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Global Agricultural Information Network

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Hungary

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Report Highlights:

In Hungary there is both a deep-seated social distrust of biotech crops and the belief that Hungarian farmers profit from being a leading GE-free supplier of food and feed to European markets. Hungary has constitutionally banned genetically engineered plants from its agricultural sector and ruled strictly by its Biotechnology Act.

Section I. Executive Summary:

Hungary is one of the major European producers of corn, wheat, rapeseed and sunflower. The country had opposed the use of genetically engineered (GE) plant varieties well before its EU membership in 2004. At the time, a main argument was the defense of Hungary's position as a non-GE supplier to the European corn and corn seed market. Maintaining an edge in European markets was also given as a reason for Hungary's moratorium (in 2005) on planting of the EU-approved MON 810 corn variety. However, according to polls at that time, Hungarian consumers were not uniformly against GE products and farmers were curious about the new technology.

A major turn came with elections in 2010 when a new coalition of FIDESZ and KDNP Parties received a qualified majority in the National Assembly of Hungary. Led by strong governmental rhetoric, the new Parliament re-wrote the Constitution to include many new themes, including a ban on crops derived from genetic engineering. Four years later, in 2014, there was the first parliamentary election held according to and based on the new constitutional rules. The election had only one round and the number of MPs has been reduced from 386 to 199. As a result of the new electoral system, FIDESZ-KDNP coalition was able to keep its majority in the National Assembly of Hungary by getting the 66.83 percent of mandates. Although the structure and responsibility of the agricultural ministry has been changed after the election (rural development affairs were handed over to the Prime Minister's Office), it did not bring any changes in GE questions and attitude. Based on the Biotechnology Act 1998 and the relevant ministerial orders, the broad authority and strong opposition of government has remained.

Section II. Agricultural Biotechnology in Hungary

CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: PRODUCTION AND TRADE

a) PRODUCT DEVELOPMENT

In the late 1990s, Hungary was active in the development of basic GE crop science. However, the hostile regulatory and political environment has effectively discouraged domestic development of the technology. Recently, in cooperation with researchers from other countries, more attention has been given to environmental, food and feed safety studies.

b) COMMERCIAL PRODUCTION

No biotechnology crop varieties are produced in Hungary. The country is among the strongest opponents of agricultural biotechnology in the European Union. If it were not forbidden in Hungary, corn would be the most likely crop for the use of GE technology. That is why the government of Hungary imposed a moratorium on corn varieties on January 20, 2005, including the EU approved MON 810 corn as well. According to this position, the Hungarian agricultural ministry stated clearly on the meeting of the Convention on Biological Diversity (September 29 – October 17, 2014; Pyeongchang, South Korea) that Hungary represents a clear and firm policy of zero tolerance against the GE crop cultivation.

c) EXPORTS

Hungary does not export GE crops. Politicians and a part of producers are viewing Hungary's GE-free status as a marketing advantage, as other EU countries are the main planting seed and grain export

destinations.

d) IMPORTS

The import of biotech crops can be considered controversial in terms of Hungary's GE-free status. Like most other European countries, Hungary has a structural shortage of protein for animal feed. To meet demands, Hungary imports large quantities of soybean annually, which are used by the poultry, pork and dairy sectors. Most imports are in the form of soybean meal that has been extracted from GE crops in more than 90 percent of total volume.

e) FOOD AID RECIPIENT COUNTRIES

Hungary is not a food aid recipient country.

PART B: POLICY

a) REGULATORY FRAMEWORK

On April 25, 2011, Hungary adopted a new constitution, which entered into force on January 1, 2012. The following parts of the document relate to GE crops:

“Constitution, Chapter ‘Freedom and Responsibility’ Article XX (1) All have the right to physical and spiritual health. (2) Hungary promotes the realization of the rights as stated in paragraph (1) by operating an agriculture free of genetically modified organisms, by providing access to healthy food and drinking water, by organizing labor safety and health care, by subsidizing sports and regular physical training and by ensuring protection of the environment.”

While the Hungarian government does advocate for biotechnology in general as a way to further economic development, it makes a clear differentiation between the so-called “red biotech” (applied to medical processes), which is encouraged, and “green” biotechnology (applied to agricultural processes), which is thoroughly discouraged.

