



Perspectives on RTE and NRTE Foods

The Interplay of Regulatory Policy and Control of *Listeria monocytogenes* in Frozen Foods

Donna Garren

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CASA 103rd Annual Educational & Training Seminar

Improving Professionalism in Public Health through
Continuing Education



Vision

Our foods and beverages are proudly chosen to meet the needs of a changing world.

Mission

AFFI is the member-driven national trade association that advances the interest of all segments of the frozen food and beverage industry.



Advance Food Safety

Advocate for Frozen

Increase Consumption

Grow Resources

**2017-2020
Strategic Priorities**



Overview of Discussion

1) Food Recalls

- RTE vs NRTE food recalls
- Frozen foods recalls

2) *Listeria monocytogenes* (*Lm*) in frozen foods

- *Lm* – background and recent outbreaks
- *Lm* prevalence and persistence
- Regulatory policies and landscape
- Resulting recalls and continued risks posed by *Lm*

3) AFFI *Lm* strategy

- AFFI efforts in science and best practices
- Frozen food labeling and consumer behaviors
- AFFI consumer messaging and education campaign



Recent Food Recalls due to Pathogens (April 2019)

1) Frozen Ground Tuna

- *Salmonella* – may be potentially contaminated
- 13 illness being investigated
- Ground Tuna samples were found negative for Salmonella

2) Fresh cut watermelon, honeydew, cantaloupe and mixed fruit melons

- *Salmonella* – may be potentially contaminated
- Reports of illness linked to these products being investigated
- NRTE frozen food with baking instructions

3) Ready-to-eat sandwiches, wraps and salads

- *Listeria monocytogenes (Lm)* – may be potentially contaminated
- Presence of *Lm* in production line
- No illness reported

4) Raw frozen ground pet foods

- *Lm* – may be potentially contaminated
- No illness reported (Pets with *Lm* infections may be lethargic and have diarrhea, fever, and vomiting; in some, only a decreased appetite, fever and pain)
- Risk to humans handling contaminated pet food products

RTE or NRTE



- Ready-to-Eat Sandwiches, Wraps and Salads
- Presence of *Lm* on the production line
- Refrigerated – supports growth of *Lm*

RTE or NRTE



- Company Voluntarily Recalls Organic Nut Butters
- Ready-to-eat Nut butters
- Facility tested positive for *Listeria spp.*
- Shelf-stable product

RTE or NRTE



- Food Company Recalls Two Production Lot Codes of Unbleached All-Purpose 5lb Flour
- Possible contamination with Salmonella
- Flour is made from wheat that is minimally processed
- Flour should not be considered a ready-to-eat product

Flour Recalls (2016-2019)

| Date | Brand Name(s) | Product Description | Reason/Problem | Company Name |
|------------|---|------------------------|--------------------|-------------------------------|
| 03/13/2019 | Pillsbury | Flour | <i>Salmonella</i> | Hometown Food |
| 01/23/2019 | Gold Medal | Unbleached Flour | <i>Salmonella</i> | General Mills |
| 04/06/2018 | Bob's Red Mill | Organic Amaranth Flour | <i>Salmonella</i> | Bob's Red Mill Natural Foods |
| 03/23/2018 | King Arthur | Organic Coconut Flour | <i>Salmonella</i> | King Arthur Flour Company |
| 05/31/2017 | Golden Temple[®], Swad[®], and Maya[®] | Flour | <i>E.coli</i> O121 | Smucker Foods of Canada Corp. |
| 07/25/2016 | Gold Medal, Signature Kitchens | Flour | <i>E.coli</i> O121 | General Mills |
| 07/01/2016 | Gold Medal, Wondra, and Signature Kitchens | Flour | <i>E.coli</i> O121 | General Mills |
| 05/31/2016 | Gold Medal, Gold Medal Wondra, Signature Kitchens | Flour | <i>E.coli</i> O121 | General Mills |

