

2000 Vermonter Poll: Attitudes Toward GMOs

Executive Summary

For the last several years, the Center for Rural Studies (CRS) at the University of Vermont has conducted a statewide Vermonter Poll. This year the poll included 697 registered Vermont voters. At the end of the survey, they were asked several demographic questions such as income level, education and family composition. This report focuses on Vermonters opinions about genetically modified organisms or GMOs. More specifically, it focuses on how concerned people are about the use of GMOs in food and agriculture and their behavior patterns or future behavior intentions based on label information.

The surveys were collected using Computer Aided Telephone Interviewing (CATI), with respondents chosen by random digit dialing. The survey was done for three weeks, calling people from 4-9pm each weekday. The data analysis was done by the computer software program called SPSS Version 9.0 (Statistical Package for Social Scientists). All of the data analysis was done using a significance level of 0.05 or less. All the tests were conducted for two-tailed tests, either there was a relationship between the independent and dependent variable or there was not a relationship between the independent and dependent variable.

The average age of the Vermonter poll was 51 years old. 46.6 percent of the respondents were males and 53.4 percent were females. The majority of participants were from Chittenden County. Data are weighted in the analyses to ensure fair representation of the Vermont population. The highest education level completed by the majority of the participants were a Bachelor's Degree or higher. The most common household composition was married without children. Most of Vermonters have households where all adults in the household are working full time or other combinations of full-time/part-time.

The data suggest these summary conclusions:

- Most of the people read food labels always or most of the time
- The majority of Vermonters were concerned about GMOs in food and agriculture products
- The majority of respondents said that they would stop buying products if products were labeled as containing GMOs
- A large proportion of respondents would pay more for products that were guaranteed to be GMO-free

Overall, the data suggests that there is a need for food and agriculture products to be labeled, most people want GMO-free products and that they are willing to sacrifice money to have the GMO-free guarantee. It appears that consumers in Vermont want to be educated so they can make informed choices for themselves and their families.

Introduction

The Vermonter Poll was first conducted in 1990 by the Center for Rural Studies at the University of Vermont. It is a state-wide poll of registered voters in Vermont. The previous polls were conducted in 1990, 1993-97 and 1999, ending with this year's poll in 2000. The survey is a way to collect research on how Vermonters feel about current events that Vermonters face.

The Vermonter Poll uses Computer Aided Telephone Interviewing (CATI) to collect the data. Random digit dialing is used to keep participants anonymous. The Vermonter poll is strictly confidential, not even the interviewer knows who or where he/she is calling. This year, 697 Vermont residents were called and asked to participate in the poll. All of the respondents had to be registered voters in order to participate. The respondents were asked an extensive set of questions and then asked to answer some demographic facts, such as their education level and income.

The 2000 Vermonter Poll asked several questions about Genetically Modified Organisms or (GMOs). This report focuses on Vermonters opinions and behaviors related to GMOs. For the purpose of this survey and report, we have defined genetically modified organisms or GMOs to be the result of technologies where scientists move genes from one organism (like a plant, animal, animal or micro-organism) to a different type of organism to achieve certain desired characteristics that would not occur in nature or traditional breeding. (Vermont Poll Questionnaire)

Background/Literature Review

Since the late 19th century, scientists have been changing plant gene pools and giving them "better qualities." This started a fascination with scientists all over the world. This is evident by the people's recognition of the meaning of the terms bioengineering and genetically modified organisms (GMO). Since 1994, a growing number of foods have been genetically altered using tools of biotechnology (Thompson, 2000). The ongoing problem is that people are becoming more and more concerned with the fact that so many foods contain GMOs but are not labeled as such. The other worry in people's minds is that the Food and Drug Administration is not doing a good job in regulating the safety of these foods. On the Food and Drug Association webpage, you can see article after article written by consumers complaining about GMOs and their safety.

The Biotechnology Industry Organization (BIO) addresses the issue of labeling in their article entitled "Biotechnology in the Year 2000 and Beyond." "The BIO agrees with the FDA's implementation of the 1992 policy that requires labeling for significant changes, including nutrients or the introduction of allergens. The Food, Drug and Cosmetic Act allows food producers to provide choices through voluntary label statements as long as labels are truthful and

not misleading" (BIO's webpage: <http://www.bio.org/food&ag/011300statement.html>, 2000). They believe that by labeling only the bio-engineered foods that they will single them out and mislead consumers into believing that they are unsafe. The BIO thinks that the right labeling policy can and should recognize the rights of consumers to a safe and nutritious food supply, while facilitating consumer choice based on clear, meaningful, truthful and non-misleading information about the product (BIO's webpage: <http://www.bio.org/food&ag/011300statement.html>, 2000).

