

**MASSPIRG'S**  
**SURVEY OF MASSACHUSETTS RESIDENTS**  
**ON**  
**GENETICALLY ENGINEERED**  
**FOODS**

**Jill Rubin**  
**Food Safety Advocate**

**Massachusetts Public Interest Research Group**

**APRIL 23, 2001**

**MASSPIRG**  
**29 Temple Place**  
**Boston, MA 02111**  
**(617) 292- 4800**  
**[www.masspirg.org](http://www.masspirg.org)**

## **I. SUMMARY:**

Genetically engineered foods are a recent addition to our food supply and have not been proven safe for human health or the environment. The purpose of this report was to document public opinion in Massachusetts on genetically engineered foods. The survey results are based on 331 informal surveys collected throughout the state. Eighty-five percent of respondents were concerned about the health and environmental impacts of genetically engineered foods. In addition, 97% believed they had a right to know about which foods are genetically engineered and 96% believe we should have required testing for health and environmental impacts before they are put into food. Respondents suffered from 82 food allergies including more unusual allergies from foods such as kiwis, tomatoes, and wheat.

These results demonstrate the need for stronger regulations for genetically engineered foods including:

- Mandatory pre-market testing for human health and environmental safety,
- Required labeling, and
- Liability clearly assigned to the biotechnology companies for any harm that comes from genetically engineered products.

## **II. BACKGROUND:**

### *Something New in Your Shopping Cart*

Genetically engineered foods are a recent phenomenon. The first genetically engineered crops were planted commercially in 1992. Now, over half of the soybeans and approximately a quarter of the corn crops grown in the United States are genetically engineered. As a result, 60-70% of all processed foods contain genetically engineered ingredients.

### *Health and Environmental Concerns*

Genetically engineered foods have become commonplace in our food and yet, initial scientific studies indicate that genetically engineered foods may cause serious harm to our health and the environment. For example, one study found that a genetically engineered potato harmed the stomach linings of rats. Genetically engineered food may cause health problems such as creating unexpected or new food allergies, adding more toxins to our food, and decreasing the effectiveness of antibiotics used to treat disease. In addition, genetically engineered crops may cause unintended harm to the environment and create weeds and pests that are resistant to pesticides.

### *Lack of Adequate Government Regulation*

Despite health and environmental concerns, the federal government does not require pre-market testing for health and environmental safety or labeling so consumers can know what they are buying. To find out what the public knows about genetically engineered foods, and how they

think genetically engineered foods should be regulated, we conducted an informal poll of Massachusetts residents.

## **METHODOLOGY:**

Surveys were gathered during March and April 2001. The surveys were collected in public places throughout Massachusetts including Boston, Newton, Amherst, Northampton, and Pittsfield.

A total of 390 people were surveyed; however, the surveys of respondents who answered “no” to the first question were not asked the remaining questions. The surveys of respondents that failed to answer one or more of the questions were also not counted in the results. After eliminating incomplete surveys, 366 remained. Of the 366 surveys, 331 answered yes to question one. Percentages in questions 2 through 8 are based on these 331 surveys.

Totals and percentages were calculated for each question. Respondents could choose one or more answer for question 8 and each percentage reflects the percentage of the 331 respondents chose that particular answer. Because many people chose more than one answer, the total of the percentages is greater than 100%. The food allergies were tabulated by food type and then grouped into six food categories including nuts, seafood, dairy, grains, fruits/ vegetables, and other. Percentages of food allergies were calculated based on the total number of allergies listed.

The questions were as follows:

