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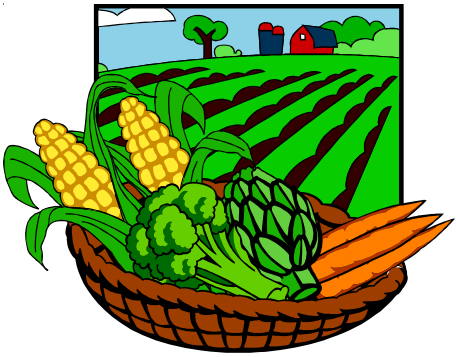

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Designing a Labeling Policy for Genetically Modified Food: Results of Focus Group Research

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CONTENTS

EXECUTIVE SUMMARY

Background

The labeling of genetically modified foods is a topic of growing, and sometimes cantankerous, public debate—a debate whose outcome could dramatically alter the operation of the U.S. production agriculture, processing, distribution and retailing sectors. The debate surrounding the labeling of genetically modified foods is largely about how much information to supply to consumers to facilitate effective choice and how that information should be supplied. Although there seems to be empirical evidence of a mainstream desire for the labeling of genetically modified foods, we know of no study that has provided guidance to policy makers as to the best method of labeling genetically modified foods. Therefore, the goal here is to explore and to evaluate possible approaches for labeling genetically modified foods.

Objectives

To accomplish this goal, the research project uses both focus group and survey research methods to develop an understanding of the characteristics that may affect the usefulness of a policy for labeling genetically modified foods. Specifically, we attempt to answer the following questions:

1) What types of information about genetically modified foods are most important to consumers?
2) Where do consumers expect/desire to view these labels?
3) Do consumers expect/desire mandatory or voluntary labeling of genetically modified foods?
4) At what threshold do consumers require a food to be labeled as genetically modified?
5) Who do consumers view as the appropriate organization to administer such food-labeling programs?
6) Do the characteristics of the final food product influence the desire or need for labeling?
7) Will labeling of genetically modified foods affect consumers' food purchases?
8) Is consumer acceptance of genetically modified food tied to whether the main beneficiary of the genetic modification is perceived to be the consumer or the producer?
9) Will consumers be willing to pay for, or avoid, genetically modified food?

This report highlights the results from the focus group research.

Methods

The focus group research was conducted in three cities: Orono, Maine, Columbus, Ohio, and Phoenix, Arizona. All participants were screened to ensure a demographically diverse sample. Participants in one group (the concerned group) were also screened to have relatively strong negative opinions about genetically modified foods.

Props illustrating different displays of information were used to stimulate discussion. Discussion centered on whether any of the information is confusing or hard to understand, whether the information is important, and whether the display contains enough information

Limitations

In qualitative market research, the focus group approach seeks to develop insights and direction rather than to provide quantitatively precise or absolute measures. Because of the limited number of participants and the restrictions of recruiting, this research must be considered in a qualitative frame of reference without possibility of projections to real or potential customers in this product category.

It is important to note that results from focus groups and other qualitative research methods cannot be generalized to a given population. A focus group is not a statistical representation of the population, but instead is a group of individuals selected from the population being studied. It is also important that the interpretation of qualitative data not be misrepresented in quantitative terms. For example, a statement that "nine of the twelve respondents" agreed on a particular point within a focus group should not be interpreted as "75 percent of the population agreed that _____" because qualitative data cannot be aggregated or quantified to describe a population as a whole.

Results

When asked what characteristics participants looked for or avoided when buying food products most participants mentioned characteristics of the actual food product (e.g., price, nutrition) as opposed to characteristics of the way the food was produced or processed. Only one participant mentioned they try to avoid genetically modified food. However, it is unclear whether most participants truly do not care if food is genetically modified, or if they do care and the lack of labeling precludes them from actively avoiding such foods.

Most participants have heard of genetically modified foods; however, most of those who have heard about it admitted that they did not know much about the subject. Although participants gener-

ally knew that foods like corn and soybeans are genetically modified, most participants seemed surprised at the range of food types available.

In general, participants underestimated the percentage of the U.S. food supply that contained genetically modified ingredients. When told that most processed foods probably contain some genetically modified ingredients, some participants seemed upset because they felt that they should have known this information. Other participants found the information comforting; these participants combined the fact that genetically modified foods are so prevalent with the notion that they had not heard or known of anyone getting sick as positive news.

Participants were generally able to list the potential benefits and risks that have been associated with genetically modified foods. Participants' concerns or perceptions of genetically modified foods did not seem to differ across product types. The concerned group was more likely to be skeptical or dismissive of the stated benefits of genetically modified food and more forceful and detailed in stating the negatives.

In some groups the moderator gave participants a copy of an actual advertisement for a product (SOYNUTS) that was certified as being "GMO-Free"; only one participant stated they had ever seen such a claim. Almost all participants agreed that before their participation in the focus group, they would not have known what a GMO-Free claim meant and would have ignored the information. They also agreed that a simple GMO-Free label provides little useful information.

Participants viewed the GMO-Free label with some skepticism; they felt that the label was simply a marketing tool. One participant pointed out that a GMO-Free claim did not mean much when their prior notion is that most foods are free of genetically modified ingredients. Other participants mentioned that a GMO-Free label did not provide them information as to whether the food was better or worse than a genetically modified food. Participants in the concerned group seemed more skeptical about the GMO-Free claim. This is was somewhat surprising; apparently the group that would be most likely to purchase a food that was labeled as free of genetically modified ingredients was also the most skeptical about the claim.

Participants agreed that a claim stating that a food was free of genetically modified ingredients should mean that there were zero genetically modified ingredients in the product; anything else would seem deceptive.

Almost all participants wanted genetically modified foods labeled because consumers have a right to know what goes into their bodies. However, this feeling was not unanimous; some participants felt that if the food was tested as safe to eat, then it should not need a label.

In terms of what information should be placed on a label, most participants stated that, at a minimum, the label should indicate whether the food was genetically modified or not. In addition, participants wanted to know why the genetic modification was done or how the genetically modified food was different from a non-genetically modified food. They wanted this information so they could make choices that reflect their desire for, or against, a specific genetic modification.

When asked whether a labeling program should be mandatory or voluntary, many participants did not seem to fully understand the ramifications/differences between the two systems, but many participants stated that they wanted the program to be mandatory. However, participants seemed split as to whether they would be willing to pay higher food prices as a result of implementing a labeling program.

In general, participants preferred neutral label information as opposed to strongly positive or negative labels because they understood that scientists were not sure about all the long-term health and environmental effects of genetically modifying food. Participants felt that only when there was a clear effect would it be appropriate for a strongly worded positive or negative message. Participants wanted the strength of the message to accurately reflect the state of knowledge about the genetic modification.

Most participants liked the idea of including contact information (e.g., a website address or a toll-free telephone number) because it would allow for a simpler label while also giving more interested individuals a venue to pursue more information. Others noted that contact information would make the labels more credible. Others mentioned that contact information is particularly important because most consumers currently do not know much about genetically modified foods and their effects.

In terms of where on the product information about genetically modified foods should fall, most participants liked the idea of having information on both the front and back of the package. In general, participants wanted simpler information on the front (e.g., whether the food was genetically modified and why) and more detailed information on the back (e.g., contact or background information).

Participants noted that most people currently do not know enough about the issues/ramifications surrounding genetically modified foods, so for a label to be effective, consumers would first need to be educated. They felt that the news media would need to provide more background information regarding the benefits and the costs of genetically modified foods.

When asked who should administer a labeling program for genetically modified foods, most participants stated the U.S. Food and Drug Administration (FDA) should be in charge of the program. Some participants liked the idea of allowing groups like the American Cancer Society or the American Heart Association to monitor a labeling program for genetically modified foods. However, others disliked this approach because these types of groups would focus on only one aspect of the food's healthiness. Participants in the concerned group felt strongly that there should be only one agency or group in charge of a labeling program. In addition, they felt that the group in charge should be composed of individuals with no financial interests in the food or biotech industries. In general, this group exhibited a significantly higher level of skepticism regarding governmental groups administering the program. Several participants specifically stated their opposition to having the FDA or the U.S. Department of Agriculture (USDA) administer the program.

Most participants (even in the concerned group) did not think that genetically modified foods should be banned. In general, participants seemed to view genetically modified foods in a cautious but optimistic light. They thought that banning such foods would be too extreme since it would eliminate the potential benefits possible through genetic modification.

Recommendations

Although the research indicates that consumers desire a labeling program for genetically engineered foods, it does not necessarily indicate that such a labeling program should be instituted. There are several reasons for this. One reason is that the nature of focus group research precludes generalizing the results to the U.S. consumer population. In addition, the research here did not adequately present to participants the cost implications of instituting a labeling program. Instituting a labeling program for genetically modified foods may have relatively large costs, and these costs may differ significantly across types of labeling programs. Accordingly, we do not make a recommendation as to whether a labeling program should be instituted; rather the recommendations below focus on how a labeling program should look if it is determined that a labeling program is warranted.

As mentioned above, the nature of focus group research precludes generalizing results. However, given the consistency in several findings across participants, we make the following recommendations.

1. We recommend that simple genetically modified food logos should not be used by themselves; at a minimum supporting text is needed.
2. We recommend that labels present the information that is most important to consumers (e.g., whether and why the food was genetically modified).
3. We recommend that labels that state that a food "may contain genetically modified ingredients" should not be allowed.
4. We recommend that labels should include contact information (e.g., telephone number or web site address) to increase credibility and allow consumers to obtain more information about the genetic modification than can be placed on a product label.
5. We recommend that the labels should achieve a balance between simplicity and detail; too much information and the label will be too confusing and hard to use, not enough information and the label will be less credible.
6. We recommend that labels should present the information in a standardized format to make cross-product comparisons easier.
7. We recommend that the labeling of genetically modified food products be performed, or regulated, by one familiar governmental or independent organization.
8. If the organization is to be a government agency, then we recommend that the U.S. Food and Drug Administration or the U.S. Department of Agriculture perform or regulate product certification.
9. If one familiar organization is not used, then we recommend that information about the certifying organization be included on the label.
10. If one familiar organization is not used, then we recommend that a significant public education program is needed to inform consumers about the certifying organizations and their certification process.
11. Given the seemingly low level of understanding and knowledge about the genetic modification process, we recommend that a significant public education program be performed to inform consumers about the risks and benefits of genetically modified foods.