The issue of GMOs or genetically altered foods has been a big deal lately due to the Clinton Administration releasing a plan which deals with increasing the FDA's oversight of genetically altered foods by establishing a formal review process for these foods and creating labeling standards for GMO or GMO-free foods. CNN's news webpage continues to talk about Clinton's Administrative decision, "The oversight plan falls short of the regulations many consumer groups have advocated, including additional testing of biotech crops and mandatory labeling for products containing genetically altered ingredients. Some critics suggest the plan is a way to avoid thorough oversight. Half the soybean crop and a third of all corn in the United States is genetically altered. The new oversight would require consultation with the Food and Drug Administration before such food comes to market"(CNN Staff, 2000).

Due to heavy debate in the US and around the world about using biotechnology to increase desired traits in food, agricultural products and the health care industry, the Vermonter Poll thought that asking Vermont residents about their opinions regarding GMOs was very important. The Vermonter Poll revealed that most consumers highly underestimated the percentage of foods produced with GMOs (Vermont Poll Results).

Methods

The participants were all called between the hours of 4-9pm on weekdays and this was done for three weeks. This way the data collection was as consistent as possible. The total number of respondents sampled was 697 registered voters. In order to get a proper sample of the Vermont population only 400 to 480 respondents were needed. The 2000 Vermonter Poll over-sampled the population in order to get more people's opinions and to ensure proper representation of all counties. Due to over-sampling of Chittenden County based on population count, all of the data were weighted bases on a geographic weight. This ensures all respondents equal say in their opinions based upon geographic location, and thus are generalizable.

Some of the respondents who were called chose not to participate in the survey and some chose not to answer some of the questions. This is the reason that some of the questions have less than 697 responses. All of the data that will be presented is using a .05 or less significance level, therefore giving a 95% confidence level of data analysis.

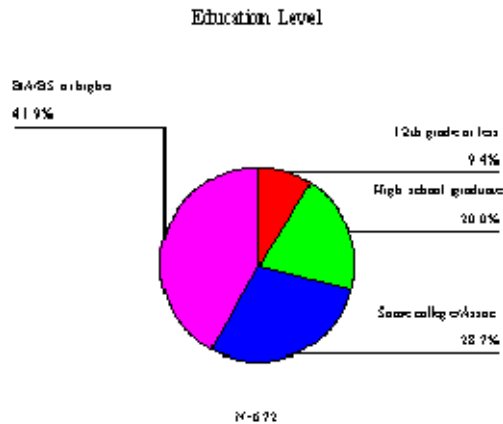
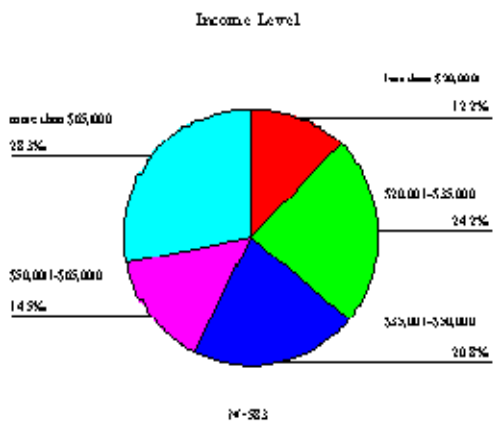
In order to focus on Vermonters opinions and behavior about GMOs, this report focuses on four questions that were asked in the Vermonter Poll. 1) How frequently do you read food labels? Possible answers were always, most of the time, occasionally or never. 2) I am concerned about GMOs in food and agricultural products. 3) If foods were labeled as containing GMOs, I would

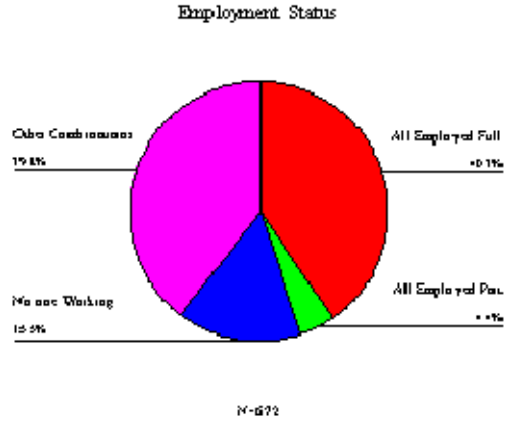
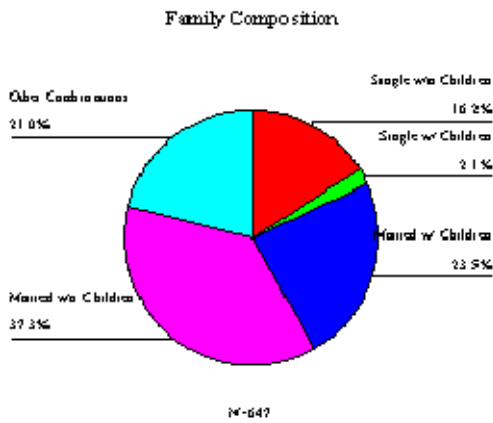
continue to buy them for myself or my family. 4) I would pay more for foods that were guaranteed to be GMO-free versus those that were not. For these last three questions, the possible answers were strongly disagree, disagree, neutral, agree or strongly agree.

