

Shedding light on food irradiation: A comparison with alternative food technologies

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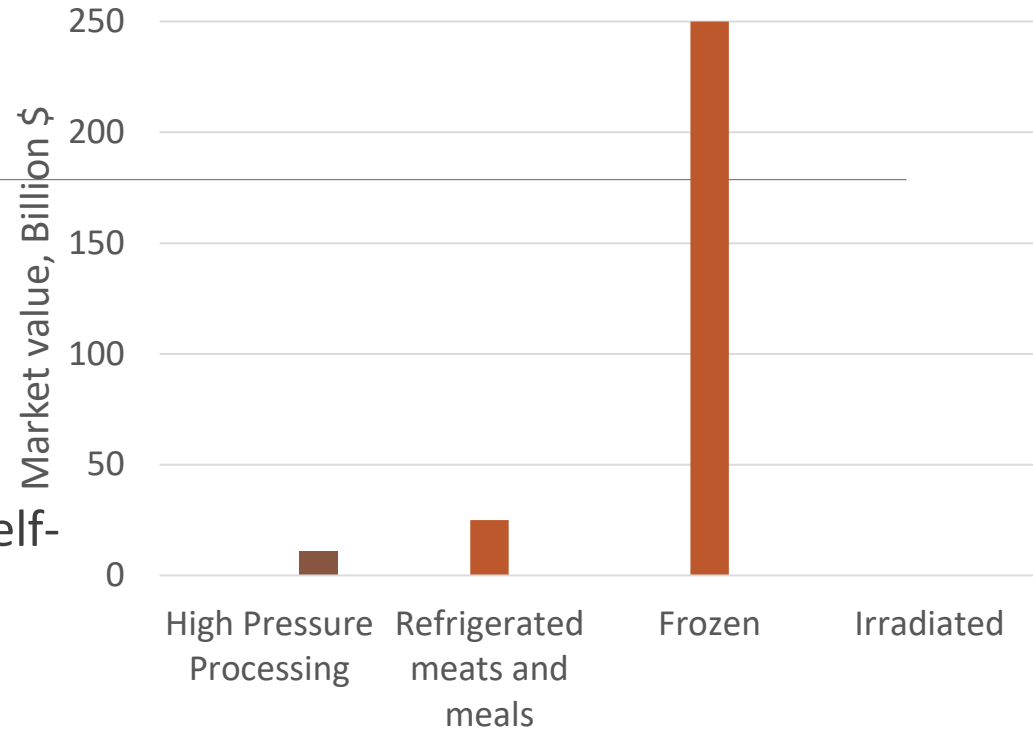
Food Irradiation

Long and storied history

Approved in ~60 countries

Primary applications

- Food safety and extension of shelf-life
- Phytosanitary treatment
- Inhibition of sprouting



<http://www.marketwatch.com/story/food-high-pressure-processing-hpp-technologies-market-2016-2026-2016-04-27-92032251>

<http://www.foodnavigator-usa.com/Markets/Convenience-and-health-driving-growth-in-25-billion-branded-refrigerated-meals-and-meat-market-Packaged-Facts>

<http://www.grandviewresearch.com/industry-analysis/frozen-food-market>

http://www.abnewswire.com/pressreleases/food-irradiation-market-size-analysis-trends-report-share-investment-opportunities-and-forecast-to-2022_79146.html



