

ARE GMO FOOD GOOD OR BAD ?

Introduction

Genetically modified foods have become a major concern and have caused controversy regarding both their health and environmental effects (2). 'Using modern techniques of genetic engineering, it is possible to introduce specific genetic material derived from any species of plant, animal, or microorganism, or even a synthetic material, into different species of plant' (Journal 1) This allows a desired trait to be enhanced and reproduced. (3) (4) 'The resulting plants are commonly known as genetically modified (GM) plants; when used as food sources, they are known as GM foods.' (Journal 1)

The first genetically modified crop was the tomato Flavr Savr, produced by a Californian company Calgene, in 1992 whose 'intention was to create a vine-ripened tomato that was both 'long-lasting and tasty'. Romania, Mexico, Germany, Australia and France are just a few of the 13 countries known to have grown genetically engineered crops on their land for commercial use in the year 2000. (7) The United States of America produced 68% of the worlds GM crops, and therefore became the largest producer of these crops.

Advantages and disadvantages of GM foods

With the world's population expected to reach 12 billion in the next 50 years, the demand for high quality produce will continue to increase. By growing genetically modified plants with a resistance to pests or herbicides, then the use of chemical applications may be reduced, as can the costs of producing a crop, damage by unwanted pests/weeds.(8)

With the rise of various different virus', diseases and bacteria that effect and inhibit the growth of a crop, technologies have enabled genetically engineered crops to be resistant to these different diseases. (9)Plants such as tobacco and potato have had antifreeze genes introduced in to them, to encourage the plants to withstand cold temperatures that would normally kill such plants. (10)

A common problem in third world countries is malnutrition with estimations of 1.02 billion people being undernourished and starved. (13) The main staple diet for these people is rice which unfortunately does not contain sufficient quantities of the nutrients and vitamins required to help prevent malnutrition. Genetically engineering this crop in order to create a nutritionally enriched rice variety would have the potential to help improve and in turn, eliminate these deficiencies.

'Allergies

Another issue with the rise in the production of genetically modified crops is the transfer of allergens in to new crops

Pharmaceuticals

One of the most impressive applications of genetic engineering is now the development of so-called "pharma crops." Specific genes in some useful plants are modified with in order for certain chemicals, antibodies, hormones and proteins to be produced that can be used in different applications in the pharmaceutical industry.

The concept of genetically engineered crops for pharmaceutical use is a fairly new idea, and therefore such products are still in their preliminary stages of design and testing. However significant concern has been raised surrounding their use and possible consequences. For instance it is thought that food crops already are or may in the future, be 'contaminated by DNA sequences from GM crops.' (15) Genetically modified crops run the risk of eventually introducing unknown, potentially harmful chemicals into the food chain, by accidental cross breeding and seed contamination.

Conclusion

As well as there being many benefits to genetic engineering and the introduction of genetically modified foods, there are as well, possible dangers and hazards leading to concern over their use and potential risks to both the environment and to humans. However there is inconsiderable evidence to suggest that there are disadvantages and significant risks of consuming GM foods. Various testing has been conducted on an array of substances and components of GM crops to test for certain effects, some of these being toxicity and allergenicity. There are conflicting reports; some suggesting GM foods are safe, others that say they are dangerous and a risk to human health.