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# Consumers' View of Food Biotechnology: A Proactive Approach to Marketing and Public Policy

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## INTRODUCTION

The broad objective of the paper is take a proactive approach to consumer oriented policy making and investigate consumers' views of and expectations from various key social institutions of the food system with respect to food safety and food biotechnologies (a.k.a. Genetically Modified Foods). These social institutions include regulatory agencies, food manufacturers, farmers, the scientific community, consumer activist groups, and media. Trust in institutions is considered to be a central issue for the public policy debates of food biotechnologies; however, we do not know the nature and components of this trust and how it affects consumers' view of the food biotechnologies. From the theoretical point of view, this study aims to answer questions such as can the social institutions of the food system be trusted/distrusted and what does that trust/distrust mean. From the practical (public policy) point of view, our study reports informants' view of the GMF policy debates, and seeks answers to the question: what does our understanding of consumer trust and distrust in social institutions contribute to public debates on the future of biotechnology and genetically modified foods?

Consumer researchers note that public policy research has largely adopted a reactive approach toward policy-making process, and as a result, has little impact on policy decisions. For example, Hastak, Mazis and Morris (2001) argue that academic research (in marketing) does not play a major role in policy-making process. For various reasons, many academicians "tend to favor policy evaluation research" (p. 181). However, the authors also argue that academicians can meaningfully contribute to other (prior) stages of the policy making process. This way, academicians can potentially influence the nature and direction of a policy initiative instead of passively evaluating it, after the policy has been implemented. Stewart and Martin (1994) make a similar argument and point out the importance of research before policy decisions. The authors argue that most policy research that has been carried out has been after policies have been implemented. As Stewart and Martin (1994) indicate, such reactive research has serious limitations because "it focuses on the effects of what has been implemented rather than what might have been the optimal" (p.14). Unfortunately, in spite of these calls, not many studies follow the proactive policy research approach. As mentioned earlier it is now an accepted view that the future of food biotechnologies depends upon consumer trust and distrust in social institution. As a result, we argue, a proactive policy research that examines the structure of the main issues of trust and distrust has a greater chance for incorporating consumer voices into policy decisions regarding GMF.

## REVIEW OF RELEVANT LITERATURE AND OBJECTIVES OF THE STUDY

In this section we summarize the existing literature on GMF policy and institutional trust and then state the specific objectives of our study.

**GMF Policy Issues:** The main biotechnology debates are over the novelty of modern genetic engineering, over pre-release testing, over labeling, constitutional debate, and over transparency (public information). In addition, there are two fundamental debates that shape the current regulatory regimes on agriculture biotechnology applications: debate over substantial equivalence doctrine and debate over the precautionary principle. Among these debates,

researchers, so far, have dealt mainly with one: labeling of GMF. Specifically, studies so far have focused on 1- voluntary versus mandatory labeling, 2- positive versus negative labeling, and 3- process-based versus product-based labeling.

Phillips and Isaac (1998) provided a conceptual assessment of the potential threats and/or opportunities (for producer) of mandatory and voluntary labeling. They argue that mandatory labeling of both process-based and product-based genetically modified organisms (GMOs) could pose as threat to the producers: the producers would likely suffer a discount for their good in the market, would dampen the production and consumption of this products, could seriously disrupt domestic and international food markets. Caswell (1998) argues that from a regulator's point of view, mandatory labeling has the advantage of giving consumers full information.

Although many scholars indicate that consumers have the "final word" on the acceptance of these products, most studies excluded actual views of consumers. Instead, most studies make implicit assumptions as to how consumer would see labeling alternatives. Further, most studies see genetically modified foods (GMF) as regular credence products. Credence products represent some degree of consumer uncertainty that cannot be quantified and factored into purchasing decision. In other words, a credence product is one that may have harmful (or beneficial) effects that are not noticeable at the point of consumption. However, the assumption with regular credence products is that the discovery of the harm or benefit is a matter of time. Even if they cannot be quantified by the time of consumption, as science progresses these harmful/beneficial aspects can be quantified. Therefore, in the meantime, the consumption behavior can be explained through risk-accepting tendencies of consumers. With respect to GMF products and consumption, there may be issues that cannot be quantified or resolved over time (e.g. consumer perceptions regarding the abilities of regulatory bodies and the philosophy of production and consumption of the society, including the meaning and role of food, production, farming, breeding, science, technology, and religion in people's everyday lives). More specifically, one can argue that it may be misleading and potentially dangerous to design policies by simply asking consumers how they react to GMO without having adequate understanding of consumer motives for labeling issues.