Benefits

Efficacy

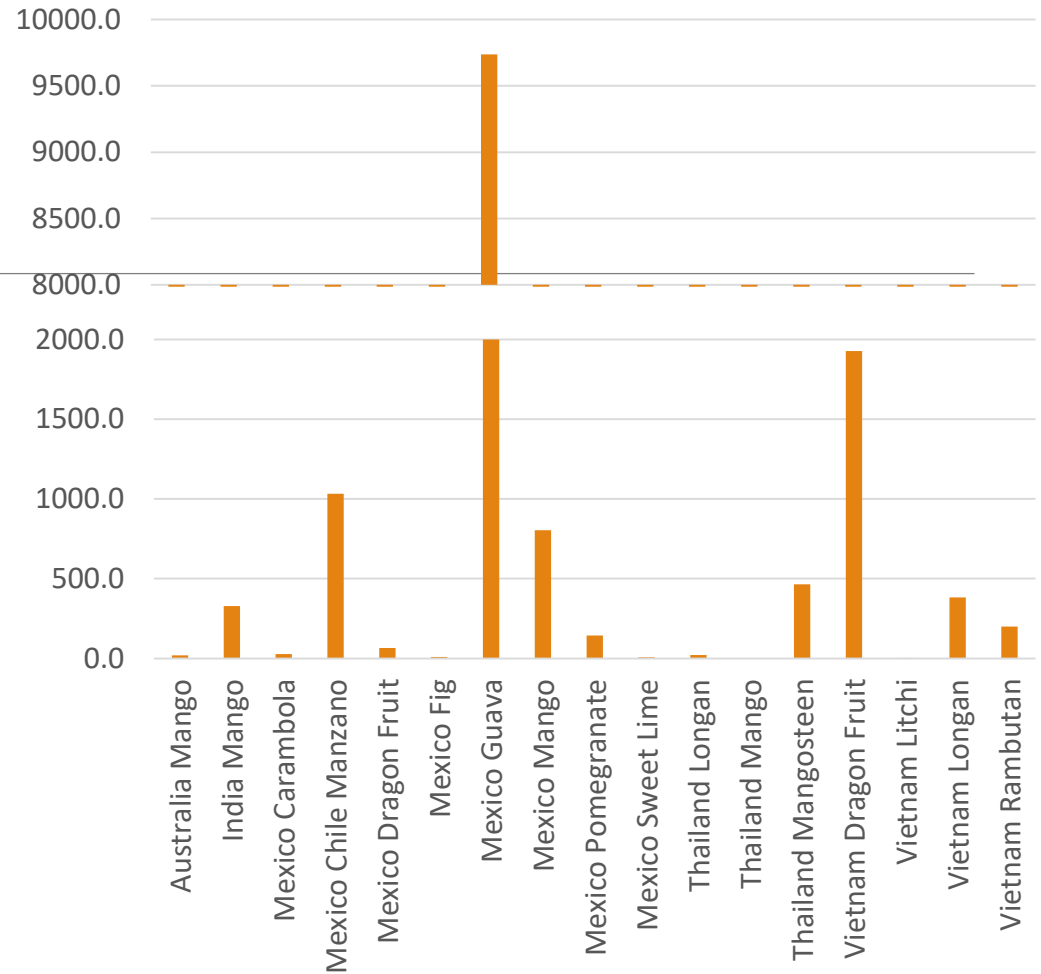
Treatment

Non-thermal/ non-chemical process

Facilitates trade

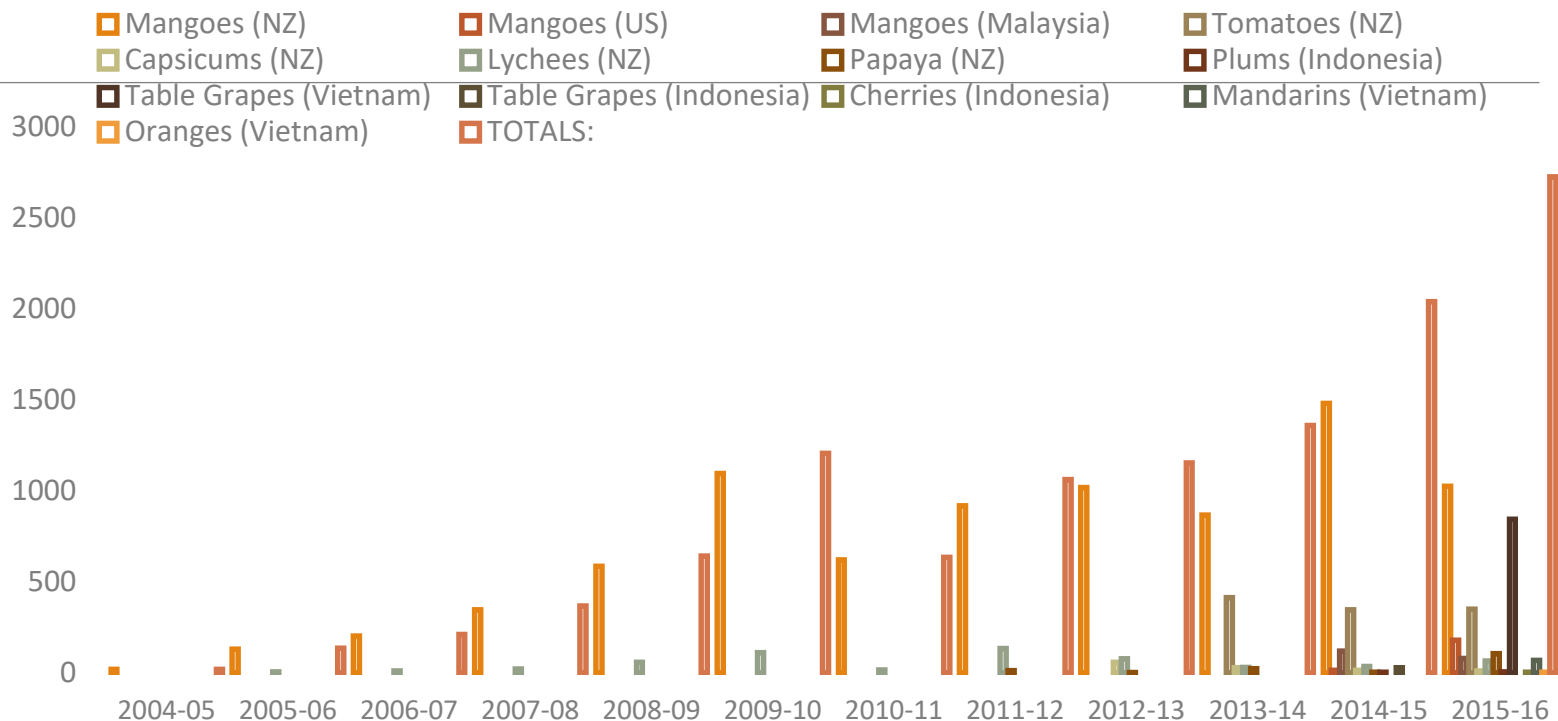


~16,000 mT exported to
United States in 2015 from
Mexico, Vietnam,
Thailand, India, Pakistan,
Australia and South Africa