I. INTRODUCTION

Background

The labeling of genetically engineered foods (genetically modified foods) is a topic of growing, and sometimes cantankerous, public debate—a debate whose outcome could dramatically alter the operation of the U.S. production agriculture, processing, distribution and retailing sectors.[1] Recent polls have emphasized that a majority of U.S. consumers desire genetically modified foods to be labeled (CNN 1999; Haltman and Metcalfe 1995; IFIC 1999; Time 1999). Yet, most Americans are either not aware of or do not understand the concepts related to genetically modified foods (Hoban 1999). Currently, legislation has been entered at both the federal and state levels. For example, on November 16, 1999, H.R. 3377 the "Genetically Engineered Food Right to Know Act" was introduced into the U.S. House of Representatives. In addition, at least one state has debated a labeling requirement for genetically modified foods (Maine Legislature—L.D. 713 "An Act to Establish Mandatory Labeling of Genetically Engineered Foods"). The debate surrounding the labeling of genetically modified foods is largely about how much information to supply to consumers to facilitate effective choice and how that information should be supplied.

The U.S. Food and Drug Administration's (FDA) traditional position on the issue typifies one end of the spectrum of possible positions in this debate. The FDA position is that the Food, Drug and Cosmetic Act (by which FDA obtains legal authority for the labeling of foods) requires food labels to "disclose information that is material to representations made or suggested about the product and consequences that may arise from the use of the product." In other words, genetically modified foods need not be labeled unless the genetically modified food is significantly different than the conventional food or the genetically modified food presents a health concern. Notably, this position focuses labeling solely on the attributes of the product *per se* or on the private consequences of product consumption.[2]

At the other end of the spectrum is a position held by several environmental and consumer advocacy organizations where all genetically modified foods would be required to exhibit a label stating something like:

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[1]Increasingly, genetically modified food labeling is an important U.S. trade issue (The Economist 1999).

[2]Recently FDA has offered guidance to firms that wish to voluntarily label products with respect to their genetically modified content.

UNITED STATES GOVERNMENT NOTICE: THIS PRODUCT CONTAINS A GENETICALLY ENGINEERED MATERIAL, OR WAS PRODUCED WITH A GENETICALLY ENGINEERED MATERIAL

Proponents of this alternative usually state that a consumer has a "right to know" that a food is genetically engineered. A specific example of this viewpoint is embedded in legislation proposed during the 106th Congress; H.R. 3377, which contains the disclosure notice printed above, explicitly states "consumer's [sic] have a right to know whether the food they purchase contains or was produced with genetically modified material." The right-to-know position focuses neither on an inherent attribute of the product, nor necessarily on the private effects of product consumption. Rather this position bases its labeling requirement on a process attribute, (i.e., the label provides consumers information about how the product was produced and processed), which may or may not be related to the *public* consequences of product consumption.

A tenet of economic theory holds that the flow of information among market participants plays a critical role in the efficient operation of markets. In a broad sense, labeling has the ability to convert a market that exhibits a pooling equilibrium, in which all goods feature an attribute that is unobservable or difficult to observe (e.g., the use of genetically modified materials), into one that exhibits a separating equilibrium, in which products that do or do not contain genetically modified materials are purchased by those who are willing to pay for them. From a policy perspective, one aim of labeling is to allow consumers to make choices congruent with their preferences. From a business perspective, labeling may allow firms that use (or do not use) particular techniques to potentially gain market share and to maximize any value-added rents.

In this report, we are interested in exploring the role of possible labeling approaches for genetically modified foods and in evaluating possible labeling alternatives. Although there seems to be empirical evidence of a mainstream desire for the labeling of genetically modified foods, we know of no study that has provided guidance to policy makers as to the best method of labeling genetically modified foods. In addition, there is no empirical literature documenting consumer use or understanding of labels placed on genetically modified foods. Therefore, the goal of the research is to make a significant contribution to the design of a labeling policy for genetically modified food.

Objectives

To accomplish this goal, the research project uses focus group and survey research methods to develop an understanding of the label and regulatory-framework characteristics and the consumer and product characteristics that may impact the effectiveness of a genetically modified food labeling policy. Specifically, we attempt to answer the following questions:

1. What types of information about genetically modified foods are most important to consumers? (e.g., is the process itself important or are consumers more interested in outcomes related to the process);
2. At what threshold do consumers require a food to be labeled as genetically modified? (e.g., does a food product containing an incidental amount of a genetically modified food component require a genetically modified food label);
3. Where do consumers expect/desire to view genetically modified food labels? (e.g., on the front of a product's container or as a listing within the ingredient list);
4. Do consumers expect/desire mandatory or voluntary labeling of genetically modified foods?;
5. Whom do consumers view as the appropriate organization to administer labeling programs for genetically modified food?;
6. Does the characteristics of the final food product influence the desire or need for labeling? (e.g., whole versus processed foods, meat or dairy products from animals fed genetically engineered grains);
7. Will labeling of genetically modified foods affect consumers' food purchases?
8. Is consumer acceptance of genetically modified food tied to whether the main beneficiary of the genetic modification is perceived to be the consumer or the producer?
9. Will consumers be willing to pay for, or avoid, genetically modified food attributes?

This report highlights the results from the focus group research.

II. METHODS

The focus group research was conducted in six sessions in three cities. Two groups were interviewed in Orono, Maine, two in Columbus, Ohio, and two in Phoenix, Arizona. All participants were first given a screener survey to determine eligibility requirements,

such as individuals who do not work in agriculture or the food products industry, and to ensure a demographically diverse sample. Individuals were asked if they had heard the term "genetically modified foods," but this was not a requirement of participation (with the exception of the second Orono session). An incentive of $50 was paid to participants and all groups were video and/or audio taped. See Table 1 for the demographic characteristics of the participants.

The Columbus and Phoenix groups were delineated by education level with the first session of both cities consisting of individuals with some college or less and the second session consisting of individuals with a four-year college education or higher. The Orono, Maine, groups were delineated with respect to their opinions of genetically modified foods. Specifically, the participants in the Orono focus groups were asked "On a scale from 1 to 10, with 1 being 'strongly disagree,' 10 being 'strongly agree,' and 5 being 'no opinion either way,' how do you feel about the following statement: the benefits of genetically modified foods outweigh the risks?" Respondents with no strong opinions regarding genetically modified foods participated in the first focus group session while individuals with strong negative opinions of genetically modified foods were asked to participate in the second session.

Props illustrating different information displays were used to stimulate discussion. Props consisted of an actual advertisement

Table 1. Demographic characteristics of focus group participants.

	Orono		Columbus		Phoenix	
	Group I (n=6)	Group II (n=9)	Group III (n=9)	Group IV (n=11)	Group V (n=10)	Group VI (n=11)
Gender						
Male	2	5	1	3	3	3
Female	4	4	8	8	7	8
Education						
Less than HS	0	0	2	0	1	0
High School	0	0	2	0	6	0
Some College	3	0	5	0	3	0
Bachelor's Degree	1	4	0	6	0	8
Graduate School	2	5	0	5	0	3
Age						
18–34	3	6	0	0	6	8
35–49	0	3	3	2	3	3
50–64	3	0	2	6	1	0
65+	0	0	4	3	0	0
Heard of genetically modified foods	5	9	6	11	5	7

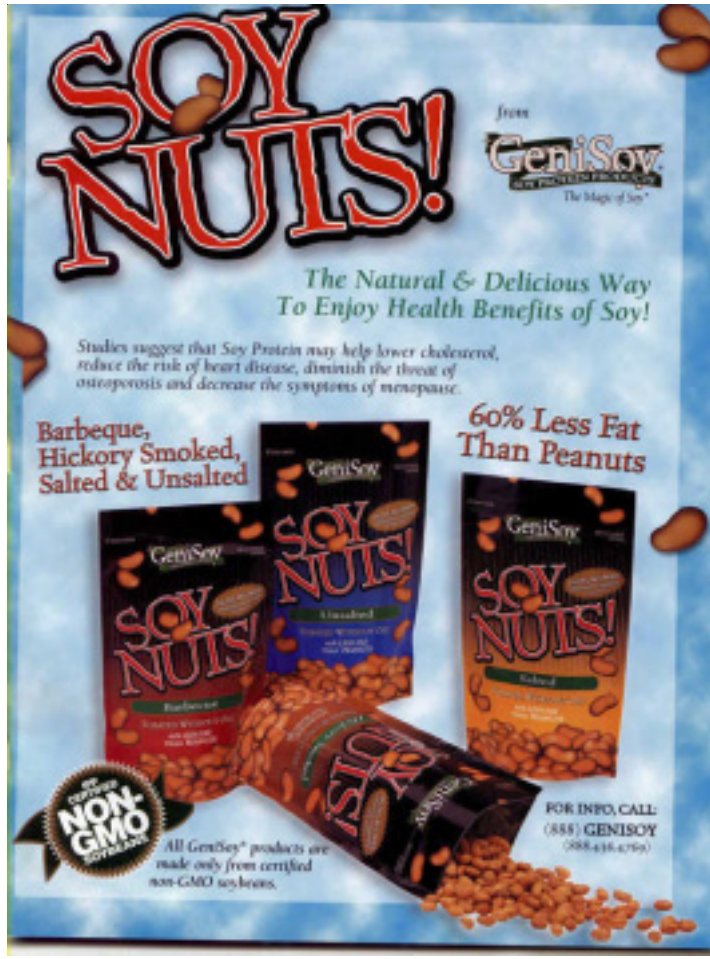

Figure 1. Soy Nut advertising prop.

describing the food as GMO-free (Figure 1), and alternative potential labels for genetically modified food (for more information about the props used in the focus groups, please contact the authors). Discussion centered on whether any of the information was confusing or hard to understand, whether the information was important, and whether the display contained enough information (the complete moderator's guide is included as Appendix A). Labels differed in terms of the methods of presenting the information; the discussions centered around which components of the displays were the most/least confusing, and what information on the displays was most/least useful.

Results of the focus group discussions on various labeling formats for genetically modified foods will be used to design a mail survey instrument. As such, qualitative discussion regarding various labeling agencies, formats, levels of information, positive and negative content, and information placement were stimulated through the use of props. The labeling props consisted of three products—a package of frozen corn, frozen breaded chicken tenders, and a frozen prepared pasta and vegetables meal—with alternative (hypothetical) labels conveying information about genetically modified ingredients. The labels differed in terms of the amount and type of information conveyed. Specifically, labels conveyed that a product either did or did not contain genetically modified ingredients.

