in October 2014 when MinFAL began requiring a government attestation that imports of enzymes and microorganisms, and products that utilize them, are not obtained from genetic engineering.

Turkey has not approved any biotech traits for food use, nor are there any applications to approve the use in food.

Section I. Executive Summary:

In April 2013, three prominent importers were charged with "biological terror" following the import of rice that contained trace amounts of soybean. Although soybean and corn are approved for animal feed, its presence in a food is illegal under the Biosafety Law. Most of Turkey's trade partners have shipments that have run afoul of Turkey asynchronous approvals for food and feed. The unpredictability has increased corporate risk, costs and contributed to increased public suspicion of biotech products.

The Biosafety Law went into effect on September 26, 2010. Since the publication of the Law, the MinFAL established an independent Biosafety Board consisting of mostly officials from various government ministries and some academicians. To date, importers of agricultural products have submitted applications for the approval of 22 corn, 3 soybean, 3 canola, one sugar beet and one potato starch transgenic events (all currently approved in the EU). Of these events, the Board has approved usage for only 3 soybean and 16 corn events for feed use. However, in December 2013, Turkey's High Court effectively suspended the approval of 2 corn events, MON810 (approved and cultivated in Europe) and MON88017xMON810.

In May 2014, MinFAL amended the regulation that implements the Biosafety Law to define "contamination". MinFAL's intention is to reduce the instances of prosecution for low level presence (LLP) in imports.

Beginning in late October 2014, MinFAL began requiring an attestation that the products do not include genetically engineered microorganisms or derived enzymes.

Section II: Plant and Animal Biotechnology

Chapter1: Plant Biotechnology

Part A: Production and Trade

a. **Product Development:** Turkey's Biosafety Law permits the regulated study and development of plant biotechnology. However, the cumulative disincentives in the forms of quarantine control, approvals, liability, and prohibition on the cultivation of agricultural biotechnology have discouraged product development. According to the Law and the implementing Regulation, an application or permit is not required for agricultural biotech research. The MinFAL Agricultural Research and Policies General Directorate (TAGEM) must be informed by the researcher about the research activity and its result(s). However, researchers must apply to TAGEM for permission to import genetically engineered (GE) material and derived products for the purpose of research, development and training/educational activities. The amount of GE material and derived products to be imported is determined by TAGEM. The Law requires TAGEM to finalize the permit procedure within 15 days. After the completion of the research activity, the researcher must inform TAGEM of the research result(s).

Although many academicians disagree that the procedures and requirements of the Law discourage research, the Law's prohibition on cultivation and commercialization have discouraged the private and public sector from pursuing the development of transgenic products. Universities are, however, are applying marker assisted breeding in biotechnology courses.

b. Commercial Production: Article 5 of the Biosafety Law (Law No: 5977), adopted on March 26, 2010, bans the production of genetically modified animals and plants. Importation of transgenic seeds is also forbidden by the Law and by the seed circular, which is usually published in January of every year by MinFAL.

c. Exports: There is no commercial production of GE crops in Turkey and Turkey does not export GE crops to the United State or other countries. However, a significant quantity of animal feed material is redirected from Turkey to neighboring countries at discounted prices following Turkish import officials' rejection of shipments that contain unapproved traits.

d. Imports: Turkey continued to be an importer of bulk and semi-processed commodities in 2014. After cotton, soybeans and soybean meal are the second largest export commodity from the U.S to Turkey. However, soybean exports to Turkey have decreased significantly since a record high in 2011.

Due to insufficient domestic production and increasing demand, Turkey imports significant quantities of feed crops for its poultry and livestock sectors. The United States is among the top suppliers to the Turkish market.

In 2010, the Turkish Feed Millers Association submitted dossiers for the approval of 3 soybean events (feed use only) that are already approved in the European Union. These were: A2704-12, MON89788 and MON40-3-2. The Biosafety Board decided to review the applications under the

simplified procedure, which is an expedited way of reviewing.

The Biosafety Board approved the above mentioned soybean events to be used as feed with a final approval decision published in the Official Gazette on January 26, 2011.

The Feed Millers Association, Turkish Poultry Meat Producers and Breeders Association, and the Turkish Egg Producers Association also applied in January of 2011 for the approval for feed use of the 22 EU-approved corn events. In December 2011, and April 2012, approvals for feed use were given for 16 out of 22 corn events with the remaining 6 events being rejected. As a result of the rejections, trade in corn and corn by-products have virtually ceased due to the difficulty in segregating the approved and rejected biotech events in the supply chain.