Thanks to Laura Jeffers

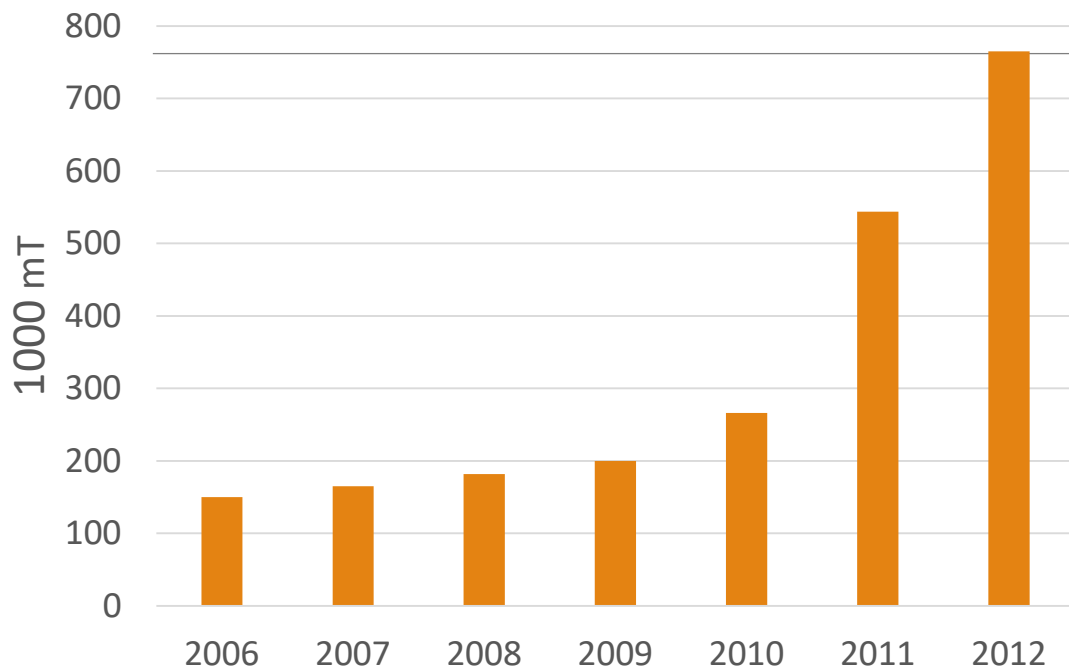
Australia



Murray Lynch 2016



Food irradiated in China



Hsiao 2016



- Pickled chicken feet and wings over 400k tons/year
- Pet food
- Dehydrated vegetables
- Spice & seasoning
- Chinese herbs
- Seafood: frozen and dry

