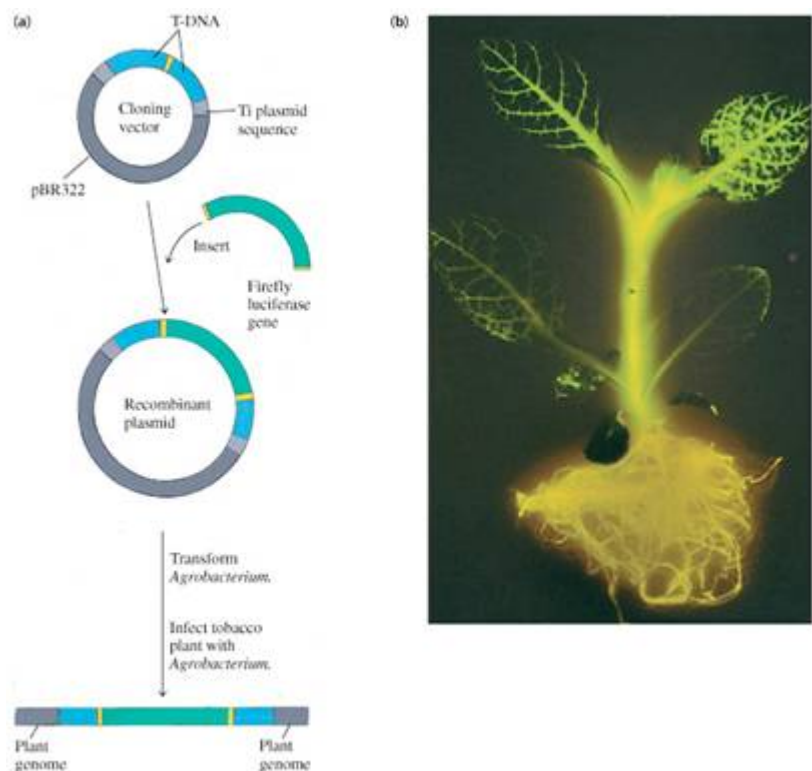


GMO's: A Step Forward For Mankind?

GMO stands for Genetically Modified Organism. In today's age, they play a prominent role in the food and medicinal industries. They are all around us. Your morning bowl of Frosted Flakes, that new shirt you just bought, or that delicious bowl of rice pudding you had for dessert may contain products produced by transgenic organisms. Transgenic organisms are those organisms whose genome has been changed due to the transfer of genetic material from a different species/breed. Are they safe? Does biotechnology's new frontier mean trouble for our future generations, or does it present possibilities for tomorrow?

How are GMO's produced?

What are GMO's? Genetically Modified Organisms are produced by a process known as "recombinant DNA technology". This process involves combining genes from different organisms to produce a certain desired trait. As shown below, desired genes are inserted into the plasmid of the plant. A plasmid is, "a circular, double-stranded unit of DNA that replicates within a cell independently of the chromosomal DNA."¹[1] One of these plasmids allows the plant below to glow in the dark.



¹[1] <http://dictionary.reference.com/>

.1 “Transgenic plant”

http://cwx.prenhall.com/horton/media_portfolio/text_images/FG23_14L_90229a.JPG

With the use of recombinant DNA, scientists are embarking on a new frontier in the food industry. They are able to insert the “anti-freeze” genes of a deep-sea flounder into a strawberry, which will produce strawberries that are frost resistant. Also, the future of medicine may rely on GMO’s. Scientists are now researching with inserting genes of some vaccines into bananas to be ingested instead of using traditional pills or injection. Most organisms are genetically modified to be herbicide/insecticide resistant. This decreases the amount of harmful chemicals sprayed on crops, which pollute the surrounding environment.



As mentioned previously, GMO’s are omnipresent. The most common genetically modified crops include: corn, soybeans, and cotton. These GMO’s have been found in Kellogg’s products, General Mills products, Gerber baby food, and even Taco Bell’s taco shells.