**Trust and Distrust in Social Institutions:** Even though the concept of trust has been studied frequently by marketing scholars, no study has focused on consumer trust in social institutions. In fact, the only relevant article we found was published more than 25 years ago in *Journal of Retailing*. In their short essay, MacLachlan and Spence (1976) indicated that public trust in retailers (specifically supermarkets) was higher than most institutions (e.g. police, public schools, labor unions, state legislatures, media, etc.) investigated in the study. No attempt was made to understand the sources of or to discuss the consequences of consumer trust in supermarkets.

Most studies on institutional trust exist in sociology and political science. These studies deal with either citizens views of a particular institution (e.g. Abbott and Dalton 1999; Lazarus 1991; McGarity 1986; Renn and Levine 1991) or with multiple institutions (in isolation), with no specific attempt to understand citizens' perceptions of the interactions between trust and distrust in institutions. (see Rose and Mishler 1997; World Values Survey 1984, 1993). Even though these studies provide in-depth understanding of the views about one particular institution, they fail to account for the

complexities and the challenges that are associated with social systems. For example, McGarity's (1986) study on public views of environmental policy would be more complete if the study included public views about other groups (e.g. environmental groups and chemical companies) instead of focusing only on the public view of the Environmental Protection Agency.

Other studies examine citizen views of various institutions within a country (e.g. Rose et al. 1997; World Values Survey 1984, 1993). The main objective in these studies is to monitor the changes in public confidence in various public and private institutions (e.g. police, legal system, armed forces, parliament, civil service, the church, major companies, and press). They provide detailed understanding about the impact of these changes on the overall performance of the studied countries. However, these studies reveal little information regarding how individuals' views of various institutions may vary since they assume a same (uniform) domain of trust and distrust for all institutions.

Based on these points, in summary, the broad objectives of this study are to understand consumers' trust and distrust in various key social institutions in the food system, and (through these understandings) to contribute to the public debate on the future of biotechnology and genetically modified foods. In order to fill the knowledge gaps in the literature and to provide more realistic recommendations for GMF policy, our analysis of trust deals with the source of public trust in social institutions and our analysis of distrust particularly deals with the consequences of such distrust.

## METHODOLOGY AND METHODS

Our research design involved a two-stage data collection process. The first stage involved seven depth-interviews with consumers in a Midwestern state on their knowledge, beliefs and attitudes toward issues surrounding GMF. For the first study conducted in 2000, we sampled relatively educated consumers because at this time both academic and popular press noted consumers' awareness of GMF was very limited (Kilman 1999). By 2002 consumer awareness of GMF had increased from 12% in 2000 to over 70% largely due to the Starlink<sup>®</sup>-corn fiasco and debates on stem-cell research. Therefore, our emergent theoretical perspective on factors that influence beliefs and behaviors related to GMF drove sampling decisions for the second stage. We sought to include informants with diverse orientations to GMF based around underlying differences in family stage, health concerns, social and political beliefs.<sup>1</sup> The second stage involved 10 depth interviews focused on uncovering consumers' trust in the quality and safety of their food and whether and how that is related to GMF and institutions they identify as playing a role in food safety.

Data analysis was a process of gradual induction. Analysis of textual data proceeded through two distinct stages of iteration: intra-text and inter-text (Arnold and Fischer 1994; Thompson 1997). Intra-text analysis asks a set of questions to identify the codes and categories of the findings. Once codes and categories have been identified, the researcher uses inter-textual analysis to look for patterns of relationships within different interviews (Thompson 1997). Thus, intra-text analysis addresses the extent to which general themes are shared by different respondents, and patterns of difference.

## FINDINGS

In this section, we first report our findings related to consumer trust and distrust in social institutions<sup>2</sup> and then we report consumers' views of the GMF policy debates.

