

BLM – Food Irradiation: What’s the Scoop?

Name: _____ Date: _____ Class: _____

Backgrounder Assignment Topic 1: Economic Impact

Use the websites below to research food irradiation, food safety and food-borne illnesses. Your group will pay special attention to the **economic** aspects of these three topics. Based on your research, your group is to work together to create a single-page (maximum of 250 words) backgrounder which will be used to help your classmates understand this aspect of this issue (see the **Food Irradiation Individual Writing Assignment BLM** for more information).

Below are some questions to help guide your research.

- What types of costs could result from food-borne illnesses?
- How much of the world’s food production is lost due to pests, insects, bacteria, fungi and enzymes which degrade or destroy food?
- How would extending the shelf life of products affect consumers?
- In general, what are the costs of installing, operating and monitoring food irradiation facilities?
- How could the costs of food irradiation facilities be offset?
- What types of costs would be involved with monitoring the safety of food irradiation?
- How much does a typical food irradiation facility cost, and is this cost similar to the cost of a facility processing food using canning, freezing, etc.?
- What is the likelihood that irradiated foods would be more expensive than their non-irradiated counterparts?

Web links

(Retrieved Aug. 1, 2019)

- **Food Irradiation – Canadian Nuclear Association**
A look at how food irradiation works, it’s benefits, safety practices and where it’s happening around the world.
- **Causes of Food Poisoning – Canadian Food Inspection Agency, Government of Canada**
Links to information about common causes of food poisoning, including listeria.
- **Food Irradiation – Canadian Food Inspection Agency, Government of Canada**
Food irradiation, labelling, types of foods irradiated in Canada and food safety.
- **Irradiated foods – Canadian Food Inspection Agency, Government of Canada**
Requirements and controls for handling and labelling irradiated foods in Canada.
- **Food Irradiation – Health Canada, Government of Canada**
Information on foods that are currently irradiated in Canada and answers to frequently asked questions.
- **Food-Related Illnesses – Health Canada, Government of Canada**
A look at common causes of food-related illnesses including infant botulism, listeriosis and salmonellosis.

- **Policy on *Listeria monocytogenes* in Ready-to-Eat Foods – Health Canada, Government of Canada**
This policy outlines the roles and responsibilities of government, industry and consumers in regard to listeria and food safety.
- **Listeriosis (*Listeria*) – Health Canada, Government of Canada**
Causes, symptoms, risks, treatment, prevention, surveillance information and guidance for health professionals.
- **Lessons Learned: Public Health Agency of Canada's Response to the 2008 Listeriosis Outbreak – Public Health Agency of Canada, Government of Canada**
Release of the Lessons Learned Report in the 2008 listeriosis outbreak (archived).

Backgrounder Assignment Topic 1: Economic Impact – Suggested Responses

Below are suggested answers for the guiding questions.

- What types of costs could result from food-borne illnesses?
 - *Aside from the human costs, the costs due to hospital visits, time lost at work and wasted food run into the billions of dollars worldwide each year.*
- How much of the world's food production is lost due to pests, insects, bacteria, fungi and enzymes which degrade or destroy food?
 - *The Food and Agriculture Organization (FAO) of the United Nations reported that $\frac{1}{4}$ to $\frac{1}{3}$ of world food production is lost due to pests, insects, bacteria, fungi and enzymes which degrade or destroy food.*
- How would extending the shelf life of products through irradiation affect consumers?
 - *Extending the shelf of products would be expected to reduce product wastage and disposal costs of "spoiled" food for both retailers and consumers.*
- In general, what are the costs of installing, operating, and monitoring food irradiation facilities?
 - *The costs of installing, operating and monitoring food irradiation facilities are substantial.*
- How could the costs of food irradiation facilities be offset?
 - *The costs could be offset by any overall lowering of processing costs and other benefits such as a reduction of product wastage due to contamination by bacteria and insects.*
- What types of costs would be involved with monitoring the safety of food irradiation?
 - *There would be costs of monitoring regulations (compliance), monitoring of labelling, product checks, machinery safety, etc.*

- How much does a typical food irradiation facility cost, and is this cost similar to the cost of a facility processing food using canning, freezing, etc.?
 - *The cost to build a food irradiation plant is in the range of \$1-3 million (US), depending on size, processing capacity and other factors. This is within the range of plant costs for other food technologies.*
- What is the likelihood that irradiated foods would be more expensive than their non-irradiated counterparts?
 - *The cost to process and regulate the foods may increase, but this would likely be offset by the reduced costs due to increased shelf life and reduced spoilage.*