USDA Foreign Agricultural Service
GAIN Report
Global Agricultural Information Network

Required Report - public distribution

Date: 6/12/2015

GAIN Report Number: NL5021

Netherlands

Agricultural Biotechnology Annual

2015

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Report Highlights:
This report describes the trade and production of genetically engineered (GE) plant products, the use of GE animals for research purposes, and related government policies in the Netherlands. An EU-wide overview is provided by the EU Consolidated Biotechnology Annual drafted by FAS Paris.

Executive Summary

The Dutch government and agricultural sector have a pragmatic approach towards the import of genetically engineered (GE) agricultural products. However, crop trials and commercial cultivation of biotech crops are effectively prevented by cumbersome regulations and by the threat of protests from environmental groups. The Dutch livestock sector depends on feed imports from third countries which mainly consist of GE soybean meal. The livestock sector does not include any GE animals nor do Dutch agricultural research institutes have them for research purposes.

Plant Biotechnology

Plant Biotechnology Production and Trade

a) Product Development
The Netherlands has one of the world's leading plant propagation sectors. Given the cumbersome regulations for developing and approving GE crops, Dutch plant breeding companies have focused on New Breeding Technologies (NBTs). In the Netherlands, there are no genetically engineered (GE) crops under development that will be on the market in the next five years.

b) Commercial Production
In the Netherlands, there are no commercial plantings of GE crops, nor is expected that GE crops will be commercially planted in the next five years. This assumption is based on limited producer interest, the cumbersome regulations for approval and coexistence, and the threat of protests.

c) Exports
The Netherlands does not produce or export domestically produced GE crops or products. However, the Netherlands transships imported GE crops and products to other EU Member States and re-exports GE materials to non-EU countries. The transshipped and exported GE materials are documented and labeled as required by the EU legislation.

d) Imports
The Netherlands imports large quantities of GE crops and derived products. Given cultivation is absent, the Dutch do not import GE seed. Imports of GE processed consumer products are small as these products must be labeled. Imported GE crops and derived products are mainly soybeans from Brazil and the United States and soybean meal from Brazil and Argentina (see table below). Which share of these shipments contain GE material is not registered, but estimated to be above 75 percent.

Imports of Soybeans and Meal, the Netherlands (1,000 MT)					
	2010	**2011**	**2012**	**2013**	**2014**
Soybeans					
-Brazil	1,392	1,047	1,034	1,271	1,196

-United States	1,011	589	810	1,066	1,293
Soybean meal					
-Brazil	3,035	3,122	3,288	3,437	2,708
-Argentina	2,565	2,097	1,426	1,209	1,367

e) Food Aid Recipient
The Netherlands is not a food aid recipient.

Plant Biotechnology Policy

a) Regulatory Framework
As a EU member state, the Netherlands has implemented harmonized legislation regarding agricultural biotechnology. For more information please see the EU Report. The following three Ministries are responsible for implementation and enforcement of the regulatory framework for agricultural biotechnology:

The Ministry of Health, Welfare and Sport (VWS) VWS is the coordinating ministry in the policy-making process in the field of medical and agricultural biotechnology. The VWS is also the central competent authority with responsibility for GE legislation in the area of food.

The Ministry of Infrastructure and the Environment (I&E) I&E is responsible for implementation and enforcement of legislation regarding living GE plants and animals, such as used in laboratory research and feed trials. The responsible ministerial body is the Bureau for Genetically Modified Organisms (BGGO).

The Ministry of Economic Affairs (EZ) EZ is responsible for GE legislation in the feed and seed area. With VWS, EZ plays an important role in the implementation of the EU Traceability and Labeling legislation. EZ has two bodies responsible for enforcement of the legislation regarding biotech feed and food;

-The Netherlands Food and Consumer Product Safety Authority (NVWA) is responsible for documentation and physical control of food and feedstuff imports entering through Dutch ports.