<https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts>

Cake and Waffle Mixes (2016-2018)

| Date | Brand Name(s) | Product Description | Reason/Problem | Company Name |
|------------|-----------------------------------|------------------------|--------------------|------------------------|
| 11/05/2018 | Duncan Hines | Cake mixes | <i>Salmonella</i> | Conagra Brands |
| 12/08/2016 | Publix Premium | Pancake and Waffle Mix | <i>Salmonella</i> | Publix Super Markets |
| 12/08/2016 | Stonewall Kitchen | Pancake and Waffle Mix | <i>Salmonella</i> | Stonewall Kitchen, LLC |
| 07/09/2016 | Krusteaz | Pancake Mix | <i>E.coli</i> O121 | Continental Mills |

<https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts>

Not All Cookie Doughs Are Equal



- Do not consume raw cookie dough
- Baking Instructions

Ready-to-eat cookie dough

Not Everything Frozen Is Equal



Uncooked



Fully Cooked Ready-to-Eat

RTE or NRTE



Uncooked
Safe Cooking Instructions



Fully Cooked
Heating Instructions

RTE or NRTE



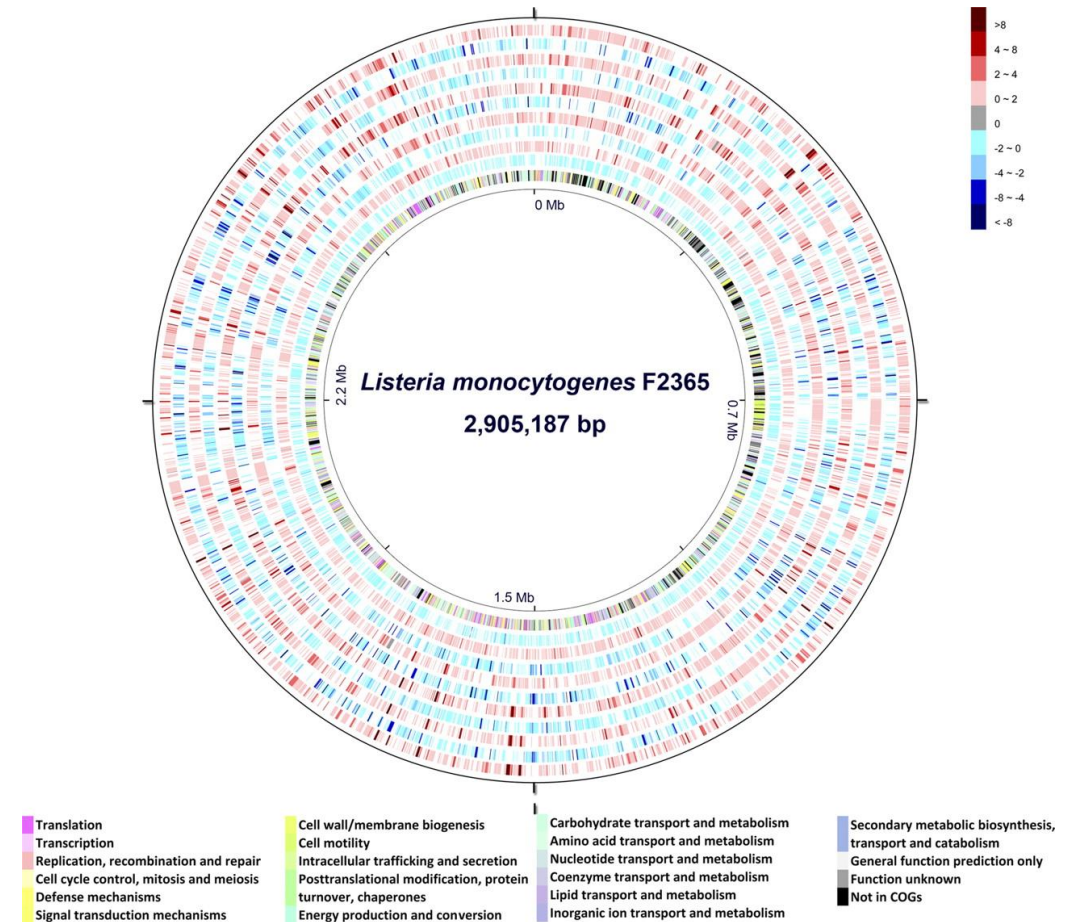
Keep Frozen, Cook Thoroughly

***Lm* in Frozen Foods (2018)**

- 1) Frozen cut green beans and mixed vegetable
 - Recall initiated by 3rd party test result by a downstream customer
 - NRTE frozen food with validated cooking instructions
- 2) Frozen biscuits
 - Product sampling by an outside co-manufacturer/packer
 - NRTE frozen food with baking instructions
- 3) Frozen biscuit dough
 - Regulatory disposition – potential to be contaminated with *Lm*
 - NRTE frozen food with baking instructions
- 4) Frozen kernel corn
 - Regulatory disposition – potential to be contaminated with *Lm*
 - NRTE frozen food with validated cooking instructions
- 5) Frozen organic whole green beans
 - Routine state sampling program: Dept. of consumer protection (CT)
 - One positive *Lm* finding in one retail product sample
 - NRTE frozen food with validated cooking instructions

Biology of *Listeria monocytogenes* (Lm)

- 1) A foodborne pathogen - Listeriosis
- 2) Diarrhea, fever, vomiting, muscle and headaches, general malaise and weakness
- 3) 1800 illnesses and 250 deaths/yr. in the United States
