

# Consumer Food Safety Perceptions

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Consumer confidence in the safety of food in the supermarket has increased in the last ten years. In 1989, 81% were mostly or completely confident in the safety of food in the supermarket. By 1992, confidence dipped to 72%. It gradually increased to 83% in 1997 (Abt Associates, 1997; Opinion Research, 1990).

## Comparison of Food Safety Concerns

Microbiological contamination is consumer's greatest concern, followed by chemical contamination, such as pesticide or animal drug residues. Nationwide surveys by the Food Marketing Institute indicated more people volunteer concerns about microbiological hazards than any other potential food safety issue. From 1992 to 1997, volunteered concern about microbiological safety increased from 36% to 69% (Abt Associates, 1997). When concern about contamination by bacteria or germs was specifically asked, 82% acknowledge it as a serious hazard. More consumers consider this a serious hazard than any other potential food risk.

Although pesticide residues continue to generate concern among a large segment of the population, only 65% ranked it a serious hazard in 1997, a significant decrease from 82% in 1989.

Concern about other food safety areas has also decreased. Those expressing serious concern with antibiotics and hormones used in poultry or livestock decreased from 61% in 1989 to 43% in 1997. Those rating the use of nitrites in food as a serious hazard decreased from 44% in 1989 to 28% in 1997. Those rating use of additives and preservatives as a serious hazard decreased from 30% in 1989 to 21% in 1997.

Natural toxicants seldom generate high levels of concern. Natural is often equated with safe and wholesome. In a California survey, people were surprised when they heard that common foods like peanut butter or organic apple juice may contain natural toxins (Bruhn et al, 1998). That pesticides or herbicides may prevent the development of hazardous natural toxins was new information and not believed by some consumers.

## Pesticide Concerns

Concern about pesticide or herbicide residue contamination seems logical since these chemicals are used for their toxic effect. Several attitude studies noted that concern about residues was higher among those with lower income and less formal education (Packer, 1992; Center for Produce Quality, 1992; Eom, 1992). Consumers with less than \$15,000 income were willing to pay a higher price premium to reduce the risk of pesticide residues, \$0.83 per unit

compared to \$0.64 and \$0.58 per unit among persons with income of \$15,000-45,000 or more than \$45,000 (Eom, 1992).

Concern also could impact produce consumption. In anticipation of a report from the National Academy of Science, consumers were asked what they would do if pesticide regulations were considered inadequate to account for Children's risks (Center for Produce Quality, 1992). Most consumers, 93%, indicated they would wash produce better, many, 63%, would peel skin off produce, however 15% said they would reduce the amount of produce served. This response, which is not consistent with recommendations to increase the consumption of fruits and vegetables, was highest among those with the lowest income. Of those with income less than \$15 thousand per year, 33% said they would reduce produce served, compared to 8% among those with income above \$50,000. Less formal education was also related to the tendency to reduce produce consumption, with 20% of those with a high school education or less reporting this response, compared to 8% for those with post graduate schooling. Response also differed by race with 25% of non-Caucasians indicating they would reduce consumption compared to 12% of Caucasians.

Concern centers on personal health and environmental risks (Bruhn et al, 1992a; Chipman et al, 1995). Consumers generally believe that pesticides are overused in agriculture. Urban consumers are more likely than farm families to believe that not enough is being done to reduce pesticide use. People also believe they had little personal control over their own exposure to pesticide residues (Chipman et al, 1995).

## **Addressing Pesticide Concerns**

Some believe organic production is the most appropriate response to consumer concern. Many consumers perceive organic as a pesticide-free production method (Jolly et al, 1989). Recommendations developed by the National Organic Standards Board and the USDA proposal indicate that organic is not a pesticide-free claim, but rather a system of managing crops and livestock which emphasized natural feeds, medications, pest control methods and soil inputs (Food Chemical News, 1996). It will be interesting to see if this concept is acknowledged in marketing and if consumer attitudes change based upon a more accurate understanding of organic production.

Messages advising consumers to wash or peel produce were not effective because they did not completely address consumer concern (Bruhn et al, 1992a). Focus group research indicates people want to know the risks and benefits of chemical use, how a problem is being addressed, and what options were available (Chipman et al, 1995). A simple message, here are the risks and benefits, you decide, with no options presented was not acceptable because it provided too little information. Also unacceptable was the message, "don't worry, the risk is minimal." People were angry at this style and equated it with a "big brother" approach.

