Genetically Modified Organism (GMO) in Food Supply Chain: Consumer Perception, Islamic Perspective and Supplier Corporate Social Responsibility

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The main purpose of Genetic Modification Organism (GMO) food is to assist in improving agricultural yields and food production since it will increase the yield of crops, livestock and others. However, there are several issues that arise in connection to GMO food. The related issues are debated globally as many claim that these foods have the potential for detrimental impacts on public health and the environment. There are some questions pertaining to this matter: Are consumers aware of the side effects of the products they consume in the long run? Are producers willing to disclose their products containing GMO? Is the use of GMO food permissible in religion perspective? Furthermore, in order to sustain businesses, firms should look beyond their economic return by integrating corporate social responsibility (CSR) practice into their operations. This is important since it could lead to resource reduction and improved brand image. Therefore, it is vital to reveal the GMO use in their labelling and packaging in order to inform and create customer awareness. For that reason, this paper attempts to investigate the consumer perception towards GMO food and the CSR of suppliers in dealing with GMO’s products. This study will potentially provide a platform of reference to create consumer awareness towards GMO food. It may also serve as a basis for supplier’s strategic managerial decision-making in CSR and could assist public sectors in formulating policies to facilitate business development related to GMO products.

Keywords: Genetics Modification Organism (GMO), Food Supply Chain, Corporate Social Responsibility.
1. INTRODUCTION

The potential benefits of genetically modified organism (GMO) food are believed to be able to bring a new dawn in agriculture and food production since it presents new ways to improve crop, fish or livestock characteristics. GMO food has also been altered genetically in order to improve well-balanced nutrients. In most developing countries in which food availability becomes a significant issue, GMO food is seen as a method to continuously feed the people. Despite the potential benefits, some scholars argue that GMO food have led to ethical issues, potential for detrimental impacts on public health, environment and also religious concerns, particularly from the perspective of Islam. According to World Health Organization, genetically modified organism (GMO) foods are foods derived from organisms whose genetic material (DNA) has been modified in a way that does not occur naturally, for example through the introduction of a gene from a different organism. For instance, plants might be genetically engineered to develop a resistance to insects or to increase nutrients. However, consumers nowadays are more vulnerable to less transparent food supply in terms or labelling and packaging. Consumer criticism of perceived CSR deficiencies can be extremely detrimental to corporate profitability and market share. Beyond the sensitivity of customers, stakeholders, non-government organisations (NGOs), public authorities and trade unions are also showing an increasing interest in these issues.

In Islamic perspective, Muslims must follow all the rules based on halal dietary laws. This means that Islam forbids Muslims to eat animals that are classified as carnivores, unintended insects, poisonous animals and also the food that is forbidden in Islam. Consequently, the use of genetic engineering to transfer the cell or gene of forbidden foods such as pork protein to animals or plants halal is prohibited. Consumers and producers need to come forward to resolve issues arising in connection to controversial GMO food. Consumers should see to what extent GMO foods can benefit and also bring possible harm in the long run. Manufacturers also have to address the issues raised in respect to the dangers of GMO foods. Therefore, it is important for manufacturers to be responsible in explaining that there are GMO food elements in their product label so that consumers can be aware of the product.

