

GENETIC RESOURCES PROVIDED BY GENETIC ENGINEERING

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The approach to genetic modification in plant breeding and the coexistence of traditional and biotech crops is not uniform all over the world. While in the U.S. the ratio of the GM-production reached 30-40%, from which it made no longer sense to differentiate between GM and conventional, in Europe there is great resistance to the new technology. Standpoints are also diverse about the environmental advantages, mainly knowing the facts that e.g. the tendency of herbicide/insecticide consumption in some places was the opposite than expected (increased) or the potential health risks possibly caused by GM foodstuffs. In Hungary, the possible future application of GM plants has more disadvantages just right now instead of providing benefits to farmers from environmental, ecological and economical point of view. It seems that consensus is still far away, the debates will go on; the counterparts will abide by their opinions for a long time.

U.S.A.: Genetically-modified foods are prevalent on the U.S. markets; we speak about not whole vegetables or fruits but processed ones like vegetable oils or breakfast cereals that may contain genetically-modified ingredients in a very small portion. Soybean derivatives also can be present in foods. From 1996 to 2006 (the first ten years of commercially available genetically-modified plants), herbicide tolerance has consistently been the dominant trait followed by insect resistance and stacked genes for the two traits: 68%, 19% and 13%, respectively. In 2006, GM plants in the U.S. were cultivated on 54.6 million hectares. The major biotech crops were soybean, maize (these two plants are the most widely grown ones, not only in the U.S. but all over the world), cotton, canola, squash, papaya, alfalfa. Plant varieties meeting the requirements of commercialization determined by the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA) can be found on 'The List of Completed Consultations on Bioengineered Foods'. Genetically-modified varieties have been widely adopted by farmers in the U.S. They expect higher yields and lower pesticide costs.

European Union: To date, the only type of GMO grown in the EU is *Bt*corn. *Bt*corn contains a gene from a bacterium (*Bacillus thuringiensis*) that produces a toxin (*Bt*-toxin) to defend it from the European corn borer (*Ostrinia nubilalis*). The insect pest is present primarily in southern and middle Europe, and is slowly making its way north. Genetically-modified crops are grown in six countries of the European Union and their cultivation areas are increasing.

Hungary: Hungary joined the European Union on 1st May 2004. The country has moratorium in place for the commercial cultivation of GM crops that can be applied with reference to new scientific evidence for security risks. The Commissions motion to lift the Hungarian moratorium was outvoted by more than half of the Member States in September 2006. It is not easy to see the clear picture. On one side, there are opinions that most of Hungarian consumers (70-80%) do not want GMO's. These figures come from green movements and NGO's. Multinational biotechnological companies in the country state the opposite that almost three-fourth of farmers want to grow GMO's.