Furthermore, those labels stating the presence of genetically modified ingredients were delineated into three categories: neutral statements of content, positive statements of content, and negative statements of content. Specifically, neutral statements were such that only the inclusion of genetically modified ingredients was specified. Positive statements were those that conveyed the inclusion of genetically modified ingredients for beneficial health and safety reasons such as "product contains chicken which has been genetically modified to reduce saturated fat content" and "product contains wheat genetically modified to remove allergens." Negative statements of content indicate that genetically modified ingredients are present in a "warning" label or with specific information such as "unanticipated allergens may be present."

Participants were asked to comment on whether or not the labels displayed adequate information, whether the information provided was confusing or misleading, and how the placement of the information affected the participants' likelihood to read it. Participants were also asked to comment on their opinions of specific claims, such as the removal of allergens, reduction of saturated fat, increase in antioxidants and the presence of unanticipated allergens. Participants were also asked their opinions regarding the agency supplying the genetically modified ingredient information.

Limitations of Qualitative Research

In qualitative market research, the focus-group approach seeks to develop insights and direction rather than provide quantitatively precise or absolute measures. Because of the limited number of participants and the restrictions of recruiting, focus groups are not a statistical representation of the population. Therefore, this research must be considered in a qualitative frame of reference without possibility of projections to real or potential customers in this product category.

It is also important that the interpretation of qualitative data not be misrepresented in quantitative terms. For example, a statement that "nine of the twelve respondents" agreed on a particular point within a focus group should not be interpreted as "75 percent of the population agreed that _____" because qualitative data cannot be aggregated or quantified to describe a population as a whole.

III. RESULTS

The research involved six focus group sessions; except for one of the groups in Maine (Group II), participants were screened to ensure diversity. Participants in Group II were screened to include individuals who hold relatively strong concerns about the development of genetically engineered foods (hereafter this group will be called the "concerned" group).

Except for the concerned group, much of the discussion was consistent across the focus groups. In turn, the presentation of results will first focus on the consistent responses made by focus group participants. When appropriate, additional responses will be presented by focus group location. Differences between the concerned group and the others will be highlighted when appropriate.

General Impression of Group Differences

Before discussing specific results, we first present some general differences in the tenor of the groups and any differences in terms of the group dynamics. In general, Groups I (Maine), III, IV (Ohio), and VI (Arizona) had very similar group dynamics and tenor. The participants in these groups seemed focused and relatively task oriented and seemed to have relatively well-formed decision rules regarding the issues being discussed (even when they were uncertain about some of the information). The discussions in these groups were relatively balanced (i.e., the groups did not seem to be dominated by a few outspoken individuals).

Group II (Maine) also seemed focused and relatively task oriented and seemed to have relatively well-formed decision rules regarding the issues being discussed. Not surprisingly, this group was more knowledgeable about some of the issues (e.g., the potential benefits and risks of genetically modified foods); however, they seemed similar to the aforementioned groups in terms of identifying and understanding differences in labeling policy. Group II also differed in that the first half of the focus group discussion seemed dominated by two individuals who had strong, negative opinions of genetically modified foods. However, as the discussion proceeded others in the focus group (two participants in particular) began to

challenge some of the assertions made by the aforementioned individuals. Finally, this group was much more skeptical of the food industry and governmental organizations (e.g., the FDA or USDA) that currently regulate the food industry.

Group V (Arizona) was also focused and relatively task oriented. However, this group seemed less knowledgeable about genetically modified foods and about food production and processing in general (this may not be surprising given that this group was less educated and lived in an area of the country that has little agriculture). Some participants in this group also seemed to have poorly formed decision rules regarding the issues being discussed. As a result, some participants in this group seemed to contradict themselves at different points in the discussion; this may have occurred because these participants realized the ramifications of earlier comments.

Discussion of General Issues Surrounding Genetically Modified Foods

After the introductory presentation the moderator asked participants what characteristics they considered (either looked for or looked to avoid) when buying food products. In general, participants mentioned characteristics of the actual food product (as opposed to characteristics of the way the food was produced or processed). Most common responses were associated with price, nutrition (e.g., level of fat, sugar or salt content), or product quality (e.g., taste, freshness). However, in group two (the concerned group) and five, some participants looked for organically grown food or stated they avoid highly processed foods. Only one participant (in group four) mentioned that they try to avoid genetically modified food. The fact that no one else mentioned trying to avoid genetically modified foods could be due to several reasons. First, it may be that most participants truly do not care whether the food is genetically modified or not. Alternatively, participants may want to avoid genetically modified food but the lack of labeling precludes their ability to actively avoid such foods.

The moderator then asked participants whether they had ever heard of genetically modified foods. In general, most participants stated that they had heard of genetically modified foods (a few stated that they had never heard of it). However, most of those who had heard about it admitted that they did not know much about the subject. When asked what they had heard/knew about genetically modified foods many participants made statements that indicated that they had very little understanding about the issue. In general, many participants stated hearing about some problem with taco shells (i.e., the STARLINK recall of taco shells that occurred during

October 2000). Many respondents seemed to equate genetically modified techniques with traditional hybridization and crossbreeding techniques. Some also seemed to equate the use of hormones and growth stimulants with genetically modified techniques. Almost all of the participants stated a general uneasiness with genetically altering foods. However, it is somewhat unclear whether this unease is due to participants' lack of knowledge/understanding about genetic modification of food, or whether it is due to participants' understanding and disliking the process.

When participants were asked which foods were genetically modified a few people mentioned corn and soybeans, one participant also stated tomatoes while another stated potatoes. After this discussion the moderator listed the varieties of genetically modified food that are currently approved for sale. In general participants seemed surprised at the range of food types.

The moderator then asked participants to estimate the percentage of the U.S. food supply that contained genetically modified ingredients. Participants in the Maine and Ohio groups cited relatively low percentages; in general everyone thought that the number was much less than 25 percent. In the Arizona groups the numbers stated were relatively high; most seemed to feel that more than 75 percent of the food supply contained genetically modified ingredients. Several participants made the comment that they could not really answer the question since there is currently no way for the consumer to figure this out. After this discussion the moderator read the following statement:

> *Estimates vary but due to the mixing of genetically modified and non-genetically modified food sources, particularly corn and soybean oils; virtually every processed food product in the U.S. probably has at least a trace of genetically modified ingredients.*

The moderator then asked for peoples' reactions to the statement. In general, two reactions were observed. For some participants the statement seemed to upset them. This reaction seems to come from a general feeling that they should have known this sort of information; the participants felt as if they had been fooled. The reaction of other participants was opposite; they found the information as somewhat comforting. These participants combined the fact that genetically modified foods are so prevalent with the notion that they had not heard or known of anyone getting sick as positive news. Not surprisingly, participants in the "concerned" group primarily exhibited the first reaction; in addition, their reactions were stronger.

In the first three focus groups the moderator then asked participants to list the benefits that they have heard about genetically modified foods. This was followed with a similar listing of the risks or costs of genetically modified foods. Stated benefits centered on producer (larger crop yields, reduced need for pesticides, increased drought resistance, increased producer profits) and consumer (longer shelf life, increased nutritional characteristics, creation of "new" food varieties, ability of food to manufacture drugs) benefits. Stated risks also centered on producer (reduced viability for small family farms, contamination risks to non-genetically modified crops) and consumer (risk of allergic reactions, unknown long-term health effects) risks. However, there was also a listing of environmental (decrease in bio-diversity, other unanticipated environmental problems) risks in all three groups. Participants in the concerned group also mentioned moral/ethical (it is just ethically wrong to play God) risks. In several of the groups, the moderator asked whether participants' concerns or perceptions of genetically modified foods differed by what the product is. In general, participants stated that the type of food did not matter.

There was also another, rather striking, difference between the concerned group and the other two groups; the concerned group was generally more likely to be skeptical or dismissive of the stated benefits of genetically modified food whereas they were more forceful and detailed in stating the negatives. For example, when a participant stated that genetically modified "yellow" rice may help prevent some illnesses in lesser-developed countries, the participant hedged the statement by saying

> *"That's a stated plus…I don't know whether or not to agree with it."*

Another example is when a participant mentioned that genetically modified may provide a benefit in increasing food yields, another participant questioned whether this was even a laudable goal.

Reactions to an Advertisement for a "GMO-Free" Food

In the first four groups (Maine and Ohio) the moderator gave participants a copy of an actual advertisement for a product (SOYNUTS); the ad states that the product was I.P.P. certified as containing only "non-GMO" soybeans[3] (Figure 1). After participants looked at the ad, the moderator asked if anyone had ever seen such

[3]GMO is an acronym for genetically modified organisms. According to the FDA, the phrase and acronym are potentially misleading because "most foods do not contain organisms" (USFDA 2001).

a claim on a food product; only one participant stated that they had ever seen such a claim (on soymilk). When asked, this participant had no idea what GMO-free meant; in fact, almost all participants agreed that before their participation in the focus group, they would not have known what a GMO-free claim meant and that they would have simply ignored the information. Almost all participants agreed that a simple GMO-free label would provide little useful information.

Participants viewed the GMO-free label with some skepticism. Many participants wondered what I.P.P. was. Several participants pointed out the claim only referenced that the soybeans were GMO-free; they wondered about whether the other ingredients in the food were genetically modified. The participants were just generally suspicious of the I.P.P. certification. Some participants stated that they felt that the certification was simply a marketing tool. One participant pointed out that a GMO-free claim did not mean much when their prior notion was that most foods are free of genetically modified ingredients. Other participants mentioned that a GMO-free label did not provide them information as to whether the food was better or worse than a genetically modified food.

> *If the food is genetically modified to be more resistant to insect pests, then it may have lower pesticide residues. The GMO-free label does not let me know if this product is better or worse.*

One participant noted that the GMO-free label would probably mislead consumers to think that the food is better when it may not be.

Discussion of the ad in the concerned group reflected the same basic themes as found in the other three groups. However, the strength of the skepticism was greater and the discussion, a bit deeper. For example, the concerned group discussed whether there was a national standard or definition for the phrase GMO-free. The consensus opinion was that there probably was not a standard since they felt that genetically modified foods were basically unregulated. A few participants mentioned that they were more likely to trust a small company making a GMO-free claim, but others in the group disagreed and felt that the GMO-free claim would simply be a marketing tool. The fact that this group was skeptical about the GMO-free claim is somewhat surprising; apparently the group that would be most likely to purchase a food that was labeled as free of genetically modified ingredients was also the most skeptical about the claim.