-The Netherlands Inspection Service for Agriculture (NAK) is responsible for inspection of crops and seed imports into the Netherlands.
The Dutch economy's dependency on trade is the main factor which influences the regulatory decisions in the Netherlands. The Dutch economy is not only based on trade related services, but is also highly dependent on the imported commodities which serve as input for the Dutch food processing and intensive livestock sectors. Regarding the regulatory framework for domestic cultivation of GE crops, however, Dutch politicians are more inclined to follow the Dutch society's sentiment. Current national co-existence regulations practically ban the cultivation of GE events.

b) Approvals
In general, the Dutch Government follows the advice of the European Food Safety Agency (EFSA) in the approval of GE plant varieties. Please see the EU Report for a list of approved GE events. On

February 11, 2014, however, the Dutch Government cast its first ever negative vote for a biotech dossier at the EU Council. While the Dutch Cabinet opposed this change in position, the decision was the result of a direct instruction from the Parliament (see GAIN Report NL4004). The negative vote from the Netherlands is a departure from their history of supporting biotech approvals and in contradiction of their cabinet policy.

c) Field Testing
Experimental planting of GE crops is almost impossible in the Netherlands. Crop trials are effectively prevented by cumbersome regulations imposed by the government and by the threat of protests from environmental groups. Despite the resistance, in 2013, the Wageningen University started a trial with a GE potato variety which is resistant against phytophthora. The potato is made resistant by transferring genes from another resistant potato (cisgenesis). This experiment is expected to be extended in 2015. A license has also been granted for an ongoing field trial with GE apples. The apples are made resistant against apple scab through cisgenesis. The market introduction of the potato and apple variety is not expected within the next five years.

d) Stacked Event Approvals
The Netherlands implemented EU legislation, for more information please see the EU Report.

e) Additional Requirements
The Netherlands implemented EU legislation, for more information please see the EU Report.

f) Coexistence
In 2004, the Dutch agricultural sector and NGOs agreed upon coexistence regulations which were accepted by thy Dutch Ministry of Agriculture. The Product Board for Arable Crops was responsible for the implementation of the regulations. With the abolishment of this organization, the national coexistence regulation has been transposed to a government regulation as of January 1, 2015. The regulations include a liability fund to which all farmers, except organic, need to contribute in case GE crops are planted in the Netherlands. Despite the coexistence regulations, GE crops can be banned on a municipal and regional level. Currently, the Dutch city of Nijmegen and the Province of Friesland banned GE crops being cultivated within their borders.

g) Labeling
The Netherlands implemented EU legislation, for more information please see the EU Report.

h) Trade Barriers
The slow approval process of new GE events by the European Union has significantly affected U.S. exports to the Netherlands of in particular corn, corn gluten feed (CGF) and Distillers Dried Grains (DDG). Impracticable EU regulations for the Low Level Presence (LLP) of GE materials have permanently affected the import of U.S. rice. Mandatory labeling of the presence of GE ingredients in food caused processors to avoid crops of which GE varieties are planted. This affected mainly the sourcing of vegetable oils, by which soybean oil was eliminated from the food ingredient list.

i) Intellectual Property Rights
The main concern of the Dutch Parliament related to genetic engineering is the dominant position of the

seed companies, creating a monopoly in the food sector. The Dutch Government's response to this concern has been that if needed, patent laws should be changed to assure biological material is freely available for the development of new varieties.

j) Cartagena Protocol Ratification

In the Netherlands, the Ministry of Infrastructure and the Environment (I&E) is responsible for the implementation of the Cartagena Protocol on Biosafety (CPB). The Netherlands has enforced the Protocol through the implementation of EU directives in the Genetically Modified Organisms Act.

k) International Treaties

The Netherlands has contributed to the work undertaken by the OECD on risk assessment and risk management. In general, the Dutch Government has the opinion that the regulations related to the trade and processing of GE crops must be workable for the private industry and enforceable by the authorities.

l) Related Issues

On April 4, 2014, the Dutch Cabinet informed the Dutch Parliament of its standpoint towards the application of biotechnology in plant and animal breeding (see for more information GAIN Report NL4011). The Cabinet stated that the application of biotechnology in agriculture creates added value and can benefit to the global food security and sustainability of food production, but only if the risks are negligible.

