

Is genetic engineering the answer to hunger



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The controversial statement that genetic engineered food may be the solution to hunger in the world is gaining more and more interest by the media in today's society. On the one hand, supporters of biotechnology believe that genetic engineered food ensures and sustains food security around the world as the population increases, but on the other hand, there are many concerns involved with genetically modified food. In fact, a lot of food that we eat on a daily basis contains genetically modified ingredients and usually without our knowledge.

Yet, is genetic engineered food safe? Moreover, do we really need genetic modified food? Many researchers do not consider biotechnology the solution to hunger but they believe that poverty is the cause of famine in numerous countries. As a result, biotechnology raises various questions among citizens and farmers since there is the assumption that genetic engineered food is the key to eliminating global starvation (Genetically, 2010). Genetically engineered food Before weighing the pros and cons of genetic engineered food, it is essential to understand what is genetic engineered food? Genetic engineering is a laboratory technique used by scientists to change the DNA of living organisms" (What is genetically, 2010). Scientists have learned that there are ways of changing the structure of DNA in living organisms and build customized DNA. Genetic engineered food is most commonly used to refer to crop plants created for human or animal consumption using the latest molecular biology techniques. These plants have been modified to enhance desired traits such as increased resistance to herbicides or improved nutritional content.

Traditionally, the enhancement of desired traits has been carried out through breeding, but conventional plant breeding methods can be very time consuming and are often not very accurate. Genetic engineering, on the other hand, can create plants with the exact desired trait very rapidly and with great accuracy (Whiteman, 2000). People in nowadays' society have grown accustomed, maybe unintentionally, to genetically modified food. For example, in the U. S. , " 68 percent of the soybeans, 70 percent of the cotton crop, 26 percent of corn and 55 percent of canola are genetically engineered. Genetically modified products represent an estimated 60 percent of all American processed foods" (Coleman, 2005). Genetically engineered food is the answer to hunger Also, a recent study by the National Center for Food and Agriculture found that farmers in the United States investing in biotech products harvested 5.3 billion additional pounds of crops and realized \$22 billion in increased income. Most of the world's beer and cheese is made with genetically engineered products.

In addition, millions of people have been eating genetically modified food for nearly a decade without one proven case of an illness or allergic reaction. Moreover, according to supporters of genetically engineered food, biotechnology helps the environment by reducing the use of pesticides and tilling (Coleman, 2005). As a result, due to climate changes and the rapid growth of the world population, humanity is in need of exactly such an advanced technology to provide food to people; therefore, genetically modified food may be the solution to this global challenge.

Most of all, genetic engineered food can play an important role in improving nutrition and agricultural products, especially in the developing countries

(The Use of, 2004). The majority of developing countries in the world depend directly or indirectly on agriculture for their living which makes it essential for small farmers in these countries to become more productive. The current food insecurity level is despite agricultural productivity throughout the 20th century that lifted millions from poverty by increasing yields, improving nutrition and generating income among resource-poor farmers.

Research indicates that highly productive agriculture has the potential to benefit whole economies, as well as increase income and improve the economics of family farms, creating jobs and improving living conditions for farm families (Pinstrup-Andersen, 2009). Furthermore, in 2000 the National Academies and six other international scientific organizations stated that, “ GM technology, coupled with important developments in other areas, should be used to increase the production of main food staples, improve the efficiency of production, reduce the environmental impact of agriculture, and provide access to food for small-scale farmers. Other groups have issued similar findings, including the International Food Policy Research Institute, Consultative Group on International Agricultural Research, International Service for the Acquisition of Agri-biotech Applications, Pontifical Academy of Sciences and Nuffield Council on Bioethics (Pinstrup-Andersen, 2009).

Genetically engineered food is not the answer to hunger

However, supporters of biotechnology who think that genetically engineered food may be the solution to global hunger do not only encounter support and agreement but also opposed opinions saying that biotechnology is not going to eliminate the cause of starvation in the world. When the World Health Association reported that more than 3. 7 billion people around the world

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were currently malnourished, opponents of genetic modified food replied that the “ real problems” causing hunger, especially in the developing world, are poverty, lack of education and training, unequal land distribution and lack of access to markets.

The moral point they advance is that distribution, not production, is the key to solving hunger (Coleman, 2005). As a result, the argument that people are starving due to a global lack of food production is questionable. Hussain claims in his article that there is enough food to feed the whole world population; however, the reason why people are starving is because of political and economic barriers that prevent certain groups of people from being able to access food. For example, many people starve just because they do not have the financial means to buy food.

The causes for starvation depend on the circumstances of the individual, for instance, is he or she an illegal immigrants? Does he or she have job or income support? Also, the distribution of food on the planet is another major factor in reference to global hunger. “ Take, for instance, the example of Ethiopia, where at the height of its famine, a significant quantity of food grown there was actually exported to the USA” (Hussain, 2010).

Consequently, the problem of food shortages is a political and economic issue.

Opponents of genetic modified food claim that corporations and countries are using the dilemma of the developing world as a marketing strategy to gain acceptance of genetically engineered food by opponents who are extremely concerned with the health effects of genetic modified food. Is

genetically engineered food safe? In fact, it may be very difficult to decide whether genetic modified food is safe or not when there is so little information about its safety. The lack of information is due to a various reasons: First, data is scarce about health hazards, such as toxicity in genetically modified crops.

Second, it is harder to evaluate the safety of crop-derived foods than individual chemical, drug, or food additives. This is due to the fact that crop foods are more complex and their composition varies according to differences in growth and agronomic conditions. Finally, publications on genetic modified food toxicity are limited. There are no peer-reviewed publications of clinical studies on the human health effects of genetically engineered food exist (Pusztai, 2001).

There is a chance that introducing a gene into a plant may create a new allergen or cause an allergic reaction in some individuals. For example, a suggestion to inject a gene from Brazil nuts into soybeans was denied because of the fear of causing unexpected allergic reactions. Moreover, agricultural laborers in six villages who picked or loaded BT cotton reported reactions of the skin, eyes and upper respiratory tract (Whitman, 2000).

Conclusion All in all, biotechnology is a controversial topic, and there are certainly many different opinions.

On the one hand, “ genetically-modified foods have the potential to solve many of the world's hunger and malnutrition problems, and to help protect and preserve the environment by increasing yield and reducing reliance upon chemical pesticides and herbicides” (Whitman, 2000), but on the other

hand, there is only limited data on the potential consequences and health risks of genetic modified food crops. There are various concerns about genetically engineered foods as well as criticism about agribusiness for pursuing profit without concern for environmental hazards, human health risks, and economic concerns.

Consequently, the World Health Organization needs to present a transparent evaluation of genetic modified food in regards to safety, food security, social and ethical aspects, access and capacity building. Generally, people feel that biotechnology is a promising economic tool for the future, and that scientists need to take advantage and further explore the ability of genetically modifying food which may have tremendous potential benefits for the whole world. Nevertheless, genetic engineering must be performed with concern and caution to avoid causing health risks and damage to the environment.