ROMANIAN APPROACH TO GENETICALLY MODIFIED ORGANISMS

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Abstract: Genetically modified organisms (GMOs) - an extreme controversed issue in the entire world, raise numerous questions concerning the impact on the human health, biodiversity, farmers, legislation, etc. In Romania, country that is dealing now with lots of difficulties on agriculture and environmental protection, especially due to the recent European Union's accession , the population is poorly informed on the risks, the regulation at national and european level, the reactions and initiatives of the European Communities regarding the cultivation and consumption of GMOs.

Keywords: genetically modified organisms (GMOs), GM soybeans, organic farming

Genetic modification, also known as "genetic engineering" or "recombinant-deoxyribonucleic acid (DNA) technology" was first applied in the 1970's, being the newest methods to introduce novel traits to micro-organisms, plant as animals. Hence, genetically modified organisms (GMO) have been called all the organisms such as micro-organisms (bacteris, viruses, etc.), plants and animals, the genetic characteristics of which have been modified artificially in order to give them a new property (a plant's resistance to a disease or insect, improvement of a food's quality or nutritional value, increased crop productivity, a plant's tolerance to herbicide, etc.).

In 1994, for the first time ever, a genetically modified plant was commercially grown. The introduction of the FlavrSavr tomato in the United States (US) was the beginning of a global change in agriculture. However, when the first harvest of GM soybeans and maize was about to be shipped to Europe in 1996, consumers there voiced an unforeseen opposition to this food. Consumers wanted to know what they were eating and asked for the labelling of GM food. In many countries of the European Union (EU), the introduction of this kind of food onto the market failed, and the major EU food producers and retailers now guarantee a GE-free food supply.

Only Spain, and to a very limited extent France and Germany, were growing GE maize in 1997-1999. To date, the EU has approved the deliberate release of 18 GMOs (under Directive 90/220/EEC), but their status is uncertain, given that national bans have been imposed on 8 of these GMOs by 5 different EU countries. Of the 18 GMOs approved in the EU, 10 are agricultural crops and include soybeans, maize and oilseed rape. No GMO has been given authorisation for deliberate release in the EU since October 1998. (ANPED, 2003)

Genetically Modified Crops in Romania

Romania grows GM crops on a larger scale than any other European country and was ranked 11th largest GM crop growing country worldwide in 2004. This GM crop is made of Monsato's GE Roundup Ready soybeans that have been genetically modified so as they are tolerant to the herbicide, Roundup (glyphosate), which is also made by Monsato. Farmers can spray their fields of GM soybeans with Roundup, killing the weeds but not the soybeans.

Monsato's GM soybeans have been grown commercially in Romania since 1999, before any regulations were in place here.

In 2001, about 15,000 hectares of GM soybeans were planted and the figure steadily climbed as farmers saw the advantages of the new technology, especially given Romania's huge weed reserve. In 2004, roughly 50,000 hectares of biotech soybeans led to record yields, while the local affiliates of US biotech

companies reported unprecedented high demand for seeds for the just completed 2005 spring campaign. Growers are well aware that they can benefit by continuing to produce GM soybeans, as there is a great protein deficit in the EU.(USDA, 2005)

According to farmers, the whole Romanian soybean harvest is delivered to 2 oil mills, in Urziceni and Constanta. The mills press the soybeans to extract soy oil, most of which is used domestically. The soy soil is used to make soy protein isolate, used for sausage filling and processed foods, like margarine. After oil extraction, the remaining soyameal is used as animal feed. Farmers cannot feed raw soybeans directly to cattle, because they contain a toxic component which requires heat treatment before it can be used as animal feed.