Trade in other higher valued products such as supplements and pet food has also been reduced by the Law, and there have been rejections of some products due to their transgenic content or very low presence of transgenic crops.

e. Food Aid Recipient Countries: Turkey is not a food aid recipient country. However, in August 2013, Turkey rejected a shipment of food aid wheat for Syrian refugees that was to be milled by Turkish millers. Turkey's decision was based on the detection of a soybean or corn trait. This decision led to a second country who received a portion of that shipment to reject the wheat.

Part B: Policy

a. Regulatory Framework: Turkey's regulation of agricultural biotechnology is governed by the Biosafety Law (Law No: 5977), adopted on March 26, 2010, and related implementing regulations. Import of transgenic agricultural products is only allowed after approval of each event for each use; for example: food, feed, industrial (and specific applications, such as: lubricant, ink, paint, biofuel, etc.).

Following the adoption of the Biosafety Law, MINFAL established a Biosafety Board. TAGEM acts as the secretariat of the Board. The Board has nine members who may serve two consecutive 3-year appointments. The Board members review applications for the approval of transgenic events. Most of the Board members are high-level bureaucrats from MinFAL, the Ministry of Health, the Ministry of Science, Industry and Trade Technology, the Ministry of Environment and Urbanization, the Ministry of Forest and Water Affairs, and the Ministry of Economy. The Ministers of each Ministry appoints a member of their staff to serve on the Board. Two non-governmental Board members are appointed by the Minister of Food, Agriculture and Livestock, and are selected from qualified experts from a university and from a related association (Agricultural Engineers, Food Engineers, etc.). Article 10- (1) of the Law states that "the Board is independent in the performance of its duties. No organ, office, body or person can issue orders or instructions to the Board."

Approval can only be granted after a detailed application (dossier) is submitted and reviewed by the Risk Assessment and Socio-Economic sub-committees, and then are approved by Biosafety Board. The Biosafety Board publishes decisions in the Official Gazette.

Each application is reviewed separately. For every application, the Board establishes Risk Assessment and Socio- Economic Committees from a "List of Experts". Law says that where required, the Board will also establishes an Ethical Committee. However, an Ethical Committee has yet to be established. The members of the committees are kept secret. However, the List of Experts is public and contains 324 experts from academia and the Scientific and Technological Research Council of Turkey (TUBITAK).

MINFAL published two implementing regulations of the Biosafety Law on August 13, 2010. These were "Regulation on GMO and Products" and "Regulation on Working Principles of the Biosafety Board and the Committees".

According to the Law, either the gene owning technology companies or importers of transgenic crops are allowed to submit applications for the approval of a transgenic event. The reviews are to be completed within 270 days, or 90 days under the expedited procedure. The Biosafety Board determines which time line to use. MinFAL pressured the international companies that have developed agricultural biotech events to submit applications under the new Law as quickly as possible in order to avoid trade problems, however these companies expressed concerns about the severe yet unclear liability provisions in the Law, as well as the vagueness of the application procedures. The Board has approved usage for only 3 soybean and 16 corn events for feed use only. However, in December 2013, Turkey's High Court effectively suspended the approval of 2 corn events, MON810 (approved and cultivated in Europe) and MON88017xMON810.

Currently there is no threshold for presence of unapproved transgenic events in food. As a result, trade has been severely restricted out of concern that dust or minor contamination of food products will lead to the rejection of shipments.

On May 29, 2014, MinFAL published an amendment to the "Regulation on GMO and Its Products". The amendment defines "contamination" in feed and establishes a 0.9% threshold at and under which products are considered "contaminated". However, the amendment does not clearly explain how "contamination" changes the ability to market products or commodities with unapproved biotech traits. For detailed information, please see GAIN report TR4017 "Turkey Amends Biotechnology Regulation" dated 5/29/2014.

Beginning in late October 2014, MinFAL began requiring a certificate from the producer's or exporter's government authority that issues a health certificate (plant health), veterinary health certificate (animal health), or certificate of free sale indicating that for:

- *the import of microorganism, a certificate issued by the authorities of the country of origin or the country of loading or an analysis report issued by an internationally accredited laboratory evidencing that the microorganism is not genetically modified; and*

- *the import of enzyme, a certificate issued by the authorities of the country of origin or the country of loading evidencing that the organism, from which the enzyme is obtained, is*

not genetically modified.

For detailed information, please see GAIN report TR4039 "Turkey Requires GE-Free Attestation for Enzymes and Microorganisms" dated 10/28/2014.