Weaknesses

- Regulations
- Logistics
- Consumer Acceptance

Is irradiated fruit less of an issue?

Absence of viable alternatives

Insect mortality not necessary

Generic doses

Consumers of specialty produce may be more accepting

- Or they may not know



Obama signs bill requiring labeling of GMO foods

July 29, 2016



The legislation will require most food packages to carry a text label, a symbol or an electronic code readable by smartphone that indicates whether the food contains genetically modified organisms, or GMOs.

Opportunities

Trade agreements

- Bilateral and multilateral trade agreements
- ASEAN-Australia-New Zealand Free Trade Agreement

Food Safety Modernization Act

- Requires validated preventive controls
- Produce Safety and Foreign Supplier Verification Program

“Consumer” education

- Focus on the product
- Highlight the benefits

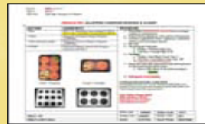
Specialty Burgers and Sliders Made with Irradiated ground beef

Preferred Practices

Step-by-Step:

- Review the process for producing all specialty burgers and sliders with irradiated ground beef with all team members.
- Educate customers on the safety benefits of “cook it the way you like it” to desired doneness.
- Due to USDA regulations & Food Safety guidelines block your irradiated burger section with dividers to keep out any contaminants.

Production Manual & Job Aid



Current Recipes

- 80% Plain
- Bacon and Cheddar
- Mushroom Swiss
- Vidalia Onion
- Cracked Pepper
- Blue Cheese
- Jalapeno Cheddar **NEW!**



**The order code for the 6.5lb ground beef chubs is 398502. Use this for producing Specialty Burgers and Sliders.*

Our **Best**
Recipe



Our **Best**
Ground Beef



**Outstanding
Taste**



What makes them unique:

- Irradiation means you can safely “**cook it the way you like it**” to desired doneness.
- Flavorful varieties like Bacon Cheddar, available as a burger or slider.
- Grill ready convenience.

Benefits for the environment

Green technology

Clean technology



“the politics of nuclear are changing on generational lines meaning that a new wave of support for nuclear energy amongst millennials bespeaks a promising future for the advancement of emissions free technologies.”

<http://casenergy.org/2015/06/millennials-gain-momentum-as-innovators-in-nuclear-energy/>



ASK
YOUR QUESTIONS

EXPLORE
THE BASICS

STUDIES
AND ARTICLES

DIG
DEEPER

ABOUT
GMO ANSWERS

U.S.A. (English) [login]