*Trust in Social Institutions:* The analysis of data reveals that trust in social institutions can be categorized mainly into two: confident beliefs that are based on competence/assurance (CA), and

the beliefs that are based on faith and hope (FH) in particular institution. The CA aspect of trust can be characterized as knowledge and experience-based trust and therefore, more to do with consumers' own (and perhaps direct) experiences with the target of trust (e.g. manufacturers). In other words, buying (using) particular brands for years gives informants a first hand experience/reason to trust the manufacturers of these brands. Similarly, knowing that government enforces rules (such as limits on chemicals use or crop rotation) once again gives the informant a first hand reason to trust government. FH-based trust, on the other hand, is characterized as more perception-driven, indirect experience and generalized expectations with the target of trust. For example, informants can trust farmers based on the perception that farmers would not see food as a commodity and care more about the land, the earth and ultimately about consumers. Table 1 provides details about the types and sources of consumer trust in social institutions.

*Distrust in Social Institutions:* Coding and analysis of data reveal that there are mainly three categorizes of distrust: skepticism/cynicism-inducing distrust (SC); fear-inducing distrust; and vigilance/ watchfulness-inducing distrust (WW). Similar to those of sources of trust, informants' distrust in social institutions is mainly direct and indirect experience-based. For example, the source of distrust in media can come from direct experiences (e.g. watching inconsistent health reports in the news media for years). At the same time, consumers can have perception driven distrust (e.g. believing that most research in universities is done through grants provided by "big business" and therefore biased). Our data analysis revealed that the informants develop a number of coping mechanisms in the presence of distrust (regardless of whether based on direct or indirect experiences). We categorize these strategies (consequences of distrust) into three: skepticism/cynicism (SC), fear, and, vigilance/watchfulness (VW). Fear-inducing distrust is conceptualized as repeated and long-term experiences of suspicion that leads to great concern about the safety of food supply. When a respondent's distrust is fear-inducing, he/she intends to completely disregard information that comes from the target of distrust. The difference between SC and VW is that with VW-inducing distrust, informants are able to provide particular methods/strategies that help them deal with the distrust-creating situation. In other words, when distrust is VW-inducing, informant becomes active (take an action) to overcome the situation that created distrust in the first place. For example, when an informant has reasons to believe that a big food manufacturer should be distrusted because they are unable to prevent bacterial contamination (coded as VW-inducing distrust) then she takes an action and decides to buy ground beef from the grocery stores who grind their own meat, instead of buying as already grounded from big meat manufacturers. Table 2 provides more details about various types and sources of consumer distrust in social institutions.

*Consumers' View of the GMF policy Debates:* One of the broad research questions that motivated this study was "what does our understanding of consumer trust/distrust contribute to public policy debates on the future of biotechnologies and genetically modified foods?" In this section we report finding related to consumers view of biotechnology debates.

*Novelty Debate:* The debate over the novelty of modern genetic engineering techniques focuses on whether modern agricultural technologies are really so novel that special regulatory

<sup>1</sup>Informant profiles are available upon request.

<sup>2</sup>Due to page limitation, only a general framework for the findings of institutional trust and distrust is presented here. Detailed excerpts for each category and code listed in Table 1 and Table 2 are available upon request.

**TABLE 1**  
Trust in Social Institutions

Target of Trust	Type of Trust	Sources of Trust
Manufacturers	Competence/Assurance	Competence through brand names and expertise Through inspection of products through packaging: packages product, inspected product Accountability Confidence through product testing
	Hope/Faith	Fiduciary obligations Benevolence Reputation to hold (perceived check and balance) Their business to take care Enforcement of rules Sufficient regulations
Government	Competence/Assurance	Overseeing industry operations, watching the companies Enforce recalls of problem products Government research process Motive is ensuring public safety (no profit motives)
Scientific Community	Faith/Hope	Intentions are good (to make food safer) Technology is both for producer and for consumers Objective, consumer oriented motives, non-profit nature
Consumer Groups	Competence/Assurance	Credible source of information Public education efforts They see food not just as commodity (closer to production, different meaning to farmers)
Farmers	Faith/Hope	It is their business to keep (by offering healthy products) Won't produce things that are harmful to consumers) Doing their best for humanity
Media	Faith/Hope	Relies on press to be a watchdog Reliance (making food news available)