Relating to agricultural biotechnology, the Ministry of Agriculture takes the lead regulating the cultivation, importation and processing into food or feed of GE varieties. The National Food Chain Safety Office (NFCSO) is the top government organization handling the technical aspects of regulating GE crops such as inspection, testing and registering plant varieties etc. However, the Ministry of Agriculture makes the decisions.

The main piece of legislation governing biotechnology is the Biotechnology Act 1998. It was amended several times in order to harmonize and update rules on coexistence. The goal was to prevent the unregulated entry into production of new GE plant varieties. The Act gives expanded powers to environmental, agricultural and industrial biotechnology authorities and mandates cooperation by GE variety owners with the competent offices. For example, GE crop developers or owners are obliged to provide authorities with samples of genetic materials. The reason for this is that authorities may not only prescribe control or additional tests by the applicant but the office may also study ecological or other effects through additional researches and testing by independent laboratories. For direct consumption of import food and feed containing GE materials, the Act orders the use of legal and administrative procedures corresponding to the European Union rather than requiring additional tests.

Concerning GE crops, terms and obligations (set forth in the Constitution and the Biotechnology Act)

are highlighted by the Penal Code Act 2012 which considers the violation of GE related rules as a crime against the system and order of public administration. Furthermore, the governing FIDESZ Party submitted its demand to the Parliament in January 2014 to amend the Penal Code Act for having the possibility to perform criminal sanctions in case of biotech activity carried on without permission and with possible negative impact on the environment and human health.

b) APPROVALS

In Hungary, an “independent” Biotechnology Body evaluates the applications for biotech activities and products (new varieties, genes, etc.), although the approval is formally made by the Ministry of Agriculture. (Database of the genetically modified organisms [GMOs] emitted in Hungary is announced at the Hungarian Bio-safety Website: <http://biosafety.abc.hu/list.php?name=uid&like=%>). Members of the Biotechnology Body are nominated by the Hungarian Academy of Sciences, Ministries and NGOs. Civil servants, public officers (government employees) are not members of this body. Ministries typically nominate scientists or experts from ‘think tanks’ belonging to their institutes.

c) FIELD TESTING

Due to the ban of GE plant production, a limited number of field experiments are approved in Hungary. Tests are mainly conducted in maize and in some cases in tobacco, potato, sugar beet, wheat or barley, targeted environmental effect studies (<http://biosafety.abc.hu/list.php?name=uid&like=%>).

d) STACKED EVENT APPROVALS

Hungary follows the European Food Safety Authority (EFSA) Guidelines and EU’s common legislation concerning stacked events (Regulation of the European Parliament and of the Council No 1829/2003, Commission Regulation No 1981/2006, Commission Implementing Regulation No 120/2014).

e) ADDITIONAL REQUIREMENTS: none

f) COEXISTENCE

The Hungarian government approved its Coexistence Regulation on November 27, 2006 (See our report [HU6015](#)). This imposed a “de facto” ban on biotech production due to the neighbor consent requirements and the excessive isolation distances. For example, farmers seeking to plant GE crops would need prior written consent from the neighboring land owners, but it could be difficult because of the fragmented land ownership. Moreover, the Cooperative Land Re-privatization Program in the 1990’s resulted in that the larger and undivided fields often belonged to numerous joint owners. The isolation distance set by the Coexistence Regulation also can be a limiting factor. The prescribed 400 meters for corn is more than double that of the distance typically used in hybrid seed propagation (where genetic purity is a practical concern) and much larger than the required isolation in the few EU Member States producing biotech crops.

g) LABELING

Hungary follows EU labeling standards, but “GMO” labeled foods are not marketed because of their stigma. At the same time, a number of GE soy and corn varieties are approved for industrial food use in the European Union (in Hungary as well), but GE content above 0.9 percent must be indicated on labels. In the case of rice and flax, there are no authorized GE varieties for use.

h) TRADE BARRIERS

Hungary uses the Safeguard Clause (under Directive EC No. 2001/18) in banning the production of MON 810 corn events since 2005 and the cultivation and feeding of *Amphlora* potato variety since 2010. The country is ready for compromise at negotiations on “technical solution” for feed and food, but its standpoint concerning planting seeds (plant genetics) is always a firm zero tolerance.

i) INTELLECTUAL PROPERTY RIGHTS

Hungary is an active participant of the negotiations under the International Union for the Protection of New Varieties of Plants (UPOV) and (in general terms) is against the patents on genetic materials.

j) CARTAGENA PROTOCOL RATIFICATION

The Protocol came into effect on September 11, 2003. The Hungarian Parliament ratified it on January 13, 2004. The ratification was promulgated by the Biological Safety Act 2004, and put it into force on April 12, 2004.