All of the data analysis was done using a computer program called Statistical Package for Social Scientists (SPSS). The latest version, 9.0 was used. All of the data from CATI was converted over into SPSS and the data labeling and analysis were done. The graphs in the report are converted over from SPSS into Word.

Results/Analysis

Of the total respondents in the Vermonter Poll, 46.6% were males and 53.4% were females. 42.6% of the people were from Chittenden County, 19% from the Northeast Kingdom and 38.4% from the rest of the state. The average age for the Vermonter Poll was 51 years old. Below are graphs showing the demographic statistics for income level, education level, employment status and family composition.





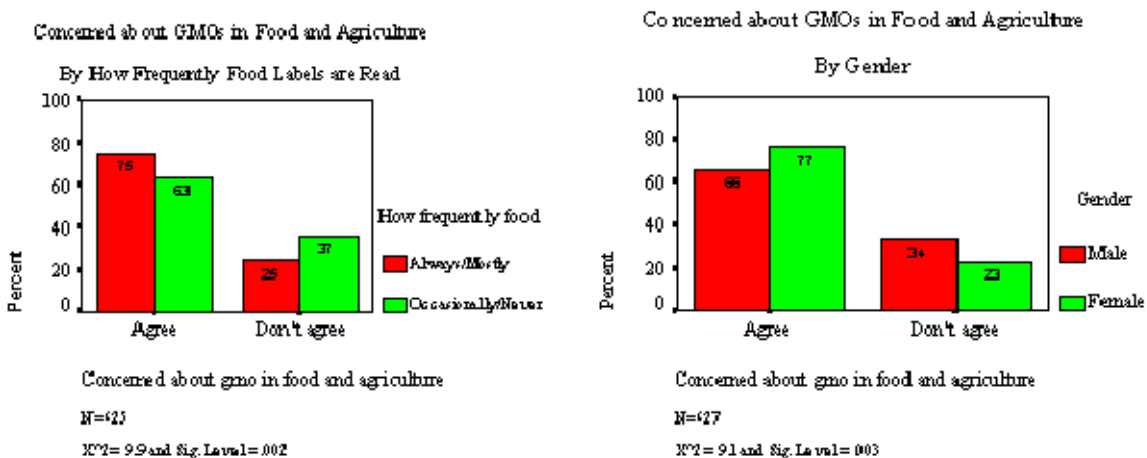
The results of the poll show that the majority of males (58%) and females (79%) in Vermont read food labels always or most of the time. This shows that Vermonters want to know how their food is made and what is in their food. The study also shows that 71.7% of Vermont residents are concerned about GMOs in food and agriculture. The data suggest that the large majority of the population wants foods such as chips and infant formula to be labeled as containing GMOs or not. Pertaining to agriculture, Vermont consumers also want products used by farmers such as seeds to be labeled as containing GMOs or GMO-free.

Looking at the overall data, people are worried about health issues and risks that are associated with GMOs. 62.1% of the respondents thought that foods that contained GMOs were not as safe as foods without GMO ingredients. 66% thought that GMOs posed health risks to humans and 66.6% thought that GMOs posed risks to the environment. The majority of participants (59.7%) were not confident in the FDA and EPA to regulate the use of GMOs effectively.

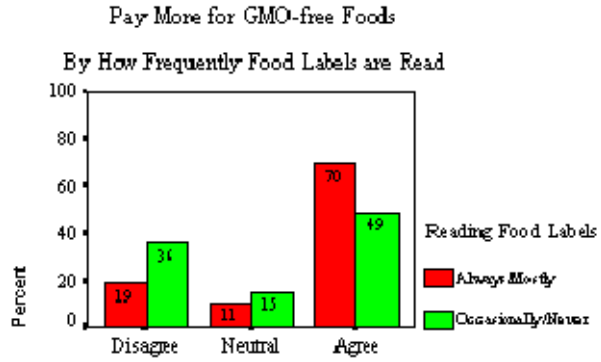
When looking at behavior changes related to GMOs, 53% of the respondents stated that they would not continue to buy products if they were labeled as containing GMOs. The majority of people (64%) said that they would be willing to pay more for foods that were guaranteed to be GMO-free versus those that were not.