To help determine how participants view a GMO-free claim, the moderator asked what the acceptable threshold should be before a company could claim their food was free of genetically modified

ingredients. In all four groups the initial reaction was that a claim stating that a food was free of genetically modified ingredients should mean that there were zero genetically modified ingredients in the product. The moderator then followed up this with a short discussion of how regulators usually allow some level of impurities in food products (e.g., some maximum level of insect parts or dirt). She also mentioned that in Europe the threshold level allowing a GMO-free claim was 1 percent and in Japan the limit was 0.5 percent. Again, she asked if, in the U.S., a GMO-free claim could be allowed with at least some maximum level of genetically modified ingredients. Again, all the participants stated that they view a GMO-free claim to mean that no genetically modified ingredients would be inside. Participants stated that if the producer knew that the product had less than 1 percent genetically modified ingredients inside then the claim should state that fact; anything else seems deceptive.

After discussing the advertisement the moderator read the following statement:

> *Recently the Wall Street Journal article tested 20 products with labels that read "Non-GMO" or "GMO-Free." They found that 11 of the products had evidence of some genetically modified ingredients and another five had even higher levels of contamination.*

and asked participants for their reactions. In general, participants did not seem surprised and noted that the statement provided justification for their general skepticism of company-provided claims. The participants in the concerned group went further by noting that the findings support the idea that any labeling program must be monitored by a strong independent organization. They further stated that standards would need to be set and strictly enforced or else there would be cheating.

Reactions to a Labeling Program for Genetically Modified Foods

In all the groups the moderator read a statement describing the idea of creating a certification and labeling program for genetically modified foods. The moderator then asked whether participants would want such a program, and if so, what kinds of information would they want to see on a label. Participants were also asked if they wanted the program to be mandatory (making all producers test and declare whether their food product contained genetically modified ingredients) or voluntary (letting producers test and declare whether their food product did not contain genetically modified

ingredients). Finally, participants were asked if they were willing to pay more for this type of information.

In all groups, almost all participants stated they wanted to have genetically modified foods labeled. The general feeling from these participants was that

> *Genetically modified foods should be labeled; we have a right to know what goes into our bodies.*

However, this feeling was not unanimous; some participants felt that if the food was tested as safe to eat then it should not need a label. One participant also questioned the basis for the right-to-know position by noting

> *Where does it all stop? We don't label foods if they were fertilized.*

In terms of what information should be placed on a label, most participants stated that, at a minimum, the label should indicate whether the food was genetically modified or not. Some stated that the genetically modified ingredient could simply be noted as part of the ingredient list. However, most participants felt that they needed more information than this. Several participants wanted to know the percentage of the food that was genetically modified; likening this approach to the recycled content information on paper products. Most participants understood that some modifications may provide personal benefits while others would not. These participants wanted to know why the genetic modification was done or how the genetically modified food was different from a non-genetically modified food. They wanted this information so they could make choices that reflect their desire for, or against, a specific genetic modification.

Some participants noted that there should not be too much information on the label and that some of this information could be made available on signs within a store. Other participants stated that the label should be kept simple and that the label should provide directions of where more information about the modification could be located (e.g., a website address or a toll-free telephone number). In general, participants liked this idea although some noted that this does not help when a consumer is in the store trying to decide whether to purchase a particular product.

When asked whether the program should be mandatory or voluntary, many participants did not seem to fully understand the ramifications/differences between the two systems. However, many participants did state that they wanted the program to be mandatory. These participants noted that most companies would not voluntarily

agree to take on extra testing and labeling costs unless they thought that they could make money on it.

Participants seemed split as to whether they would be willing to pay higher food prices as a result of implementing a certification and labeling program. Some individuals stated that they would be willing to pay more, especially if this would increase the quality of food. Several participants stated that if the foods were tested as safe, then they would not like to pay for a labeling program. These individuals stated that they have not heard of any major problems with genetically modified food. However, at least one of these individuals stated that while genetically modified labeling was not important to them now, it would be important to them if they read a news story about a severe problem with genetically modified foods.

At least one individual questioned if this was a situation where a small group of intensely concerned individuals was going to make everyone pay for a labeling program that would not affect most people. Others stated that they personally do not look at label information (either due to time or vision constraints), so a labeling program for genetically modified foods would not affect their purchase behavior; these individuals did not want to pay for such a program if the cost was significant.

With respect to the above discussion, the concerned group differed from the other groups in the following ways. The concerned group was unanimous in that genetically modified foods needed to be labeled and that the labeling program should be mandatory. This group also thought that simple labels were not enough since different genetic modifications would produce different effects. However, some participants in this group went beyond wanting to know the effect of the genetic modification; some questioned whether the label should display more technical information (e.g., which genetic sequence was altered). This group also had a discussion of who should be in charge of the labeling program. This group was very skeptical of a government organization being in charge of the program; they specifically stated that they distrusted the USDA and the FDA. Participants stated that anyone who had any financial stakes in the food industry should also not be involved in administering the program.

Discussion of Specific Labeling Alternatives

After the general discussion, the moderator handed out sheets of paper that presented to the respondents examples of specific labeling options (examples of the labels are available from the authors). Because the labels viewed by participants changed across

the six focus groups, this section of the report presents the label discussions separately by focus group.

In the first three groups, each sheet of paper presented a specific product (e.g., a package of frozen corn). Each sheet displayed a realistic product package front, the product's "Nutrition Facts" panel and the product's ingredient list. The sheet also displayed different potential (hypothetical) options for genetically modified food labeling. The moderator then asked participants a series of questions designed to elicit their views of how the information about the genetic modification was presented to them on the label. For example, participants were asked whether any of the label information was confusing, if the label presented enough detail, and if any information was not needed. Nine product/label presentations were made to the first two focus groups and seven product/label presentations were made to the third focus group.

In the last three groups, each sheet presented two examples of a particular product (denoted as Products A and B). Participants were told to imagine that the two products were exactly the same except for the information that they saw presented to them on the sheet. Each sheet displayed a claim related to the products' genetic modification. The moderator asked participants to imagine that this information was placed on the front of the packages. The sheet also displayed the products' Nutrition Facts panels and the products' ingredient lists. Importantly, the sheets also displayed the products' prices. Participants were given a few minutes to read the information sheets and were then asked to indicate which product they would buy. Participants were then asked a series of questions to determine the reasons why they chose a particular product. A total of seven choice presentations were made to each focus group.

One objective of these focus groups is to help design a future mail survey instrument. Accordingly, in the last two focus groups we had participants take part in answering a mock-up of the proposed food choice scenario that would be used in the mail survey.

Group I—Orono, Maine

Label 1

In discussing this label, participants were primarily concerned if the statement meant no genetically modified ingredients or if there was a threshold limit (i.e., does "no genetically modified ingredients" mean zero or less than 1 percent?). Participants did not want "no" to mean "less than 1 percent"; if it is less than 1 percent, then the label should say "less than 1 percent". Some participants indicated that they thought that it was probably too late to be making a "no" claim

since most foods already contain at least a trace. Note that much of this discussion seemed to hinge on the participants already talking about these issues in earlier sections of the focus group; this reaction is not likely to have occurred without this earlier discussion.

Some participants stated that they do not know the usefulness of knowing that something is composed of 25% genetically modified ingredients. They pointed out that they do not know what the percentage of genetically modified ingredients means in terms of its effects (it is unlike knowing that a food is 25% fat; they know what this means in terms of health).

Participants agreed that this label does not provide enough information; participants wanted more information about what the genetic modification means in terms of effects.

Label 2

The discussion of this label mimicked the discussion of the previous label with respect to the presence of a defined threshold. Although most participants liked the statement, they noted that this was not enough information since a genetically modified version of this food may have characteristics that are, in fact, preferred over the product that contains no genetically modified ingredients.

Label 3

Participants wondered who CERT-ID (the certification organization) was. Since they were unfamiliar with the organization, most of the participants viewed the label with a degree of skepticism:

Whoever they are.

Several participants liked having the genetic modification information on the front of the package; it would help consumers quickly identify which foods contained, or did not contain, genetically modified ingredients. However, many also stated that they would like more information on the back of the package.

One individual wondered why genetically modified foods need to be labeled since the consumers who want to avoid eating genetically modified food would probably be eating organic food.

Label 4

Participants liked this label; they thought that the FDA logo greatly increased the credibility of the label. Participants generally agreed that the government is trying to protect our health and that we already trust the FDA.

Label 5

Participants generally liked this label because it told them what effects the genetic modification had. They also liked that the ingredient list pointed out which food ingredient was genetically modified.

Participants viewed the American Heart Association as a credible organization and liked that they certified the information. However, many felt that the information may be incomplete. They noted that the American Heart Association only certified the low fat claim; there was no mention of what other effects the genetic modification could have.

> *Well, God bless the American Heart Association; however, they're only concerned about my heart and I have other body parts that I'm also concerned about!*

Most participants wanted to find out more about the genetic modification. These participants found the potential reduction in saturated fat as a positive use of genetic modification; however, they wanted to be more informed about any possible negative effects. They understood that they sometimes tradeoff one health risk to reduce another—they wanted more information to allow them to be more responsible about this.

Label 6

All participants summarily disliked this label. They thought that placing a warning on a food product without a clear indication that the food actually contained genetically modified ingredients and without a description of the potential problem was overkill. They felt that this type of labeling would only scare people, possibly for no good reason.

Label 7

Participants generally did not like the use of the phrase "may contain" because it did not give them relevant information. Several participants felt that the phrase sounded as if the companies were forced to place it on the label. They felt that it sounded like a legal disclaimer. These participants stated that they preferred the approach in label four, which stated that the food did or did not contain genetically modified ingredients

> *Is it there or isn't it there? Don't tell me 'may contain'.*

Other participants noted that this approach was at least better, more honest, than having a label state GMO-free when there actually was an unstated threshold.

Most participants stated that they do not really need to know the specific food that was genetically modified.

One participant stated that the ingredient list had many things that were hard to pronounce, as well as hard to understand. This participant questioned the need for labeling genetically modified food under this scenario:

Have you looked at the ingredients on the Pasta Secrets? I can't even pronounce half the things on here! So, at this point, I don't know what I'm eating.

Label 8

Participants were generally pleased with the way this label looked and felt that the FDA logo gave the label a minimum level of credibility. The wording of the label confused some participants. They were frustrated that the label told them what the effects were on the chicken, but did not give any information about how the genetic modification could affect them. They disliked that the food was genetically modified to provide a benefit to farmers, but did not provide the consumer any direct benefit.

Label 9

There was little discussion surrounding this label. One participant noted that a negative label like this would put a food producer out of business. Another participant reacted by stating this label was

Just like the side of a cigarette pack.

The moderator was unclear whether this last comment meant that consumers, after seeing a warning label, would continue to purchase the product. The participant who made the initial "go out of business" observation stated that cigarettes are different since they are addictive and corn was not.