attention to the products of those techniques is warranted. According to the regulatory agencies, the novelty debate is closely related to the extent that GMF can cause additional health problems. A general look at the concerns with GMF across the two-stage study suggests that informants' GMF concerns shift from human health-related concerns (in stage 1) to other (non-human health) related concerns. Informants in stage 2 largely talked about their "political," "ecological," "environmental," and "moral" concerns with the use of agricultural biotechnologies. We suspect that recent well-publicized debates over the future of stem cell research may be credited for this shift. In other words, it was found that the informants usually do not worry about the safety (health) aspect of genetically modified foods. Threats to human health by GMF appear to be a small and the informants seem willing to dismiss the immediate health issues with GMF. For example, Pam distrusts various institutions in the food safety system in general because she sees negative synergetic interactions between the component institutions. It is interesting to observe that a respondent who appears to distrust a number of institution in the food safety system would not have health/safety related concerns with GMF.

Um...as far as safety for the consumer, I don't see any problem. Um...you know, I don't see that this stuffs gonna...unless they...they take something like a tomato and in the process of modifying it change it back towards a deadly nightshade. Um...I think they're going to figure that out before they get the stuff to the market (laughing). I...I just can't see...if...if there's been research done into genetic manipulation. Um...I can't...maybe it's just my ignorance, but I can't see where...there are going to be safety issues involved. Um...you know, I hear scare stories of oh...but what if...what if they get loose, what if they interbreed, uh...with wild species and...um...this stuff sounds just so far fetched that...I dismiss it (laughing). Maybe I shouldn't but I...(Pam)

Pam's position may suggest that respondents who distrust some of the institutions (namely industry and scientific communities) may not feel unsafe about GMF products. On the other hand, as will be discussed later in this section, a respondent (Amanda) who trusts these institutions will still demand labeling on GMF products.

**TABLE 2**  
Distrust in Social Institutions

Target of Distrust	Consequences of Distrust	Sources of Distrust
Manufacturers	SC-inducing	Unjustified practices (e.g. the use of antibiotics)
	Fear-inducing	Hide information from consumers, cover things up Motivated by greed Immoral motives
	VW-inducing	Big operations can get out of hand out of control Insufficient prevention of contaminations
Government problems)	SC-inducing	Setting low standards for food safety Setting wrong farm/food policies Surface treatment of problems (not creating real solution to
	VW-inducing	Insufficient inspection of food products on the market Slow responding to reality Non regulated areas of food production
Scientific Community	SC-inducing	Creates suspicion about food quality (limiting consumer choice) Questionable findings (one-sided research) Arrogant scientists (some scientists have blinders) Research funded by big business (results skewed)
Consumer Groups	SC-inducing	Sometimes deal with unimportant issues They can create misinformation which is damaging for society Overdo things (overreact to things)
Farmers	VW-inducing	The use of potentially damaging substances in food production Overdosing chemicals (financial pressures, profit motives)
Media	SC-inducing	Irresponsible reporting (can be more damaging to society)
	Fear-inducing	Too many reports on food/health (not worthy of attention)

We believe these views suggest interesting insights with respect to the debate on novelty. For example, there is an important separation between the informants' views and the views that regulatory agencies and the biotech industry hold. For the informants, novel aspects of GMF may not necessarily be related to food or the processes in which it is done. Since they are largely not worried about the safety of the food, many informants do not even make references to the GMF as "new" food product. Instead, for them the novelty comes from the belief that genetic modification brings "novel" issues to the table. These issues are related to social, political, environmental, ecological, moral, etc. consequences of the use of genetic modification. The starting point of the regulatory bodies is, however, whether GM food appears to cause health problems (something these informants do not have strong feelings about). The point of reference of the regulatory agencies and the point of reference for the informants as far as GMF concerns seem to be different ones. When points of references are different, it may be quite difficult to have effective communication between government and the public.

*Labeling Debate:* Perhaps the most contentious of the public debates over GM foods to date has been debate over whether GM foods should be labeled so that consumers can easily ascertain

whether the foods that they are consuming have been genetically modified or contain genetically modified components. Most polls suggest that the American public is currently not strongly opposed to GM foods. For example, a December 1999 Gallup Poll found that two-thirds of the more than 1000 participants were of the opinion that GM foods were not dangerous, and less than 20 percent believed that they posed a serious health hazard. Finally 20 percent were uncertain. The same poll found that 16 percent of the respondents strongly opposed GM foods, 25 percent were moderately opposed, 42 percent moderately favored them, and 9 percent strongly favored them (Restaurants and Institutions 1999).