Since 2010, the Ministry of Agriculture has included the Environmental Protection portfolio. The strengthened agro-environmental approach helped the opponents of agricultural biotechnology in use the titles of the Cartagena Protocol as PR tools against the GE plant production.

Article 27 of the Cartagena Protocol gives the Conference of Parties a mandate to begin the development of international regulations regarding liability for damages resulted by the trans boundary movement of living modified organisms and the legal redress. On October 16, 2010, the 160 party states to the Cartagena Protocol unanimously adopted the so-called Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol. In 2011, declaration of the political commitment to the Supplementary Protocol by signing the document on behalf of Hungary and the European Union by Sándor Fazekas (Hungarian minister for agriculture) was published as a great diplomatic success of the Hungarian EU Presidency.

k) INTERNATIONAL TREATIES/FORA

Hungary is an active member of different intergovernmental and standard setting international organizations (FAO IPPC, EPPO, OECD, WTO, Codex Alimentarius etc.). Taking part in their work, Hungary usually belongs to the group of countries supporting biotechnology research and new agricultural technologies. Contrary to this, in the field of environmental protection and crop production, Hungary is a vocal opponent of GE crops and endeavors to enforce its point both at EU and regional levels. On May 9, 2014, the so called Visegrad-group (Hungary, Slovakia, Czech Republic and Poland) and three South-East European EU member states (Bulgaria, Croatia and Romania) signed a joint statement on environmental cooperation. Their ministers mutually agreed in that GE related decisions had to be made in national competence. In the course of the summit, Hungary stressed again that maintaining its GE-free status was considered as a fundamental national interest.

l) RELATED ISSUES

EU member states must be allowed to ban or restrict the cultivation of GE crops on their territory. This is the main purpose of a draft EU directive on cultivation approved by the Council's Permanent Representatives Committee on December 10, 2014. According to the proposal, after a GE crop has been authorized, a member state may ban or restrict the cultivation of the crop on grounds such as those related to environmental or agricultural policy objectives, or other compelling grounds such as town and

country-planning, land use, socio-economic impacts or co-existence and public policy.

With the new proposal, the Hungarian government hopes that this will be a secure a legal basis for GE crop authorization putting the possibility of bans in national responsibility as soon as possible. In the current system, the maintenance of the moratorium does not depend on the affected country's will, but on the decision of the European Commission and other Member States. On December 15, 2014, Members of the European Parliament also agreed to the draft, which allows the governments to prohibit the cultivation of GE crops, even if those had been approved before at EU level.

m) MONITORING AND TESTING

Since Hungary is one of the major seed exporters, genetic purity of seeds is highly important. Plant propagation materials (including seeds) go through sampling and laboratory analyses for the presence of GE traits. Corn is the most common target of government's GE testing efforts. Most hybrid seed and feed corn produced in Hungary are developed by American companies. The same U.S. companies form the backbone of the Hungarian corn industry and have significant investments in seed processing facilities and long-term relationships with farmers.

Under the rules, third country seed import lots are subject to mandated testing for GE presence paid for by the importers or distributors. Imported seed lots from other EU member states must be accompanied by a negative GE test from an EU accredited laboratory. Since there have been doubts about the accuracy of sampling and tests conducted by the Hungarian authorities, some companies also maintain an internal ISO-certified testing process that are supported by results from independent and accredited labs throughout Europe.

