

Taste Testing of GE foods

Introduction

One of the common misconceptions about GE foods is that the process changes many of the traits of the food crop. Actually, the taste and other characteristics are determined by the variety of the crop that the gene is inserted into. In this exercise, students taste food pairs to determine which is the GE crop. The answers are revealed and students discuss if GE traits affect the flavors of the foods. This discussion is then used to identify if other perceptions about GE are scientifically accurate.

This exercise may also generate debate about the need to label foods. Students will realize that they were not aware of the GE foods that they were eating. The issue of labeling is complex. The FDA has determined that separate labeling is necessary only if there is a substantial difference in the food product. If the nutritional value is the same, no label is required. Consumer choice is currently based on the ability of organically grown foods because by definition they cannot have GE ingredients.

Concepts for biotechnology:

1. Genetic engineering is used to have a plant produce specific proteins. The foods that are currently on the market have not been engineered for taste.
2. Perceptions need to be analyzed for accuracy.
3. There is no nutritional difference between GE and non-GE crops.

Hawaii Standards

1. SC.BS.2.1 Explain how scientific advancements and emerging technologies have influenced society.
2. SC.BS.2.2 Compare the risks and benefits of potential solutions to technological issues.

Taste Testing Directions

1. Purchase non-GE their GE counterparts.

Please see the included brochure on buying non-GE foods for guidance. The foods that are genetically engineered are soy, corn, the enzyme in cheese, canola, cotton, zucchini and yellow squash (not common), and papaya. If the food does not contain one of these ingredients, it is not genetically engineered.

If a non-organic food contains corn, soy, or canola products you can assume they have genetically engineered ingredients. Look for corn oil, corn syrup, corn starch, canola oil, soy oil, soy protein, etc. See the brochure that follows this activity.

We have found that Safeway has a good selection of store brand organic products that are reasonable and comparable to the less expensive, regular brands. Try to avoid brand name items that are easily identifiable. If you use an item like Oreo cookies, you may need to scrape off the name.

Use the exact same food for one of the pairs. Students will swear they can tell the difference and it is enlightening for them when they find out it is the same.

We usually purchase the following items:

Organic and non-organic cheese (Chymosin, the enzyme to make cheese is was the first GE product approved for food use. Previously the enzyme was collected from the stomach of slaughtered calves. The gene for the enzyme has been placed in bacteria and yeast.)

Organic and non-organic crackers (or cereal)

Rainbow and Kapoho (or other yellow flesh) papaya

Baby carrots - There are no GE carrots available so students get two non-GE carrots.

Drink with corn syrup and drink with cane sugar (or unsweetened)

2. Prepare food

Cover food containers or put foods in different containers.

Randomly assign foods either "A" or "B" and write the answers on one of the survey forms.

Taste Testing Directions cont.

Place bite sized items in cups that are labeled “A” or “B”. We use the small serving cups from Costco, but you may find it easier to have an “A” paper towel and a “B” paper towel.

3. Pass out food and the survey form.
4. After students have had the chance to try out the foods and fill out their survey reveal which product of each pair was genetically engineered.

Discussion

Main idea: You cannot taste if something is GE:

Did you think you could tell if something was GE by taste?

(The gene for taste was not changed)

(Differences in taste are due to different brands and varieties.)

How many students were right every time?

Do our beliefs influence our perceptions?

What % of processed food has GE ingredients?

(70% of processed food contains GE ingredients.)

(While many crops have been approved, the food crops currently marketed are limited to papaya, corn, soy, canola, and some squash. Cotton is also a major GE crop.)

Labeling:

Do consumers have a choice if they can't tell the difference between GE and non-GE crops?

(Organic foods are not GE. Many varieties of papaya are not GE.)

Does it matter if foods are labeled?

(The nutrition of GE foods is the same as their non-GE counterparts.)

Sample food tasting survey form

Food	Rate the taste 1-5 very good - 5 Not good - 1	Do you think this food is genetically engineered or has genetically engineered ingredients?
cracker A		
cracker B		
papaya A		
papaya B		
cheese A		
cheese B		
carrot A		
carrot B		
drink A		
drink B		