

## **Composition of Altered Food Products Should Be Basis for Federal Safety Assessment** *New Report Released by the National Academy of Sciences*

According to a report by the National Academy of Sciences' (NAS) Institute of Medicine, federal agencies should assess the safety of genetically altered foods -- whether produced by genetic engineering or by other techniques -- on a case-by-case basis to determine whether unintended changes in their composition could adversely affect human health.

Adverse health effects from genetic engineering have not been documented in the human population, but the technique is new and concerns about its safety remain. The U.S. Department of Agriculture, the Food and Drug Administration, and the U.S. Environmental Protection Agency commissioned the NAS to:

1. Assess the potential for adverse health effects from genetically engineered foods compared with foods altered in other ways;
2. Provide guidance on how to identify and evaluate the likelihood of those effects.

"All evidence to date indicates that any breeding technique that alters a plant or animal -- whether by genetic engineering or other methods -- has the potential to create unintended changes in the quality or amounts of food components that could harm health," said committee chair Bettie Sue Masters, Robert A. Welch Foundation Distinguished Professor in Chemistry, University of Texas Health Science Center, San Antonio. "The possible impact of such compositional changes should be examined on a case-by-case basis to determine whether and how much further evaluation is needed."

According to the report, "genetic modification" is defined as the broad array of breeding techniques -- ranging from traditional cross-breeding to genetic engineering to the use of chemicals or radiation -- used to alter plant and animal traits that can be inherited from one generation to the next; "Genetic engineering" refers to a specific type of alteration that uses molecular biology techniques to delete genes or to transfer genes for particular qualities from one species to another.

Genetic engineering is not an inherently hazardous process, the report says, but the resulting food should be examined to determine if the inserted genes produce toxins or allergens. Unexpected changes are more apt to occur if genetic material is transferred between distantly related species. Because all methods can cause these changes, the committee concluded that attempts to assess food safety based solely on the method of breeding are "scientifically unjustified."

The report offers a framework to guide federal agencies in selecting the route of safety assessment. A new genetically modified food whose composition is very similar to a commonly used conventional version may warrant little or no additional safety evaluation. But if an unknown substance has been detected in a food, a more detailed analysis should be conducted to determine whether an allergen or toxin might be present. The committee cautioned that more research is needed in the ability to predict whether such changes will cause adverse health effects.

To review the report in its entirety, go to <http://national-academies.org>