2. THE USE OF GENETICALLY MODIFIED ORGANISM (GMO) IN FOOD SUPPLY CHAIN

A food supply chain refers to a network of various activities associated with flow and transformation of agricultural and food products from the primary producers through to the end consumers. The industry supply chain is extremely complex. The chain starts with input suppliers, who provide farm inputs such as fertilisers, seeds, feeds, piglets, vaccines, medicines, machinery and other equipment to the growers or breeders who will then generally sell them to the food producers either directly or through intermediaries. Nevertheless, they also have some avenues to directly reach farther down the chain to distributors, retailers and even consumers. Che-Fu integrated CSR into supply chain coordination. The use of GMO in food supply chain can be seen in various ways. For instance, the enhancement of the food organism itself is a modified tomato now under consideration by the USA's Food and Drugs Administration. Unlike other varieties, this tomato can remain on the vine for a longer time, and develop a fuller flavour, without any reduction in its shelf life. Cheesemakers are also able to obtain, from genetically modified bacteria, a substitute enzyme for rennet, traditionally obtained from calves' stomachs, which has been in short supply. Additionally, there is an increasing demand for GMO foods that have a significant impact on the supply chain as a whole especially in developed countries. For instance, GMOs play an important role to suppliers where most of the agricultural products such as corn and wheat that are produced in the US come from GMO strains or genetically engineered (GE) seeds. This means that most of the food that are consumed by consumers contain GMO, in which the food industry estimates that as many as 70 percent of all processed food products in supermarkets contain at least one ingredient from a GE crop. Furthermore, food manufacturers should be prepared in case GMO food labelling becomes required. Therefore, suppliers should analyze their partnerships to determine if the companies they work with are likely to follow this trend, and be prepared to develop some non-GMO options where possible.

3. GMO FOOD AND HALAL PERSPECTIVES

In Islam, CSR is perceived as moral and religious initiative based on the belief that a firm should practice good management regardless of financial consequences. Nevertheless, this is not to suggest that Islam is against profit-making. In Islam, social responsibility and justice are deeply rooted in the Qur' an and Hadith. Businesses are required not to only gain profits, yet are responsible to others including society and environment. According to Khan and Karim, CSR from the perspective of Islam consists of four core dimensions which include unity, trusteeship, rights and responsibilities as well as justice.

One concern against GMO products is that this modification violates the natural order of things as established by Allah (SWT). In Sura An-Nisa, for example, Shaitan tells Allah (SWT) that “I will take of Your servants a portion marked off. I will mislead them and create in them false desires. I will order them to slit the ears of cattle and to change the (fair) nature created by

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God… Whoever forsaking God, takes Shaitan for a friend, has surely suffered a loss that is manifest” (An-Nisa 4:119). This may lead to an unbalanced ecosystem where all of the creature will undoubtedly suffer, due to the overproduction of GMO foods. Another reason for conceiving the status of GMOs as “haram” is due to the uncertainty, whether the initial altruistic purpose for GM foods to be produced and distributed to individuals suffering from hunger and poverty is being trumped by more influential, monopolizing businesses, interested in personal and economical gain from industrializing GMOs. However, there are certain circumstances in which GMO is permissible. According to the Islamic Jurisprudence Council (IJC), GMO foods are permitted within the limits of Shariah law, as long as genes come from halal sources (genes from haram sources, such as pork and its derivatives, toxic substances, and non-halal animals, are not in accordance with Shariah) and do not have harmful effects towards humans, animals, and the environment. Furthermore, as a vicegerent, man is responsible in managing and utilising nature for living purposes in the best way. Therefore, while God forbids unnecessary changes of His creation, such alteration that falls under the category as essential is permissible. For instance, if genetic engineering is performed as a measure taken to reduce reliance on pesticides and herbicides, which could be harmful to the environment, such act is permissible and is consistent with Shariah guidelines as it promotes welfare and prevents harmful effects to the environment. In this regard, biotechnology research is seen as ibadah (act or worship), and a means for better living, which should be promoted by man as a vicegerent and trustee of God’s resources.