- 4) >15% mortality rate
- 5) At-risk groups: Immuno-compromised, young children and elderly, pregnant women and neonates



Significant *Lm* foodborne outbreaks

- 2008 Deli Meat (Canada) – 57 cases, 24 deaths
- 2010 Pre-cut Celery (US) – 10 cases, 3 deaths
- 2011 Cantaloupe (US) – 147 cases, 33 deaths
- 2014 Caramel Apple (US, Canada) – 5 cases, 2 deaths
- 2014 Stone Fruit (US) – 4 cases
- 1998-2014 Soft Cheese (US) 180 cases, 17 deaths
- 2015 Ice Cream (US) – 10 cases, 4 deaths
- 2016 Frozen Vegetables (US) – 9 cases, 1 death
- 2017-18 RTE Processed Meat (SA) – 1060 cases, 216 deaths
- 2018 Frozen Corn (EU) – 45 cases, 9 deaths

Prevalence of *Listeria monocytogenes*

- 1) Grows at refrigeration temperatures – deli/processed meats, soft cheeses, unpasteurized milk, seafood, fruits and vegetables, ice cream, frozen foods
- 2) **Ubiquitous in occurrence**
 - Soil, vegetation, water, food facilities
 - Food processing environments, raw ingredients, human and equipment traffic, water
 - Cool, moist and humid conditions
 - Survives freezing and frozen storage
- 3) Food processing facilities - seek and destroy approach
- 4) Understanding regulatory dynamics



***Lm* Harborage, Niches and Transfer points in Food Manufacturing Facilities**

- 1) Floors and Drains
- 2) Cracks in the walls and equipment, floors
- 3) Wet and rusting hollow framework
- 4) Walls and crevices of spiral freezers
- 5) Ceilings, overhead structures and cat-walks
- 6) Fibrous or porous conveyor belts and hollow rollers
- 7) Damp insulation and rubber seals around doors
- 8) Cracked hoses
- 9) Cleaning tools such as mops and sponges, buckets
- 10) Personnel and vehicle traffic in the facility

Federal Regulatory Policies

- 1) FDA *Lm* guidance documents and current thinking
 - Zero-tolerance for presence of *Lm* in Ready-to-Eat foods (RTE)
 - Absence of GMPs or positive *Lm* finding in the manufacturing environment – Insanitary conditions
 - Preventive controls hazards guide; *Lm* CPG; RTE/NRTE guidance

- 2) USDA *Listeria* rule
 - Zero-tolerance in RTE foods
 - Not-Ready-to-Eat foods have validated cooking instructions on the package