In the fall of 2011, a new seed monitoring system was put into force, and sampling and evaluations were being conducted in a timelier manner. An amendment to the seed regulation [order of the Ministry of Rural Development on the production and commercial sale of planting seed of row crops No. 23/2012] also seemed to have provided a more solid legislative basis for seed inspection. In the course of its normal schedule, National Food Chain Safety Office checks about 800 seed lots a year as a part of biotechnology screening program. The official control is both on Hungarian crops and on seeds from the EU and non-EU countries. Since the scandal in 2011, when significant maize stands were ordered destroyed due to GE plant presence, preventive control methods have been applied in Hungary. Based on risk analysis, seed lots previously notified by producers or distributors are checked before sowing. Farmers can use only preliminary tested seeds which have been proven as GE-free products. From this aspect, a cornfield can have unintended GE presence only when the existing regulation is violated in Hungary. In 2014, 2.7 percent (mainly sweet corn and rape) of the 845 tested samples had unintended presence of GE traits.

In 2013, a special inquiry began in addition to the normal control agenda, because there was a strong suspicion that illegal GE corn seed arrived in Hungary from Romania, where the growing of MON 810 GE corn variety was allowed. From 2012, the official food and feed monitoring and control activity was also increased; now 400-500 samples are tested for GE content annually. From March 1, 2012, a special food monitoring program was ordered by the Minister for Rural Development. Based on its results, the rate of GE presence in foods and feeds showed a downward trend compared to the previous years (2009: 51 %; 2010: 42%; 2011: 17%; 2012: 24 %). In all cases, the GE content was less than the approved limit of 0.9 percent, the threshold allowed for labeling.

n) LOW LEVEL PRESENCE POLICY

In the legislation, the EU has a zero tolerance policy for low-level presence (adventitious presence) for GE products in food and feed shipments. The EU defines zero with a technical solution of 0.1 percent, a level that is not commercially viable. It is becoming more difficult and costly to maintain the GE-free food supply in the EU, negatively affect the supply of animal feed and indirectly in food supply.

PART C: MARKETING

a) MARKET ACCEPTANCE

Former publications (2007) showed that nearly one-fifth of the Hungarians (18%) found the GE foods useful, and there were the same proportion of those who were not able to take a stand on this issue. At the same time, the majority of the population (56%) regarded the genetically modified food harmful; including that 30 percent who reckoned these products very harmful. However, in terms of products derived from biotechnology, the environmental related concerns of Hungarian consumers were larger than their food safety-related fears.

Since there is limited understanding among civil society and environmental groups of the development and use of agricultural GE, there is a stagnant, sometimes intensifying negative attitude towards the GE process. In many cases, this results from the populist anti-GE policy.

It is worth noting that in the past decade, the government has emphasized food security. This has been highly supported by the media. The increase in political weight of this topic brought a number of changes in the structure and management of plant protection, plant and animal health and food control administration. Partly this was the reason for that the Hungarians considered the risk of pathogenic microorganisms, mycotoxins, drug and pesticide residues, and other toxic substances in food higher than that of the genetically modified products.

b) PUBLIC/PRIVATE OPINIONS

At several events and in publications supporting the Hungarian government's policy, the following statements can be found: "genetically modified legislation should not be for the current genetically modified crops – as semi-finished products – but proper transgenic plant varieties should be produced that meet the requirements of GMO law". "Some Member States of the EU including Hungary should legislate GMO that only allows the cultivation of transgenic plant varieties wherein gene flow and gene escape are excluded. Until such final products are not produced, GM varieties must not be cultivated in the interest of the protection of flora and fauna moreover of the traditional and organic production" (Hungarian Agricultural Research 2011/2).