Informants in our study largely share the proponents' view in the labeling debate in that even though they may not see human-health related problems with GMF, they still want labeling in order to make informed decisions about the food they buy. Some scholars (e.g. Silbergold 1999) along with the consumer activist groups who are proponents for labeling have argued that the fact that US consumers demand labeling is an indicator that they may distrust their government in its dealings with the safety of GMF. We argue that this claim may not be entirely true. In other words, it is possible that even though consumers trust the regulatory bodies to make the food supply safe, they may still demand labeling. In these cases,



labeling would give the consumers power to respond to the developments in the area of biotechnology when they see the technology is "going to undesirable places." In other words, demand for labeling might not translate into distrust in government but actually be making a statement about the use of biotechnologies in general. In excerpt below, Amanda explains her reasons for demanding labeling: She is first of all not worried about the safety of GMF food. However, through labeling, she wants to be able to make statements (send messages to the biotech industry) if genetic modification is taken in other directions (e.g., human cloning), an area that she would not promote.

I think it's my...the negative response I had to the genetic altering had to do with something beyond what it really does, beyond the safety. Yeah, no...yeah it had to do with, um...the direction our technology is going in other areas...with genetic technology. But, with food, if my understanding is correct...when they genetically, you know, recreate something, or...or, they're genetically, um...changing, uh...food. That it's not...(something I worry) I see it more as they're trying to...to enhance that food...or, um, duplicate it or, you know, again, to multiply it. But, when I think of genetic...and I might be way off, I mean, maybe genetically altering is gonna...is involved with the chemical change too. But, that's...that's why I don't worry about that as much...I don't see that being bad. It bothers me if they were taking that to technology (to other areas), yes...yeah, that bothers me. But, you know...that...I don't mind if they keep it in the...the fruits, but they aren't gonna do that. You know, well, they obviously aren't. I think it's the day we live in, Ahmet, that we're...we're taking our research into areas of genetic research going to into the areas of duplicate...duplicating humans. And...even though certain things got limited for a time. Like, for instance, um...stem cell research...with the babies, the infants. That...I think that's something that I expect that I know will come. I'm just not happy about it. And, that's your highest authority. That's the government...I mean, not God. But, but your government is, uh...our government is headed that direction. So, if our government is headed that direction so are our companies because they're going to make profit. You know, they want to be able to do these things. They're gonna...so that's, you know, where I'm not...I'm not excited. I wish...and yet not everything is...if everything that you have, the technology we have can be, very good.

As mentioned earlier, our informants usually are not worried about the human health effects/risks of the GMF. We argue that this belief comes from the consumer perception that the food supply in the United States is safe overall. Consumers believe that any food that is known to carry risks to human health should not be in the market, and as Jason notes in the following excerpt, if the food is on the market, it must be safe, or should not be on the market in the first place. And when the product is on the market there is little reason to be suspicious about it.

I think that would be good to know, but at the same time if they were detrimental consequences to me I would expect that they shouldn't be distributing, it shouldn't be on the market at all...If you can't say specifically what it is going to do, because everybody is different, then it doesn't make sense to do any labeling at all, you know, to that effect. To the effect that if you eat this, this going to be the consequence, if you can't say that for sure then probably you shouldn't be saying that at all. And

at the same time, if you can't say that eating this genetically modified food is not going to have, a 99 percent chance of not having any effect on you, detrimental effect on you, then, if you can't say that, you should probably not be marketing or distributing (Jason).

*Substantial Equivalence versus the Precautionary Principles:* Under the doctrine of "substantial equivalence," a GM food that the relevant regulatory agency determines as a "scientific matter" to be substantially equivalent to a food that is already in the food supply should not be subject to additional regulatory requirements, such as toxicological testing or product labeling, designed to protect public health and the environment (Teitel and Wilson 1999). The precautionary principle is another highly subjective approach to regulatory decisionmaking that requires regulatory agencies to proceed within caution, paying particular attention to the views of scientists from various disciplines and from the affected public, when dealing with activities that pose potentially irreversible health and environmental risks. In the above excerpt, Jason speaks about his view with respect to the debate between substantial equivalence and the precautionary principle. It appears that Jason's view is closer to those who argue that GMF is not different from any other product that is on the market, and therefore, GM foods do not require labeling. Proponents of the precautionary principle would argue that since we are not 99 percent sure that the foods are safe, labeling is necessary. Jason believes that labeling is not necessary; products should either be in the market (if they are safe) or not in the market at all. We know from our interview that Jason, even though he is suspicious about some of the activities of the industry, he basically trusts the government and regulator agencies to protect the consumer. Consider the following excerpt:

Now that I know that 80 percent of the foods are genetically modified. Am I going to go out and find out whether that has a detrimental effect on me? Probably not. If they put a label on it tomorrow and say that this food is genetically modified, will it change my eating habits? Will it change my buying habits? Probably not. I guess at this point I am depending on the government to regulate the industry. And make sure that if they are genetically modifying the products that they are not causing health problems to the people that consume them. Maybe that is misplaced trust. I don't know.

When the data are incorporated within the context of debate between the proponents of substantial equivalence and proponents of precautionary principal, it can be seen that the solution to the debate is not "either-or". In other words, these two regulatory doctrines (both subjective) may not necessarily be mutually exclusive. An informant may see GM food as substantially equivalent to non-GM food with respect to food quality and/or safety. However, the same informant may also believe that precautionary principle should be applied to the production of GM food because he/she has "other than food safety" concerns.

*Debate on Transparency:* The debates over transparency center on the degree to which regulator decisionmakers must allow public participation in the decision making process. An important issue for the debate of transparency deals with "who should provide the information to the public." Many proponents of modern biotechnologies are convinced that broad public participation is less likely to inspire public confidence in GM foods than broad-based industry-sponsored efforts to educate the public about the large benefits and comparatively small risks associated with such GM foods. Our study suggests that some consumers perceive media (the

popular press) to be a watchdog, and the media are expected to make food/health-related food information available for the public. In addition, as Ross indicates, information learned through the media could change the shopping behaviors of consumers.

I rely on the press too in some ways as a watchdog...as a way of...of, you know, a scout or something...to make that news available. I...I rely on them to make that news available and if I have access to that information then I...I...my shopping behaviors would change.

At the same time, media and food manufacturers (the industry) are identified as the only two institutions in which some of our informants have fear-type distrust. As mentioned earlier, fear-type distrust would make the communication between citizens and the target of distrust almost impossible because the public may dismiss all information that come from the source.

In addition, the objectivity of the education programs sponsored by the industry could be questionable. As we stated earlier in Table 2, our informants were concerned about the possibility that industry (manufacturers) would hide important information from the public (i.e. some informants have fear-type distrust in manufacturers). It is feared that some companies are motivated by greed and they are prone to "cover-ups." This informant suggests very few people (among the consumers) know/read about biotechnology. They are mostly ignorant, and industry, when running such educational programs, would strategically focus on the one side (potential benefits) of the issue, and would avoid any information pertaining to the negative sides.

I mean, there's...there's portions of the population that because of their own interest or because these individuals just happen to read a lot...even if they're not scientists they may be aware of it, but it's...it's really just a very small portion of...of...of the population here in the United States that have these...science and um...and political economic concerns about the biotech industry. But...but from the point of view of the biotech industry, you know, I...I...like if I was to try to put myself in...in...say...an executives'...the CEO's shoes. That executive...that...that company is not going to do anything to address these concerns because if they address these concerns they...they will be admitting that there are problems. But, their whole argument so far has been that there are no problems...both in terms of safety and that they're also trying to...they, you know, they've tried to establish that this image that we're doing this for the greater good of...of humanity. You know, that we're going to raise cheap food. We'll be able to share all of this with...with...uh...the starving hungry of this world. They won't because if they...if they even attempt to take of my concerns through...through...you know, through altruism, right away they're...they're going to be...the fear...they're fear is that O.K. now we've let the cat out of the bag. (George)

Based on the informants' trust and distrust in various social institutions (such as media, government, and the manufacturers), this research suggests that public education programs should be prepared and run by governmental outlets (e.g. NPR or PBS). A relatively successful example of this suggestion was executed about two years ago. "Frontline" and "Nova" combined their efforts to produce *Harvest of Fear* aired on PBS in the fall of 2000, incidentally during the most intense days of the Starlink<sup>R</sup>-corn fiasco. According to the critics, the program was "a better presentation of the controversy surrounding biotechnologies" and ap-

plauded even by the opponents of the biotechnologies (McCullum 2001)