When consumer concerns are acknowledged and information provided on how risks are being addressed, consumer outrage is reduced. This was applied in a California study which exposed consumers to information on the environmentally responsive integrated pest management approach to farming. This communication approach resulted in significant change

in attitudes toward food safety, farming practices, and university efforts to help farmers (Bruhn et al, 1992b).

## **Biotechnology**

Consumers are receptive to new technologies which offer benefits. Although few consumers are knowledgeable about biotechnology, many have heard of the technology and consumer attitudes are generally positive. Studies conducted by the Food Marketing Institute indicate a very small percentage of consumers express serious concern about biotechnology. In a 1997 study, almost 80% of Americans said they were aware of biotechnology, more than half (54%) said biotechnology has already provided benefits to them, and 78% predicted they will benefit from biotechnology in the next five years (IFIC, 1997). Nearly half of survey respondents realized foods produced through biotechnology were already in supermarkets. Almost two-thirds, 62% indicated they were very or somewhat likely to buy a product modified to taste better or fresher with 17% of these very likely (Abt Assoc., 1996). Additionally 74% were very or somewhat likely to buy a product modified to resist insect damage and require fewer pesticide applications.

Response to biotechnology internationally is varied. Most Australians believe genetic engineering is a "good idea" with as many as 90% supporting medical and environmental applications, 80% interested in tastier foods, and about two thirds indicating they will eat products modified by biotechnology (Kelly, 1995). Almost all, 93%, Japanese consumers interviewed believed biotechnology will provide benefits to them or their family in the next five years, with the greatest interest in environmental applications (Hoban, 1996).

When asked about the severity of potential food risks, 44% of Europeans considered genetic engineering a serious risk (Tordjman, 1995). This is about in the middle of potential food risks, with bacterial contamination at the top with 85% of consumers and sugar at the bottom with 12%. Response varies by individual countries with more consumers in Scandinavian countries, Germany, and Austria perceiving biotechnology as risky compared to other countries (Hoban, 1997). With the exception of Austria and Germany, half or more European consumers indicate they would purchase a product modified by genetic engineering.

## **Effect of Biotechnology Information on Attitudes**

To test the effect of information on attitudes, the Center for Consumer Research produced a ten minute video tape which addressed questions previously identified as important (Bruhn and Mason, 1996). The video draws an analogy between traditional practices of plant selection and breeding and more specific and controlled techniques of recombinant DNA technology, and highlights potential uses of rDNA technology to enhance healthfulness of food products, improve taste, or produce food crops in a more environmentally benign manner. Concerns that these changes could generate new risks and the existence of a regulatory framework to address and control risks are mentioned. The video was shown to over 300 consumers in California and Indiana.

Consumers were initially positive toward biotechnology, with 66% believing biotechnology offered society some or a lot of benefits. After viewing the video this percentage increased to 96%. Before the program, 46% felt biotechnology presented society with potential risks. After the program this increased to 68%. This is consistent with the video message in which it is acknowledged that any process involves both risks and benefits. The percentage of participants that felt biotechnology would have a positive effect on human health and well being increased from 72% before the program to 90% afterwards.

## **Influences on Consumer Perceptions**

Concerns are shaped by the media, the food industry, and the consumer's own knowledge and perception. Surveys indicate people obtained most of their information about food safety from the media with television first followed by newspapers and magazines (Bruhn et al 1992; Hoban, 1994; Hoban and Kendall, 1993). Other people were also a significant source of information. Many people were skeptical about stories in the media and evaluated information sources to judge credibility. Consumers consider how frequently they heard a message, the credibility of the source, and if the information was reasonable to them.

Trusted sources are described as knowledgeable, concerned with public welfare, truthful, and with a "good track record." Less credible sources are characterized by exaggeration, distortion, and vested interest (Frewer et al, 1996). Consumers considered health authorities, such as the American Medical Association or the American Dietetic Association, as the most credible, followed by university scientists and regulatory groups like FDA. The food industry, activists groups, and retailers were considered least credible (Bruhn et al 1992; Hoban, 1994). No source was believed by everyone.

## **Conclusion**

Consumers are concerned about the environment as well as personal health and safety. People make reasonable judgments based upon the information they receive and their personal value system. We need to find interesting ways to demonstrate that scientists and farmers share the same concerns as the public and are working to produce safely in an environmentally sound fashion.

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