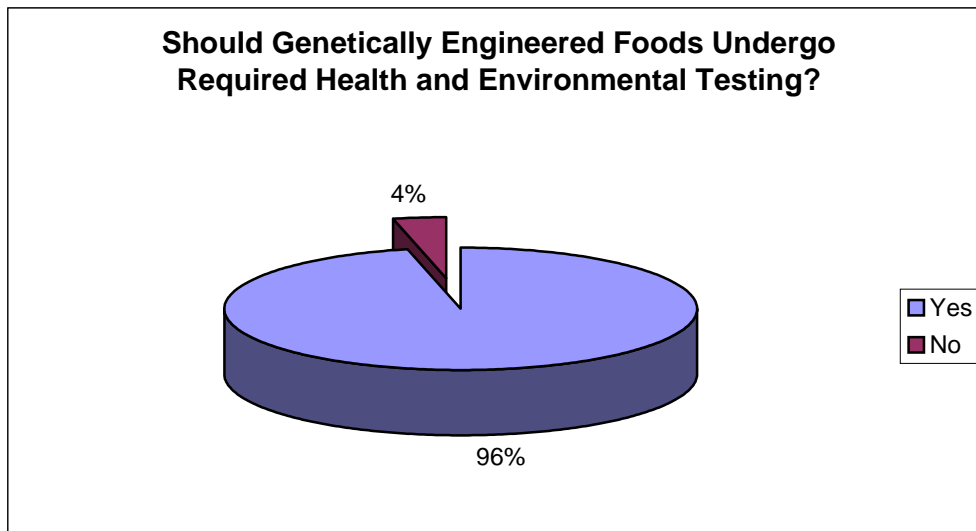
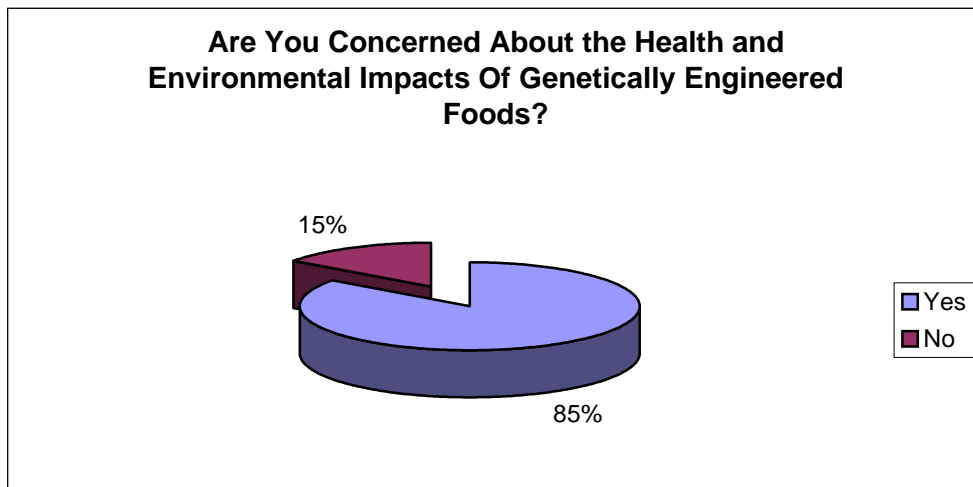
1. Are you aware that genetically engineered foods are being sold in supermarkets? Yes/ No
2. Approximately what percentage of processed foods do you think contain genetically engineered ingredients?  
A) Less than 5%   B) 20%   C) 40%   D) 60%   E) More than 80%
3. Do you have any FOOD allergies and if so, to what? Yes/ No
4. Do you have any friends or family that have food allergies? Yes/ No
5. Do you think you should have a right to know which foods are genetically engineered? Yes/ No
6. Do you think genetically engineered foods should be required to undergo testing for health and environmental safety before they are put in your food? Yes/ No
7. Are you concerned about the environmental or health effects of genetically engineered foods? Yes/ No
8. If there is human health or environmental harm from the use of genetically engineered foods, who do you think should pay the cost? (Circle one or more)  
A) The government      B) The public      C) Manufacturers      D) Farmers

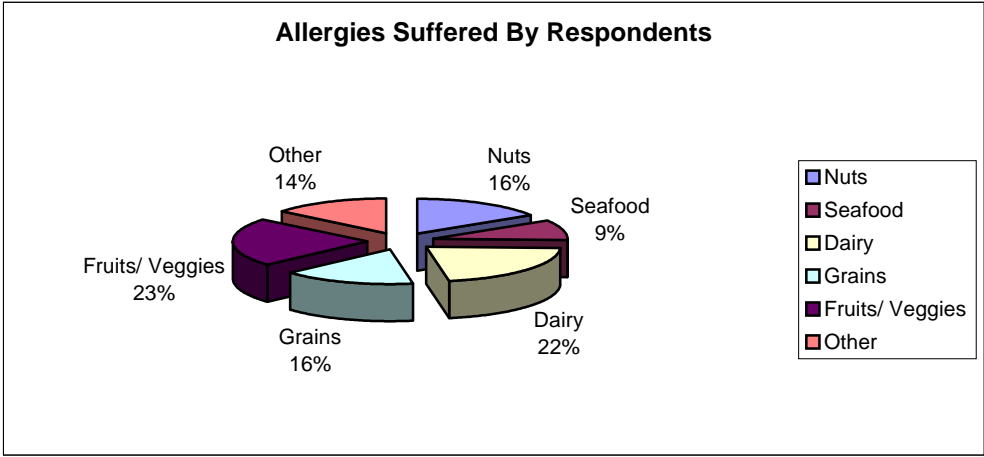
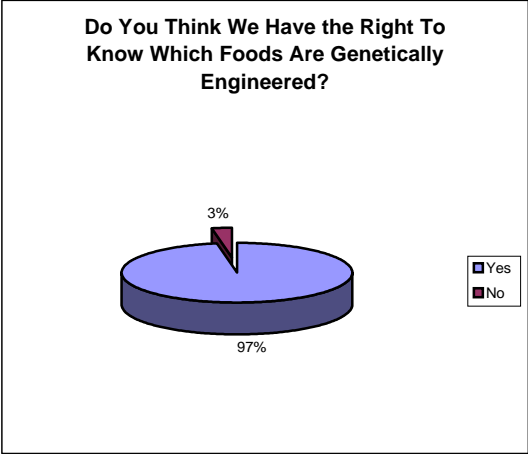
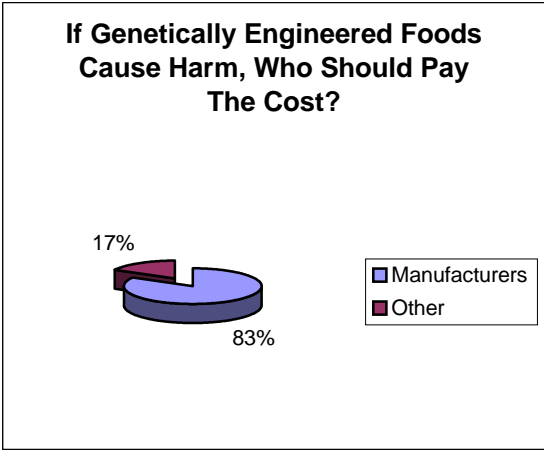
## **RESULTS**