In addition, it has been argued that the condescending attitude of many federal officials has done little to inspire consumers to buy into the GM food. One of the primary messages that the activists at the World Trade Organization protests in Seattle and the Bio2000 protests in Boston have attempted to convey is that the federal government cannot be trusted to make protective decisions about genetically modified foods (Kriz 2000). This study suggests that one of the reasons consumers distrust the government is because they see government as a structure that responds "slowly to the realities." In other words, because of the bureaucracies involved, some of our informants perceive regulatory agencies to be inadequate and slow to make important decisions to protect the public.

Here's, uh...here's uh...the government's a big...big bureaucracy and there's a lot of paperwork and...and...um. In general, I find it's very...very slow to respond to reality. Um...so, I think, when there are problems, even potential miniscule problems with the food, you know they say biotech food can be allergenic. Government bureaucracy is so slow to do anything about it... (Larry)

At the same time, our data also suggest that some of the informants trust the (food related) decisions taken by the regulatory agencies because the decision process is a lengthy and therefore an assuring one. In the example below, Willie indicates that it took 10-15 years to set up the organic food regulations, and this long period allowed for a number of groups to participate in debates to develop the regulations. He is in the end pleased that the rules are rigid and believes that the lengthy process ensured the rigidity if the rules.

I would say that I don't have a strong (negative) feeling about the regulation. You know, um...I'm also a little bit interested in the organic certification issues and uh...well, it's just kind of interesting to look at...the way, uh, organic certification has been set up in the United States. I think at this point it's very rigid and very, uh, and uh...I understand how it got there I think in terms of people who instituted that and worked very hard and that took many, many years for them to get to that point. And, it's...things were...have been debated quite a bit in the last 10 or 15 years. Uh, and...I think it was 1996 when the first guidelines were issued by the USDA and were pretty much rejected by the organic producers. Well...Because it was not rigid enough. Then more debates were done and finally they (regulators) felt like they had a very clear idea of what it was.

## DISCUSSION

This paper has dealt with two main areas. On the theoretical side, we study consumer trust and distrust in social institutions of the food system, and on the pragmatic side, we aim to provide consumer input for the debates surrounding genetically modified foods. As noted earlier, many scholars and experts have argued that consumer trust in social institutions is the most important determinant for the future of food biotechnologies. The research has numerous theoretical and practical contributions. It is one of the first macro-level trust studies in our discipline. Most research to date has dealt with micro-level trust (trust between specific marketers, or trust between consumers and specific marketers). This research is also pioneer in that it deals with the concept of distrust separately from the concept of trust. Further, it empirically provides three-dimensions within which distrust in social institutions can be

viewed. In the following sections we detail the significance of the study, offer concluding remarks, implications, and directions for future research.

*Discussion on Institutional Trust and Distrust:* The findings suggest that public trust in various social institutions may be conceptually different, coming from different domains. For example, when an informant says "I trust government" this, according to the findings, is not exactly same as when he/she says "I trust farmers." In other words, trust in government and trust in farmers may come from two different directions, while the source of trust in government is mostly confidence based (and therefore, based mainly on direct experiences), trust in farmers is largely faith based (based on indirect experiences, perceptions, and inferential beliefs). This finding is important and should have implications for research that aims at "measuring" public trust in social institutions.

Secondly, the finding that informants trust various social institutions based on different domains may suggest different strategies for these institutions to reinforce public trust. For example, since trust in government has been mainly identified as confidence based (and therefore, based on direct experience and exposure with the government's activities), it may become crucial for governmental agencies to have direct and clear communication with the public in policy design and implementations. Encouraging the public's direct participation during the policy debates, and communicating the results of enforcements with the public (in the form of product recall, bans, and so forth) appear to be effective strategies government agencies can use to enhance public trust.

