Consumers adverse to GM food may shun nano-enabled goods, researchers suggest

10 Jun 2020 --- Consumers that hold negative opinions of genetically modified (GM) food are likely to feel the same way about nano-enabled food – food with nano-additives to enhance flavor, nutrition or prolong shelf life. This comes as the latest finding from a survey at Singapore-based Nanyang Technological University (NTU) and the Harvard T. H. Chan School of Public Health (HSPH). Consumers' blanket rejection of scientific breakthroughs in food science may hinder future innovative potential, the researchers concur.

"GM crops are widely produced and sold in Asian countries such as China, India, Japan, the Philippines and Indonesia. One of the key promises of genetic engineering is that it will help to meet the world's growing demand for food by boosting crop growth," Shirley Ho, Lead Investigator and Associate Professor at NTU, tells ***FoodIngredientsFirst***.

In a survey of 1,000 respondents led by NTU comprising adult Singaporeans and permanent residents, close to a third found GM food unappealing, and their negative feelings influenced how they viewed nano-enabled food. Over a third felt neutral about GM food, while the remaining respondents welcomed it.

While the study focused specifically on reactions toward nano-enabled foods, Professor Ho said that the "spillover effect" they observed from GM food to nano-enabled food could possibly extend to other novel food technologies as well, given that mental associations that people make between similar technologies have shown to influence their behavior toward a newer technology. This represents a cause for concern for policy makers as Singapore invests in food science and technology as one of its strategies to bolster food security.

With the COVID-19 outbreak extending into the second quarter of the year, the Food and Agriculture Organization of the United Nations (FAO) has warned of global disruption in food supply brought about by movement restrictions and border controls in a protracted crisis. Already in February, pandemic concerns contributed to a World Food Price dip.

The global pandemic has thrust the issue of food security and the necessity to explore cutting edge research in novel food technologies into the spotlight, says Professor Ho.

"The COVID-19 pandemic has highlighted the importance of food security for a small country like Singapore, which imports more than 90 percent of its food consumed in the country. We don't have the problem of a disrupted food supply yet, but we have to anticipate the possibility," she suggests.

"Our study is a timely examination of the public's reactions toward novel food technologies. We may soon be able to make food last longer with the help of science, or dine on lab-cultured meat, but all these would be futile if a sizable group of people reject these new food innovations," she explains.

"This study highlights the challenge in communicating safety of new food technologies as innovations advance to meet global food needs for a growing world population," adds Dr. K. Viswanath, Lee Kum Kee Professor of Health Communication at Harvard T.H. Chan School of Public Health and a co-author on the paper.

Tech-enabled food faces adversity

To study public opinion on engineered food, the NTU-Harvard team first surveyed 1,000 Singapore citizens and permanent residents on their thoughts on GM food – for instance, asking whether they consider it to be delightful, nutritious, fresh and appealing. Close to a third, or 305 respondents, showed unfavorable attitudes towards GM food.

The team then investigated how the respondents' pre-existing attitudes towards GM food affected their feelings about nano-enabled food, identifying the "spillover effect."

The scientists also found that participants who were unfavorable towards technology-enabled food may not be swayed to do the same after watching others eat this food.

"The mental associations that people make between similar technologies may influence their behaviors toward a newer technology. This is especially so in cases where the technology from which people draw cues is socially contestable," Professor Ho explains.

The findings also highlight the key role communication plays in bridging the gap between science and the public, she adds.

"Public perception towards GM crops can be shaped by various factors such as people's trust in industry players and government, media coverage of both the benefits of GM food as well as food safety concerns, misinformation and fake news regarding GM food, people's inclination for 'naturalness' of food, etc.," Professor Ho tells ***FoodIngredientsFirst***.

When asked about what can be done to shift consumers' perceptions to GM foods, Professor Ho responds, "This is a complex question that is contingent on the countries in which this question is asked. Moving forward, misinformation and fake news about GM crops may be an area that industry players and regulatory agencies can pay attention to."

"There is a need to better engage with social media platforms and fact-checking organizations to curb the spread of fake news regarding GM crops. In the longer term, enhancing media literacy of the consumers will be very useful in helping them to identify and verify a piece of fake news regarding GM crops, and to avoid further dissemination of information that they come across about GM crops that are dubious," she explains.

The study was funded by the NTU-HSPH Initiative for Sustainable Nanotechnology, and done in collaboration with Prof K. Vish Viswanath and Dr Mesfin Awoke Bekalu at the Harvard T. H. Chan School of Public Health. Other NTU authors include PhD student Tong Jee Goh, research fellow Dr Agnes Chuah, and research associate Yan Wah Leung.

A similar survey is being conducted by the team in the US. The findings will provide a comparative study of attitudes towards tech-enabled food across different regions and populations.