Dutch position towards legislation for national opt-out of cultivation and of use

In the European Council meeting of June 12, 2014, the Dutch Government voted in favor of the Greek proposal, which allows Member States to ban EU-approved GE crop varieties for cultivation on their territory. On March 11, 2015, Directive (EU) 2015/412 was officially released (for more information see the FAS EU Biotechnology Report drafted by FAS Paris).

This directive for opting out of cultivation was followed by an EC proposal for opting out of use. On April 22, 2015, the EC published a proposal that would allow EU Member States to restrict or ban the use of GE feed or food on their territory. The proposal will reportedly be discussed in the European Council on June 16, 2015. The next day, on June 17, the position of the Dutch Government will be discussed in the Parliament.

On June 5, the Dutch Government informed the Dutch Parliament by letter (Dutch language) of their position. In the letter, the Cabinet strongly criticizes the proposal on two basic grounds. The first argument is that the proposal is not science based. The opinion of the Dutch Government is that only a technical and science based risk assessment can be conclusive in the approval procedure. The second argument is that the implementation of the proposal will have negative effects on the economy. The two main effects mentioned are the reduction of international trade and an upward pressure on prices of conventional as well as organic foodstuffs due to the limited availability of non-GE inputs. The Cabinet also anticipates that the nationalization will increase the administrative burden for the private sector. In the letter, the Dutch Government makes a distinction between opting out of cultivation and opting out of use based on the fact that growing crops is a local activity while use of inputs will have repercussions for trade which is in many cases an international activity.

On April 17, 2015, eight organizations representing the Dutch oils and fat sector, grain and feed traders, feed compounders, food processing industry, farmers, seed sector and biotechnology sector informed the Dutch Government of their position towards the EC proposal to opt out for imports. The organizations conclude in the letter that the implementation of this proposal will have enormous social-economic consequences and will lead to serious trade disruptions within the EU and with third countries.

Dutch Position towards new plant breeding techniques.
The new plant breeding techniques (NBTs) is another dossier which has the strong attention of the Dutch Government. The support is based on the importance of the NBTs as propagation tool for the Dutch plant breeding sector. The Cabinet will advocate for the exemption, including labeling, of cis-genesis, as this technique is not resulting in products which generate additional risks compared to conventional crops. The freedom of choice is guaranteed by labeling. Consumers which don't want to consume products which are developed with the use of genetic engineering or NBTs, can achieve this by buying organic products. The Dutch Government will support measures which will guarantee the option for the organic sector to exclude the use of cis-genesis.

m) Monitoring and Testing
The Netherlands Food and Consumer Product Safety Authority (NVWA) is actively testing feed and food imports on the presence of GE materials. The Dutch regulations for labeling, Low Level Presence (LLP) of GE events, and sampling and testing are based on EU legislation, for more information please see the EU Report.

n) Low Level Presence Policy
The Dutch regulation for Low Level Presence (LLP) is based on EU legislation, for more information please see the EU Report. Besides a LLP regulation for unapproved GE varieties in feed the Dutch Government supports a technical solution for the zero tolerance for unapproved GE events in food.

Plant Biotechnology Marketing

a) Market Acceptance
Because GE crops plantings are absent and GE labeled food products are scarce, Dutch citizens as well as consumers are not conscious of the developments in agricultural biotechnology. If GE crops will be planted and GE labeled food will be put on the market in the Netherlands NGOs will protest and instigate consumer unrest.

b) Public/Private Opinions
The Dutch Farmers Organization (LTO) is pragmatic and in favor of planting GE crops. But points to the resistance of retailers and consumers towards food products containing GE components, in particular in export markets such as Germany.

