

DNA for Dinner: Problem Handouts



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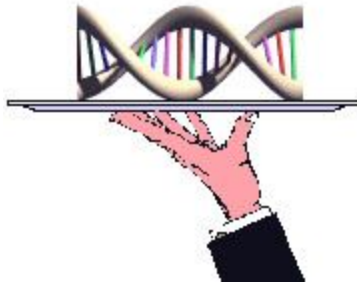


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Menu

Appetizer

Collagen Hydrolysate with Lycopene and Phosphatidylserine

Entrée

Braised Isothiocyanate Nicoise Oven-roasted Garlic Saponins

Dessert

Thermophilic Probiotics Anglaise with Polyphenols

From McDaniel, 1999.

For many the prospect of genetic engineering (GE) offers the promise of a way to feed the rapidly expanding world population of humans, expected to increase from the current 6 billion souls to 12 billion in the next 50 years. For others, genetically engineered foods are threatening and suggest a scary vision of scientists producing foods that will cause serious damage to people and the environment. "Frankenfoods" is a term that has been coined in Europe for foods that have been altered genetically. With the recent history of "mad cow disease" from Great Britain and dioxin-tainted foods originating in Belgium, Europeans have developed an aversion to research on GE or the importation of seeds or foods with manipulation of the genetic code. These concerns are now being heard in the United States and elsewhere.

For example:

Gerber Baby Foods and Frito-Lay have pledged to avoid use of genetically modified (GM) foods in any of their products.

McDonald's Corporation has told its potato supplier, JR Simplot Company of Boise, Idaho to discontinue the use of GE potatoes for its french fry products.

A number of prominent chefs have spoken out against GM foods. John Ash, culinary director at Fetzer Vineyards in San Rafael, CA is strongly opposed. "Don't buy them. Don't use any of those things. We don't know what we're turning loose on the planet."



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From Thorn, 2000.

Various consumer and environmental groups have been most unhappy about GE and GM foods and have demanded that the Food and Drug Administration (FDA) reconsider how these foods are regulated prior to being introduced into the marketplace. The FDA responded in May of 2000, and issued plans about how it will strengthen pre-market review of bioengineered food. Consumer groups were not impressed with FDA's response and continue to petition for stronger regulations.



Questions:

1. How would the use of GM foods improve life in the US?
2. From a global perspective, who benefits and who is harmed by the use of biotechnology to modify the foods we consume?

We have adopted the wonderful title of W. E. Peace's web quest, "DNA for Dinner?" that may be found at <http://dnafordinner.blogspot.com/>.



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The purpose of the modification developed by Monsanto and used by Simplot, an agribusiness that grows and processes potatoes, is to produce a potato with greater resistance to pests. "NewLeaf potatoes have been shown to reduce by 80 percent the amount of insecticide needed to control the Colorado potato beetle and green peach aphid, which are major problem pests for potato growers." (Monsanto, 2000)

From the perspective of one of the interest groups below, develop recommendations for how government agencies should operate to assure the safety of foods such as the New Leaf potato and provide necessary information to consumers.

Special interest (jigsaw) groups:

- Commercial potato growers
- Monsanto (a subsidiary of Pharmacia which produces insect protected crop seeds including New Leaf Potato)
- Mycogen (a subsidiary of Dow Chemicals who owns several patents related to the Bt gene)
- Consumers - U.S.
- Greenpeace
- Restaurant owners

Questions:

1. What issues does your group need to consider in drafting these regulations?
2. For what government agencies are you making these recommendations?

Before leaving today, identify these issues (you will be asked to report out on them), since they will provide a good start for the afternoon research session.

Sites for initial research:

National Restaurant Association:

<http://www.restaurant.org/>

Nation's Restaurant News:



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<http://www.nrn.com/>

Genetically Modified Foods from [Cambridge Scientific Abstracts: Hot Topics](#)

<http://www.csa.com/hottopics/gmfood/overview.html>

Biotechnology and the Future of Food from the [American Dietetic Association](#)

<http://www.eatright.org/abiotechnology.html>

What's ahead for tomorrow:

When you return tomorrow you will have an opportunity to discuss your research findings in your interest group. You will then rejoin your home group and work on the following assignment:

1. Come to consensus about what recommendations best represent all of the interest groups.
2. Report out on your set of recommendations for the concerned government agencies.



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Consider the following scenario. Scientists have identified a gene in pigs that would allow rice to grow much more quickly and would cause the rice to produce kernels with much higher quality protein. Should this product be marketed to less developed countries? Various religious and vegetarian groups are concerned about just this scenario. Would/should your proposed regulations cover this situation?