Group II—Orono, Maine

Label 1

Participants did not like this label because it does not provide much useful information. The wording "may contain" made most participants feel that this label was just a way to circumvent a legal reporting requirement.

I would see that as sort of being a rubberstamp. Like, I can get around the legality of this by putting a statement on there. So, it would be serving their purposes but not addressing a consumer need one way or the other.

Label 2

Participants liked this label because it made a clear statement (as opposed to the wording "may contain"). Some participants liked that all the ingredients were placed together; it led people to look at all the other ingredients too.

> *I personally prefer to have all the statements about the ingredients together because it may very well be that the mono and diglycerides are worse for you than whether or not it has been genetically modified. So, really, you want people to be reading the whole label of what they're eating.*

However, a majority of the participants agreed that they would also like to see this information placed on the front of the food package.

Label 3

Participants reacted somewhat negatively to this label. They felt that the label was too simple because most people would not know what the phrase GMO-free means.

> *Before tonight, if someone asked me what GMO was, I would have had no idea. Now, genetically modified food? Yep, I've heard of that.*

In addition, some participants thought that many people would easily misinterpret the use of an acronym like GMO.

> *Probably they have people confusing it with MSG or something.*

Participants also liked having information on the front and on the back. They liked the having a simpler label on the front if there was more detailed information on the back.

Label 4

Participants did not like this label for several reasons. First, they did not like the simplicity of it without any additional information on the back. The also did not like the USDA logo because they did not trust the USDA to fairly and effectively administer a labeling program for genetically engineered foods. However, they wanted the label to display the name of the organization that was administering the labeling program. Participants also did not like the GMO "slash" logo since it could mean several different things

> *Seems more like a position statement than a warning label.*

You could probably put that on there and they might (be able to) defend that and say… Well, we weren't really referring to the product. We were just saying we don't like GMOs.

Label 5

Participants disliked this labeling approach because it seemed to imply that the presence of genetically modified ingredients was a good thing.

Label 6

Participants did not like this label because they felt that it was overly manipulative. There was also some discussion of why the American Cancer Society (ACS) would do this. The participants were skeptical of the whole idea; there was a feeling that the ACS must be getting something from the endorsement.

Participants did like that information was presented on both the front and the back of the package. One participant liked that the label explains why the food was modified.

Label 7

Participants generally disliked this label for several reasons. First, several stated that the label was too vague to be helpful; the label raises the issues of allergens, but does not help the person who has a specific allergy. A few participants liked the idea of pointing out the potential negatives of genetically modified foods, but they thought it was premature to issue anything as strong as a warning label. Participants noted that scientists do not know if genetically modified food is bad for long-term health, but this label implied that scientists have already determined that it is unsafe. Another noted that if an item was unsafe, then companies would not be allowed to sell it.

Label 8

Several participants liked the look of this label and they liked that the label told the consumer that it was genetically modified and what the genetic modification meant in terms of consumption. Several noted that without a logo from a certifying agency, the label looked like a marketing ploy. These participants indicated that they would probably ignore this information. One participant liked the additional information on the back of the label. One participant was uncomfortable with this label since it accentuated the positive aspect of the genetic modification without also providing corresponding negative information.

Label 9

In general, participants disliked this label because of the implication that the FDDA knows this food contains allergens. If the food contains allergens, then this label was seen as appropriate; however, if there was some level of uncertainty, then they thought that this label was too strong. Again, participants thought that the information was also too vague to be useful:

I don't see how it helps anyone necessarily…What allergies?

Some participants also disliked this label because it only focused on the allergenicity of the food:

I don't think it addresses concerns, other than allergies, associated with genetically modified organisms. Allergies are not the only problem.

Group III—Columbus, Ohio

Label 1

Participants disliked this label because it did not give them enough information. Participants stated that they wanted to know what ingredient in the product was genetically modified. Some participants also wanted to know the percentage that was genetically modified. At a minimum, all participants wanted to know what was the effect, or purpose, of the genetic modification.

It's leaving a large span. What did they put in there?

One participant responded to this discussion by pointing out that most people will not read this label information.

Who has time to read all that when they go shopping?

Label 2

In general, participants disliked this label for some of the same reasons as the first label. Participants felt that some genetic modifications may be good, so just knowing that a food does not have genetically modified ingredients does not tell them if they are avoiding something bad or missing something good. Participants liked that some of the information was on the front of the box to make it easier to identify the products in the store. They generally did not put much faith in the certification since they had never heard of this group:

Who controls this?

Label 3

Participants liked this label for several reasons. They liked the FDA because they generally trusted this organization to watch out for the public's health. They liked the simple identifying information on the front with more information on the back. Finally, they liked that the label told them what food was modified and the effect of the modification.

Label 4

In general, participants liked this label for the same reasons that they liked the previous label. They liked that the label identified the specific food that was modified. However, they disliked that Consumers Union certified the information; not that participants distrusted Consumers Union, *per se,* but that they would be somewhat skeptical of any non-governmental organization. Participants stated that the FDA would be the best group to certify this type of information. They liked the bold print:

(It) catches your eye.

One participant, with several participants seeming to agree, stated that this was too much information to put on a label:

If I had to read the ingredients on this…I would take my lunch.

However, these participants agreed that this type of information should be provided since it could be very important to some people.

One interesting reaction to this label's information was that participants seemed surprised that genetic modification could remove something from a food; most participants seemed to think that genetically modified meant adding something to a food.

Label 5

Participants generally liked the layout of this label, but thought that the information about possible allergens was important enough to be placed on the front. Several participants felt that the allergen information was too vague and needed to be much more specific to be useful to anybody. Most participants recognized the USDA logo and felt that this agency was also a credible certifier.

Label 6

Again, participants generally liked the label layout. However, they were uncomfortable with the amount of information; they liked that the reason behind the genetic modification was stated, but were unsure what this would mean to their health:

Well, what did they give them (the chickens) to increase the growth?

Anything that would increase growth rate, I'd worry about what kind of weird thing that would do…to small children.

Label 7

Participants generally liked this label. Some participants disliked that they did not know who was certifying/providing this information. However, participants liked the presence of the contact information; some noted that they could find out who was in charge of the information by using the contact information. One person was concerned about buying fresh corn because fresh produce would not be labeled.

Group IV—Columbus, Ohio

Choice Scenario 1

Two participants stated that they would buy product A because of their concern about cancer. They also felt that they could trust the American Cancer Society; their logo increased the label's credibility. A main reason given for not purchasing product A was that corn is not eaten often, so having a higher level of antioxidents probably would not provide much of a health benefit.

Choice Scenario 2

Several participants questioned why the product labeled as GMO-free would cost less. Participants also questioned the certifying organization.

It doesn't say that much. Before, I didn't know who IPP was, so…

Several participants liked the presence of the website information, noting that they could use it to find out more about the certifying organization.

I like the idea of a website…but…I'd rather just go with the plain corn that I'm used to than taking the time to really research that.

In general, participants felt that the unfamiliarity of CERT-ID made the label information less credible than a label coming from a well-known and respected organization like the American Cancer Society.

Choice Scenario 3

Nine participants chose product A. The primary reason for choosing product A was that they look for ways to reduce their consumption of fat. A participant noted that the choice would reduce the risk of heart disease, but may increase the risk of cancer. Participants used the Nutrition Facts information to confirm the fat claim. Participants noted that they would like the low fat information to be placed on the front of the label as they often do not read the back labels. They liked the contact information; the participants said that with the contact information they did not feel the need for an agency's logo.

The website information was seen as more credible than a phone number. Participants noted that often people who staff phone lines are not knowledgeable and are not helpful. When asked who the participants thought would be maintaining the phone line, most participants assumed that it would be the food company.

Choice Scenario 4

Only two participants chose product A. Several participants thought the label information was a bit vague, specifically, they wanted to know how much less pesticides were used.

Choice Scenario 5

Participants did not like this scenario; the information about increased growth rates scared them away from choosing product A. However, one participant noted that the genetic modification may mean that product A had lower levels of growth hormones or steroids in it. One participant stated that the USDA label made them feel a little better about it.

Choice Scenario 6

A few participants stated that they would buy product A because it allows for increased storage and convenience; one participant noted that this would allow them to buy items in bulk. Several noted that in comparing the ingredient lists that the genetic modification apparently allowed for the reduced use of artificial preservatives. These participants felt that the label should state that the genetic modification would reduce the need to use artificial preservatives.

Group V—Phoenix, Arizona

Choice Scenario 1

Most participants stated that they would choose product A; although several participants noted that the label should explain what GMO-free means. When asked if they were willing to pay more

for a GMO-free product, several participants said that they were. When asked what they think GMO-free means, participants thought it meant that there were no genetically modified ingredients.

Choice Scenario 2

Seven participants chose product A. Individuals seemed to like this label because it told them how much of the product was genetically modified. However, many participants stated that the wording of the label led them to assume that the unlabeled product contained more than 5 percent genetically modified ingredients.

One participant did not understand how a single food item could be composed of 5 percent genetically modified ingredients; this participant thought the product had to be either genetically modified or not. Another participant presented the idea that many food ingredients are mixed during processing. Seemingly some individuals do not understand the current system of food storage (e.g., silos storing product from many different farmers/locations) and processing (food ingredients from different suppliers being mixed on food-processing lines).

Choice Scenario 3

Most participants chose product A. The main reason given for preferring product A was the cheaper price; some mentioned possible positive environmental effects while others mentioned that the product presumably had fewer pesticide residues. Participants generally liked this label better than the previous one because this one indicated why this product was genetically modified.

Choice Scenario 4

One participant chose product A due to the lower price. Most participants disliked choosing between either of these products. Participants were afraid of altering chickens' growth rate; some questioned whether the effect on growth could be transmitted to human beings. Many participants felt that the non-labeled product was also suspect. This led to some probing by the moderator as to whether participants would prefer a mandatory or voluntary labeling system. The participants were mostly split about the issue; some preferred mandatory, others preferred voluntary.

Choice Scenario 5

Participants generally liked this label because it identified the presence and purpose of the modification. However, one participant felt that the boxes around the text made it look like a warning label (e.g., cigarette labels). However, this participant felt that consumers' familiarity with the food would be important in how they evaluated the label information.

Choice Scenario 6

Participants did not like this label due to the presence of the American Cancer Society logo. They felt that this labeling approach was meant to manipulate the public.

Choice Scenario 7

Participants liked that the label told them how the food modification would benefit them. Participants confirmed the fat claim with the Nutrition Facts information. Most participants liked the contact information while a few did not.

