

# Genetically Modified Organisms (GMO) in northern Greece—Knowledge and Attitude of Organic Farmers

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## Introduction

Nowadays, Greece is the 10th country worldwide with the highest increase in organic land area. Especially in the northern part of the country, the number of organic farmers is three times higher and the organically cultivated land area five times higher in comparison to data collected few years ago. In addition, it is in northern Greece that 22% of the national organic products are being produced.

## Description of approach

This research provides an overview of the knowledge and attitude of 200 organic farmers—all of them in northern Greece—toward the introduction of GM (Genetically Modified) seeds into Greek agriculture, as well as toward the impact which GMOs (Genetically Modified Organisms) have or could have on the production of organics. In order to pinpoint and analyze these attitudes, in the course of the year 2007, the methodological tool of face-to-face interviews was used, including mostly closed as well as open response-option questions.

## Results

The majority of the farmers being interviewed have entered the organic sector during the last five years. Of these farmers, 76% produced organic mainly due to the support program of the European Union, while another 45% explained their participation in organic agriculture on the grounds of the increased price for organic products. Lastly, 15% of the farmers followed the organic approach out of fear of the impact the use of chemicals might have on their health. Up to the time the interviews were taken, no courses providing information about GMOs had been organized, and thus farmers had acquired their knowledge mainly from the mass media. For instance, only one in three was informed about the fact that GM seeds are on the market in the European Union, but even this segment of the participants was not able to name an example of such a crop. Furthermore, only 10% of the interviewees had heard about herbicide-tolerant crops, and only 2% of them knew about the horizontal gene transfer and other environmental impacts that GMOs could have. The same low percentages could be observed in the positive answers pertaining to whether the farmers were aware of the fact that GM seeds that are herbicide-resistant can be transformed into weeds in the following years' cultivation, as well as of the fact that gene transfer can lead to hybridization between GM crops and weeds, which could potentially lead to the production of more persistent weeds (Dale et al. 2001). In addition, no concrete opinions could be detected pertaining to the possible impacts of a GM crop on biodiversity. In spite the fact that organic cultivators had incomplete knowledge about GMOs, the majority of them were not afraid that their fields could be contaminated, as the prevalent opinion was that GM plants are not being cultivated in their area. No samples of seeds had been taken during controls from the organic certification institutions. Of the interviewees, 82% were not afraid that the introduction of GM crops could influence the prices of local organic products. In addition, 96% were not aware of the fact that GM crops are related to the question of intellectual property rights, but, on the contrary, 72% believed instinctively that GM crops will lead to a greater dependence of farmers on corporations. On the one hand, 90% of the organic farmers who participated in the interviews said that there should be GMO-free regions, especially those which are close to biotopes. On the other hand, 86% of them reacted positively toward other biotechnology applications, such as genetic testing to detect diseases or introducing human genes into animals to produce organs for human transplants.

## Discussion and conclusions

As a result, it becomes evident from the interviews that organic farmers possessed both incomplete and confused information on GMOs, particularly their impact on aspects of finance, coexistence, and traceability. The vast majority answered negatively to almost all technical questions dealing with the application of GMOs in agriculture, and for this reason were not in a position to explain the reasons why GM crops should not be part of organic farming. All in all, it can be inferred that the opposition of organic farmers to the introduction of GMOs, which is similar to the country's public opinion—with one of the biggest percentages in Europe of opponents of GMOs (Gaskell et al. 2006)—is based more on instinctive reactions than on adequate knowledge of the issue. Indeed, the need for information, research, and training in the organic agriculture sector in Greece is imperative, and the same proved to be true with the issue of GMOs. The need, therefore, for consultative seminars for the farmers is urgent, seminars which will link their attitude toward GMOs with the premises of organic farming. In addition, traceability of seed trade has to be legislated carefully, so that organic farmers can be assured that there will be no mixing of GM seeds and those used in organic agriculture.

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