Advantages to GM Crops and Animals

There are endless possibilities for the use of genetically modified organisms. GM crops have a more rapid rate of maturation, higher yields, high viral and bacterial resistance, even better taste

Fig. 2 “General Mills Cereals”

<http://images.usatoday.com/money/photos/2004/09/30/general-mills-cereal.jpg>



Fig. 3 “Frosted Flakes” <http://www.mikesjournal.com/Kelloggs%20Frosted%20Flakes.jpg>

and quality. GM animals offer a more efficient way to extract meat, eggs, and cheese, with higher yields and quality. GMO's greatly decrease the use of toxic and harmful chemicals such as DDT, which in turn makes GMO's a better choice for a cleaner environment.

GMO Drawbacks

As always though, GMO's do have negative aspects. There is the possibility of genetically "polluting" other plants by transgenic cross-pollination. If this were to happen other common plants could possess the same transgenic qualities of the GMO from which pollinated it. Also, there is the possibility that new allergens and new antibiotic resistances could form, thus posing a large threat to human health.

BT corn is now being studied further due to its impact on the Monarch butterfly. During their migration, the Monarch butterfly feeds on the milkweed plant, found mostly near corn fields. BT corn is modified to kill off harmful caterpillars without the environmental side-effects of using pesticides. The butterfly lays its eggs on the milkweed plant, which is located next to the "killer corn". A recent study found that 44% of the larvae that fed on the milkweed with BT pollen died. This raises questions and sparks another heated debate regarding GMO's and the possibility of causing extinction to the Monarch butterfly.

Public Views and Responses

The most common negative aspect with all GMO's is the ethical point-of-view regarding the tampering with nature. Persons that possess this view believe that, "The biodiversity and environmental integrity of the world's food supply is too important to our survival to be put at risk."²[2]

²[2] Greenpeace international

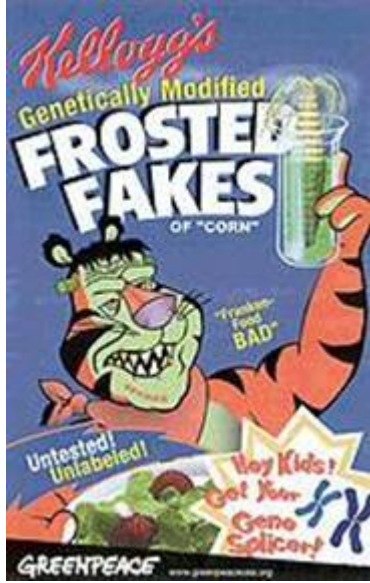


Fig. 4

“FrankenTony” http://www.commercialdiplomacy.org/images/ma_projects/ma_san2.jpg

As with many scientific breakthroughs, bioethics comes in to play. In many places around the world, people are protesting and demonstrating the use of GM foods. Greenpeace, a non-profit organization, has centers around the globe that promote such topics that include: ending global warming, saving marine life, protecting forests, and the end to the global nuclear threat. The use of GMO's is one of their greatest concerns. Greenpeace does not approve of the idea of producing crops that are unnatural to the environment. Many smaller organized protest groups demonstrate at the distributors headquarters, as was the case with the Kellogg's Company. Some groups expose the companies through the airways in order to stop the use of GM foods or “Frankenstein foods”, as they have been called, in their products. This method worked to stop the Gerber baby food company from further using GM foods in their baby products. Also, some unorganized protestors take matters into their own hands by destroying these GM crops or biotechnology research labs.

In contrast, not everyone disagrees with the production of GM crops. There are many people that believe that GM products can only benefit us in the long run. GM crops **and** animals could help solve the world hunger issue and end many peoples suffering. From a political standpoint, GM crops and animals may boost the economy and encourage more commerce in a particular country.

In conclusion, genetically modified organisms offer promise to many of the problems in which we face today. These problems include world hunger, disease, and nutrition. But, by in

the process of solving these issues, will we create new ones? No one knows for sure what price, if any, we will pay for in the future due to genetically modified organisms, but the future of our race depends on them.

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