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Report Highlights:

Public opposition to agricultural biotechnology continued to increase significantly in 2012, mostly due to campaigns run by NGOs via print and visual media. A number of pseudo-science documents were published by the media. The Biosafety Board disapproved the use of all corn events for biofuels production in April 2013.

Section I. Executive Summary:

Public opposition to agricultural biotechnology continued to increase significantly in 2012 mostly due to campaigns run by NGOs via print and visual media. A number of pseudo- science documents were published by the media.

The Biosafety Law went into effect on September 26, 2010. Since the publication of the Law, the Ministry of Food, Agriculture and Livestock (MinFAL) established an independent Biosafety Board consisting of mostly bureaucrats 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). However, of these events, the Board has approved usage for only 3 soybean and 16 corn events for feed use.

In September 2011, the Biosafety Board adopted the EU 0.1% threshold for unapproved events in feed material.

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. The cumulative disincentives in the forms of quarantine control, approvals, liability, and prohibition on the cultivation of agricultural biotechnology have discouraged product development. The Law also mandates that for any research on biotech carried out in Turkey, the researcher needs to apply to the Biosafety Board in advance for permission to carry on the research.

Many academicians voiced concerns about this issue. Although MinFAL has stated that the Law will not discourage research, it seems to already be affecting willingness of the private and public sector to pursue further research in this area. Turkish companies and universities have so far not developed any transgenic seeds.

- 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 genetically engineered (GE) crops in Turkey and Turkey does not export GE crops to the United State or other countries.
- d. **Imports:** Turkey continued to be an importer of bulk and semi-processed commodities in 2012. Despite a drop compared to 2011; with \$589 million in value, cotton was again the top export commodity from the US to Turkey in 2012. Soybeans became the second largest export commodity in 2012. The United States is among the top suppliers to the Turkish market. Due to insufficient domestic production and increasing demand, Turkey imports significant quantities of feed crops for its poultry and livestock sectors.

In 2010, the Turkish Feed Millers Association submitted a dossier for approval of three 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. Finally the Biosafety Board approved the above mentioned soybean events to be used as feed. Following the publishing of the final approval decision on January 26, 2011 in the Official Gazette, imports of soybean resumed again in February 2011. The Feed Millers Association also applied for feed use approval for the 22 EU-approved corn events in January of 2011.

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 did not resume for corn and corn by-products due to the difficulty in segregating the biotech events in the supply chain. Trade in other higher valued products such as supplements and pet food have also been negatively impacted 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.

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.).

Approval can only be granted after a detailed application (dossier) is submitted and reviewed by the Biosafety Board, its sub-committees, and then approved by MinFAL.

Following the adoption of the Biosafety Law, MINFAL's General Directorate of Agricultural Research and Development established a Biosafety Board. The Board has nine members and is the independent authority in charge of reviewing applications for the import of transgenic events. Most of the Board members are high-level bureaucrats from MinFAL, the Ministry of Health, the Ministry of Industry and Trade, the Ministry of Environment and the Ministry of Economy. It also includes academicians from Ankara University.

For every application, the Board establishes Risk Assessment, Socio-Economic and Ethical Committees from a "List of Experts". The members of the committees are kept secret.

However, the List of Experts is public and contains approximately 180 experts from Turkish academia. Each committee can review several applications at the same time.

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.

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.

The lack of approval for biotech events for food use led to a major problem of zero tolerance for any contamination. Since there is no threshold for contamination of food products, any shipment that is contaminated by parts per billion (essentially as low as the level of detection) with biotech event leads to major cases at the Turkish courts.

The Board, however, is also trying to set low level presence threshold for existence of unapproved varieties. The Board adopted rules very similar to the threshold adopted by the EU in July 2011. The EU recently adopted a 0.1% threshold for unapproved events in feed material. In September 2011, the Biosafety Board adopted the same threshold for feed. It is significant to mention that “unapproved” here is used for events that are already submitted to the Biosafety Board for review and no decision is made yet.

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 or food supplements for young children, bans planting of biotech seeds, and contains onerous labeling and traceability requirements once the product arrives in Turkey. It also 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:** To date none of the technology developers have submitted an application to be reviewed by the Biosafety Board. The Turkish Feed Millers Association submitted applications for the import of three EU-approved soybean events for feed use in October, 2010. The application dossier 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 via 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.

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

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

The applicant withdrew all food-use applications in June 2012. Turkey rejected all applications for corn traits for biofuel production in April 2013. Currently the last dossiers waiting to be approved by the Board are for industrial use purposes such as plastics. The status of feed-use applications are listed in the table below.

Commodity	Event	Status of Application/FEED USE
Soybean	A2704-12	Accepted
Soybean	MON89788	Accepted
Soybean	MON40-3-2	Accepted
Corn	Bt11	Accepted
Corn	DAS1507	Accepted
Corn	DAS59122	Accepted
Corn	DAS1507xNK603	Accepted
Corn	NK603	Accepted
Corn	NK603xMON810	Accepted
Corn	MON88017	Accepted
Corn	DAS59122xNK603	Accepted
Corn	GA21	Accepted
Corn	MON 810	Accepted
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	Accepted
Corn	DAS1507 x 59122	Accepted
Corn	T25	Rejected

- 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 prohibits the use of GE “and products thereof in baby food and baby formula, follow-on food and follow-on formula, baby and young children nutritional supplement.” 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 (*lines of production, storage facilities, conveyor belts, etc...*). 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 on 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 at least five years in prison. The approval process is based on the risk and socio-economic assessment of expert panels, but MinFAL is not compelled to adopt the committees’ recommendations. 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.
- k. **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.
- l. **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.

- m. **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. Import tests are conducted by approved local laboratories and the National Reference Laboratory in Ankara retests when results are contested. Products that receive a positive detection prior to “nationalization” (customs clearance) may be re-exported. Positive detections for products that have cleared customs are prosecuted for violating the liability provisions of the Biosafety Law.
- n. **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. In September 2011 Turkey adopted a 0.1% threshold for unapproved products in feed, similar to that in Europe.

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-GE 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. Turkey imported record levels of U.S. soybeans in 2012 and soybean meal imports are up 135 percent compared to the previous year in the first five months of 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 GE products 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 hosted an Embassy Science Fellow in 2011 to address official and public concerns about agricultural biotechnology. In 2012, Post provided translations of relevant scientific studies and articles to local media and social media outlets to distribute credible information on the technology.
- b. **Strategies and Needs:** Turkey needs a public dialogue on the benefits and credible risks of agricultural biotechnology. Key to a productive dialogue is the availability and circulation of credible studies on the benefits and risks of the technology. A lack of familiarity with the topic also hinders the ability of the media to report on the topic accurately and distribute credible

information. Turkey has academic authorities on agricultural biotechnology, but they have been reluctant to speak publicly. Modern communication, such as social media, has proliferated information about agricultural biotechnology; but too often disseminates inaccurate or partial information.

Chapter 2: Animal Biotechnology

Part E: Production and Trade

- a. **Product Development:** Aegean University and Ankara University have conducted research on the cloning of sheep and cattle.
- b. **Commercial Production:** No genetically engineered animals have been approved in Turkey for any use.
- c. **Exports:** Not applicable.
- d. **Imports:** The import of genetically engineered animals and products thereof are prohibited until approved under Turkey's Biosafety Law.

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.