

## **Abstract**

Integrating Safety and Nutrition Research along the Food Chain: The New Challenge  
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### **Consumer attitudes to novel enzymatic technologies**

The use of enzymes can be of great help in modern industrial food production as it can be used both for tailoring the structure and sensory properties of foods. However, consumers' attitudes to products manufactured with the use of enzyme technology may differ according to the production technology used; i.e. whether the enzyme is produced in GM-plants, GM-microbes or traditionally using non-GM production methods. There has been much public debate about GM but not about enzymes.

From a theoretical perspective attitudes to technologies such as enzyme production methods may be formed in two different ways. Attitudes may be formed in a top-down manner based on general attitudes, e.g. to the environment, technology and industrial food production. Furthermore, attitudes may also be formed by the knowledge and information, which consumers have about enzymes from the media or from products.

The first consumer study in this project investigated how information about different enzyme production methods and public participation in the evaluation of enzyme production methods can affect consumers' attitude formation. Furthermore, the study investigated how consumers form attitudes to different enzyme production methods and what impact these attitudes have on the intention to buy food products where these methods have been applied.

The study was carried out with a total of 1200 respondents in three EU countries: Finland, Germany and Italy. Results show that across all three countries respondents are most positive towards the non-GM plant enzyme production method and most negative towards GM enzyme production methods. Attitudes are primarily formed in a top-down manner where general attitudes to technology and environment are strong predictors of attitudes to enzyme production methods. Regarding intentions to buy bread, ice cream and pasta produced with the use of enzymes, results show that the nature of the enzymatic production method (GM or non-GM) overrides both price advantages and product and process benefits. This indicates that at present the acceptance of products manufactured with novel enzymes is more dependent on consumer acceptance of genetic modification as such, than on the obtained benefits.

A second consumer study, to be carried out in 2005, will investigate the effects of direct product experience on intentions to buy model food products manufactured with the use of enzymes. This experimental study includes a product trial where respondents taste products manufactured with or without enzymes.