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Midwest Consumers' Beliefs and Attitudes Regarding Agricultural Biotechnology: An Executive Summary

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INTRODUCTION

As part of a project investigating the social, economic, and ethical issues related to the application of biotechnology to food production and to the adoption or rejection of genetically modified organisms (GMOs), we conducted a survey using a questionnaire mailed to a randomly selected sample of consumers in five Midwestern states—Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin. This report highlights the responses of the 458 respondents to that completed and returned questionnaire.

CONCERN ABOUT THE SAFETY OF BIOTECHNOLOGY FOOD

In the survey, we sought to determine the extent to which potential consumers were concerned about the safety of food generally and biotechnology food specifically. The issue of food safety was addressed in several ways: consumers were asked if they were concerned about food safety, if they worried about food safety, and finally if food safety was a major concern. The overwhelming majority of respondents gave affirmative responses to all three items.

However, that concern did not necessarily translate into a major concern with biotechnology food. Consumers were asked in several ways about the safety of food produced

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through biotechnology: they were asked if food produced through biotechnology was safe, if eating biotechnology food was safe, and if eating biotechnology food frightened them. In general only about one in five indicated any concern at all about biotechnology food. About half indicated they were not concerned about the safety of these foods and the remainder gave neutral responses to the items.

Clearly, the great majority of respondents are concerned about food safety. However, only a very small minority of them have a concern about the safety of biotechnology food.

TRUST IN INFORMATION ABOUT BIOTECHNOLOGY

A second topic on which we focused was the trust that potential consumers have with respect to information they receive concerning biotechnology and the sources of that information. We asked questions about this topic in two different ways. We first asked about their overall trust in potential sources of information about biotechnology. We asked about their trust in university scientists, in the Food and Drug Administration, and in public health officials in general. The overwhelming majority trusted all three; for each of the three, at least two out of three of the respondents indicated trust.

We then asked to what extent they trusted these three if the three had taken a position supporting biotechnology. While the level of trust was not quite as high when these sources had taken a position, it was still substantial. For all three, at least half of all respondents expressed trust. And in most cases, the remaining respondents did not indicate distrust, they were merely ambivalent. No more than one in five expressed distrust in any of these three sources after a pro-biotechnology position had been taken.

INFLUENCES ON THE PERSONAL ACCEPTANCE OF BIOTECFHNOLOGY

People are often influenced by decisions made by organizations, agencies, and family and friends. To determine the extent to which such influences affect the consumer's

acceptance of biotechnology, we asked these respondents if they would go along with an indication of approval of biotechnology by potential sources of influence.

Two entirely different sets of responses are evident. Support by university scientists, the Food and Drug Administration, and public health officials were salient to most of these respondents. Most respondents (at least one out of two for all three sources of potential influence) would go along with the support of these three potential influences. A further two out of ten are ambivalent about the support indicating the support of these three is not crucial in their decision to use biotechnology. Finally, only about two out of ten would refuse to go along with the support for biotechnology offered by these three influences.

An entirely different pattern can be seen with respect to family and friends. No more than one out of three respondents indicated they would go along with the support of biotechnology by family or friends. Another one out of three responded the support of these potential influences was not crucial in their decision about biotechnology.

It seems clear that with respect to influences on the acceptance of biotechnology, approval from individuals or agencies that supposedly have more information about biotechnology was important to more of these respondents than was approval from family and friends.

THE ACCEPTABILITY OF BIOTECHNOLOGY APPLICATIONS

The range of potential applications to which bioengineering can be applied is large. We assumed that the range of the acceptance to these applications might also be large. To investigate this possibility, we developed a set of potential applications for biotechnology and asked the respondents to indicate to what extent the applications were acceptable. We included food related applications and well as non-food related applications.

A clear pattern is apparent from the answers provided by these respondents. The respondents were much more likely to accept genetic modification of non-food crops than to accept genetic modification of food crops. Depending on the specific application, anywhere from two out of three to seven out of ten of these respondents declared the genetic modification of non-food crops to be acceptable. They accepted genetic modification of non-food crops to resist insects, to make them resistant to plant diseases, and to resist weed killing chemical spray.

The application of genetic modification techniques to food crops was much more problematic for these respondents. With a few exceptions, these respondents were split approximately evenly into three categories of acceptability of applications; roughly one in three indicated they were acceptable, one third were unsure, and one in three indicated they were unacceptable. The applications characterized by this split were the genetic modification of food crops to make them resistant to diseases, genetically modifying food crops to resist weed killing chemical spray, genetically modifying food crops (by inserting anti-freezing genes from artic fish) to extend their growing season, genetically modifying food crops (by inserting human genes) so they could be used as edible vaccines and human disease treatments, genetically modifying pigs to make them grow more rapidly with more protein and less fat, genetically modifying chickens to produce low-cholesterol eggs, genetically engineering salmon for faster growth, genetically engineering cows and goats to produce milk useful in treating human diseases, and deactivating genes in pigs to facilitate the use of pig organs for human transplant.

The two food related applications not characterized by this split were modifying food crops to make them more resistant to diseases and modifying food crops to increase their vitamin and mineral content. And even for these two, only a bare majority (52% for the former

and 55% for the latter) found them acceptable. The remainder were uncertain or found the applications unacceptable.

ATTITUDES, VALUES, AND BELIEFS ABOUT BIOTECHNOLOGY

An additional topic on which we focused was the attitudes, values, and beliefs of consumers concerning GM crops. We asked about the inherent nature of genetic manipulation, the desirability of limits of genetic manipulation, the importance of informed choice by consumers, the implications of the spread of genetically manipulated organisms, and the control of genetic technology.

