Introduction To Food Irradiation

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What is Food Irradiation?

- It is a process involving the exposure of food to a field of ionizing radiation for the purpose of effecting some desired benefit.
- Sources of Ionizing Radiation:
  - Gamma Rays (CO-60 or CS-137)
  - X-Ray
  - Electron Beam

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Benefits of Food Irradiation

- Low Dose (<1kGy):
  - Insect disinfections
  - Sprout inhibition
  - Maturation delay
  - Extend shelf life
- Medium Dose (1-10 kGy):
  - Reduction in food-borne diseases
  - Reduction of spoilage microorganisms
- High Dose (10-50 kGy):
  - Sterilization

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Effects of Food Irradiation

- Safety:
  - Chemical Analysis show no toxilogical or harmful effects
  - Biological testing show no indication of harm from consumption of irradiated foods
- Nutrition:
  - Vitamins B1, C, A and E are sensitive to radiation
  - However, vitamin losses are similar to those from other conventional methods.

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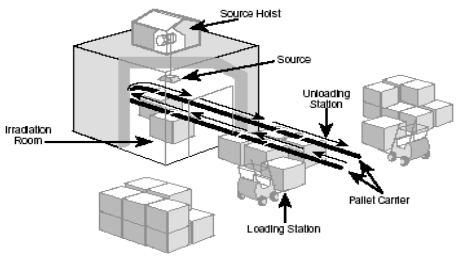
Food Irradiation Facility



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History of Food Irradiation

- 1905 Patent on Food Irradiation
- 1947 US food Processing for Troops
- 1957 1st Commercial use in Germany
- 1958 USA-FDA Approved
- 1960 Canada approval (Potatoes)
- 1989 Reclassification: "Process" Not "Additive"
- 2003 ~36 Countries approved & Use

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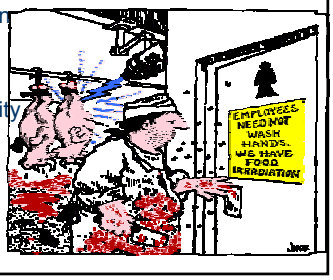
Challenges:

- Public Perception
- Activists
- Labeling
- Limited Availability
- Seasonality of some food



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Summary & Conclusions:

- Food irradiation safely preserves food and controls pathogens.
- The commercialization of food irradiation is increasing.
- Consumer awareness is the key to acceptance.

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Presentation Outline

- What is Food Irradiation?
- Application of Food Irradiation
- Effect of Food Irradiation
- Food Irradiation Facilities
- Challenges
- Food Irradiation Commercial Use
- Conclusion

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