The findings with respect to distrust in social institutions are important for many reasons. First, as argued earlier very little attention has been paid to the concept of distrust. In addition, most research has treated trust and distrust as mutually exclusive constructs (conceptualize distrust as the negative of trust and assumed low levels of trust would indicate distrust). Our findings suggest that this notion in fact may not be correct and individuals can have both trust and distrust toward the same target at the same time. The idea of simultaneous existence of trust and distrust has been conceptualized (e.g. Lewicki et al 1998; Luhmann 1979), but relatively little empirical evidence had been produced in its favor.

We believe this study is one of the first empirical studies that deals with the concept of distrust. The qualitative nature of the study makes it even more useful in that it empirically identifies three dimensions (in the form of consequences) of distrust within which social institutions of the food system can be viewed. From a practical point of view, identification of these dimensions could potentially help design strategies to reduce citizens' distrust in various institutions.

*Discussion for the Consumer View of GMF Debates:* In the last part of the results section, we tried to provide some consumer input to the debates surrounding GMF. Our findings suggest that both sides of these debates should listen to consumers carefully as they (the consumers) do not share either group's views completely.

First of all, it is very important to make a distinction between health-related concerns and other (social, economic, ecological, moral, etc.) concerns consumers have about GMF. This, in turn, would mean that regulatory agencies should broaden their scope of what is a reasonable regulatory regime for GMF. As argued earlier, we do not agree with the current view that the American public distrusts the regulatory agencies in their dealings with GMF and other food safety issues as Europeans distrust their governments on the same issue. However, we agree with the view that public administrators should reexamine the regulatory posture on GMF and begin to consider other options (such as the precautionary

principle) for GMF regulations. This way, the government can respond to the broader public concerns about GMF that include social, political, ecological, and moral issues.

Our study suggests that open communication with the public would enhance citizens' trust in the government in handling issues related to the safety of genetically modified foods. As can be recalled, informants' trust in the government is identified mainly as competence/assurance (CA) based and therefore, their trust in the government is largely due to their direct experiences with the government's handling of food safety issues. For example, consumers believe that government is "able" to enforce rules, recalls, have sufficient regulations, and rely on results of extensive research for making decisions about food safety. With respect to the charge that regulatory agencies are slow in responding to new situations (realities), it would be possible for the government to overcome such views by making the regulatory process open and transparent to the public. This could allow consumers to have first hand experience with the process, and help them appreciate the length and the difficulty of trying to regulate subjective issues such as GMF.

We further suggest that the European experience should be taken very seriously by the US regulatory agencies and the biotechnology industry. First, the findings of this study suggest that the informants do not have fear-inducing distrust in the government. In Europe, due to numerous and widespread food and health scares (from the Chernobyl disaster to mad cow disease), citizens have developed a —what we call—fear-inducing distrust in regulatory agencies. As a result, they have demanded immediate labeling and/or moratoriums on GMF products. Second, the experience of GM foods in Europe should demonstrate that communication about matters of great concern to consumers cannot be a one-way street. Consumers may not be educated on the details of the biology or the gene technology behind GM foods, but as this study suggests, they are capable of understanding issues (e.g., about health or environmental risks), and they resent being treated in a condescending fashion. We also argue that the informants for numerous reasons appear to trust their regulatory agencies (and to the manufacturers to a lesser extent). We therefore suggest that if manufacturers of GM foods and the government expect consumers to (continue to) trust their decisions about GMF, they will have to listen to consumers more and treat consumers or their representatives as equals in the debates about the nature and magnitude of the risks posed by GM foods. As argued earlier, such treatments (inclusion of consumers in the debates) would boost consumer confidence in the decision process that sometimes can take years or even decades.

The findings of this study also suggest that consumers demand labeling of GM foods. Despite protests from the biotechnology industry, there appears to be an emerging worldwide consensus that GM foods should be labeled to allow consumer to choose whether or not to purchase such foods. Even many observers who generally support the greater availability of GM foods believe that the industry could eliminate a great deal of needless controversy if it would simply place a discrete label on GM foods (Reaburn 1999). In addition to the "right to chose" issue, we found that consumer may also want labeling in order to feel less powerless against the biotechnology industry. The decision to require labeling, however, is not the end of the matter. Difficult questions concerning the content of the label and the kinds of GM foods to which the labeling requirements would apply must still be answered. This research, in its current form, is not designed to provide answers to such detailed issues about labeling. We hope to provide consumer input for labeling details in future studies.



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