The Inherent Nature of Genetic Manipulation. Many of these respondents viewed genetic manipulation from a practical standpoint. Only about one in four responded that genetically engineered organisms were good since they represented the latest in scientific advancement. Further, about half responded that they felt that naturally occurring crops were preferable to genetically engineered. Despite these responses indicating a less than enthusiastic endorsement of genetically manipulated organisms, three out of four responded GMOs were not inherently good or bad. Rather, they indicated GMOs should be judged in terms of their outcomes.

The Desirability of Limits of Genetic Manipulation. Even though these respondents are pragmatic in terms of the use of GMOs, they preferred controls on their use. Six out of ten wanted limits on genetic manipulation of crops and seven out of ten desired controls on the genetic manipulation of animals. Finally, more than eight out of ten would allow the release of genetically modified crops only if there was absolute confidence there is minimal risk associated with their use.

The Importance of Informed Choice by Consumers. When asked about the right to choose or reject GMOs, about six in ten respondents agreed that consumers should have the

right to make their own choices. And these respondents wanted their choice to be an informed one; nine in ten of these respondents agreed that consumers have a basic right to know if their food contains genetically modified ingredients.

The Implications of the Spread of Genetically Manipulated Organisms. We asked about both positive and negative implications of the spread of GMOs. Only about four in ten of respondents agreed that GMOs should be promoted in developing countries to improve the incomes of farmers, while a similar number took no position on the issue. About half of the respondents agreed GMOs should be promoted worldwide to feed the hungry. However, there was concern about the power implications of the spread of GMOs; four in ten felt their worldwide spread unfairly increased the power of corporations relative to farmers.

The Control of Genetic Technology. Summarizing the issue of control of GMOs is difficult because there seems to be some inconsistency in the responses of these respondents. On the one hand, half responded that corporations should be allowed to patent their genetic innovations. Further, only one in three responded that seed genetics should be made freely available to the public. However, only one in four responded that corporations should have the right to prevent farmers from saving GMO seeds and planting them year after year. Further, more than six in ten felt that the choice to plant GM crops should be made by farmers and six in ten responded farmers should have the basic right to plant GM seeds if they wished.

PERSONAL CHOICES CONCERNNG BIOTECHNOLOGY

To get a sense of the hierarchy of values pertaining to genetic manipulation, we presented the respondents with a set of hypothetical situations and asked them to make choices. The respondents were instructed to assume that two versions of a food product – one labeled as containing GM ingredients and the other labeled as having non-GM ingredients -- cost the same. After the purpose of the GM ingredient was identified, the respondent was

asked to indicate the extent to which he or she would seek to purchase the food with the GM ingredient. The results were surprisingly consistent. For all eight scenarios, at least seventy percent of the respondents indicated he/she would seek out foods with the GM components. In other words, at least seven out of ten respondents would: (1) seek food containing GM ingredients designed to eliminate the need for herbicide spray; (2) seek food containing GM ingredients designed to resist insect pests; (3) seek food containing GM ingredients designed to improve the product's taste; (4) seek food containing GM ingredients designed to enhance the product's texture; (5) seek food containing GM ingredients designed to preserve the product's shelf life; (6) seek food containing GM ingredients designed to improve the products' cooking or baking qualities; (7) seek food containing GM ingredients designed to increase the product's nutritional value (e.g., by adding vitamins or minerals); and (8) seek food containing GM ingredients designed to provide a pharmaceutical treatment for a disease.

PERSONAL INVOLVEMENT WITH BIOTECHNOLOGY ISSUES

Finally, we asked about personal involvement in biotechnology issues. We asked about the nature of discussions the respondent might have had about GMOs and also about medical conditions that might ultimately be treatable with genetically engineered organisms.
When asked about discussing the topic with others, two out of three indicated they had not. For those who had, no more than one in three had been involved in conflicts over the topic. When asked about the emotional tone of the discussions, less than three in ten of those who indicated they had discussed the topic indicated any tension in the conversations. As for the medical conditions, less than ten percent indicated they currently suffered from a medical condition that might be treatable with genetically engineered organisms and about 15 percent indicated a family member or friend suffered from such a condition.

CONCLUSION

Several themes are apparent in these consumer responses to questions about agricultural biotechnology. First, while most had thought about the safety issues of biotechnology, they were not particularly concerned about its safety. Second, there seemed to be a substantial reservoir of trust in public agencies providing information about biotechnology. These respondents were more likely to be influenced by such agencies than by family and friends. Third, consumers tend to take a pragmatic approach to the use of agricultural biotechnology. Most do not believe GMOs are either inherently good or bad. Rather, they believe GMOs should be evaluated by their outcomes. Fourth, while they are much more likely to accept genetic modifications of non-food organisms than food related organisms, they will not consciously avoid foods with GM ingredients that have specific designed purposes. Consistent with this view is the importance of informed choice. They believe consumers should be able to choose to use or not to use GMOs from among products that are labeled has having genetically modified ingredients. Fifth, while they have an over-all positive orientation toward genetic manipulation, they do want some controls to ensure safe use of GMOs. Finally, they are somewhat inconsistent with respect to the intellectual propriety aspects of genetic manipulation. On the one hand, they tend to believe those who develop GMOs should have the right to patent their innovations. On the other, they believe farmers should make the choice about planting genetically modified seeds and that farmers should have the basic right to plant those seeds.