The liability provisions of the Law include harsh penalties including lengthy jail terms for unspecified "related parties". The Law also does not give explicit guidance about what documents are required and how they will be evaluated. The Law also bans inclusion of biotech ingredients in baby food and supplementary foods for young children, bans production of biotech plants, animals, and the planting of biotech seeds. The Law also contains onerous labeling and traceability requirements once the product arrives in Turkey. It does not allow an application to be submitted in Turkey until it is already approved in the country of production, which guarantees asynchronous approvals.

b. Approvals: Anyone may apply for the approval of a biotech trait in Turkey. Applicants are required to provide a dossier containing technical information and data on the trait to be approved, and pay the application fee of 50,000 Turkish Lira (TL) per event ($19,157 at the exchange rate of 2.61 TL/$ on March 27, 2015).

To date none of the technology owning companies have submitted an application to be reviewed by the Biosafety Board.

The industry associations' application dossiers contained documents that were available online. The dossiers were reviewed under the Simplified Procedure as stated in the Law (expedited) due to the urgent need to import protein for the animal sector. Following the review process, three soybean events (A2704-12, MON40-3-2, and MON89788) were officially approved and the approvals were published in the the Official Gazette on January 26, 2011.

In January of 2011, applications for 22 corn events were submitted to the Biosafety Board for feed use by the Feed Miller's Association. All of these events are already approved in the European Union. These applications were reviewed under regular procedure. As a result of the review, the Biosafety Board approved 16 corn events on December 24, 2011 and on April 21, 2012. The Board rejected 6 corn events.

On April 25, 2013, the Board rejected 22 biotech corn varieties to be used in the ethanol sector, 3 biotech rapeseed varieties to be used in the feed sector, and 1 biotech sugar beet variety to be used in the feed sector. These decisions were widely reported in the media in response to public outrage over three suspected GE rice shipments.

On December 24, 2013, MinFAL acted on a decision by Turkey's High Court to suspend the approval of MON810 and MON88017xMON810 for animal feed. The two suspended traits were added to the list of unapproved traits port officials test for at import. Turkey conducts a positive/negative test, and if positive, tests for each of the unapproved traits. Although Mon810 and Mon88017xMon810's approvals were rescinded, Post understands that the ports will test for MON810 only, as MON88017 remains an approved individual trait. **Although NK603xMon810 is approved officially**, the Ministry does not allow its import due to

Mon810's approval being rescinded, and in line with Turkey's interpretation of the "precautionary principle".

Please see the table below for a full list of approvals and rejections.

Table-2: Status of Applications for food and feed use

Commodity	Event	FOR FEED USE	FOR FOOD USE
Soybean	A2704-12	Accepted	Application withdrawn by applicant
Soybean	MON89788	Accepted	"
Soybean	MON40-3-2	Accepted	"
Corn	Bt11	Accepted	"
Corn	1507	Accepted	"
Corn	59122	Accepted	"
Corn	1507xNK603	Accepted	"
Corn	NK603	Accepted	"
Corn	NK603xMON810	Effectively Rescinded	"
Corn	MON88017	Accepted	"
Corn	59122xNK603	Accepted	"
Corn	GA21	Accepted	"
Corn	MON 810	Rescinded by the High Court	"
Corn	MON 863	Rejected	"
Corn	MON 863x NK603	Rejected	"
Corn	MON 863xMON810	Rejected	"
Corn	MON 89034	Accepted	"
Corn	MIR604	Rejected	"
Corn	MON 863x MON810xNK603	Rejected	"
Corn	MON89034 x NK603	Accepted	"
Corn	Bt11 x GA21	Accepted	"
Corn	59122 x 1507 x NK603	Accepted	"
Corn	MON88017 x MON810	Rescinded by the High Court	"
Corn	1507 x 59122	Accepted	"
Corn	T25	Rejected	"

In January, 2011, the Federation of the Food and Beverages Associations also submitted applications for all EU approved soybean, corn, canola and potato events for food use. However, as a result of intensive pressure from NGOs and the media, the Federation withdrew their applications for all events for food use.

c. Field Testing: Turkey does not have any field testing of products derived from agricultural biotechnology.

d. Stacked Event Approvals: Turkey treats stacked events as novel and requires their approval separate from the approval of each individual event in the stack.

e. Additional Requirements: Article 5(1)d of the Biosafety Law prohibits the use of GE "and products thereof in baby food and infant formulas, follow-on formulas and cereal-based supplementary foods for babies and young children." Article 16(1) of the Regulation on Genetically Modified Organisms and Products thereof requires MinFAL's permission for each transit passage of products containing GE.

f. Coexistence: The prohibition against cultivation of agricultural biotechnology doubles as Turkey's coexistence policy.

g. Labeling: According to the Biosafety law and regulations, any imported biotech food or feed above the labeling threshold set by the Ministry (in January 2011 this threshold was given as 0.9% via an internal Agriculture Ministerial Directive) must be labeled. Traceability clauses in the Law and implementing regulations require that records be kept for a minimum of 20 years, detailing the unique identifier of the gene, quantity, supplier, and purpose of use, each time a product is processed or handled, from the time of import to the time of distribution to the market.