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Beyond Labels

10 things you should
know about GMOs

LEARN MORE



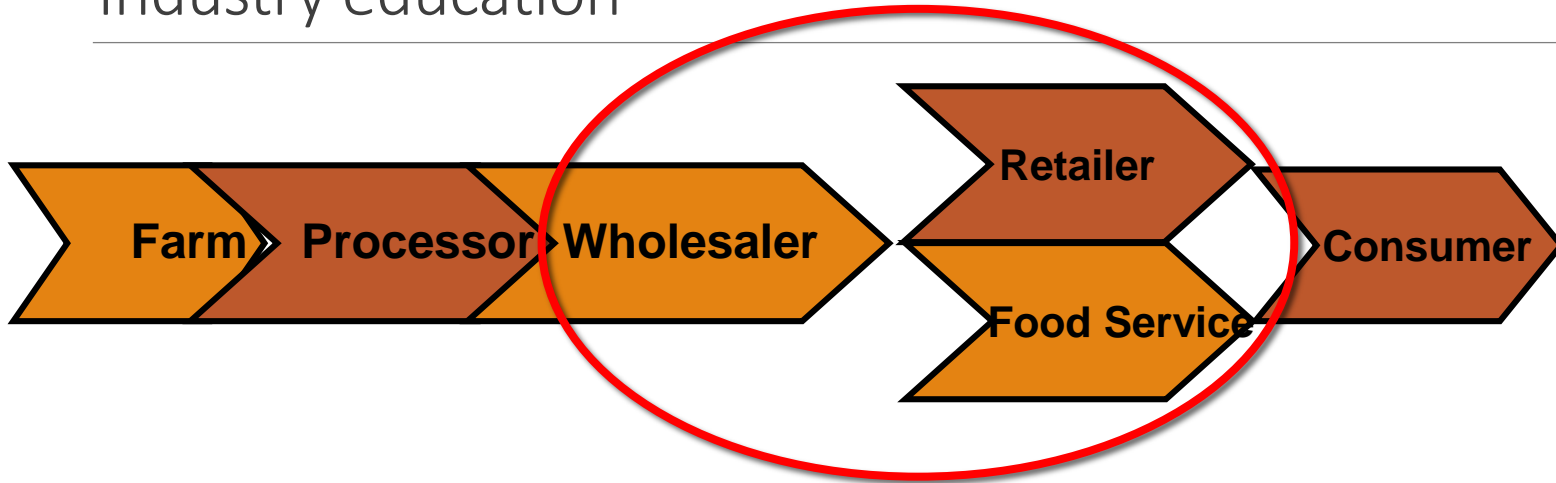
WE ANSWER YOUR QUESTIONS ABOUT GMOS

Enter your question



GO

Industry education



Threats

Competing technologies

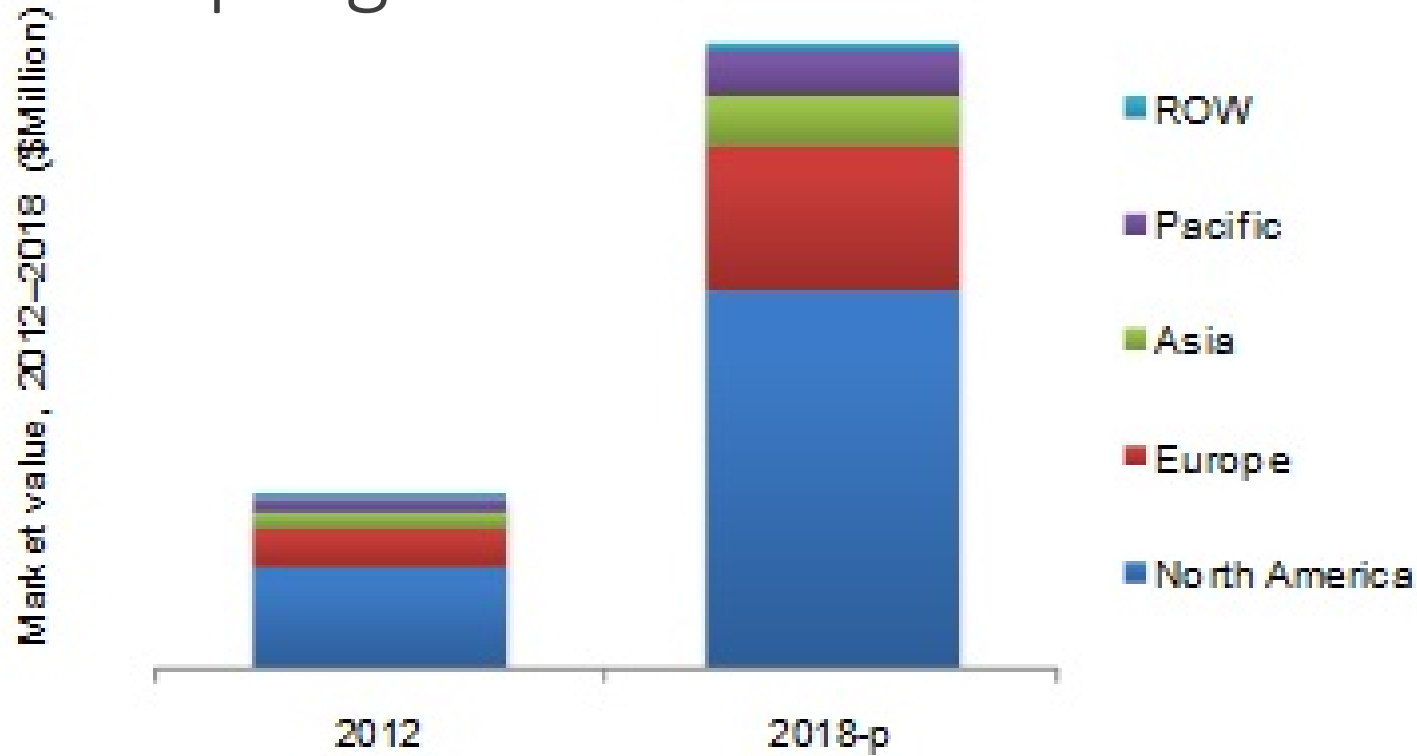
- Cold/heat/chemicals
- Other non-thermal processes such as HPP