- 3) AFFI: Not-Ready-to-Eat (NRTE) frozen foods
 - Bear validated cooking instructions on the package
 - Maintain frozen state during storage and product shelf life
 - Follow best food safety and manufacturing practices
 - Opportunity for consumer education

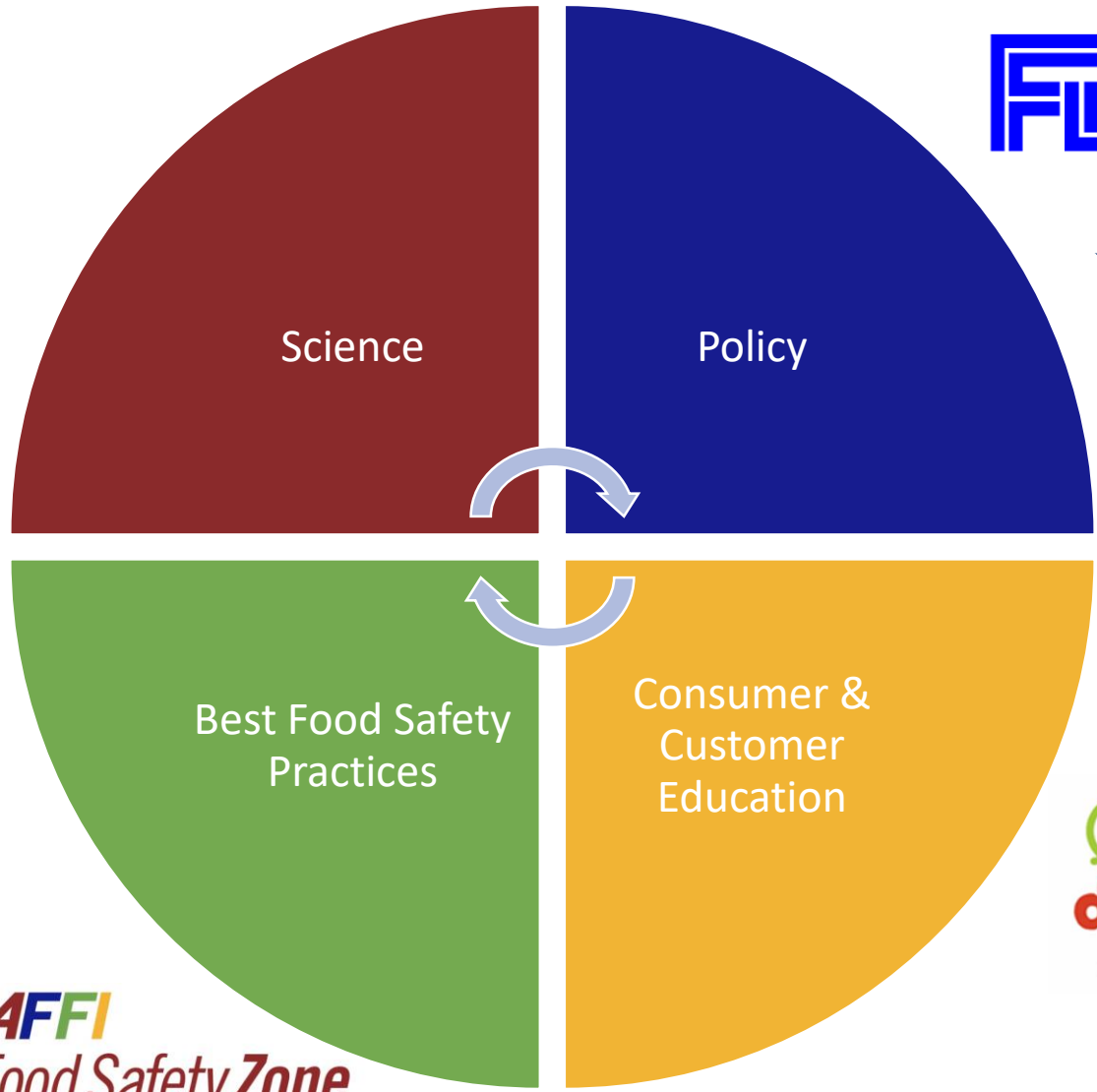
AFFI *Listeria monocytogenes* Goals

**Minimize incidence of
Listeria monocytogenes (Lm)
in frozen foods.**

**Secure a practical, science-based
regulatory approach that:**

- Protects public health
- Reduces regulatory jeopardy; Maintain NRTE
- Affords companies time to invest and implement best practices
- Develop science

AFFI Lm Strategy



AFFI
Food Safety Zone

AFFI AMERICAN
FROZEN FOOD
INSTITUTE

REST IF LISTED BY.

COOKING INSTRUCTIONS:

Do Not Thaw. Keep Frozen Until Ready To Use. Due to variations in ALL ovens, cooking times and/or temperature may require adjustment.

MICROWAVE OVEN:

Microwave cooking instructions based on 1100W appliance. For 1250W microwaves reduce cooking time.

- Remove entrée from carton, place on a microwaveable plate and place in microwave.
- Cook on HIGH with film on for 4-6 minutes.
- **Carefully** remove film, let stand for 5 mins. before serving.

CONVENTIONAL OVEN:

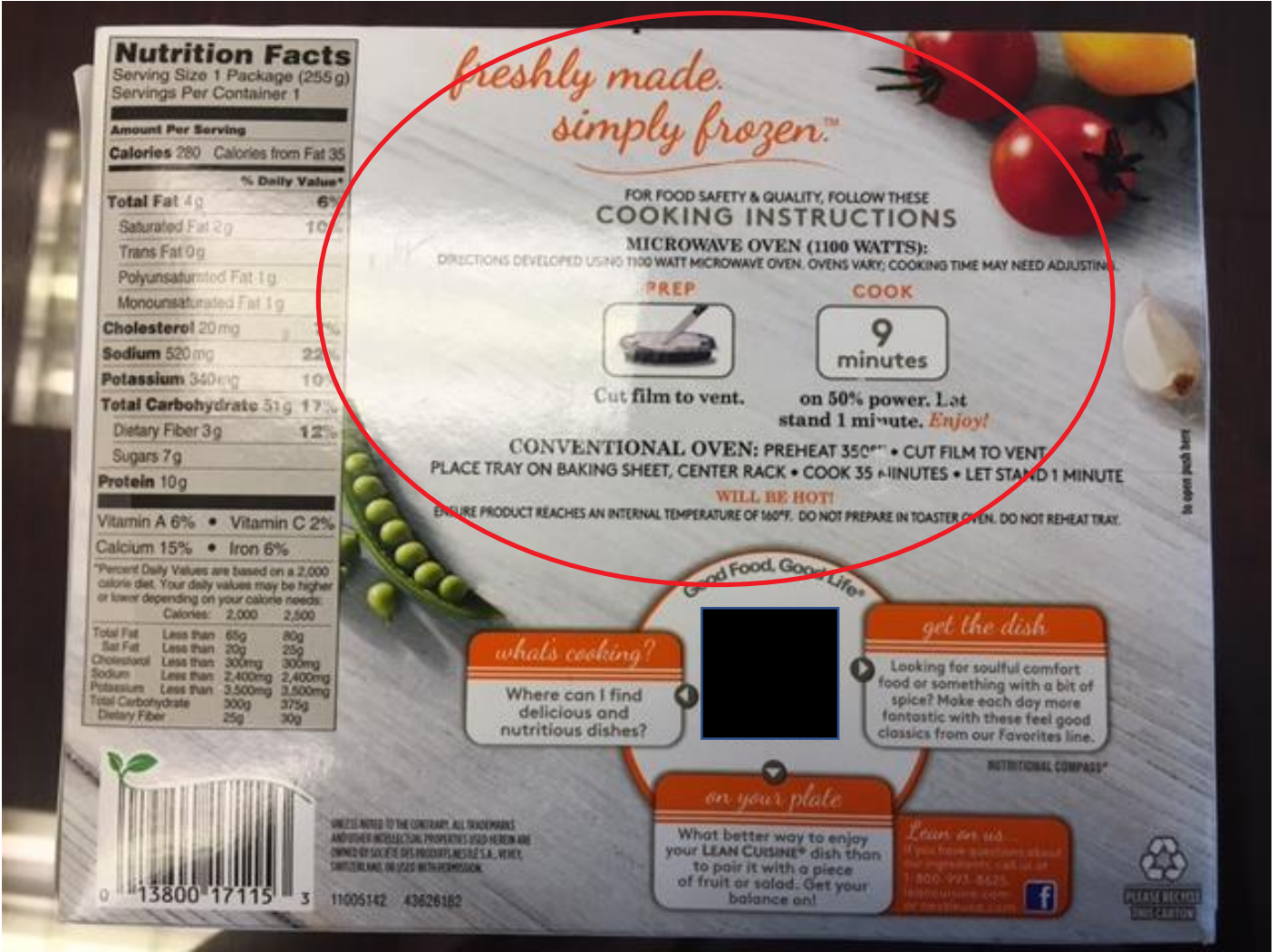
- Preheat oven to 400°F.
- Remove entrée from carton, place tray on cookie sheet (for added support) on center rack (at least 6"-8" from heating elements).
- Leave film on during cooking.
- Bake 35-40 minutes.
- Remove from oven on cookie sheet (for added support).
- **Carefully** remove film and let stand 5 minutes before serving.