The Dutch intensive livestock sector depends on feed imports from third countries, mainly soybean meal, which for a major part is GE. There is no resistance by consumers as this meat produced with GE feed does not have to be labeled.

Plantum NL, the association for Dutch plant breeding and propagation sector has the opinion that the current EU legislation offers sufficient leeway to exempt new breeding technologies from the current EU restrictive legislation for GE crops. Plantum NL has further the position that biological material protected by patent rights should be freely available for the development of new varieties.

c) Marketing Studies

On March 5, 2015, the Dutch advisory body Commission Genetic Modification (COGEM) published a report about the status of the biotechnology sector in the Netherlands: Economische analyse van de Nederlandse biotechnologiesector (Dutch language only). One of the main conclusions of the report is that biotechnology is increasingly integrated in other sectors, but the economic activity of the biotech sector itself is stagnating. Also stated in the report is that the difference between genetic modification and other biotech practices is disappearing which questions the practicality of the current legislation on GE crops.

On November 10, 2014, the COGEM published the report: Survey of Field trials with Genetically Modified Plants - Global trends and developments. The report gives an overview of the field trials with GE crops in the world since 2009. The information is used to anticipate which crops will be commercialized in the near future.

COGEM also published an advice on how to respond to the results of alarming studies on the safety of GE organisms. In November 2013, the report was published: Where there is smoke, is there fire? Responding to the results of alarming studies on the safety of GMOs.

Plant Biotechnology Capacity Building and Outreach

a) Activities

-In cooperation with FAS Ankara, FAS The Hague organized a one-day program on biotechnology for a Turkish delegation. On September 17, 2014, the delegation met with officials of the Dutch Ministry of Economic Affairs, and with officials of the government lab for testing GMOs. The purpose of the visit was to educate the Turkish delegation on the EU policy for GMOs and applied testing practices. The Turkish import restrictions regarding GMOs are reportedly stricter than the EU restrictions.

-In cooperation with Public Diplomacy and USEU Brussels, FAS The Hague organized a one-day program for Dr. Claude Fauquet (Director Global Cassava Partnership, International Center for Tropical Agriculture, CIAT). On December 4, 2014, Dr. Fauquet met with Dutch Members of Parliament, had an interview with the Dutch agricultural press, and was a speaker at a seminar at the Wageningen University.

b) Strategies and Needs
FAS The Hague has indentified the following strategy for plant biotechnology capacity building and outreach:

- Promote with host government rational policies concerning adventitious presence of non-approved GE events.

- Maintain contact with host country livestock producers on the problem of feed availability. Serve as a ready source of unbiased, scientific information.
- Nominate appropriate host country specialists for the International Visitors Program, and utilize other Public Diplomacy programs.

Animal Biotechnology

Animal Biotechnology Production and Trade

a) Biotechnology Product Development

In the Netherlands, there are no genetically engineered (GE) animals under development that will be on the market in the coming five years. In the policy paper of April 4, 2014, the Dutch Cabinet states that the application of biotechnology in animal breeding for recreation and sport is prohibited, but for biomedical purposes is permitted. For the application in agriculture a clear position has not yet been taken, but the paper emphasized that animal welfare is an important consideration for the judgment.

b) Commercial Production

In the Netherlands, there are no GE or cloned animals used for commercial use. GE animals are authorized for use as laboratory animal for medical research at universities and academic hospitals. Annually, 15 to 20 licenses are granted. The largest group of GE animals is mice. The Dutch livestock sector does not keep GE animals nor do agricultural research institutes in the Netherlands keep them for research purposes.

c) Biotechnology Exports

As domestic production of GE and cloned animals does not exist, the Netherlands does not export domestically produced GE or cloned animals or their reproductive materials. However, the Dutch livestock and dairy sector most likely import and further trade semen and embryos from cloned animals. The export documentation does not declare the reproductive material is sourced from cloned animals.

d) Biotechnology Imports

The Netherlands has likely imported semen and embryos from cloned animals. The specific quantity of these imports is not available.

