

Introduction to the EASAC report “Planting the future”

TOMASZ TWARDOWSKI

Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznań, Poland

e-mail: wardows@ibch.poznan.pl

Abstract

The report published by the GMO Group of the European Academies Science Advisory Council “Planting the Future: opportunities and challenges for using crop genetic improvement technologies for sustainable agriculture” presents the current state of art on genetically modified plants. It discusses a number of aspects of agrobiotechnology, such as legal, social or economic, including the EU policy towards new economies.

Key words: biotechnology, agrobiotechnology, bioeconomy, legislation, public perception, EASAC

European Academies



Science Advisory Council

Introduction

Genetically modified organisms (GMO) have been in commercial use for about 40 years in medicine and pharmacy and for almost 20 years in agrobiotechnology (genetically modified plants, GM plants, GMP). In 2012, about 170 mln ha of GM soya, corn, cotton and rape were produced worldwide. Although, their production did not exceed 120 00 ha in the European Union. At the same time, Europeans are consumers of an enormous quantity of GM products (food and feed, biomaterials, biopharmaceuticals, etc). The lack of public acceptance is the most significant factor that determines the limited production of GM plants in the European Union. Meanwhile, it must be stressed that the majority of academic achievements, the roots of modern molecular biology, have been made in Europe. Why then, are Europeans so sceptical about the achievements of genetic engineering when it comes to plant production? Evidently, there is a need (in Poland as well as in other EU-Member states)

for a new bioeconomy and new biomaterials, and new sources of energy and food. The KBBE (Knowledge-Based BioEconomy) is believed to be the key to the future economy. It is beyond doubt that access to innovation is a critical issue in the economy and in politics. The answers to these very serious questions as well as the recommendations of experts can be found in the report “Planting the future” presented on 27 June 2013 to the European Commission in Brussels.

GMO Group of EASAC

EASAC – the European Academies Science Advisory Council – was established by the national science academies of the EU Member States. The working groups of the EASAC are dedicated to those topics that are the most important for the European economy and society. In 2012 the EASAC Working Group “GM-crops” was created. Its composition is as follows:

Volker ter Meulen (Chairman, Germany)
 Brian Heap (UK)
 Frantisek Sehnal (the Czech Republic)
 Joachim Schiemann (Germany)
 Ralph Bock (Germany)
 Nathalie Verbruggen (Belgium)
 Jorg Romeis (Switzerland)
 Ervin Balazs (Hungary)
 Enrico Porceddu (Italy)
 Ingo Potrykus (Switzerland, nominated by Academia Europaea)

Roland von Bothmer (Sweden)
 Torbjorn Fagerstrom (Sweden)
 Reidunn Aalen (Norway)
 Ivan Kreft (Slovenia)
 Birger Moller (Denmark)
 Tomasz Twardowski (Poland)
 Michel Delseny (France)
 Hans Soderlund (Finland)
 Evert Jacobsen (the Netherlands)
 Ewen Mullins (Ireland)
 Claudia Canales (secretariat, UK)
 Robin Fears (secretariat, UK)

The overall scope of the project and its title, objectives and timetable as well as the contents of the report were discussed in detail during three plenary sessions and via electronic mailing. All members of the group worked in their own capacities and the final form of the report was achieved through consensus between the members.

There are major challenges facing global agriculture if sustainable food security is to be achieved in the context of population growth, climate change and increased social and economic instability. In the report, the following aspects have been presented, accompanied by critical discussions of some of them:

- Current situation in EU agriculture and implications for policy areas.
- Options to meet challenges for food security, including climate change and new scientific opportunities within.
- Special care regarding the problem of how to improve public engagement and societal acceptance of innovative technology within the context of the availability of evidence on scientific and socio-economic implications.
- The common opinion expressed by the experts was that Europe is also responsible for food security in Asia and Africa, not only and exclusively in our continent.

- Separate chapters were dedicated to the analysis of selected country case studies, mostly in emerging economies.

The authors highlighted the importance of new breeding technologies, their potential value, where the EU may currently be in a leadership position, and issues surrounding their regulation – the danger of constraining innovation if an overly restrictive (GMO) regulatory approach were to be adopted. Additional elements of the bio-based economy have been discussed with regard to other product applications (e.g. bioenergy, pharmaceuticals, vaccines, other high-value chemicals). Selected challenges, obstacles and opportunities for the EU include: (i) patents (one new option is a unitary patent); (ii) public-private interactions (models and issues, including impediments to SME engagement); (iii) high regulatory costs constraining choice of priorities; (iv) regulatory barriers to transferring from the contained use of GM microbes to plant field scale; (v) problems associated with the import of GM feed.

In the final section of the report the authors outlines the potential implications for EU Member State policy and recommendations for policy makers, experts and for society. The voice of a trans-European grouping of experts can be more effective than that of a body from a single country. The report has been edited in a standard form: summary, contents, the description of the problem, conclusions, recommendations and literature.

In this issue of “BioTechnologia”, we present the full text of the report **“Planting the Future”**.

Acknowledgement

Participation [Tomasz Twardowski] in this working group was made possible by the financial assistance of BWZ PAN (the Office of International Relations, Polish Academy of Sciences).