- 90% of respondents were aware that genetically engineered foods are being sold at

supermarkets

- 29% of respondents believed that 60% of process food contains genetically engineered ingredients
- 18% of people surveyed indicated they suffered from food allergies
- 47% of the allergies listed were to either seafood, nuts, or dairy.
- 97% of the respondents believed they should know which foods are genetically engineered
- 96% thought that genetically engineered foods should be required to undergo pre-market safety testing
- 85% of respondents were concerned about the health and environmental impacts of genetically engineered foods
- 83% of respondents believed the manufacturers of genetically engineered foods should pay the cost of any harm





### Survey Results in Percentages:

| <p><b>Question 1</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">90%</td> <td style="text-align: center;">9%</td> </tr> </tbody> </table><br><p><b>Question 2</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>&lt;5%</u></th> <th style="text-align: center;"><u>20%</u></th> <th style="text-align: center;"><u>40%</u></th> <th style="text-align: center;"><u>60%</u></th> <th style="text-align: center;"><u>&gt;80%</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4%</td> <td style="text-align: center;">22%</td> <td style="text-align: center;">24%</td> <td style="text-align: center;">29%</td> <td style="text-align: center;">21%</td> </tr> </tbody> </table><br><p><b>Question 3</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">18%</td> <td style="text-align: center;">82%</td> </tr> </tbody> </table><br><p><b>Question 4</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">53%</td> <td style="text-align: center;">47%</td> </tr> </tbody> </table> | <u>Yes</u>    | <u>No</u>  | 90%            | 9%             | <u>&lt;5%</u> | <u>20%</u> | <u>40%</u> | <u>60%</u> | <u>&gt;80%</u> | 4% | 22% | 24% | 29% | 21% | <u>Yes</u> | <u>No</u> | 18% | 82% | <u>Yes</u> | <u>No</u> | 53% | 47% | <p><b>Question 5</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">97%</td> <td style="text-align: center;">3%</td> </tr> </tbody> </table><br><p><b>Question 6</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">96%</td> <td style="text-align: center;">4%</td> </tr> </tbody> </table><br><p><b>Question 7</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Yes</u></th> <th style="text-align: center;"><u>No</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">85%</td> <td style="text-align: center;">15%</td> </tr> </tbody> </table><br><p><b>Question 8</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Govt</u></th> <th style="text-align: center;"><u>Public</u></th> <th style="text-align: center;"><u>Mnf</u></th> <th style="text-align: center;"><u>Farmers</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">40%</td> <td style="text-align: center;">7%</td> <td style="text-align: center;">83%</td> <td style="text-align: center;">12%</td> </tr> </tbody> </table> | <u>Yes</u> | <u>No</u> | 97% | 3% | <u>Yes</u> | <u>No</u> | 96% | 4% | <u>Yes</u> | <u>No</u> | 85% | 15% | <u>Govt</u> | <u>Public</u> | <u>Mnf</u> | <u>Farmers</u> | 40% | 7% | 83% | 12% |
|---|---------------|------------|----------------|----------------|---------------|------------|------------|------------|----------------|----|-----|-----|-----|-----|------------|-----------|-----|-----|------------|-----------|-----|-----|--|------------|-----------|-----|----|------------|-----------|-----|----|------------|-----------|-----|-----|-------------|---------------|------------|----------------|-----|----|-----|-----|
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 90%   | 9%            |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>&lt;5%</u>   | <u>20%</u>    | <u>40%</u> | <u>60%</u>     | <u>&gt;80%</u> |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 4%  | 22%           | 24%        | 29%            | 21%            |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 18%   | 82%           |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 53%   | 47%           |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 97%   | 3%            |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 96%   | 4%            |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Yes</u>  | <u>No</u>     |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 85%   | 15%           |            |                |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| <u>Govt</u>   | <u>Public</u> | <u>Mnf</u> | <u>Farmers</u> |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |
| 40%   | 7%            | 83%        | 12%            |                |               |            |            |            |                |    |     |     |     |     |            |           |     |     |            |           |     |     |  |            |           |     |    |            |           |     |    |            |           |     |     |             |               |            |                |     |    |     |     |

