

White Book – Genetically Modified Crops: Scientific Opinion of Czech Researchers Working with GMO

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1. PURPOSE OF THIS BOOK

Current efforts to combat starvation on a world scale are undermined by a continuous increase in the human population accompanied by a decrease in the acreage of arable land. The threat of food shortage is exacerbated by increasing demands on food safety and quality. High production of high quality food depends largely on efficient cultivars that have hitherto been obtained, primarily, by random mutations. The selection of “spontaneous” mutations and the hybridization of selected plants had been sufficient for millennia, and the highly productive cultivars we grow in the fields today were largely obtained with the aid of mutations induced either by radiation or chemicals. Whilst these techniques remain useful tools of plant breeding, it is feared that many thousands of mutagenic interventions that have already been carried out have practically exhausted the endogenous genetic resources of most crops.¹ Fortunately, the innate resources can now be enriched by procedures that are known as genetic modifications (GM) since this technology provides access to a significantly increased gene pool.

...As in any other technology (soil tilling, herbicide application, biological control of insect pests, etc.), the production of GM crops constitutes human interference with nature and must be deployed with care. The risks and benefits of GM crops must be compared with other techniques serving the same purpose, for example insecticide application in insect pest control, before their practical deployment is considered. In the case of commercialized GM crops, scientific evidence as well as practical experience² has demonstrated that they bring considerable economic benefits to farmers and are more environment-friendly than comparable technologies.

However, in spite of their successful worldwide cultivation, the use of GM crops in the European Union has become a controversial subject and the technology is completely rejected by some member states. Since such a condemnation of a modern technology may endanger EU competitiveness, it should be thoroughly analyzed using unbiased scientific methods. This need has been recognized by the Council of the Ministers of Environment that convened on December 4, 2008...

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...Czech scientists working with GM crops responded to this invitation by compiling this White Book that summarizes the results of their analysis of relevant EU legislation and provides examples of conducted research. **The Czech scientific community has a long tradition in the investigation of GM crops: it has contributed to the development of genetic modifications, participated in formulating national regulations on genetically modified organisms (GMOs), and has substantially contributed to debates addressing rational concerns, and eventual acceptance, of GM crops**

by the majority of the public. Czech Republic is among the few EU countries where farmers have gained practical experience with the cultivation of GM crops and this provides positive feedback on current research activities.

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...2.2 Rational rules for assessing the risks of biotechnologies

With an unbiased approach we have to assume that the deployment of GM crops may bring, as other technologies, certain benefits but it may also damage the environment and human and animal health. **Only a scientific evaluation of the benefits and risks can set the level of acceptable risk as a basis for a wise decision of the acceptance or refusal of the technology in any given situation.** Proper assessment of the benefits and risks must be done by comparison with alternative technologies that serve the same general purpose...Risk assessments are worthless if done without appropriate controls under the assumption that the current “standard” (“conventional”, “traditional”, etc.) methods pose no risks. Economics should also be taken into account, in particular in evaluations of the long term use.

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...2.2.2 Steps in the risk assessment process

Risk deduction.

...Experimental and control testing.

...Testing of the risks to health.

...Experimental testing of the environmental risks.

...Conclusion

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2.2.3 The precautionary principle

The precautionary principle (PP) has been a subject of numerous analyses²⁰. A very comprehensive study was published by Sabrina Shaw and Risa Schwartz as a report of the United Nations University.²¹ These two WTO officials tried to correlate the policy based on the PP and executed by EU with the patterns of rational decisions. They found common points indicating that the PP could be consistent with scientific risk evaluation – provided that the rules set in the “Communication on the Precautionary Principle” (see 2.2.1) in 2000 were strictly observed. However, the precautionary principle is very often misused to justify unrealistic catastrophic scenarios and consequent political conclusions.

20 Kogan L. A.: Monograph Documents Advance, Impact of Europe’s “Risk-Free” Regulatory Agenda. Washington Legal Foundation, November 4, 2005; and Kogan L. A.: Precautionary Preference: How Europe’s New Regulatory Protectionism Imperils American Free Enterprise. Institute for Trade, Standards and Sustainable Development, Inc., Princeton, July 2005.

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