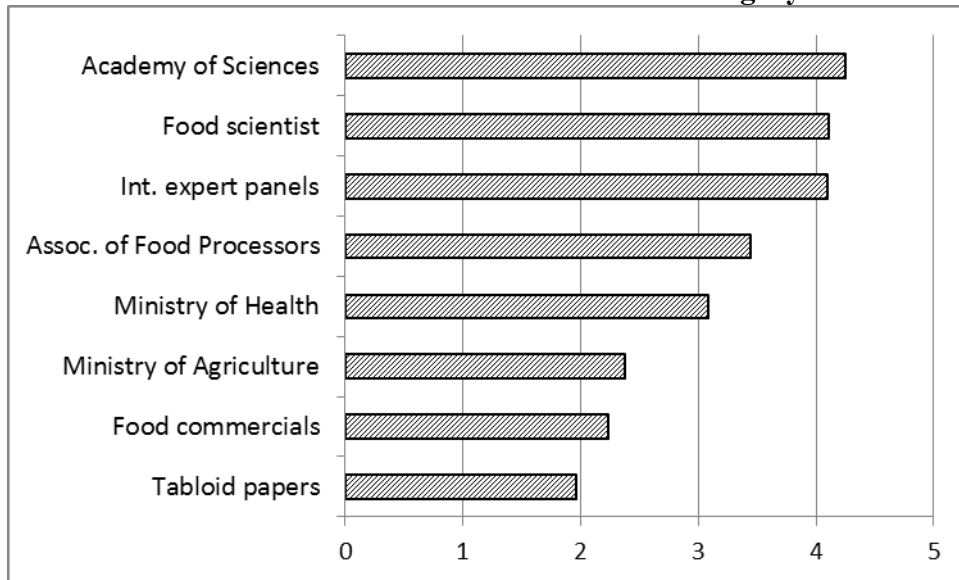
In a special issue of the Agricultural Committee of the Hungarian Parliament, varied professionals strongly argued for a complete ban on GE crop cultivation. The divided judgments from experts and researchers make understanding the technology, both real and perceived, difficult for the public. As in the United States, there are scientists who support GE technology and regard biotechnology essential but not as a miracle for the future of agriculture. Experts also highlight that the Good Farming Practices, such as crop rotation and resistance prevention, are as important for the GE crop management as for conventional crops.

Beside the mixed feelings, arguments, and statements in favor, anti-GE political expectations generally

get more publicity and increase the public distrust and negative approach to GE products. Therefore, in 2014, the former and the new President of the Hungarian Academy of Sciences stated that GE issues should not have been subject of the Hungarian Constitution. The outgoing president had proposed the deletion of the prohibiting paragraph even before the fundamental law came into force.

According to a university study, the public's confidence is shared among the different opinion forming and information resources. With regard to who was considered trustworthy on biotechnology, on a 1 to 5 scale, Hungarians gave the highest scores to the Academy of Sciences, food scientists, and international expert panels. The lowest scores were given to tabloid papers, food commercials and the Minister of Agriculture. Mid-range institutions were the Association of Food Processors and the Ministry of Health.

Public's Confidence in Information Resources in Hungary.



While polling data is scarce, Hungarian farmers are also divided about the technology. Small farmers see it as a technology giving opportunities only for the large-scale corporate farms. However, more progressive farmers are not yet convinced by the benefits of the current generation of GE crops and consider changes from conventional technologies risky or not possible in Hungary. Moreover, their market motivation is low because corn, as the majority of the agricultural export, receives above the world market prices in the EU countries.

c) MARKET STUDIES:

The EU imports approximately 90 percent of its 30 million tons soybean meal needs. Of these imports, two percent is non-GE. Thus, it is believed that the EU is a good market for non-GE soybean production and processing. Although EU customers would pay up to EUR 40 premium per ton for non-GE soybean products, non-GE soybean cultivation would not be profitable for the Hungarian producers due to the achievable profits by cereal cultivation.

The Ministry of Agriculture stated that Hungary would increase its suppression in trade of genetically modified soybean varieties and its import dependence on the soybean market. In addition, according to the farmer associations, the law in force and the mandatory administrative conditions, isolation distances and written consents of all owners of surrounding areas undermine the possibility of GE crop production

in Hungary.

A contradictory situation emerges in Hungary with the use of GE-derived products. While GE soybeans produced abroad can be imported and used without any restriction by the processing industry, Hungarian farmers have no legal possibility to grow GE varieties for commercial purpose. Feed mixture producers in the country import more than 600-700 thousand metric tons of soybeans meals yearly.

Beyond the negative political attitude, it is assumed that GE crops/products would not be competitive on the European market against the quality foods of organic production. Organic farming refuses to accept any GE varieties and stands against GE cultivation in its environment due to the risk of cross pollination. Linked to this, the representation of the Hungarian Christian Democratic People's Party (KDNP, the ruling coalition partner of FIDESZ) to the European Parliament, called the maintenance of GE-free status as Hungary's fundamental interest, and stressed that loss of this status would clearly jeopardize organic farming, the quality of food production and its marketability in Hungary.