### Allergies Suffered By Respondents:

|             |   |            |   |           |   |
|-------------|---|------------|---|-----------|---|
| Bananas     | 1 | Lactose    | 3 | Poultry   | 1 |
| Barely      | 1 | Lobster    | 1 | Red #40   | 1 |
| Blue Cheese | 1 | Milk       | 8 | Red Meat  | 1 |
| Celery      | 1 | Mold       | 1 | Salmon    | 1 |
| Chocolate   | 3 | MSG        | 1 | Shellfish | 4 |
| Corn        | 2 | Nuts       | 2 | Shrimp    | 3 |
| Dairy       | 8 | Onions     | 1 | Squid     | 1 |
| Eggplant    | 1 | Oysters    | 1 | Sugar     | 3 |
| Eggs        | 4 | Peanuts    | 2 | Tomatoes  | 3 |
| Fruits      | 2 | Peppermint | 1 | Walnuts   | 5 |
| Honey       | 1 | Pineapples | 1 | Wheat     | 9 |
| Kiwi        | 1 | Plums      | 1 | Yeast     | 1 |

### CONCLUSIONS:

#### *Consumer Knowledge:*

Ninety percent of respondents were aware that genetically engineered foods are being sold in grocery stores. Approximately, 60% of processed food contains genetically engineered ingredients, however, only 29% of the respondents gave the correct answer. The results show that although most people are aware food is being genetically engineered, the majority of people do not know what percentage of their food is genetically engineered.

#### *Food Allergies:*

We found that 18% of respondents indicated they suffered from 82 different food allergies. People surveyed had allergies to a wide variety of foods including kiwis, onions, peppermint, and eggplant. Nine of the 82 allergies listed were to wheat. Less than half of the listed allergies were to nuts, dairy, or fish. Genetically engineered foods have been shown to transfer their allergenic properties. For example, a soybean genetically engineered with Brazil nut genes was found to cause allergic reactions in people with known brazil nut allergies. The fact that the public suffers a wide range of unpredictable allergies is not taken into consideration by biotechnology companies. While many companies have pledged not to use common allergens, such as dairy, shellfish, and nuts, they do not limit the other food ingredients. These results strongly suggest that consumers are unknowingly at risk from genes transferred during genetic engineering that may cause allergic reactions.

#### *Stricter Regulation:*

The consumers surveyed strongly believed there should be stricter regulations of genetically

engineered foods. Eighty-five percent of survey respondents were concerned about the health and environmental impacts of genetically engineered foods.

- An overwhelming majority, 97% believed that they have the right to know which foods are genetically engineered.
- 96% of respondents believed that genetically engineered foods should be required to undergo testing for health and environmental safety before they are put in food.
- 82% of respondent believed that the manufacturers should be responsible for the costs of any harm.

Current regulations require no mandatory labeling or pre-market testing of genetically engineered foods. Federal regulations also do not make clear who should be responsible if genetically engineered foods cause human health, environmental, or crop damage.

The public's concern about the safety of genetically engineered foods is supported by initial experiences and scientific studies that indicate genetically engineered foods may cause serious harm. A study performed on genetically engineered potatoes caused harm to the digestive tracts of rats. Farmers in the Midwest trying to protect their fields from contamination with genetically engineered crops have had a lot of difficulty. This contamination has caused financial losses for some and is especially damaging for organic farmers who can lose their organic certification. Furthermore, there have been no long-term studies done on the health impacts of genetically engineered foods.

Based on the results of this informal public opinion poll, the inadequate federal regulations on genetically engineered foods, and concerns of potential environmental and health damage, we recommend that:

- **The manufacturers of genetically engineered foods should be held liable for the harm that come from the use of their products,**
- **Genetically engineered foods are required to undergo rigorous pre-market safety testing, and**
- **All genetically engineered food should be labeled to give consumers the right to know.**