Group VI—Phoenix, Arizona

Choice Scenario 1

All participants chose product A; the primary reason for the choice was the lower price. Most indicated that before participating in the focus group they would not have known what Non-GMO meant. These individuals stated that they would have just ignored this information.

Choice Scenario 2

All participants chose product A; the primary reason given for the choice was the lower price.

Choice Scenario 3

All but two participants chose product A; again price seemed the important factor. Those who chose product B stated that the ten cents price difference was not large. Participants who chose product A assumed that if a genetically modified food was being sold in a store, that meant that it was safe to eat. A few participants mentioned that a website or some other contact information would be useful so that they could get more information. They also stated that it would provide an incentive to learn more about genetically modified food.

Choice Scenario 4

Participants were equally split in choosing the product; five participants chose product A and five chose B. Participants wanted to know more about (the unlabeled) product B. Participants agreed that the presence of the USDA logo made them feel safer and made the label more credible. Most participants felt uneasy about altering a chicken's growth rate because they thought that it may affect their own health. One participant thought that the increased growth rate could affect the chicken's texture.

Choice Scenario 5

Six participants chose product A and three chose product B. Participants who chose A liked it because of the lower price and because there were fewer artificial preservatives. One participant mentioned the need for an explicit expiration date.

Choice Scenario 6

Three participants chose product A; six participants chose product B. Of those who chose B, one did not know what antioxidants were. Most stated that the price difference weighed heavily in their decision. One participant who chose A stated that the American Cancer Society logo made the label information credible. However, some questioned whether the higher price was due to the food manufacturer having to pay for the right to display the American Cancer Society label.

Choice Scenario 7

Again, three participants chose product A; six participants chose product B. Many participants stated that they liked product A because it was a low-fat product, but these individuals did not choose A because of the higher price. In general, participants liked the label format.

Preferences for Specific Label Program Attributes

After the focus group participants had viewed and reacted to the labeling props, they were asked to indicate what they would like to see as part of a labeling program for genetically modified foods. Almost all participants wanted genetically modified foods to be labeled (one participant in Group III did not want them to be labeled). When specifically probed whether they would prefer the labels to indicate if the food contained genetically modified ingredients, or whether they wanted foods labeled if they did not contain genetically modified ingredients, most participants indicated the former.

In general, they liked neutral label information as opposed to strongly positive or strongly negative labels because they understood that scientists were not sure about all the long-term health and environmental effects of genetically modifying food. Participants felt that only when there was a clear effect would it be appropriate for a strongly worded positive or negative message. Participants in Group I likened the labeling of genetically modified foods to the experience drawn from cigarette labels. That is, in the beginning cigarettes carried vague warning messages and as the scientific evidence surrounding the negative health impacts of smoking became stronger, then the warning labels became stronger and more explicit. Participants in the concerned group (Group II) also mentioned the

idea that the strength of the message should accurately reflect the state of knowledge regarding the genetic modification.

When asked what should be displayed on a label, almost all participants wanted to know what was genetically modified and why it was modified (i.e., what were the intended effects of modifying the food). Some participants also wanted to know the environmental ramifications. A few individuals wanted to know which food was modified, and a few others wanted to know what percentage of the food consisted of genetically modified ingredients.

Most participants liked including contact information. Some participants thought that the contact information would allow for a simpler label while also allowing more interested individuals a venue to pursue more information. Others noted that they probably would not use the contact information, but that it made the labels more credible. Still others mentioned that contact information is particularly important because most consumers currently do not know much about genetically modified foods and their effects.

In terms of where on the product information about genetically modified foods should fall, most participants liked the idea of having information on both the front and back of the package. One participant in Group IV thought the information on the back of the package should be mandatory while the front information could be voluntary.

Group VI participants noted that most people currently do not know enough about the issues/ramifications surrounding genetically modified foods. For a label to be effective, consumers would first need to be educated. They felt that the news media would need to provide more background information regarding benefits and costs of genetically modified foods.

When asked who should administer a labeling program for genetically modified foods, most participants stated the FDA should be in charge of the program since

the FDA is concerned about the safety of our food.

Several participants noted that the FDA might be subjected to some political pressure. They noted that food standards change over time and that there was a lot of political influence that could occur whenever the standards were changed. However, most of these individuals agreed that FDA was probably still the best agency to administer the program. In Group VI some noted that they were also comfortable with the USDA monitoring the program. Some participants indicated that displaying a specific organization was not important; others were unsure who should administer the program, but thought that it should be a "reputable" group. In Group I, the

moderator asked if organizations like the American Cancer Society or the American Heart Association should be allowed to monitor a labeling program for genetically modified foods. Several participants disliked this approach because these types of groups would focus on only one aspect of the food's healthiness.

Participants in Group II, the concerned group, felt strongly that there should be only one agency or group in charge of a labeling program for genetically modified foods. In addition, they felt that the group in charge should be composed of individuals with no financial interests in the food or biotech industries. As mentioned earlier this group exhibited a significantly higher level of skepticism regarding governmental groups administering the program. Several participants specifically stated their opposition to having the FDA or USDA administer the program. However, a couple of participants stated that they place a lot of trust in the group that administers the labeling of ingredients and the Nutrition Facts information. Another example they cited was the trust they placed on the organization that administers the organic labeling program. It seemed that the participants in this group were unaware that the FDA and USDA, respectively, administered these labeling programs. Given that the participants in this group stated who they did not want administering the labeling program, the moderator asked them specifically who they would want to administer the program. Interestingly, no one was willing or able to state a specific group; participants again stated that it had to be composed of individuals with no financial interests in the program. However, one participant then noted that this would be unfair if it excluded affected groups (e.g., farmers) from participating in the process.

At the end of most of the focus groups, the moderator asked participants if they felt that the U.S. government should ban the use and development of genetically modified foods. Most participants did not agree that genetically modified foods should be banned. This occurred even amongst most members of concerned group (although several participants in this group agreed that genetically modified food should be banned). In general, participants seemed to view genetically modified foods in a cautious but optimistic light. They thought that banning such foods would be too extreme since it would eliminate the potential benefits possible through genetic modification.

We shouldn't ban these foods because it can make life better.

One participant in Group III saw genetically modified foods as being

no worse than pesticide residues, growth hormones, or other additives.

Others voiced the idea that you cannot just stop science even if you want to. These participants said that to stop the development of these products, it would be necessary to prove that genetically modifying foods was clearly a bad thing. Most agreed that scientists should keep doing research to find out if there are any negative impacts of using these foods, but that they also should keep developing better foods. One participant noted that we do not know how these foods may interact with other things in our diet.

IV. RECOMMENDATIONS

Although the research indicates that consumers desire a labeling program for genetically engineered foods, it does not necessarily indicate that such a labeling program should be instituted. There are several reasons for this. One reason is that the nature of focus group research precludes generalizing the results to the U.S. consumer population. In addition, the research here did not adequately present to participants the cost implications of instituting a labeling program.

Instituting a labeling program for genetically modified foods may have relatively large costs, and these costs may differ significantly across types of labeling programs. For example, it is likely that any labeling program will increase food costs due to the costs of maintaining some degree of food separation, and ensuring for the adequate chain-of-custody monitoring for the labeled foods.[4] In addition, the form of the labeling program can have implications as to who pays these costs. For example, a voluntary "does not contain genetically modified ingredients" program would place the costs of the program on consumers who want to avoid these ingredients whereas a mandatory "does contain genetically modified ingredients" program would place the costs of the program on all consumers.

Although we made some attempt at having participants understand that their desire for labeling had cost implications and that these cost implications varied across labeling alternatives, participants did not seem to fully understood all of the implications. Further, even if they understood the nuances, we did not present them with actual costs (this is one of the purposes of the follow-up survey). Accordingly, we do not make a recommendation as to

[4]Transparency in product labeling requires some independent party perform chain-of-custody audits to confirm that specific ingredients are used, or not used, in the final food product.

whether a labeling program should be instituted; rather the following recommendations focus on how a labeling program should look if it is determined that a labeling program is warranted.

As mentioned earlier, the nature of focus group research precludes generalizing results. However, given the consistency in several findings across participant groups, we cautiously offer the following recommendations:

1. Simple genetically modified food logos should not be used by themselves; at a minimum supporting text is needed.
2. Labels should present the information that is most important to consumers (e.g., whether and why the food was genetically modified).
3. Labels that state that a food "may contain" genetically modified ingredients should not be allowed.
4. Labels should include contact information (e.g., telephone number or web site address) to increase credibility and allow consumers to obtain more information about the genetic modification than can be placed on a product label.
5. Labels should achieve a balance between simplicity and detail; too much information and the label will be confusing and hard to use, not enough information and the label will be less credible.
6. Labels should present the information in a standardized format to make cross-product comparisons easier.
7. Labeling of genetically modified food products should be performed, or regulated, by one familiar governmental or independent organization.
8. If the organization is to be a government agency, then the U.S. Food and Drug Administration or the U.S. Department of Agriculture should perform or regulate product certification.
9. If one familiar organization is not used, then information about the certifying organization should be included on the label.
10. If one familiar organization is not used, then a significant public education program is needed to inform consumers about the certifying organizations and their certification process.
11. Given the seemingly low level of understanding and knowledge about the genetic modification process, a significant public education program will need to be performed to inform consumers about the risks and benefits of genetically modified foods.

V. LITERATURE CITED

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APPENDIX A—MODERATOR'S GUIDES

Moderator's Guide—Genetically Modified Food Study Used for Groups 1 and 2—Orono, ME Date Revised: Jan. 11, 2002

Moderator Introduction and Group Orientation (5 minutes)

Thank you for participating in this focus group today. I'll be leading you in a discussion about food shopping and food issues. I want you to know that there are no right or wrong answers. We expect to receive a wide range of opinions and are eager to hear everyone's ideas and thoughts.

Tonight we are interested in your food shopping experiences, the different concerns you may have while you shop and the types of information you might find useful while shopping.

Food Purchasing (20 minutes)

Let's talk about the characteristics of food products you may look for, or try to avoid, when you buy food in a store.

What characteristics do you look for when buying food?
What characteristics do you try to avoid when buying food?

Do you ever think of the environmental problems associated with making food products?
What types of problems?
How concerned are you about these problems?
Does your concern for the environmental impacts of producing food differ by what the product is?
What can you as a consumer do to choose more environmentally friendly food?
When shopping for food products can you tell which product is produced in a more environmentally friendly way?

