

# Chapter 4

## Market Attitude Towards Genetically–Modified Food Products: A Developing Economy Perspective

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### **ABSTRACT**

*Public/social behaviour is one of the main elements that determines the success or failure of any commercial product launched in the market, and food product marketing is no exception. There have been several studies conducted to assess attitude, awareness, or acceptance of genetically modified (GM) food products, giving a good insight about the perception towards this product. However, limited attempts have been made to determine the antecedents that influence the attitude towards GM food products in southeast Asian context. This chapter attempts to investigate the influence of perceived benefits, perceived risks, knowledge, general attitude, and trust on attitude towards GM food products in Malaysia, a fast-developing economy. To effectively develop the GM food industry, it is important for the government, policy makers, non-governmental organisations and the industry in general to seriously consider the market's attitude towards GM food products, while formulating commercialisation strategies.*

### **INTRODUCTION**

Understanding consumer behavior is central to the success of any consumer product. This article tries to bring together consumer behavior and one of the most debated products in agriculture marketing, genetically modified (GM) food products. Despite numerous benefits of GM products shown by recent

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studies and acceptance of it as a solution to feed the ever-increasing population worldwide, the public is still skeptical about this technology (Nicolia, Manzo, Veronesi, & Rosellini, 2014). An attempt is made here to understand the attitude of consumers towards GM food products, especially from a developing economy perspective. Genetic modification is a practice whereby molecular genetics tools and methods are used to modify the genetic makeup of an organism to eventually possess features that suit the needs and wants of end users (Anderson, Wachenheim & Lesch, 2005; Macer, Bazer & Gough, 1991). GM food comes from genetically modified organisms and thus, are defined as a change in the genetic makeup of food products by insertion of new genes from other sources and/or deletion of existing gene which lead to characteristics they did not possess naturally (Food and Drug Administration [FDA], 2017; World Health Organization [WHO], 2017).

This expertise created a string of new products in various fields, mainly medicine and agriculture (Salazar and Montenegro, 2009). Continuous large-scale cultivation and commercialization of GM crops in both developing and developed countries in the last three decades have shown numerous benefits like cost effective nourishment for consumers, and sustainable income source for farmers (ISAAA, 2022; Nap, Metz, Escaler, & Conner, 2003; Zika et al. 2007). GM crops are currently cultivated on more than 2.1 billion hectares of land and approved in 45 countries around the world, including developed countries like Australia and developing country like Bangladesh (ISAAA, 2022). Other than economic gains, benefits of GM crops include reduced dependence on insecticides and pesticides and increase in yield. A reduction in pest management and lower quantities of insecticides make agricultural products safer, cheaper and reduces environmental degradation, which benefits farmers, producers, and consumers (Arya, 2015).

Malaysia, which is in the early stages of developing its own GM food industry, was chosen for conducting this study. The country is currently in the research and field-testing stages with no commercialization. In 1960, 44% of Malaysia's Gross Domestic Product (GDP) was based on the agricultural sector but in 2007 this number shrunk to 8% (Frost and Sullivan, 2009). To boost the agricultural sector, National Agriculture Policy plans were developed in 1984 and these policy plans became the precedents to all forthcoming policy developments. The introduction of the Malaysian Biotechnology Policy has shown that Malaysia planned to use biotechnology to drive forward their agricultural sector (Firdaus-Raih et al., 2005). Currently, millions of tons of GM food products, such as corn and soybean, are imported to Malaysia and the Malaysian government recognises the handicap of being heavily dependent on imports. Hence the interest in biotechnological practices to improve food security and develop sustainability. Biotechnology development in Malaysia can be divided into four main phases (Mokhtar & Mahalingam, 2010): The first phase was before 1995 when Malaysia started establishing basic infrastructure to explore biotechnological practices.

During the second phase (1995 – 2000), the national agenda on biotechnology was implemented and further enhanced with the establishment of the National Biotechnology Directorate (NBD). The main objective of the NBD was to promote biotechnology research and development towards commercialization. The third phase (2001 - 2005) saw the development of BioValley Malaysia; a biotechnology cluster of national institutes aimed to accelerate research and commercialization of biotechnological products (Cyranosk, 2005; Mokhtar & Mahalingam, 2010). US\$ 550 million was allocated for the development of biotechnology by the government in the 9<sup>th</sup> Malaysian Plan (2006-2010) (Mokhtar and Mahalingam, 2010). The 9<sup>th</sup> Malaysian Plan detailed the goals and support in terms of capital and investment to the biotechnology sector, including agro-biotechnology products which are crops and animals (Frost & Sullivan, 2009). Around 2014 Malaysia focused on commercialization efforts and was increasing collaborations in preparation to move in to Phase 4 of the Malaysian Biotechnology Policy (European

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