The implementing regulations also require that "GMOs and products thereof are processed and stored in separate lines. In the event that this is not possible, the production lines and storage facilities must be cleaned by the interested parties in a manner to prevent any contamination with GMOs and products thereof and the circumstance must be committed to records."

h. Trade Barriers: It is a point of pride for Turkey that the Biosafety Law is more restrictive than regulations in the EU. Turkey has zero tolerance for the detection of unapproved biotech traits. Imports declared as containing GE are tested at a rate of twenty percent and products without declaration are tested at a rate of one hundred percent. Turkey does not accept point of origin testing. The Biosafety Law contains liability clauses that penalize non-compliance with large fines and five to twelve years in prison. The approval process is based on the risk and socio-economic assessment of the committees under the Biosafety Board. Turkey also approves traits separately for feed, food and industrial products, which have led to instances of low level presence (LLP) and prosecution under the Biosafety Law's liability provisions.

i. Intellectual Property Rights (IPR): Post is unaware of any IPR problems in Turkey as the cultivation of GE crops is prohibited under the Biosafety Law. The Foreign Commercial Service produces a report "Doing Business in Turkey: 2013 Country Commercial Guide for U.S. Companies" that contains information on the protection of IPR in Turkey.

j. Cartagena Protocol Ratification: Turkey ratified the Cartagena Biosafety Protocol on October 24, 2003 and entered it into force on January 24, 2004.

Turkey is a member of several international organizations dealing with plant protection and plant health like the European and Mediterranean Plant Protection Organization (EPPO), the Organisation for Economic Co-operation and Development (OECD), the Food and Agriculture Organization (FAO) International Plant Protection Convention (IPPC), and Codex.

k. Related Issues: Turkey's Biosafety Law requires approval for use of products derived from agricultural biotechnology, excluding only pharmaceuticals and cosmetics. Therefore, industrial uses of products derived from plant biotechnology must also be approved separately. In April 2013 Turkey rejected all corn traits for use in the production of ethanol.

l. Monitoring And Testing: Turkey tests imports that contain ingredients derived from commodities that have genetically engineered varieties at a rate of twenty percent for products declared as containing GE, and one hundred percent for products without declaration. Turkey utilizes a rapid response PRT tests to detect 35S promoters and NOS terminators. Import tests are conducted officially by designated local official laboratories and the National Reference Laboratory in Ankara retests when results are contested. At least one sample and test was conducted unofficially under the authority of a local prosecutor at an undesignated university laboratory. Although this occurrence does not represent the official procedures, it is a potential risk to imports. Products that receive a positive detection prior to "nationalization" (customs clearance) may be sent to another country (provided several conditions are met; please contact FAS/Ankara for more details, as the conditions are fluid). The importer of a shipment found to contain an unapproved trait after clearing customs is prosecuted for violating the Biosafety Law.

m. Low Level Presence Policy: Turkey has a zero tolerance for unapproved LLP in food and industrial products, subject to the liability provisions of the Biosafety Law. On May 29, 2014, MinFAL published a change to the regulation that implements the Biosafety Law to define "contamination" and establish a threshold of 0.9% for approved genes in their intended use. Because genes are approved only for feed use, the threshold does not provide any utility to detections in food. MinFAL has yet to clarify the implementation of the definition or threshold. MinFAL intends for the definition and threshold to provide some measure of security from prosecution as "contamination" means unintentional and beyond the control of the domestic party involved (importer, wholesaler, distributor, retailer, etc…).

Part C: Marketing

a. Market Acceptance: The fear of biotechnology by the Turkish public, producers, retailers and consumers continues. This is mainly due to successful anti-GMO campaigns run by local and international NGOs such as the Chamber of Agricultural Engineers, Greenpeace and the Friends of the Earth, since 2008.