Although the data suggested 40 different significant relationships when bi-variate analyses were conducted for all of the GMO questions and gender, age, employment status, how often they read food labels, family composition, income, geographic location and definition of GMO correct or not, for the purpose of this report, the focus was on concern and behavior and these dependent variables listed above. When comparing Vermonters concerns about GMOs and their behaviors, the data suggested that there were no significant relationships between the four questions asked and age, family composition, income or education.

This leads to the focus of the discussion of how concerned Vermont consumers are related to behavior changes. The poll asked the Vermont voters if they were concerned about GMOs in food and agricultural products. The data suggests that there was a significant relationship between concern and gender as well as concern and how frequently people read food labels. When you know the gender of the respondent, you could predict 7.8% better whether or not they are concerned about GMOs in food and agriculture. The strength of association is weak. When you are predicting concern using how frequently people read food labels, although there is a significant relationship between the two variables, you can't predict consumers concern any better knowing frequency of reading labels than if you didn't know their behavior pattern. The charts below show the comparisons of concerns to the two dependent variables. For the concerned by gender chart, the majority of both men and women are concerned about GMOs in food and agriculture. Analyzing the chart with concern by frequency of reading food labels, both the majorities of frequency are concerned about GMOs in food and agriculture.



When frequency of reading food labels were tested with questions on behavior changes, the data implies significant relationships between reading labels and continuing to buy foods if they were labeled containing GMOs and paying more for foods that were guaranteed to be GMO-free. Although the data shows that the relationships are very significant, you cannot predict any better if they will continue to buy GMO products or if they will pay more for GMO-free products or not, if you know how frequently they read food labels. For both of these tests, the strength of association is weak. As the charts below suggest, the majority of people would not continue to buy foods that were labeled as containing GMOs and a large majority would pay more for foods that were guaranteed to be GMO-free.

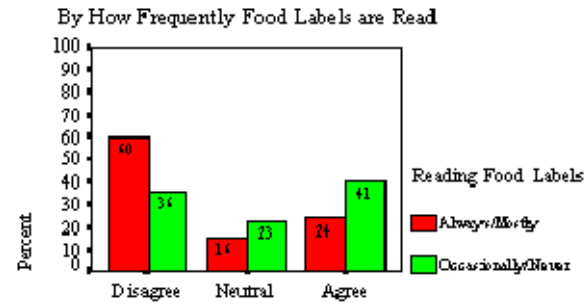


Pay more for GMO free foods

N=409

$\chi^2=40.3$ and Sig. Level=.000

Labeled Containing GMOs, Still Buy

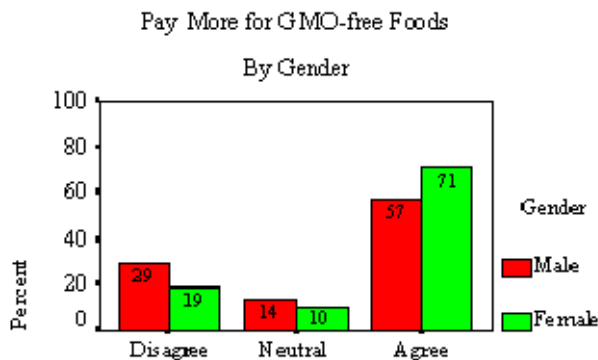


If foods with GMOs were labeled, I would still buy

N=393

$\chi^2=60.5$ and Sig. Level=.000

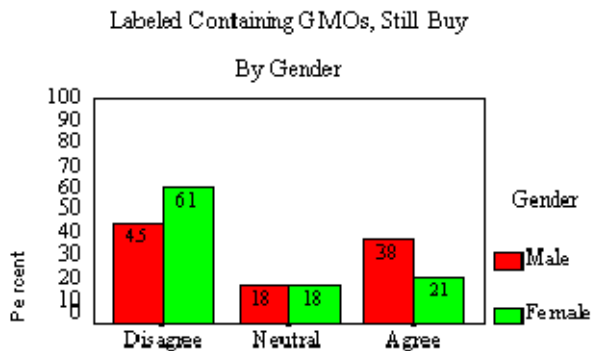
When the issue of gender is brought into account on Vermonters behavior, there were significant relationships found between continuing to buy GMO foods and paying more for GMO-free foods. When you know gender, you can predict if a person will continue to buy foods containing GMOs 15.2% better than if you didn't know gender. When you know gender, you can predict if a person will pay more for GMO-free foods 11.3% better than if you didn't know gender. Both of these tests have weak strengths of association. The majority of people polled would not continue to buy foods that were labeled containing GMOs and the majority of people would pay more money to ensure that the foods they were purchasing were GMO-free. Looking deeper into the data, the data indicate that women are more likely than men to stop purchasing foods with GMOs and they are more likely to pay more for GMO-free foods.