Animal Biotechnology Policy

a) Regulation

Currently, the Dutch Government has regulations in place for the genetic engineering of animals, but not for the practice of cloning animals. Organizations which want to use GE animals for medical research need to request a license from the Dutch Ministry of Economic Affairs (EZ). The Animal Experiments Commission (DEC) assesses the incoming license requests for biomedical research experiments. The Dutch Committee on Animal Biotechnology (CBD) assesses the other incoming license requests. These licenses are granted only if the genetic engineering does not have any unacceptable consequences for the animal's health and welfare. Nor should there be any ethical objections against the proposed application. The rules for a biotechnology application request are laid

down in the Animal Biotechnology Decree. The Netherlands Food and Consumer Product Safety Authority (NVWA) enforces these regulations.

In addition to a license granted by the Minister of Agriculture, institutes or corporations wanting to make, reproduce, keep or transport GE animals also need a license from the Minister of Infrastructure and the Environment, who assesses the project's potential adverse effects on humans and the environment. This requirement is based on the Decree on Genetically Modified Organisms.
The Dutch Government supports the EU wide ban on animal cloning of farm animals, but pledges for the inclusion of the "unless" statement. The Cabinet also does not oppose the EC proposal to ban food from clones, but only if the regulation is practical and in line with international obligations. State Secretary Dijksma has stated that the Dutch Government has not made a decision about if the prospective EU ban on the products from clones should also include products of the prodigy of clones.

b) Labeling and Traceability
The Netherlands implemented current EU legislation, for more information please see the EU Report. As part of or in addition to EU legislation, the Dutch Government wants to implement a traceability scheme for reproductive material.

c) Trade Barriers
Currently there are no trade barriers related to animal biotechnology. Future legislation could, however, introduce barriers.

d) Intellectual Property Rights
The Netherlands implemented EU legislation, for more information please see the EU Report.

c) International Treaties
The Netherlands implemented EU legislation, for more information please see the EU Report.

Animal Biotechnology Marketing

a) Market Acceptance
Dutch citizens and consumers do not support the use of cloning and genetic engineering technologies by the agricultural sector. These practices are also not accepted by the majority of the Dutch livestock and dairy farmers, breeders and even not by the leading Dutch researchers.
In the Dutch society and government there is no consensus on what is ethically acceptable if such technologies are applied in the medical sector. This is why the Committee on Animal Biotechnology assesses all incoming license requests. Assessments are made on a case-by-case basis. These will eventually have to result in clear guidelines on what is or is not ethically acceptable in research involving cloning or genetic engineering of animals. So far, only GE animals were authorized for use as laboratory animal for medical research at universities and academic hospitals.

b) Public/Private Opinions
For the public acceptance of cloned and GE animals see under paragraph a. Government and livestock sector representatives are in general educated on the subject but are not supportive of the use of cloning. Their policy is based on the public's aversion to the technique.

c) Market Studies

The Dutch advisory body Commission Genetic Modification (COGEM) investigated if the legislative framework and procedures in the Netherlands and Europe are equipped to deal with the market introduction of GE animals. In January 2012, the report was published: Genetically modified animals: a wanted and unwanted reality.

In 2013, the Ministry of Economic Affairs held a public consultation on the use of cloning for agricultural practices. The study was conducted through online discussions between randomly selected citizens. The main conclusion of the consultation was that the public wants to be informed if the meat is produced from the progeny of clones. The study will be used as input for formulating the position of the Dutch Government. The final report of the study is not public.

Animal Biotechnology Capacity Building and Outreach

a) Activities
See under Activities related to Plant Biotechnology Capacity Building and Outreach.

b) Strategies and Needs
It is the opinion of FAS The Hague that more education of all the involved stakeholders is necessary. Education should focus on the benefits of the technique but in particular on the negative implications resultant from enforcing restrictive measures. This would be best achieved by creating an alliance with other countries which use the technique of cloning in livestock farming.