Do you ever think of any other problems associated with the way foods are produced or processed?
What types of problems?
How concerned are you about these problems?
Does your concern for how foods are produced differ by what the food product is?
What can you, as a consumer, do to avoid foods made by these processes?
When shopping for food products can you tell which product is associated with different methods of processing?

Have you ever heard of food being genetically engineered or genetically modified?
What kinds of food are genetically modified?

How much of the U.S. food supply do you think is genetically modified?

Have you heard of any benefits associated with genetically modified food?

What have you heard? What are some of the benefits?

Do you have any concerns about genetically modified food? What types of concerns?

How concerned are you about these problems?

Do your views of genetically modified food differ by what the food product is?

What can you, as a consumer, do to avoid genetically modified foods?

When shopping for food products can you tell which product is genetically modified?

Certification Concept Statement (10 minutes)

I would like to read to you a concept statement about the possibility of labeling food products to indicate whether they are genetically modified. After I read the statement, I want you to tell me your reaction.

Currently, the U.S. government does not require genetically modified foods to be labeled so long as the foods are considered "substantially equivalent" to their natural counterparts. Substantial equivalence means selected chemical characteristics are compared between a genetically modified product and any variety within the same species. If the two are similar, the genetically modified product does not need to be rigorously tested on the assumption that it is no more dangerous than the non-genetically modified equivalent. The government says labeling will only be required when genetic engineering is used to significantly change the composition of a food. However, critics of genetically modified foods feel that substantial equivalence is a poor measure for food safety. They say that genetically modified food may contain molecules that could be toxic or cause allergic reactions. Further, some individuals feel that, even if a genetically modified food is safe to eat, it may create some negative environmental effects. These groups would like to have food products labeled so that you could determine which food products were genetically modified.

There are basically two ways to implement a genetically modified food-labeling program. One approach would be to require all food producers to test whether their food product contained

genetically modified ingredients. Any product containing genetically modified ingredients would be required to disclose this information on the product's label. An alternative approach would be to allow food producers to test whether their food product contained no genetically modified ingredients. Once the food is certified as not containing genetically modified components then the product could disclose that they are genetically modified-free on a label or in product advertising.

What is your reaction to having a labeling program for genetically modified foods?

Should a labeling program simply denote whether the food contained genetically modified ingredients, or should the label disclose the potential benefits and/or risks of the genetically modified?

Do you think that these certification and labeling program should be mandatory or voluntary?

Who should be in charge of such a certification and labeling program?

Do your answers depend upon the type of food?

Do your answers depend upon the potential benefits associated with the genetically modified?

Do your answers depend upon who faces the benefit?

Do your answers depend upon the potential risk?

Do your answers depend upon who faces the risk?

Reaction to GMO-free Claim (10 minutes)

Have you seen any food products that are advertised or labeled that it was produced without genetically modified components? that the food was GMO-free?

What did you think of these claims?

Have you purchased any of these products? Would you do it again? Why?

When something is labeled as GMO-free, does that mean that there are no genetically modified ingredients, or that there is no more than a trace?

If a product contains less than 1% genetically modified ingredients should a product be able to make a genetically modified-free claim? What about if the product contains less than 5%?

Do you think that meat that was fed genetically modified grain should be labeled as genetically modified?

(Moderator hands out copies of a GMO-free food taken from actual ad copy)

What is your reaction to this statement?

Is any of the information hard to understand?

Is this information helpful?

What do you think of these claims?

Have you purchased any of these products?

Would you do it again? Why?

How confident are you regarding the truthfulness of these claims?

Who do you think currently certifies the truthfulness of these claims?

Who should be in charge of such a certification and labeling program?

(Moderator reads the following statement)

Recently the Wall Street Journal article tested 20 products with labels that read "Non-GMO" or "GMO-Free." They found that 11 of the products had evidence of some GMOs and another 5 had even higher levels of contamination.

What did you think of this finding? Does this make you reconsider your previous answers?

Reaction to Predetermined Labels (40 minutes)

(In setting up this exercise, the respondents will be told that they will be shown a number of products exhibiting different possible labeling options. They will be asked to careful read each of the product's labels and be prepared to discuss whether they like or would find useful the label information. Moderator will ask them to visualize they are in a store and are trying to determine whether will buy the food.)

What if you were buying [mention a type of food product] and one of the brands brands you were considering had a label that looked something like this.

(show first labeled product).

Are there any parts of the label that are unclear or confusing to you?

Would this type of information help you make choices in the store?

Would you like more detail on these labels?

Should any of the information be explained better?

What other information would you like to see on a label?

Should any of the information be removed?

Would this type of information help you make choices in the store?

What factors affect the confidence you have in these labels?

What additional information would you like to have that would make you feel more confident about the certification and labeling of genetically modified foods?

(repeat above for multiple label sets)

"Perfect" Label Exercise (10 minutes)

Before we conclude here tonight, I would like you to help create the perfect genetically modified food label so that consumer could understand which foods are genetically modified or not. I would like you to quickly break into three groups. Please refer to the labels you reviewed and select the element from each label that would be part of this "Perfect Label".

Wrap up (5 minutes)

Can you think of a better way, other than labeling, to indicate the benefits and risks of genetically modified foods?

Moderator's Guide—Genetically Modified Food Study Used for Group 3—Columbus, OH Date Revised: Jan. 14, 2001

Moderator Introduction and Group Orientation (5 minutes)

Thank you for participating in this focus group today. I'll be leading you in a discussion about food shopping and food issues. I want you to know that there are no right or wrong answers. We expect to receive a wide range of opinions and are eager to hear everyone's ideas and thoughts.

Tonight we are interested in your food shopping experiences, the different concerns you may have while you shop and the types of information you might find useful while shopping.

Food Purchasing (10 minutes)

Let's talk about the characteristics of food products you may look for, or try to avoid, when you buy food in a store.

What characteristics do you look for when buying food?

What characteristics do you try to avoid when buying food?

Have you ever heard of food being genetically engineered or genetically modified?

What kinds of food are genetically modified?

What types are foods do you think are currently genetically modified?

(if asked you can tell them that the following genetically engineered crops that have already been approved for sale:

- *canola*
- *corn (including popcorn and sweet corn)*
- *soybeans*
- *papaya*
- *potatoes (Atlantic, Russett Burbank, Russet Norkatah, and Shepody)*
- *red-hearted chicory (radicchio)*
- *squash (yellow crookneck)*
- *sugar beet*
- *tomatoes, including cherry tomatoes)*

How much of the U.S. food supply do you think is genetically modified?

(if asked you can tell them that estimates vary but due to the mixing of GMO and non-GMO food sources, particularly corn and soybean

oils, virtually every processed food product in the U.S. probably has at least a trace of genetically modified ingredients)

Have you heard of any benefits associated with genetically modified food?

What have you heard? What are some of the benefits?

Do you have any concerns about genetically modified food? What types of concerns?

How concerned are you about these problems?

Do your views of genetically modified food differ by what the food product is?

When shopping for food products can you tell which product is genetically modified?

Reaction to GMO-free Claim (5 minutes)

Have you seen any food products that are advertised or labeled that it was produced without genetically modified components?

What did you think of these claims?

Have you purchased any of these products? Would you do it again? Why?

(Moderator hands out copies of a GMO-free food taken from actual ad copy)

What is your reaction to this statement?

Is any of the information hard to understand? Is this information helpful?

What do you think of these claims?

How confident are you regarding the truthfulness of these claims?

Who do you think currently certifies the truthfulness of these claims?

When something is labeled as GMO-free, does that mean that there are no genetically modified ingredients, or that there is no more than a trace?

If a product contains less than 1% genetically modified ingredients should a product be able to make a genetically modified-free claim? What about if the product contains less than 5%?

Do you think that meat that was fed genetically modified grain should be labeled as genetically modified?

(Moderator reads the following statement)

> *Recently the Wall Street Journal article tested 20 products with labels that read "Non-GMO" or "GMO-Free." They found that 11 of the products had evidence of some GMOs and another 5 had even higher levels of contamination.*

What did you think of this finding? Does this make you reconsider your previous answers?

Certification Concept Statement (10 minutes)

I would like to read to you a concept statement about the possibility of labeling food products to indicate whether they are genetically modified. After I read the statement, I want you to tell me your reaction.

(Moderator reads the following statement)

> *Currently, the U.S. government does not require genetically modified foods to be labeled unless the genetic modification significantly changes the composition of a food. However, critics of genetically modified foods feel that the food may contain molecules that could be toxic or cause allergic reactions. Further, some individuals feel that, even if a genetically modified food is safe to eat, it may create some negative environmental effects. These groups would like to have food products labeled so that you could determine which food products were genetically modified.*

Do you think that genetically modified foods need to be labeled?

Who should be in charge of the labeling program?

Should a labeling program simply denote whether the food contained genetically modified ingredients, or should the label include other information?

Do your answers depend upon the potential benefits associated with the genetically modified?

Do your answers depend upon the potential risk?

Do your answers depend upon the type of food?

(Moderator reads the following statement)

> *There are basically two ways to implement a genetically modified food-labeling program. A mandatory approach would require all food producers to test and label if their food product contained genetically modified ingredients. A voluntary approach would allow food producers to test whether their food product contained* ***no*** *genetically modified ingredients. If the food is certified as not containing genetically modified ingredients then the company could label of advertise their product as not containing genetically modified ingredients.*

Do you favor a mandatory or voluntary approach?

Reaction to Predetermined Labels (40 minutes)

(In setting up this exercise, the respondents will be told that they will be shown a number of products exhibiting different possible labeling options. They will be asked to careful read each of the product's labels and be prepared to discuss whether they like or would find useful the label information. Moderator will ask them to visualize they are in a store and are trying to determine whether will buy the food.)

What if you were buying [mention a type of food product] and one of the brands brands you were considering had a label that looked something like this.

(show first labeled product).

Are there any parts of the label that are unclear or confusing to you?

Would this type of information help you make choices in the store?

Would you like more detail on these labels?

Should any of the information be explained better?

What other information would you like to see on a label?

Should any of the information be removed?

Would this type of information help you make choices in the store?

What factors affect the confidence you have in these labels?

What additional information would you like to have that would make you feel more confident about the certification and labeling of genetically modified foods?

(repeat above for multiple label sets)

"Perfect" Label Exercise (10 minutes)

Before we conclude here tonight, I would like you to help create the perfect genetically modified food label so that consumer could understand which foods are genetically modified or not. I would like you to quickly break into three groups. Please refer to the labels you reviewed and select the element from each label that would be part of this "Perfect Label."

Wrap up (5 minutes)

Can you think of a better way, other than labeling, to indicate the benefits and risks of genetically modified foods?

