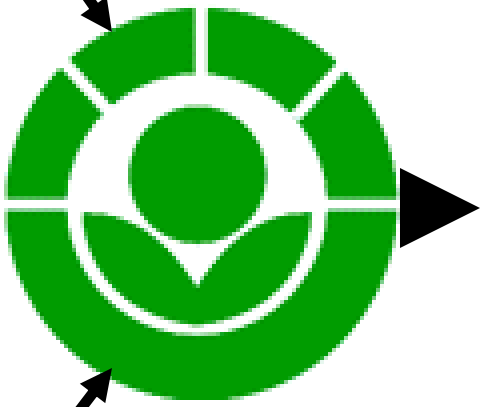
Food Irradiation and International Trade



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What is Food Irradiation?

- Food Exposed to Controlled Energy (Ionizing Radiation)
  - Gamma Rays (bulk foods on shipping pallets)
  - X Rays (deep penetration, requires shield)
  - Electron Beam Radiation (shallow penetration)
- Radiation Kills Microorganisms w/o Raising Food Temperature
- Contamination ***CAN*** Occur Post-Treatment

What Can Irradiation Do?

- **Prevent Food Poisoning** By Reducing
  - E. Coli)157:H7 (Beef)
  - Salmonella (Poultry)
  - Campylobacter (Poultry)
  - Parasites
- **Prevent Spoilage** by Destroying Molds, Bacteria and Yeast
- **Control Insects** and Parasite Infestation
- **Increase Shelf Life** by Slowing Ripening of Fresh Fruits and Vegetables

Issue of Controversy

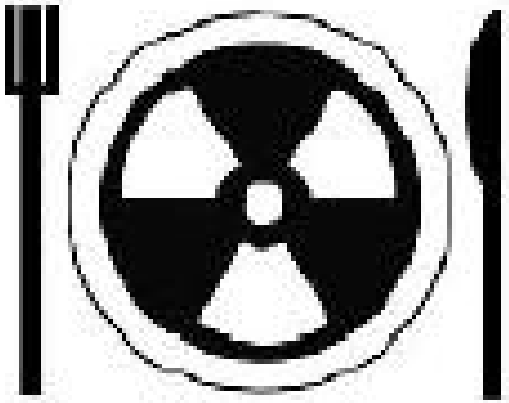
"Irradiation increases the number of free radicals in the food and *decreases* the antioxidant vitamins that neutralize them."
Organic Consumers Association,
December 17, 2002

"There is an extensive body of information with every major scientific and medical group on board that this is a safe and effective process. The same arguments were used in terms of milk pasteurization almost 80 years ago."

Michael T. Osterholm, director of the Center for Infectious Disease, Research and Policy at the University of Minnesota, Minneapolis, 4/29/04

“Genetic Engineering and Food Irradiation Threatening Global Food Security”