In 2005, Monsato's and Pioneer's GM herbicide tolerant soybeans were approved for commercial growing in Romania, while Pioneer GM maize was under field testing and several varieties of Bt potatoes were in the greenhouse of University of Timisoara. A GM Bt potato - commercially kown as Newleaf and designed to kill the Colorado Potato Beetle - had been approved but was a failure in commercial cultivation in Romania in 1999 when it was grown on less than 1,000 ha. It has since been withdrawn from the seed varieties register.(ANPED, 2003)

Genetically Modified Organisms Free Regions in Romania

Despite all this, in the spring of 2006, The National Federation of Organic Farmers (FNAE) and the Information Centre on GMOs (InfOMG - Romania) announce the declaration of the first GMO Free Region in Romania. A number of 26 localities from the Bistrita Nasaud county, declared themselves as GMO Free Zones. These localities are - 2 cities: Nasaud, Sangeorz-Bai and 24 de communes: Chiochis, Chiuza, Cosbuc, Dumitra, Feldru, Ilva-Mare, Ilva - Mica, Lesu, Lunca - Ilvei, Maieru, Magura - Ilvei, Nimigea, Nuseni, Parva, Poiana Ilvei, Rebra, Rebrisoara, Rodna, Romuli, Runcu Salvei, Salva, Sant, Telciu, Zagra. All of them are part of the Association for the Environmental Protection and the Preservation of Watter Resources.

The "GMO Free Zones" declaration represents the official commitment of local authorities, to the extent of their legal and organizational powers, to cultivate no GMOs on their land. Also, the local authorities are asking the relevant national and regional politicians to make sure that no GM plant is / will be cultivated the present year and in the future in the entire country and to ensure them that the rights of the farmers who want to produce GM-free crops are in future legally protected and that all suitable measures are employed in order to avoid any GM contamination of their land and harvest.

The "GMO Free Romania" project is funded by the Grassroots Foundation, Germany. The goal of the project is to make the local authorities aware of the risks posed by GMOs, to convince them to take practical measures to protect their regions in the new context of co-existence and to start the public debate on the GMO issue in Romania.

Legal Framework on Genetically Modified Organisms in Romania

Regulations governing GMOs crops were first introduced in 2000 (Ordinance 49/2000 on obtaining, testing, utilization, and commercialization of GMOs), after the GM soy was first grown commercially. A Biosafety Commission was established, composed of academics and officials to evaluate and license experimental and commercial releases of GMOs.

However, to bring Romania into line with EU rules, in the context of its future accession, Ordinance 49/2000 was been replaced with Law 214 in April 2002, effective from May 2002. This new law provides the main framework for GM product approval in Romania. It is intended to be consistent with the EU's Deliberate Release Directive (2001/18) and is administrated by the Ministry of Environment and Water Management. A new Biosafety Commission composed of scientists has been established to advise the Ministry on applications and only GM crops with approvals can be placed on the national seed register.

Two other pieces of legislation relevant to labelling and traceability are Decision 106/February 2002 on labelling food derived from GMOs or containing GM additives or derived from GMOs; and the Minister of Agriculture, Forests, Waters and Environment Order 462/2003, effective from July 2003. Romanian enforced the complete EU 1830/2003 Regulation on labelling and traceability by the end of 2006.

The Labelling of Food No. 106 came into force in February 2003. This harmonises with EU regulations 1139/98, 49/2000 and 50/2000 and requires product-based labelling for food containing more than 1% of Monsanto's Roundup Ready soybeans and a variety of GM maize. However, the labelling law excludes the labelling of all other GMOs, such as Bt potatoes. If Romania plans to create a comprehensive and logical framework for GM food labelling, it should abstain from approving any GMO for whose products no labellin g regulations exist.

Responsibility for implementation of the food labelling law lies with three departments: the Agriculture Ministry, Health Ministry and National Authority for Consumer Protection. The law states that "the producer" is responsible for labelling. According to the National Authority for Consumer Protection, "the producer" is understood to be the farmer. As the last player in the supply chain, the Consumer Protection authority claims that it will be unable to enforce the GM food labelling requirements, without the appropriate labelling of crops from the field to the market. However, none of the three agencies have a laboratory for testing for GMOs, and hence the means to implement this legal requirement.

Under Order 464/2003, the Ministry of Agriculture keeps records of the area of GM crops grown each year, collecting data from sales of seed. Farmers have to record what they have planted with local County Agriculture Department before June 15th of every year. However, this figure neglects those farmers who use farm-saved seed without reporting it.(ANPED, 2003)

The Situation after EU-Accession

Romania's entry into the EU abruptly changed the legal situation with regard to GMOs, and especially regarding Roundup Ready soy. As this kind of plant is not permitted within the EU, its cultivation was immediately prohibited when Romania entered the Union, in January 2007, without any transitional period whatsoever. However, this does not mean that these plants have disappeared from the fields. Some of the GM seeds remain in the soil, thus assuring a considerable amount of soy harvest contamination. Viewed this way, Romania represents a test case if and to what extent a decontamination of areas once planted with GM plants is possible – and how long this process would take.

