

The official position of the Biotechnology Committee of the Polish Academy of Sciences on the commercial use of GMOs

New technologies as an opportunity for the Polish economy: GMOs for industry and agriculture

A country's economic development increasingly depends on its ability to use innovative technologies and renewable biological resources. Poland, like other countries, is confronted with the necessity to solve some fundamental problems, including those related to the country's energy security or the competitiveness of its industry and agriculture. This is where science can play an important role. Issues such as nuclear power, shale gas, biofuels, new materials (graphene), highly productive varieties of plants and breeding animals, new pharmaceuticals and diagnostic methods call for greater involvement of Polish scientists and their potential for the sake of the economy. The Biotechnology Committee of the Polish Academy of Sciences is a strong supporter of the use of genetically modified organisms (GMOs) for economic purposes.

The foundations of a new scientific discipline – genetic engineering – were laid in the mid 1970s. Genetic engineering techniques developed very rapidly around the turn of the 21st century. They were used to create organisms (GMOs) which have found numerous applications, especially in medicine, the pharmaceutical industry, agriculture and environmental protection. They underpin the production of a number of vaccines (e.g. hepatitis vaccine), biopharmaceuticals, such as insulin, erythropoietin, interferon, growth hormones and other hormones, as well as diagnostic agents such as monoclonal antibodies. Genetic engineering techniques have served to construct efficient varieties of crops, including GM soya and GM maize, that are now being applied mainly in the production of less expensive fodder. GM crops constitute raw material for the textile (BT cotton) and energy (bioethanol, biomass) industries.

On the basis of new biotechnologies, enzymes and intermediates have been produced for applications in the paper and textile industry or as food additives (ami-

no acids, vitamins), while the development of diagnostic methods based on DNA sequence analysis remains one of the most important applications of genetic engineering in medicine. It is further expected that the next decade will witness the development of effective cancer vaccines and, possibly, new methods of gene therapy will also become available.

In Poland, many research centers work with genetic engineering techniques. Genetically modified microorganisms are used, amongst others, for manufacturing certain drugs, such as human insulin. Research aimed at developing other pharmaceuticals and vaccines is well advanced, too. Polish universities have been training specialists in this field for years. And yet, in comparison to other countries, Poland continues to be very backward when it comes to the use of these technologies in agriculture and bioenergetics. This is mainly due to the absence of legal provisions that would regulate work on and with GMOs and encourage the implementation of innovative technologies in agriculture.

The legislative work on GMOs and laws governing the application of genetic engineering have resulted in drafts of bills being discussed within the forum of Polish Parliamentary Committees. Unfortunately, the regulations on GMOs are being drafted on the initiative of the Ministry of the Environment, under the strong influence of NGOs, and those are in fierce opposition to the use of genetically modified organisms. Unfortunately, the representatives of the Polish Government, as well as many members of Parliament, wholly agree with the *GMO-free Poland* slogan. Such attitudes have been engendered by extensive propaganda campaigns that present food and fodder derived from genetically modified plants as a threat to human health, and GMOs themselves as a serious threat to the environment.

Genetically modified food has been consumed for more than 20 years by millions of people living mainly in the countries of North and South America. Billions of cattle and poultry are fed with fodder produced from GM plants. Millions of people around the world, including Poland, are administered drugs, vaccines and diagnostics derived from genetically modified micro-organisms. Never and nowhere has this led to any event in which the health of a human or animal population has been jeopardized or endangered. All tests, stringent as they are, have proved that products derived from GMOs are safe. Needless to say, all the test results are carefully examined by such organizations as the FDA and EFSA (which are responsible for the safety of food and pharmaceuticals).

Food and other products obtained from GMOs have been fully accepted in the United States, Canada, Brazil and other countries. The European attitude to GMOs is either suspicious or hostile. This is mainly because Europe lags behind the United States in terms of using new technologies in agro-biotechnology and seeks to stop the inflow of its cheaper food and fodder. This reluctance or even aversion to GM results in the introduction of regulations which are much more restrictive in the European Union than in North and South America or Asia. Sadly, existing Polish bills on GMOs clearly suggest that, should the relevant legislation be adopted in Poland, it would be even stricter than the requirements of EU law.

The Biotechnology Committee of the Polish Academy of Sciences addresses the Polish government with an appeal to involve Polish scientists and experts in modern biotechnology in its work on legislation concerning GMOs. For the sake of Poland's economy (as well as the economy of the European Union), it would be highly

beneficial to draw on the experience of the United States and make the Ministry of Health, the Ministry of Education, the Ministry of Agriculture and the Environment responsible for the formulation and enforcement of relevant laws (either the Ministry of Education or the Ministry of Health could assume the role of coordinator). In view of the significant and continually growing role of Poland in the European Union, we believe that this country could and should become an advocate of the introduction of modern technologies in agriculture and other sectors of the economy. We are convinced that we would find many allies in the scientific and economic committees of many EU member states. We also suggest the involvement of all major Polish farming organizations in work on the laws concerning GMOs, as they approach the issue of agricultural modernization with the utmost gravity. Furthermore, it is of vital importance that the introduction of new technologies does not occur at the expense of the environment, and that those farmers who wish to grow traditional varieties of plants do not have to worry that GMOs will eventually drive out natural crops altogether.

Finally, the Biotechnology Committee of the Polish Academy of Sciences declares that it shall carefully consider any and every suggestion and proposal submitted by scientists and organizations involved in environmental protection.

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