Public Citizen



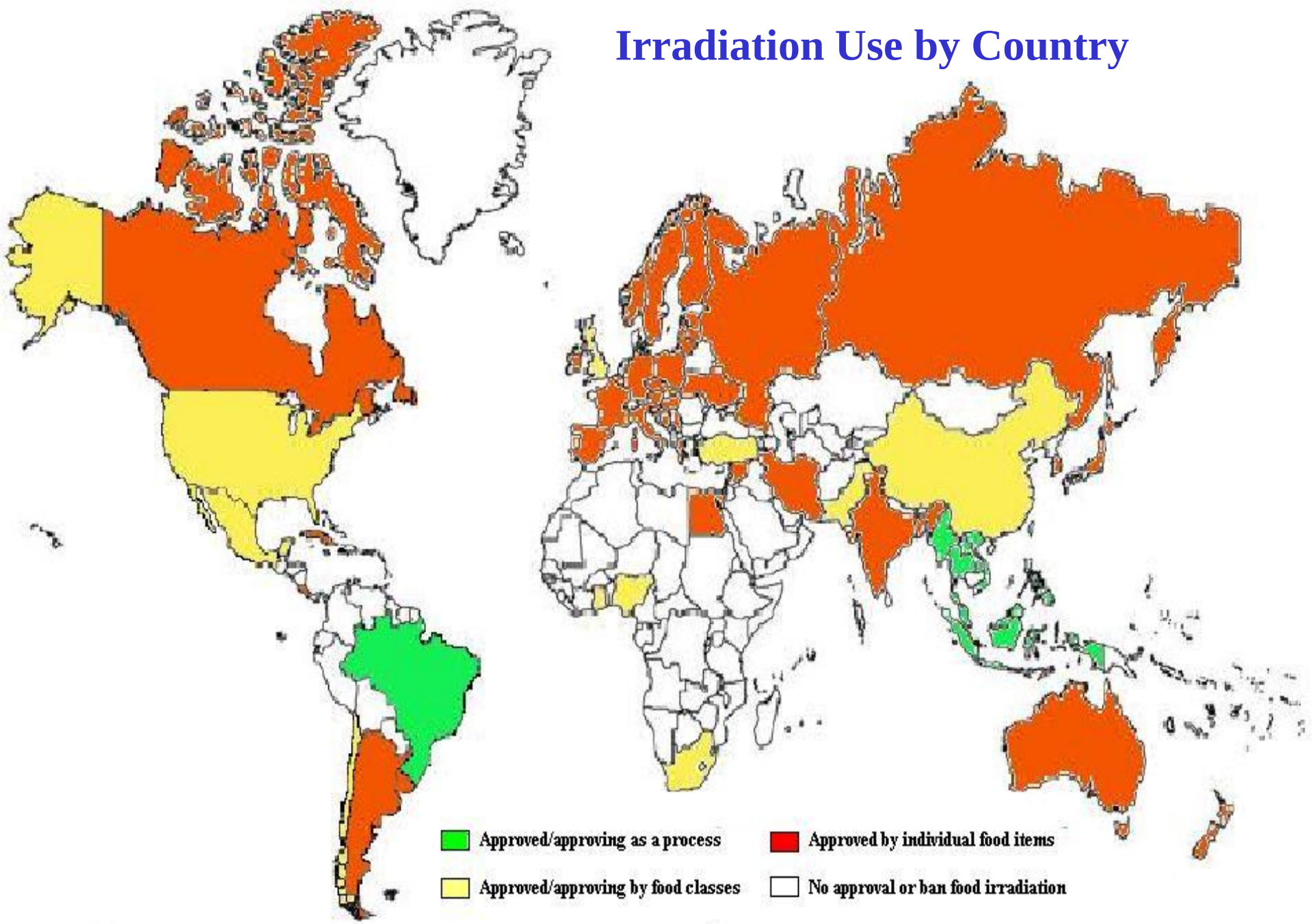
“trade barriers caused by pests, diseases, and food safety issues continually threaten or inhibit trade. Irradiation is on such technology that could assist in the improvement of trade.”

Fasts about food irradiation. *International Consultative Group on Food Irradiation.*

“An overwhelming body of scientific evidence demonstrates that irradiation does not harm the nutritional value of food, nor does it make the food unsafe to eat. Just as for the pasteurization of milk, it will be most effective when irradiation is coupled to careful sanitation programs.”

Centers for Disease Control

Irradiation Use by Country



Source: Global Status of Regulations on Irradiation as a Sanitary and Phytosanitary Treatment for Food, Paisan Loahuranu, First World Congress on Food Irradiation

General Guidelines for Irradiation

- SPS Agreement, World Trade Organization
  - Scientifically Based Justification to Impose Standards Stricter than International Food Safety Bodies
- Codex General Standard for Irradiated Foods
  - Recognizes Safety & Effectiveness
  - Endorsement as Quarantine Treatment
- International Plant Protection Convention (IPPC), Office of Epizootics (OIE)Have Specific Standards
- **Under IPPC**, Irradiated Fresh Produce Cannot Be Denied Entry if Treated to Codex Standard

U.S. Food & Drug Administration Approvals for Irradiated Foods

Food	Approved Use	Maximum Dose
Spices and dry vegetable seasoning	decontaminates and controls insects and microorganisms	30 kGy
Dry or dehydrated enzyme preparations	controls insects and microorganisms	10 kGy
All foods	controls insects	1 kGy
Fresh foods	delays maturation	1 kGy
Poultry	controls disease-causing microorganisms	3 kGy
Red meat (such as beef, lamb and pork)	controls spoilage and disease-causing microorganisms	4.5 kGy (fresh), 7 kGy (frozen)

Publication No. (FDA) 98-2320. Gy=1 Gray, or 100 rad (radiation absorbed dose)/kilogram. kGy=1000 Grays.

Trade Issues & Irradiation

- Lack of Approval or Positive Approval Lists
- Different Regulations Among Countries
- Labeling-International Standard
  - U.S. Requires Radura & “Irradiated”
- Misinformation
  - Both Sides of Issue Have Emotional Arguments
- Cost
- Skepticism About the ‘Science’
- Need for Better Data on What is Traded

Conclusions

- Regulatory Approvals Will Dominate in Near Term
- Consumer Acceptance May Be Major Issue in Some Countries
- Cost Impacts on International Competitiveness Could Reduce Trade
- No Definitive Policy In Many Countries, Especially Africa, Limit Use & Acceptance

TREATED BY

IRRADIATION

For Freshness
And Quality

Bon Appetit!!