4. CONSUMER PERSPECTIVES TOWARDS GMO

Genetically modified organism (GMO) is a technology used to alter the genetic material of living cells in order to make them capable of producing new substances or performing new functions. There are many applications and potential applications of the technology in the areas of food supply chain especially to improve the nutritional quality of fruits and vegetables or make their shelf life longer. This technology could have obvious benefits to the public and of course, there are also arguments against the use of this technology. The ultimate judges of products of GMO will be the consumers, who will determine the success or failure of the new foods produced by this technology. According to Gregory, there are three major consumer perceptions towards GMO food. Firstly, many consumers do not know what GMOs are and how genetic engineering compares to other scientific breeding methods. Secondly, consumers do not fully understand how the current GMOs end up in the food process and finally, some consumers incorrectly believe that foods containing GMO are not safe to eat. Therefore, producers and marketer need to provide factual information about GMOs in their packaging and labelling. Previous study indicates that consumer reactions have been shown to be dependent on tangible benefits of products. Benefits to health and to the environment represent more acceptable modifications than reducing cost or increased shelf life. Paolo investigated consumers’ perception of genetically modified food in Italy. The result shows that a very large percentage of students never or rarely eat GM food and a lot of them do not suggest the consumption of GM food. Bredahl analyzed consumers’ perception between two products produced using genetically modified technology. While both applications involve the modification of microorganisms, the difference did not seem to affect consumer perceptions towards product using GMO. The results also showed that consumers perceived product benefits resulting from the use of GMO, but in most cases, they could not compensate for negative associations. Customer understanding regarding the application of genetically modified product will enhance consumer acceptance towards GMO product.

5. SUPPLIER CORPORATE SOCIAL RESPONSIBILITY (CSR) TOWARDS GMO

CSR is defined as a concept where firms may be held socially and ethically accountable by an array of stakeholders which include customers, employees, governments, communities, NGOs, investors, suppliers, unions and regulators. Firms embrace CSR practice for a variety of reasons. To sceptics, CSR has a negative impact on wealth creation, while some business leaders characterise the concept as essential business operations and opportunity to look beyond narrow economic returns. The United Nations, for example, has established the “Global Compact” which comprises of a set of principles that should be abided by firms aiming at achieving CSR. The issues and debate pertaining to genetically modified organism has been rampant for years. Those disputes are particularly debated on the difference of opinion over the use of foods and other goods originating from genetically modified crops instead of conventional crops, and other uses of genetic engineering in food production supply chain. Various parties in the dispute involve consumers, farmers, biotechnology companies, governmental bodies, non-governmental organizations, scientists and others. Some of the issues related to GMO are whether such food should be labelled or not and the effect of genetically modified crops on health and the environment. According to Miles, there should be a sticker on food packaging to differentiate the ingredients that have been genetically modified to inform the consumers. Both genetically-modified and non-genetically-modified produce should be done separately to guarantee the differentiation among them with different attributes. The GMO issues may find a resolution when there is cooperation between both consumer and manufacturer voicing out their concern and worries. In a research done by D’souza and Ali, it is mentioned that
the producers and sellers have to communicate and reveal all information on the aspects of genetically modified organism products, plus labelling needs to be displayed to assist customers on choice in buying the products in the market. Knight, Mather and Holdsworth added that in European countries, consumers are still having negative impacts on purchasing genetically modified organism products mainly because they are highly concerned on accidentally mixing the GMO and non-GMO types. It shows that those people are really particular with the processes of crop. Manufacturer countries should exercise better care when considering the release of marketable genetically modified organism. At this moment, different countries or trade countries in the world implement different consent and labelling instructions for genetically modified organism products, which consequently leads to misunderstanding and hinders international business. Standard coordination for smoothing these regulations is a must to improve precision in detecting genetically modified organism.

6. CONCLUSIONS

The potential benefits of genetically modified organism (GMO) food are believed to be able to bring a new dawn in agriculture and food production since it presents new ways to improve crop, fish or livestock characteristics. GMO food has also been altered genetically in order to improve well-balanced nutrients. In most developing countries in which food availability becomes a significant issue, GMO food is seen as a method to continuously feed the people. Despite the potential benefits, some scholars argue that GMO food have led to ethical issues, potential for detrimental impacts on public health, environment and also religious concerns, particularly from the perspective of Islam. Furthermore, it is important for manufacturers to be responsible in explaining the GMO food elements in their product label so that consumers can be aware of the product. The finding of the study is expected to provide theoretical contribution by developing an integrated framework comprising of contemporary thoughts and Islamic view. This study will potentially provide a platform for more strategic managerial decision-making and could assist public sectors in formulating policies to facilitate business development of local industry. This is pertinent since the industry has been one of the lucrative and profitable areas of business, which contribute significantly to the country’s economic performance.

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