BIOTECHNOLOGY

# A Tomato by Any Other Name? U.S. and EC Grapple with Labeling

In the United States, a shopper at the grocery store chooses a ripe-looking tomato, checks the price, and puts it in his cart. The shopper in Europe who picks up a similar tomato, however, might also check for a label that indicates whether the food has been genetically modified before he decides to buy.

Today, genetic modification is used in pharmaceutical manufacturing, medical technologies, and agricultural production. However, it is the tinkering with food products, perhaps, that touches the most people. Consumers want to know what they're serving at the dinner table.

Both the United States and Europe are debating just how knowledgeable the public is about biotechnology and genetically modified foods, and how much more information is needed—on labels, for example—for consumers to make informed choices. The choices they make will determine the success of genetically modified foods in the international marketplace.

Labeling, government regulations, health and safety, and the international debate in the global marketplace concerning biotechnology were among the issues discussed at a joint U.K. Presidency–European Commission (EC) conference in Brussels on 25 June. Some 200 delegates, representing all European member states, attended.

John Battle, the British minister for science, energy, and industry, who opened the European conference, said the use of biotechnology in Europe had the potential to "deliver to its citizens the quality of life—in health, agriculture, food, and in environmental protection—and the economy and employment which the technology offers." He stressed that the industry and the science community must carry out research and development of biotechnology products and processes responsibly, and the government must protect public health and the environment while encouraging investment in new technologies.

The Brussels conference followed an 8 May forum on genetically modified foods held by AAAS and the British Embassy in Washington, D.C. Biotechnology industry leaders, policy-makers, scientists, and consumer group representatives discussed safety issues and public receptivity to genetically modified foods. The AAAS forum provided an overview of the scientific capabilities for genetically manipulating microbes and crops, industrial and consumer perspectives of genetically modified food products, and the types of policies that should be in place.

## Labeling

The EC has adopted legislation that calls for the mandatory labeling of all foods that have been genetically modified. At the Brussels conference, there was a "recognition and acceptance that labeling was necessary and important," said Colin Bailey in the biotechnology directorate of the British Department of Trade and Industry. "But there was not so much a call for increased labeling as a call for providing consumers with more information, which doesn't necessarily come from labeling. The success of a product will be determined in the marketplace. And consumers must be able to make informed choices."

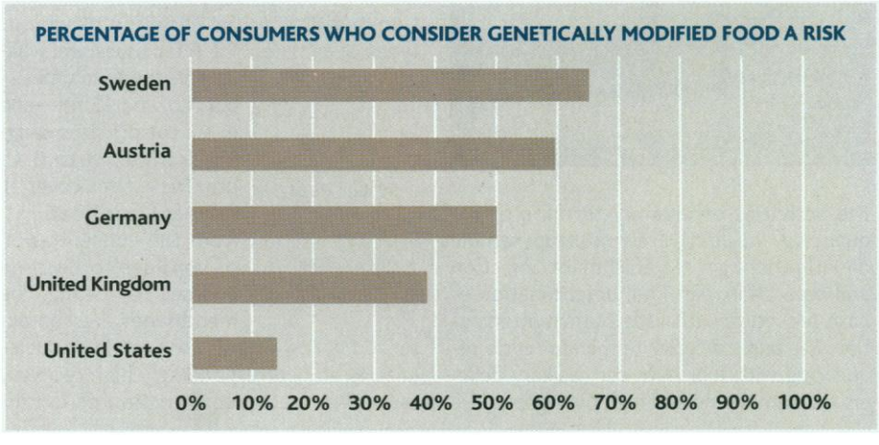
Current U.S. Food and Drug Administration (FDA) policy requires food to be labeled as genetically modified only if the changes introduced through genetic engineering have an impact on the safety or nutrition of food itself. Consumer advocates, however, call for the labeling of all genetically modified foods, saying that labels are important for health and safety and would alert consumers to foods that may contain allergens.

Agricultural companies say that current standards are adequate; labeling all genetically modified products would not be easy or cost-efficient because of the difficulties in segregating genetically modified foods out from processed foods. For example, what if genetically modified tomatoes were mixed with organic tomatoes to produce ketchup?

"For a lot of commodities, there are no existing mechanisms to do the segregation," said Rob Horsh, director of science and technology at Monsanto. "But if there is a reason it needs to be labeled, you'd have to." Horsh said the FDA guidelines are quite clear as to what needs to be labeled.

Recently, the U.S. Department of Agriculture (USDA) decided that genetically modified and irradiated food and crops fertilized with sewage sludge should not be allowed to be labeled "organic." The decision came after the department received an overwhelming response from an estimated 150,000 people during a 4-month comment period, the vast majority of whom opposed calling such products "organic"—more comments than the department had ever received on any single rule.

Margaret Mellon, director of agriculture and biotechnology at the Union of Concerned Scientists, who addressed the AAAS forum, pointed to the response as an indication of a strong public interest in how foods are produced. "Labeling gives consumers a real choice whether they want products which have been genetically engineered," Mellon said. She suggested that labels could include a small symbol that alerts consumers to a government database that would help them research what allergens might have been added to the foods through genetic modification. As it stands now, "People

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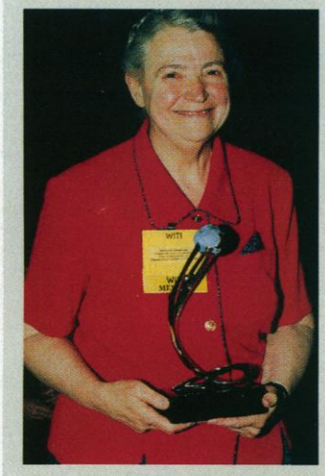


WOMEN IN TECHNOLOGY INTERNATIONAL

Dresselhaus receives WITI Hall of Fame award.