High Pressure Processing

- Non-thermal
- Large-scale processing
- Works on a variety of foods

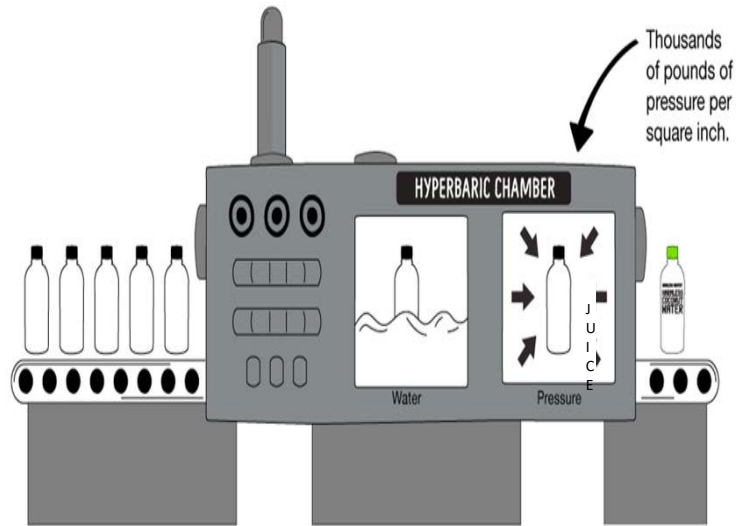


Rapid growth



Easy to understand

Consumer friendly



LIFE JUICE®



Toll facilities and research support allow use by smaller food companies

[WHY HPP?](#)[HPP EQUIPMENT](#)[HPP FOODS](#)[TOLLING CENTERS](#)[FOOD SCIENCE](#)[NEWS](#)

Our Team

HPP food scientists make your product tastier and safer.



Manufacturers and producers need the confidence that their product will retain its texture, flavor and appearance with high-pressure processing (HPP). Avure provides in-house food science, chemistry lab, and advanced microbiology services.

5 reasons to trust your HPP recipe to Avure.

1. By combining food science with the world's [highest throughput HPP machines](#), you'll work with a single company committed to your product and business success.
2. We **proof your recipes** in our food science kitchen, and test them on a full-size production machine. We'll work with you to make adjustments to the formulation to optimize flavor, texture and appearance.
3. Avure can give advice about **flavor profiles** and make recommendations for modifying

Working with an [Avure Toller?](#)

Ask about full access to our food lab.

Our science team gets answers fast and accurately from our in-house brain trust led by Dr. Errol Raghubeer, the world's foremost expert on HPP food processing.

Using science and experience, we will work with you to ensure you get the results you expect when implementing HPP as a part of your brand.

Other threats

Negative events

- Accidents
- Loss of process control

Not doing enough

- Losing momentum
- Over-promising

Food

Strengths

Weaknesses

Opportunities

Threats



Industry-wide investment

Lobby for changes in regulations

Encourage global harmonization

Educate and engage consumers/retailers/distributors

Provide application studies, support research

Facilitate use by smaller operations

THANK YOU



Eighth Annual Chapman Phytosanitary Irradiation Forum

March 20-21, 2018, Chapman University, Orange,
California

www.chapman.edu/food-irradiation-workshop