The reachable profit from GE-free status is still uncertain in Europe, as the market size is determined by customer's demands. Although, a similar situation to that of soybean may occur in the market of other crops when minimum amount of GE-derived products and relatively high premium price are available, in Hungary, a sustainable production and business strategy cannot be built on this supposition. Moreover, the Hungarian agricultural ministry intends to devote significant support to the National Protein Crop Production program during the period 2014-2020. The resource for this will be two percent of the national budget for direct agricultural supports.

Although the government hopes that significant additional revenue can be derived from Hungary's GE-free status, sufficient official data nor financial and market analysis is available. According to the statement of the president of the National Association of Cereal Producers: "Sooner or later, Hungary cannot avoid the challenges that GE plants mean, and contrary to all the rumors, market does not remunerate enough the GE-free quality." From the aspect of farmers, examples of growing GE crops in Slovakia and Romania make the powerful anti-GE propaganda questionable.

d) OTHER:

Government of Hungary sponsored a GE road show in 2012 and 2013. Hungary's Ministry of Rural Development launched the events, titled 'United for GMO-free Agriculture', to inform farmers and the interested public. The road shows travelled to eight locations in Hungary and were held at universities, national park auditoriums and cultural centers. Dedicated websites have also been created in this topic (<http://gmo.kormany.hu>; <http://gmo.kormany.hu/roadshow-2013>).

In February 2014, the Agricultural Committee of the National Assembly of Hungary and the Ministry of Rural Development organized an open day in the Parliament with the suggestive title of "Targeting the use of GMOs in agriculture".

PART D: CAPACITY BUILDING AND OUTREACH

a) ACTIVITIES

The Office of Agricultural Affairs Budapest has been involved in programs to encourage science-based regulations and to promote regulatory and market acceptance of GE crops grown by U.S. farmers. Activities included visits of representatives from U.S. producer groups. Similarly, the office has facilitated the cooperation between the American and Hungarian professionals involved in

biotechnology. In this regard, the Zoltan Barabas Agricultural Biotechnology Association, a non-government organization of scientists and companies involved in agricultural biotechnology, provides the general public with scientific and agronomic background information on agricultural biotechnology. The Association publishes a newsletter “Zold Biotechnologia” (Green Biotechnology) and maintains a website of the same title (www.zoldbiotech.hu).

In memory of Zoltan Barabas, the first internationally recognized biotechnology scholar of Hungary, the Hungarian Academy of Sciences arranged a conference titled “Biotechnology and Innovation in Agriculture” in May, 2013.

For the public’s information, noted Hungarian scholars published a book in English and Hungarian titled “Hungarian White Paper – Plain Facts about GMOs”. This publication may also be found in the USDA report [HU1102](#), titled “Scientific Community Promotes Plain Facts on GMOs”.

In 2006, the Pannonian Region Agricultural Biotechnology Association was established by scientists, plant breeders, and seed companies from Austria, the Czech Republic, Hungary, Slovakia, Slovenia, Romania, Croatia, Bosnia-Herzegovina, Serbia, and Ukraine. This group facilitates collaboration and information exchange on agricultural biotechnology. In 2014, the Association regularly held seminars and conferences on plant biotechnology at different universities, giving good forums for objective debates about advances in biotechnology technics. One of the main purposes of its activity was to establish relations with scientific and agricultural associations, non-governmental organizations to facilitate science-based plant biotechnology acceptance.

b) STRATEGIES AND NEEDS

Represent U.S. agricultural interests in Hungary by advocating for unbiased and science-based enforcement of laws relating to GE crops.

Cooperation with the GMO panel of EFSA, scientific institutes, governmental and non-governmental bodies and organizations, market and industrial entities which are interested in GE questions.

Communication development on GE crop production and risk management because the public perception and acceptance is dependent upon information availability and credibility.