Moderator's Guide—Genetically Modified Food Study Used for Group 4—Columbus, OH Date Revised: Jan. 14, 2001

Moderator Introduction and Group Orientation (5 minutes)

Thank you for participating in this focus group today. I'll be leading you in a discussion about food shopping and food issues. I want you to know that there are no right or wrong answers. We expect to receive a wide range of opinions and are eager to hear everyone's ideas and thoughts.

Tonight we are interested in your food shopping experiences, the different concerns you may have while you shop and the types of information you might find useful while shopping.

Food Purchasing (10 minutes)

Let's talk about the characteristics of food products you may look for, or try to avoid, when you buy food in a store.

What characteristics do you look for when buying food?

What characteristics do you try to avoid when buying food?

Have you ever heard of food being genetically engineered or genetically modified?

What kinds of food are genetically modified?

What types are foods do you think are currently genetically modified?

(if asked you can tell them that the following genetically engineered crops that have already been approved for sale:

- *canola*
- *corn (including popcorn and sweet corn)*
- *soybeans*
- *papaya*
- *potatoes (Atlantic, Russett Burbank, Russet Norkatah, and Shepody)*
- *red-hearted chicory (radicchio)*
- *squash (yellow crookneck)*
- *sugar beet*
- *tomatoes, including cherry tomatoes)*

How much of the U.S. food supply do you think is genetically modified?

(if asked you can tell them that estimates vary but due to the mixing of GMO and non-GMO food sources, particularly corn and soybean

oils, virtually every processed food product in the U.S. probably has at least a trace of genetically modified ingredients)

Have you heard of any benefits associated with genetically modified food?

What have you heard? What are some of the benefits?

Do you have any concerns about genetically modified food? What types of concerns?

How concerned are you about these problems?

Do your views of genetically modified food differ by what the food product is?

When shopping for food products can you tell which product is genetically modified?

Reaction to GMO-free Claim (5 minutes)

Have you seen any food products that are advertised or labeled that it was produced without genetically modified components?

What did you think of these claims?

Have you purchased any of these products? Would you do it again? Why?

(Moderator hands out copies of a GMO-free food taken from actual ad copy)

What is your reaction to this statement?

Is any of the information hard to understand? Is this information helpful?

What do you think of these claims?

How confident are you regarding the truthfulness of these claims?

Who do you think currently certifies the truthfulness of these claims?

When something is labeled as GMO-free, does that mean that there are no genetically modified ingredients, or that there is no more than a trace?

If a product contains less than 1% genetically modified ingredients should a product be able to make a genetically modified-free claim? What about if the product contains less than 5%?

Do you think that meat that was fed genetically modified grain should be labeled as genetically modified?

(Moderator reads the following statement)

> *Recently the Wall Street Journal article tested 20 products with labels that read "Non-GMO" or "GMO-Free." They found that 11 of the products had evidence of some GMOs and another 5 had even higher levels of contamination.*

What did you think of this finding? Does this make you reconsider your previous answers?

Certification Concept Statement (10 minutes)

I would like to read to you a concept statement about the possibility of labeling food products to indicate whether they are genetically modified. After I read the statement, I want you to tell me your reaction.

(Moderator reads the following statement)

> *Currently, the U.S. government does not require genetically modified foods to be labeled unless the genetic modification significantly changes the composition of a food. However, critics of genetically modified foods feel that the food may contain molecules that could be toxic or cause allergic reactions. Further, some individuals feel that, even if a genetically modified food is safe to eat, it may create some negative environmental effects. These groups would like to have food products labeled so that you could determine which food products were genetically modified.*

Do you think that genetically modified foods need to be labeled?

Who should be in charge of the labeling program?

Should a labeling program simply denote whether the food contained genetically modified ingredients, or should the label include other information?

Do your answers depend upon the potential benefits associated with the genetically modified?

Do your answers depend upon the potential risk?

Do your answers depend upon the type of food?

(Moderator reads the following statement)

> *There are basically two ways to implement a genetically modified food-labeling program. A mandatory approach would require all food producers to test and label if their food product contained genetically modified ingredients. A voluntary approach would allow food producers to test whether their food product contained* ***no*** *genetically modified ingredients. If the food is certified as not containing genetically modified ingredients then the company could label of advertise their product as not containing genetically modified ingredients.*

Do you favor a mandatory or voluntary approach?

Reaction to Predetermined Labels (40 minutes)

(In setting up this exercise, the respondents will be told that they are to compare two labels one for Brand A and one for Brand B. All labels will refer to the same food. They are asked to careful read each of the two labels and after they have read the information contained on the label, they are to select the package they would buy based solely on the information presented. Moderator will ask them to visualize they are in a store and are comparing two packages of the food – which one will ultimately end up in the shop cart headed for the checkout line.)

What if you were buying [mention a type of food product] and two of the brands you were considering had labels that looked something like this. Assume both foods meet your standards in all other respects. (*if necessary*)

(show first set of labeled products).

By a show of hands, who would buy Product A? Product B?

Are there any parts of the label that are unclear or confusing to you?

Would this type of information help you make choices in the store?

Would you like more detail on these labels?

Should any of the information be explained better?

What other information would you like to see on a label?

Should any of the information be removed?

Would this type of information help you make choices in the store?

Do you think the price difference between the brands is fair?

What factors affect the confidence you have in these labels?

What additional information would you like to have that would make you feel more confident about the certification and labeling of genetically modified foods?

(repeat above for multiple label sets)

"Perfect" Label Exercise (10 minutes)

Before we conclude here tonight, I would like you to help create the perfect genetically modified food label so that consumer could understand which foods are genetically modified or not. I would like you to quickly break into three groups. Please refer to the labels you reviewed and select the element from each label that would be part of this 'Perfect Label'.

Moderator's Guide—Genetically Modified Food Study Used for Groups 5 and 6—Phoenix, AZ Date Revised: Oct. 17, 2001

Moderator Introduction and Group Orientation (5 minutes)

Thank you for participating in this focus group today. I'll be leading you in a discussion about food shopping and food issues. I want you to know that there are no right or wrong answers. We expect to receive a wide range of opinions and are eager to hear everyone's ideas and thoughts.

Tonight we are interested in your food shopping experiences, the different concerns you may have while you shop and the types of information you might find useful while shopping.

Food Purchasing (10 minutes)

Let's talk about the characteristics of food products you may look for, or try to avoid, when you buy food in a store.

What characteristics do you look for when buying food?

What characteristics do you try to avoid when buying food?

Have you ever heard of food being genetically engineered or genetically modified?

What kinds of food are genetically modified?

What types are foods do you think are currently genetically modified?

(if asked you can tell them that the following genetically engineered crops that have already been approved for sale:

- canola
- corn (including popcorn and sweet corn)
- soybeans
- papaya
- potatoes (Atlantic, Russett Burbank, Russet Norkatah, and Shepody)
- red-hearted chicory (radicchio)
- squash (yellow crookneck)
- sugar beet
- tomatoes, including cherry tomatoes)

How much of the U.S. food supply do you think is genetically modified?

(if asked you can tell them that estimates vary but due to the mixing of GMO and non-GMO food sources, particularly corn and soybean

oils, virtually every processed food product in the U.S. probably has at least a trace of genetically modified ingredients)

Have you heard of any benefits associated with genetically modified food?

What have you heard? What are some of the benefits?

Do you have any concerns about genetically modified food? What types of concerns?

How concerned are you about these problems?

Do your views of genetically modified food differ by what the food product is?

When shopping for food products can you tell which product is genetically modified?

Certification Concept Statement (10 minutes)

I would like to read to you a concept statement about the possibility of labeling food products to indicate whether they are genetically modified. After I read the statement, I want you to tell me your reaction.

(Moderator reads the following statement)

> *Currently, the U.S. government does not require genetically modified foods to be labeled unless the genetic modification significantly changes the composition of a food. However, critics of genetically modified foods feel that the food may contain molecules that could be toxic or cause allergic reactions. Further, some individuals feel that, even if a genetically modified food is safe to eat, it may create some negative environmental effects. These groups would like to have food products labeled so that you could determine which food products were genetically modified.*

Do you think that genetically modified foods need to be labeled?

Who should be in charge of the labeling program?

Should a labeling program simply denote whether the food contained genetically modified ingredients, or should the label include other information?

Do your answers depend upon the potential benefits associated with the genetically modified?

Do your answers depend upon the potential risk?

Do your answers depend upon the type of food?

(Moderator reads the following statement)

> *There are basically two ways to implement a genetically modified food-labeling program. A mandatory approach would require*

all food producers to test and label if their food product contained genetically modified ingredients. A voluntary approach would allow food producers to test whether their food product contained ***no*** *genetically modified ingredients. If the food is certified as not containing genetically modified ingredients then the company could label of advertise their product as not containing genetically modified ingredients.*

Do you favor a mandatory or voluntary approach?

Reaction to Predetermined Labels (40 minutes)

(In setting up this exercise, the respondents will be told that they are to compare two labels one for Brand A and one for Brand B. All labels will refer to the same food. They are asked to careful read each of the two labels and after they have read the information contained on the label, they are to select the package they would buy based solely on the information presented. Moderator will ask them to visualize they are in a store and are comparing two packages of the food – which one will ultimately end up in the shop cart headed for the checkout line.)

What if you were buying [mention a type of food product] and two of the brands you were considering had labels that looked something like this. Assume both foods meet your standards in all other respects. (*if necessary*)

(*show first set of labeled products*).

By a show of hands, who would buy Product A? Product B?

Are there any parts of the label that are unclear or confusing to you?

Would this type of information help you make choices in the store?

Would you like more detail on these labels?

Should any of the information be explained better?

What other information would you like to see on a label?

Should any of the information be removed?

Would this type of information help you make choices in the store?

Do you think the price difference between the brands is fair?

What factors affect the confidence you have in these labels?

What additional information would you like to have that would make you feel more confident about the certification and labeling of genetically modified foods?

(repeat above for multiple label sets)

"Perfect" Label Exercise (10 minutes)

Before we conclude here tonight, I would like you to help create the perfect genetically modified food label so that consumer could understand which foods are genetically modified or not. I would like you to quickly break into three groups. Please refer to the labels you reviewed and select the element from each label that would be part of this "Perfect Label."

Pretest Food Choice Mail Survey Mock-up (10 minutes)

Moderator hands out mock-up of food choice scenario to be used in mail survey. After everyone completes the survey mock-up moderator walks through the sets of questions and clarifies any misunderstandings, unclear wordings etc.