Pay more for GMO free foods

N=609

$\chi^2 = 12.3$ and Sig. Level = .002

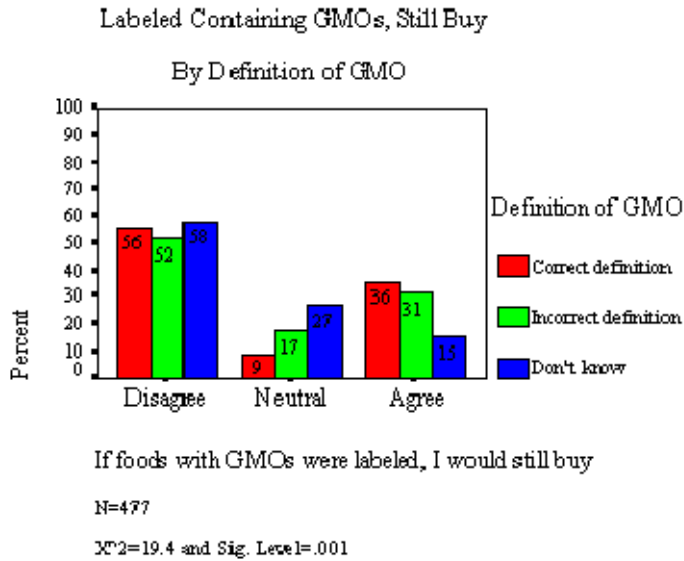


If foods with GMOs were labeled, I would still buy

N=595

$\chi^2 = 21.1$ and Sig. Level = .000

When analyzing the data, there appeared to be a significant relationship between getting the definition of GMOs correct and whether a person would continue to buy foods labeled containing GMOs. Knowing if the consumer knows what GMOs are or not, did not help to predict any better whether a consumer would continue to buy products containing GMOs. There was no significant relationship detected between getting the definition correction or not and being concerned about GMOs in food and agriculture or paying more for foods guaranteed to be GMO-free. The most significant thing about the chart below is that the majority of people who got the definition correct, incorrect and didn't know the definition, all would stop buying foods with GMO in them. In a sense, no matter if you knew the definition before or just learned it, most people would stop buying foods containing GMOs.



Conclusion

As these data and published literature suggest, GMOs and their use in food and agriculture are causing huge controversies in the U.S. including for Vermont residents. When analyzing the 2000 Vermonter Poll, the data suggest that:

- The majority of Vermonters read food labels always or most of the time
- The majority of people in Vermont are concerned about the use of GMOs in food and agricultural products
- Most people surveyed would stop buying food products that were labeled as containing GMOs
- The larger portion of respondents asked would pay more for foods that were guaranteed to be GMO-free

When conducting bi-variate analyses for these questions, demographic variables, behavior, and knowledge were considered. The significant relationships that the data suggested between these questions and demographics was gender. Age, family composition, income, education and geographic location didn't appear to have significant relationships with the questions. When the relationships between the questions and how frequently people read food labels were tested, there appeared to be a significant relationship. This is also true for the bi-variate analysis conducted for the GMO questions related to concern and behavior and getting the definition of GMO correct or not.

These data suggest that most people are concerned that genetically modified organisms are being used to produce foods. The data also reveals that if people knew that the items that they buy contain GMOs, they would probably stop buying those items. Most of the respondents indicated that they are even willing to pay more for foods that are guaranteed to be GMO free.

This seems to tell us as researchers that we need to do something about the issue of GMOs. First, the consumers need to know therefore, food and agriculture products should to have labels on them. The results suggest that if they are on containers, for the most part, they will be read. Secondly, the FDA might want to look closer at products that have been bioengineered and be able to guarantee the public that the products are safe. Thirdly, producers should really think about making products without GMOs because it appears to be a high priority for people to buy GMO-free foods. It also should be a concern to the producers that people would stop buying your product if they knew it contained GMOs.

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