AWARDS

## Dresselhaus Receives Honor

Mildred Dresselhaus, chair of the Board of Directors of AAAS, was inducted into the Hall of Fame of Women in Technology International (WITI). Dresselhaus was one of five inductees honored at a banquet on 26 June during the WITI conference.

The Hall of Fame, with a total of 25 members, showcases and chronicles the extraordinary achievements of women scientists and technologists. Dresselhaus is an Institute Professor of Electrical Engineering and Physics at the Massachusetts Institute of Technology.

The fourth annual WITI conference, held for 3 days at the end of June in Santa Clara, California, was attended by some 4500 women—some who write software or design electronics gear. WITI, founded in 1989 to help women in technology succeed, has more than 6000 members worldwide.

don't even know they're eating genetically engineered foods," she said.

Thomas Hoban, professor of sociology and food sciences at North Carolina State University, told the AAAS forum that those who responded to the USDA survey represent those consumers who want organic food and who are politically active. "There's a small segment of shoppers who are concerned," Hoban said. However, according to telephone surveys of American and European consumers, about 80 percent of U.S. consumers support the current FDA policy on labeling.

### Benefits and Risks

International agricultural companies argue that genetically modified foods can help developing countries produce disease- and drought-resistant crops to better feed their people, can protect the environment by cutting down on the use of pesticides and herbicides, and can serve the consumer by producing a better tasting and longer lasting product at a reduced cost.

Consumer groups, however, say more information is needed on how genetically modified foods will affect human health and environment. They are concerned about potential risks, including the production of new allergens in foods and the effects of the introduction of toxins on ecosystems. For example, if a gene from peanuts or fish, foods that commonly cause allergic reactions, were inserted into sweet corn, it may transfer something to the corn that could produce an allergic reaction. "Basically, we're playing roulette with allergens," Mellon said.

Mellon wants more emphasis placed on risk assessment. "Much more attention should be paid to what are the benefits," Mellon said. "We tend to gloss over the issue of whether we're getting anything in exchange for the risks."

The debate on health and safety of genetically modified foods becomes even more heated in the international arena. Based on Hoban's research, a majority of Americans, to the extent they think about it, have a positive attitude toward biotechnology. Americans will buy the products if they perceive safety and benefits and want taste, nutrition, convenience, and value. "Americans like that type of news," Hoban said.

"In the United States, we're much better prepared for it [biotechnology]," Hoban said. The government, health organizations, and media have all been involved since early on in the use of biotechnology.

Europeans, on the other hand, are concerned about the risks associated with new technologies and see no particular benefits in genetically modified foods, Hoban said. In Europe, there has been little proactive education for industry, political leaders, and consumers. And a strong green political movement and a cultural commitment to natural foods have helped shape attitudes.

According to Hoban, 72 percent of U.S. consumers support agricultural biotechnology. Many European consumers, however, regard genetic modification as a serious risk in food products: 65 percent in Sweden, 60 percent in Austria, 50 percent in Germany, and 39 percent in the United Kingdom, compared to 14 percent in the United States.

Those who support genetically modified foods and those who are concerned about the potential health and safety risks do agree on one thing: more education efforts on biotechnology should be concentrated on scientists, health experts, government officials, the media, and the food industry.

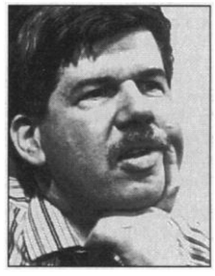
The AAAS forum is just one of a series to bring together different sectors of society to discuss the implications of scientific advancements. Last year, AAAS held forums on cloning and changes in the human germ line. These forums are a "continuation of the philosophy that a serious effort should be made to engage the public and experts in dialogue on these emerging and critical issues," said Mark Frankel, director of the Scientific Freedom, Responsibility, and Law Program at AAAS.

150TH ANNIVERSARY

## AAAS to Hold Founders Day Lecture

To cap off the celebration of its 150th birthday, AAAS, in conjunction with the Smithsonian Museum of Natural History, will hold a Founders Day Lecture on 18 September. Stephen Jay Gould, the president-elect of AAAS, will deliver the lecture at the Baird Auditorium at the Museum of Natural History at 6 p.m.

Special events at the 1998 AAAS annual meeting in Philadelphia, site of the association's founding in 1848, kicked off the celebration year. Other events included an exhibit of artifacts that highlights some of the people and events that shaped the association and continue to influence its future. The exhibit is now on display at AAAS headquarters.



Gould

Gould, an award-winning author and evolution scholar, has made numerous contributions to scientific progress and the public understanding of science. In 1972, Gould helped develop the theory of punctuated equilibrium, concluding that evolution occurs by fits and starts, rather than by the slow, gradual process proposed by the traditional view of evolution. Gould is a professor of zoology and of geology at Harvard and is curator of invertebrate paleontology at that university's Museum of Comparative Zoology.

The site of the lecture is a fitting one, given the historic links between AAAS and the Smithsonian Institution. AAAS's president in 1849, Joseph Henry, was the first secretary of the Smithsonian. Spencer Baird, AAAS's first permanent secretary, was Henry's successor. In 1907, AAAS was given its first permanent home—a rent-free suite of offices—in the Smithsonian's "castle." The Smithsonian remained home to AAAS until 1946.

The lecture, open to the public, is free of charge. For reservations, call 202-326-6660.