CHAPTER 2: ANIMAL BIOTECHNOLOGY

PART E: PRODUCTION AND TRADE

a) BIOTECHNOLOGY PRODUCT DEVELOPMENT

The fact that a major part of venture capital funds is invested in biotechnology can be a starting point of favorable trends. The ratio of the venture capital investment was growing rapidly in Hungary and its rate was the highest in the European Union in 2012 (0.067% of the GDP, € 64 million). However, a significant decline was observed in 2013 (€ 17 million). The performance was improving in 2014 and 17 percent of venture capital investments was in life sciences. The biotechnology sector was continuously among the top three investment areas, despite the fact that biotech financing usually takes more time. In spite of the high assumed risk, the opportunity to enter the international markets and to achieve above-average returns could be motivating for venture capital investors.

In Hungary, no commercial use of GE animals for agriculture has been applied for or received. The animal biotechnology technologies are mainly related to livestock breeding, such as embryo transfer and

progeny evaluation. (For more about the animal biotechnology in Hungary, see the website www.hungarianbiotech.org).

In terms of animal cloning, two universities (Szent Istvan University and Szeged University) and two research institutes (Agricultural Biotechnology Center and HAS Biology Research Center) are active in Hungary. The Agricultural Biotechnology Center (www.abc.hu) belongs to the National Agricultural Research and Innovation Center (<http://www.naik.hu/en/>) and has the strongest background in animal biotechnology with research departments such as Applied Embriology and Stem Cell Research Group; Ruminant Genom Biology Group; Rabbit Genom Biology and Biomodel Group. A private “spin off” company has also been founded (www.biotalentum.hu) for providing research services including animal cloning.

b) COMMERCIAL PRODUCTION

Hungary does not produce any livestock clones or GE animals.

c) EXPORTS

Hungary does not export GE animals or livestock clones.

d) IMPORTS

Hungary imports USD 2-3 million worth of Holstein bull semen from the USA annually. Currently, no legislation regulates the imports of semen or embryo from clones.

PART F: POLICY

a) REGULATION

All kinds of genetic engineering: plant, microbe, animal are regulated by the same Biotechnology Act 1998, as amended. The competent authority for animal biotechnology is the same as for plant biotechnology. The administrative body which receives and evaluates the GE applications for animal biotechnology experiments is the Gene Technology Committee. Hungary has no country-level legislation or regulations related to the commercial use and trade of clones or products derived from clones. The Hungarian government supports the EU efforts to create Common EU legislation and institutions governing animal cloning.

b) LABELING AND TRACEABILITY

Laboratory animals used in animal biotechnology experiments are not released. Therefor the labeling and traceability is not yet an issue in Hungary.

c) TRADE BARRIERS: N/A

d) INTELLECTUAL PROPERTY RIGHTS

Similarly to plant genetics, Hungary is against the patents on animal genetic materials.

e) INTERNATIONAL TREATIES/FORA

Hungary actively participates in the work of several multilateral organizations related to animal health and food safety such as FAO, OIE and Codex Alimentarius.

PART G: MARKETING

a) MARKET ACCEPTANCE

Recent meat scandals (pork dyed and sold as beef tenderloin; horse meat in ground beef) underscore consumer skepticism about the safety of modern meat production and marketing. Animal products connected with cloning are likely to experience rejection by Hungarian consumers and by the food marketing chain, which is seeking to reassure the public.

b) PUBLIC/PRIVATE OPINIONS

The Hungarian public is quite critical of products coming from advanced production technologies. Public perception often associates revolutionary new animal breeding and feeding methods with the risk of veterinary medicine residues in animal products for the human health. Animal biotechnology used for medical purposes, however, enjoys positive public opinion.

c) MARKET STUDIES

Although several biotechnology companies, university knowledge centers, and bio-incubators deal with research on genetically-engineered animals in Hungary, currently, market surveys on these topics are not available.

Despite the fact that many research projects are carried out on gene mapping, marker selection and the field of diagnostics, there are only few biotech companies on the market connecting basic research and practical applications in Hungary. These companies could gain ground on the market because molecular animal diagnostics and marker-assisted selection are definitely shortage areas in the veterinary diagnostics.

PART H: CAPACITY BUILDING AND OUTREACH

a) ACTIVITIES

Agricultural Office has personal contacts with leading representatives of academic institutions and animal breeding associations involved in animal biotechnology and cloning.

b) STRATEGIES AND NEEDS

Maintain cooperation with scientific institutes, governmental and non-governmental bodies and organizations, market and industrial entities which are interested in animal biotechnology.