

Workshop Recommendations

Improving Food Safety Through Biotechnology

Improving Nutritional Quality Through Biotechnology

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Safety of Biotechnologically-Derived Foods and Food Ingredients

Improving Communication on Biotechnology

Following two days of intense discussion and sometimes vigorous disagreement, participants in each workshop identified several major issues and key topics needing additional research and presented specific recommendations to the entire group on the last morning of the meeting. There was more consensus generated in each workshop than might have been expected given the diversity of each group. Many similarities in the findings and recommendations can be found in the four workshop reports. Summarized here, these reports are presented in full in the next section of this publication, and represent the major contributions of the NABC meeting.

Readers are encouraged to address the issues raised and implement those recommendations relevant to them.

Improving Food Safety Through Biotechnology

Procedures to detect and identify pathogens at the earliest possible stages should continue to be developed.

New and rapid methods are needed for detection and identification of naturally-occurring toxicants since the importance and significance of these toxicants will increase as the spectrum of these toxicologic properties is determined.

Need to support research and development efforts to identify genes that regulate and produce naturally-occurring toxicants, allergens and antimetabolites. Molecular genetic technologies should be applied to reduce or minimize risks from these toxicants. There is a need to facilitate detection and identification of contaminants by development of specific, rapid, sensitive and reproducible analytical methods including more efficient, labor-saving and cost-effective testing procedures.

Carefully monitor and evaluate food plants modified by molecular procedures, as is done in traditional plant breeding, so that other properties such as appearance, flavor, texture, aroma, keeping quality, nutrient content and toxicity are not adversely affected.

The food risk—biotechnology matrix (see workshop report page 36) should be elaborated further and used to evaluate the efficacy of biotechnology for reducing each food-related risk.

Development of practical and workable standards is a very important aspect of assuring the safety of products derived from biotechnology.

Consumers should be empowered to participate in the process of biotechnology product development through advisory councils and committees, national mediation institutes or other formal structures.

Well-targeted allocation of resources to research—both in the public and private sectors—will provide cost-effective improvements in the safety of the food supply through biotechnology.

Commercial adoption and diffusion of biotechnology products will depend on the risk assessment process, the promulgation of state, federal and scientific standards and how effectively information is shared with the public.

Improving Nutritional Quality Through Biotechnology

- The application of biotechnology for improving nutritional quality must be tailored to the specific needs of the target population.
- Food choices by individuals and households are major factors affecting the nutritional quality of diets in the United States which has an abundant, varied, and a highly nutritious food supply. Inappropriate food choices and limited access caused by lack of economic resources result in poor quality diets for many people.
- There are significant limitations in our understanding of the details of the ideal nutritional profile for individuals of different ages, gender, health status, economic status, and genetic makeup. Biotechnology's ability to produce changes currently exceeds our capacity to predict the utility and significance of those changes within our diet.
- Biotechnology has the ability to affect the nutritional profile of major foodstuffs, and thus to improve diets without requiring changes in food choices.
- Entrance into the market of biotechnologically-derived food products could have a secondary impact on nutritional quality by affecting dietary choices. The resulting nutritional impact could be positive or negative, depending on the overall dietary effect.
- Labeling of biotechnologically-derived food products will be an issue of considerable public interest. There should be a mechanism (ideally, a national forum) to debate all sides of this issue and to recommend a national policy.
- Existing regulations appear to be adequate to deal with most issues involving biotechnologically-derived food products and related technical changes in food production and manufacturing in terms of their impacts on nutritional quality.
- High priority should be given to building public knowledge and understanding of biotechnology. The public can then make informed choices which will ease pressure on regulatory and policy agencies.

Biotechnology offers certain advantages over conventional means of enhancing the nutritional quality of foods. However, cost considerations and consumer acceptance of biotechnologically-derived foods must be carefully assessed.

Five highest-priority nutritional quality objectives are:

- 1) Decrease total fat in the diet and improve the fatty acid profile of foods.
- 2) Develop effective nutritional education and consumer information delivery strategies.
- 3) Identify and characterize unintended/unknown nutritional changes that may result from the introduction of biotechnologically-derived foods.
- 4) Develop specific foods with increased or decreased levels of selected nutrients to meet needs of subpopulations with specific nutrient requirements.
- 5) Decrease anti-nutrient content and increase phyto-genic substances of health significance (“protective substances”) in foods.

Safety of Biotechnologically-Derived Foods and Food Ingredients

Each food product, whether or not it involves biotechnology, generates particular safety questions which must be addressed. The scientific and regulatory communities have the capabilities to evaluate the safety of new food products using existing procedures.

Data requirements for safety decisions—the concept of a decision tree can be used to determine the amount and nature of data that should be required to make assessments about the human safety of biotechnologically-derived foods and food ingredients is endorsed (see workshop report, page 53).

Opportunities for involving the public in dialog on food safety issues should be encouraged.

Post-approval labeling which would allow consumers to make informed decisions needs thorough discussion.

Increased coordination and consistency between federal regulatory agencies is needed and urged.

Harmonization and coordination of state and federal regulatory processes, understanding that harmonization does not necessarily imply standardization, should be undertaken. The federal government should play a leading role in those discussions. There should also be movement towards international harmonization of data requirements, safety standards and regulations.

Improving Communication on Biotechnology

Acknowledge the legitimacy of a broad set of values. Concerns about the use of biotechnology in food production are not likely to be resolved if all but the most “scientific” perspectives are discounted.

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Promote conversation with more than one voice. A distinction must be made between discussion and monologue.

Discussion about biotechnology is clearly desirable, and should take place in settings where a broad set of perspectives can be aired, considered, and used to guide reasoned human action.

Work towards a national strategy for biotechnology. A forum at the federal level should be established and constituted so as to be broadly representative of the stakeholders in agricultural biotechnology.

Promote discussion about agricultural biotechnology at many levels. Forums for information exchange and discussions should be established at the state and local levels. Credible regional clearinghouses for information about agricultural biotechnology need to be developed.

Encourage communication between the media and researchers. Take steps to train scientists to responsibly handle media inquiries, and reciprocally, to provide opportunities for journalists to increase their knowledge about agricultural biotechnology. Extension units of land-grant universities should be encouraged to further address issues related to biotechnology.

Strengthen all citizens' knowledge about the diverse issues related to biotechnological innovation. Strengthen the teaching of basic bioscience at all levels, the integration of biotechnology into science curricula, and continuing

education for teachers in the areas related to biotechnology.

Acknowledge the importance of effective public relations efforts, but avoid substituting public relations for other communications activities. Stakeholders who use public relations as a tool for shaping public opinion should continually scrutinize the ethics of their efforts.

Promote care and consistency in terminology. A brief but readable glossary of terms would be a useful companion for future meetings, and might also be useful for school teachers, the media and others.

Encourage multidisciplinary research on communications about agriculture-related biotechnology.

Part Two contains the full text of the four workshop reports.