DO NOT COOK IN TOASTER OVENS

For Safety, Must be Cooked to an Internal Temperature of 160°F as Measured by Use of a Thermometer.

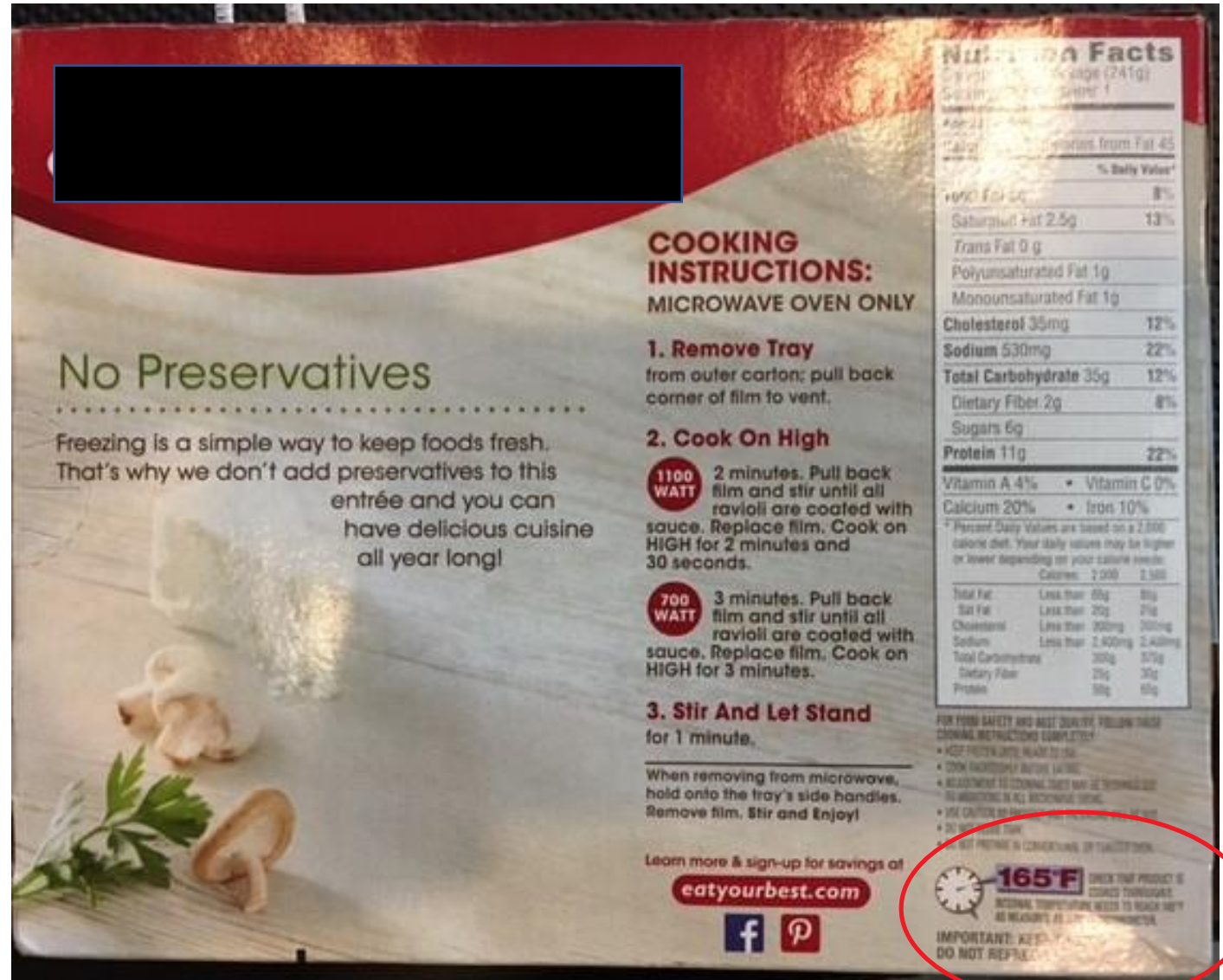


Cook thoroughly
Microwave wattage





Product needs to be thoroughly cooked





Not-Ready-to-Eat Foods that appear to be RTE

Examples of Breaded, Pre-browned
Chicken Cordon Bleu
Chicken Kiev
Chicken stuffed with Broccoli & Cheese

Do no Microwave

Microwave Wattage and Power Level



"What kills me is the wattage [of my microwave] – I don't know what the wattage is." – Young mom

"You have to look at the wattage [guidelines] and most of them don't have it on there. They just say put it in your microwave and [cook]. So I've learned that if it doesn't have the wattage, I'm going to first cook the food a little just to see how it turns out." – General consumer

"I didn't know you could [adjust the power setting of a microwave]." – Young mom

LACK OF UNIFORMITY

There is no *uniform, industry-wide practice* for informing consumers on package.



Inconsistent language:

- “Cook thoroughly”
- “RAW”
- “Not ready to eat”
- “Cook fully”

“I never understood why they can’t just be direct and say, [‘Cook for Safety.’].” – Older consumer

EXPLORING CONSUMER MESSAGES

Including a symbol can effectively shift behavior, but is most effective for frozen vegetables.



KEEP FROZEN. FOR SAFETY, COOK AS DIRECTED.

Why include “Cook for Safety’ on Package Remember the “P’s”

Protective

- Products bearing symbol have the ability to influence which foods are considered and regulated as NRTE
- Products bearing the symbol may be less likely to be selected for testing at the retail level by state inspectors
- Reduces risk of recall
 - Early costs of Greenyard listeria-related recall was estimated at \$35 million
 - Cost of production downtime and lost business
 - Impact on brand reputation with consumers and customers

Proactive

- Empower consumers with confidence to use your products while reducing risk of misuse
- In the event of a recall, provides offensive public relations strategy

WHAT'S YOUR RESPONSIBILITY?



Be a leader: learn more!



Raising the bar on food safety.



AFFI's new Food Safety Zone is aimed at *Listeria monocytogenes (Lm)* control and prevention throughout the entire supply chain. Frozen food manufacturers of all sizes, domestic and international, can search for, access and incorporate best food safety practices, created by food safety professionals FOR food safety professionals. THIS is how we raise the bar on food safety.



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THANK YOU