Conversely, entry into the EU has permitted Romanian farmers to cultivate Monsato's GMO maize (Mon810) and GMO Bt maize - containing a gene that produces a bacterial toxin to protect the plant from insects, such as the European corn borer - both of which have been licensed in the meantime. Thus the problem has simply shifted from one plant to another. Simultaneously it is becoming more virulent as corn-growing areas in Romania are significantly more extensive than those used for soy production. 3 million hectares have been planted with (yet) genetically unmodified corn.

EU authorities approved Mon810 for cultivation a decade ago, but since then four EU countries – Austria, Greece, Hungary and, most recently, France – have imposed bans. Poland operates restrictions on the sale and import of gene-altered seeds, and very little cultivation takes place there. Most of these countries, including France and Hungary, which are the second- and third-biggest corn growers in Europe, justified the bans on the grounds that the crops potentially could harm soils and reduce biodiversity.

Romania planted only about 325 hectares, or 800 acres, of Mon810 in 2007 and this year is expected to plant about 10,000 hectares. That still represents just a friction of the roughly 2 million to 3 million hectares of corn planted each year in Romania, as it was already mentioned. (Kanter, 2008)

On 10th of May 2007, the Romanian Ministry of Agriculture and Rural Development clearly expressed the will to re-introduce GM soy in Romania, offering as justification that its cultivation proved to have obvious advantages for Romanian farmers, with positive outcome for Romania's national economy. As Romania is an EU member state since 2007, this favorable position for GM soy commercial growing, will affect the entire European Union.

Complex Implications

The cultivation of GM crops in Romania threatens biodiversity and the potential farming as in many cases the farmers do not know what they plant or what their neighbours plant. Organic and GM agriculture are incompatible, GM crops may contaminate organic farming and there is a strong need to keep GM and non-GM separate from field to fork.

Actually, organic and conventional farmers face a threat from genetic engineering because contamination would lead to loss their export markets for agricultural and food products in the EU, where consumers are

demanding GMO-free food. Romanian farmers may be excluded from this market because of the promotion of genetic engineering by the Romanian Government, the USA, and biotech companies.

According to the latest EU surveys, 62 per cent of Europeans are worried about GMO food. The majority of Europeans thinks that GM food should not be encouraged. GMO food is seen as morally unacceptable and as risky for society. (European Commission, 2006)

But, above all these, despite the cultivation of GM crops and their presence on the market, there is no public awarness about GMO. GM soybeans are milled in Romania mainly for the domestic market but in the absence of any certified polymerase chain reaction (PCR) laboratory no food producer is labelling GM food. As a consequence, the consumer has no possibility to exercise his or her freedom of choice.

Conclusions

Agriculture plays an important role in the economy of Romania. In its rush to 'modernise' agriculture, Romania must reject the use of genetic engineering in farming in order to retain the option of growing non-GM crops conventionally. The commercialisation of GM crops could have long-term implications for food safety, but more immediately Romania's ability to export it GMO-contaminated harvest. This could have important socio-economic impacts, both for farmers and for consumers, as Romania loses it export markets for agricultural products in the EU and Asia, where consumers are demanding for non-GM food.

Romanian farmers have a right to know what seed they are sowing. Consumers have the right to know the true facts about genetic engineering and what is in their food. Moreover, society has the right, based on full disclosure of information, to make an educated decision about which agricultural path they want to follow. Until now, there has been minimal public awareness, and no national debate. As a result, the population is porly informed on the risks, the related regulations at the national and European level, as well as the reactions and initiatives of the European Communities regarding the cultivation and consumption of GMOs.

By adopting organic farming instead of genetic engineering, Romania would face a much more prosperous future and the threats to its special ecosystems that GM agriculture brings would not be observed. Romania must invest more in non-GM agriculture and make sure the system of traceability and labelling are in place to protect against contamination.

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