Although public sentiment is resoundingly anti-biotech, Turkey is import-dependent for plant-based protein for animal feed. However, the restrictions on the use of biotech soybeans prevents industry from crushing (soybean oil can't be used for any purpose but animal feed), resulting in a decrease in soybeans and an increase in soybean meal imports in 2013.

b. Public/Private Opinions: As a result of these campaigns and one-sided reporting in the media, public and private opinion in Turkey are dominated by information on possible hazards from the consumption of products derived from agricultural biotechnology. The public commonly accepts a link between GMOs and cancer as established.

c. Marketing Studies: To date, Post is unaware of any marketing studies that have evaluated Turkish consumer sentiment towards products derived from agricultural biotechnology. Graham Brookes of PG Economics in Great Britain published the study "Economic impacts of the Biosafety Law and implementing regulations in Turkey on the Turkish importing and user sectors" in May 2012. The study concludes that "…the on-going annual cost can reasonably be expected to be between $0.7 billion and $1 billion and could be higher."

Part D: Capacity Building and Outreach

a. Activities: Over the last decade FAS-Ankara has conducted numerous policy-maker, academic and journalist training programs. FAS-Ankara expanded Turkey's exposure to the regulatory approaches of other countries. In 2014, FAS took a group of Turkish officials to visit the European Food Safety Authority (EFSA), and the brought an expert from Japan to explain how and why they regulate agricultural biotechnology. FAS also took key contacts to Europe to learn of how Europe regulates the cultivation and import of GE commodities and products.

b. Strategies and Needs: Turkey's government officials, including the Minister of Agriculture, Prime Minister, and President have made numerous remarks questioning the safety of products derived from agricultural biotechnology. To date, reportedly 150 companies are defending themselves in the courts for placing unapproved GE traits on the market. The first three were charged with "biological terror". Further regulatory action against the import of enzymes and products that utilize enzymes have damaged the domestic food, feed and agricultural sectors. Multiple layers of monitoring and testing subject importers and retailers to double jeopardy, having received GE-free test results at import, but sampled and tested again on the local market. The government of Turkey has not made progress in back-tracking from years of public fear-mongering.

There is a need in Turkey for an honest public dialogue on the use of biotechnology in agricultural production and food and feed products. Dialogue has, to date, been limited to sensationalist claims about the hazards of biotechnology. The scientific condemnation of a study linking GE to cancer received no media coverage, leaving the impression of the original claims in the public's understanding of the technology. Turkish experts carry greater credibility with the public than do those from the United States, industry, and even the European Union. Too few experts have been willing to face the public scrutiny of NGO campaigns and media derision, but need to be encouraged to foster the necessary public dialogue. FAS Ankara continues to provide the Biosafety Board with information about and contacts in the regulatory authorities of other countries.

Chapter 2: Animal Biotechnology

Part E: Production and Trade

a. Product Development: Article 5 of the Biosafety Law (Law No: 5977), adopted on March 26, 2010, bans the production of genetically modified animals and plants.

b. Commercial Production: Banned.

c. Exports: Banned.

d. Imports: Banned.

Part F: Policy

a. Regulation: Turkey's regulation of agricultural biotechnology is governed by the Biosafety Law (Law No: 5977), adopted on March 26, 2010, and related implementing regulations. Import of transgenic agricultural products is only allowed after approval of each event for each use. For more information, please see Chapter 1 Part B.

b. Labeling and Traceability: Products derived from approved GE animals would require a label indicating that it is or contains GE.

c. Trade Barriers: Not applicable.

d. Intellectual Property Rights (IPR): Post is unaware of any IPR problems in Turkey as the cultivation of GE crops is prohibited under the Biosafety Law. The Foreign Commercial Service produces a report "Doing Business in Turkey: 2013 Country Commercial Guide for U.S. Companies" that contains information on the protection of IPR in Turkey.

e. International Treaties/Fora: Turkey is a member of several international organizations dealing with plant protection and plant health like the European and Mediterranean Plant Protection Organization (EPPO), the Organisation for Economic Co-operation and Development (OECD), the Food and Agriculture Organization (FAO) International Plant Protection Convention (IPPC), and Codex.

Part G: Marketing

a. Market Acceptance: Not applicable.

b. Public/Private Opinions: Turkish public opinion is skeptical of benefits from new agricultural technologies, in general.

c. Market Studies: Not applicable.

Part H: Capacity Building and Outreach

a. Activities: None.

b. Strategies and Needs: As with plant biotechnology, Turkey needs a public dialogue on the benefits and credible risks of animal biotechnologies. Key to a productive dialogue is the

availability and circulation of credible studies on the benefits and risks of these technologies. A lack of familiarity with the topic also hinders the ability of the media to report on it accurately and distribute credible information. Modern communication, such as social media, could also be a means for the distribution of credible information.