



What Do You Mean –  
the Expired Food May  
be Suitable for My Next  
Dinner Party.....



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### Outline of Presentation

- Some of the problems
  - Food loss/waste
  - Poor nutritional status of seniors
  - Uninformed safe food practices
- Some of the solutions
  - Making the most out of what you have (foodwise)
- Discussion, questions, and answers



## Becoming Aware

1. Identify two food safety issues wrong with this pic (as opposed to issues with Steven or there being a man in the kitchen)
2. Learn the difference between food loss and food waste
3. Know the percentage of food Americans buy that is believed to be thrown out?
4. Consider two issues you would assess before discarding food.
5. Determine how soon leftovers should be placed under refrigeration after cooking/serving.



## Problem -- Food Loss/Waste

- Not a new issue
  - The U.S. Department of Agriculture issued guidance during the depression
- Lifestyle choices play a big part
  - Bénédicte de Saint Germain explained "...We need to transform our way of living and consuming. **Waste signals a way of consuming that is sick and must be healed.** Awareness begins with the most essential thing: our daily food...."



## Magnitude of the Problem

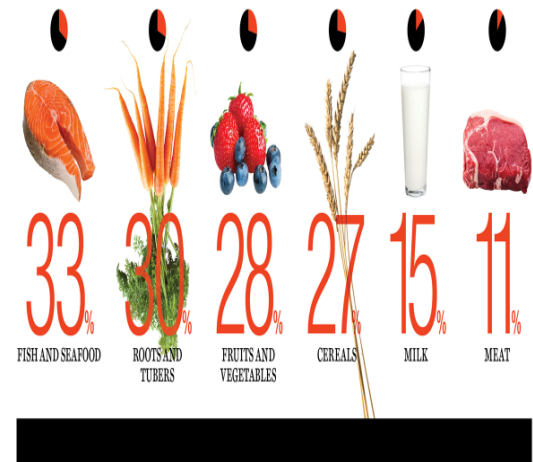
- Retailers have cosmetic standards that they enforce (“US Extra Fancy” and “US Fancy”; “US Number 1” or “Utility” not sold despite being edible)
  - 35 to 103 million tons of food loss annually in US; \$162 billion
- The “Food Loss and Waste 2030 Champions” program
  - USDA and EPA announced the food loss and waste reduction goal in September 2015, calling for a 50% reduction by 2030. There is an application process; progress reports are on public websites for 30 corporations (e.g., Amazon, Blue Apron, Walmart, Sprouts Farmers Market, The Wendy’s Company, YUM Food Brands)

### Definitions

- **Food loss** -- edible amount of food from postharvest available for human consumption but not consumed (ERS/USDA)
  - Loss from mold, pests, or inadequate climate control in handling – retail mostly
- **Food waste** -- what is left on a plate and discarded without reuse (ERS/USDA)
  - Consumers directly impact

## HOUSEHOLD FOOD WASTE

Some estimates say Americans throw out 25% of the food they buy. Here’s the share of each commodity that ends up in consumers’ trash.



The current estimate for food waste is 1.2 pounds daily for a value of \$1,500 annually due, in part, to “date labeling”

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## Date Labeling

- An indication of peak quality
- **Not an indication of food safety**
- Not an indication of wholesomeness
  - Exception is for infant formula, based on nutritional bioavailability
- Various forms
  - “Use by” – last date recommended for use during peak quality
  - “Freeze by” – when product should be frozen for maintaining peak quality”
  - “Sell by” – for retail display -- inventory management
  - “Best if used by” – preferred statement by government and consumers to convey the concept of product’s peak quality
- Need for “dating”
  - Except for canned foods, spoilage and organisms and enzymes are expected and desirable on food products
  - Even though ready-to-eat foods (e.g., cooked) are free of detectable pathogens, measurable levels of spoilage organisms are present but undetectable until changes in odor, texture, and appearance occur
  - Spoilage organisms multiply during refrigerated storage and enzyme activity occurs that ultimately cause food to become offensive and inedible
    - Consumption of such product won’t cause disease but could cause gastrointestinal discomfort
  - Growth of spoilage organisms and enzyme degradation are highly predictable; hence, the “best if used by date” reflects when noticeable changes in appearance and odor likely will begin under acceptable refrigeration and handling



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## Environmental Concerns

- Combined impact of food loss and food waste
  - Food loss/waste is responsible for 8% of global human-made greenhouse gas emissions and immeasurable amounts of water loss
    - Some States (e.g., NY) ban restaurants from sending food loss/waste to landfills due to biological oxygen demand (BOD) to the leachate – require **composting** instead
    - Elsewhere in the US, 19% of landfills contain food loss/waste that biodegrades to produce methane (greenhouse gas)
    - Food loss/waste put through a garbage disposal goes to sewage treatment to form sludge that impacts quality of life for all associated living things



Discarded bagels



Inevitable waste: peels of potato, onion, lemon, tangerine, banana, egg shell

## Problem -- Poor Nutritional Status of Seniors

- “It is what it is...”
  - Weight loss due to decrease in overall food intake
    - Often a function of a bout of illness, natural decreased energy levels, aloneness, loneliness, pain, motion limitations, poor teeth, loss of taste/smell, decreased absorption of all nutrients by intestinal tract
  - Weakened bones
    - Poor absorption of nutrients, especially calcium and vitamin D
    - Decreased physical activity and muscle/bone resistance activity
  - Vision loss
    - Can be a function of lack of protein, antioxidants, vitamin A, and lutein
  - Weakened immune system
    - Exacerbated by poor vitamin and nutrients that facilitate white blood cell production (e.g., zinc, beta-carotene, vitamin C, and vitamin E); associated respiratory and cardiac issues
  - Cognitive decline
    - Although inconclusive, data do suggest that loss of neurons is often caused by free radical damage that can be slowed by antioxidants
  - Constipation
    - Consumption of fiber and water are essential for keeping regular, with exercise known to be helpful



## Uninformed Safe Food Practices

- Burden of foodborne disease
  - The Centers for Disease Control and Prevention estimates of the burden of foodborne illness in the U.S. annually are: 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths
- Older adults (people 65 years of age and older)
  - Are at higher risk for hospitalization and death from foodborne illness
  - Have organs and body systems changing as the body ages
    - The digestive tract slows movement of food, allowing bacteria to grow in an environment with increasingly lower levels of acid being produced to limit bacteria growth
    - The liver and kidneys increasingly slow expulsion of foreign bacteria and toxins
- Safe food preparation and handling practices need to be reiterated
  - Internal cooking temperature/time
  - Hot holding temperature
  - Time to get take-out and leftovers into refrigeration
  - Storage of food in refrigeration
  - Reuse of leftovers
  - Sanitation



## Solution – Safe Refrigerated Leftovers

- Verify that the refrigerator's internal temperature is at or below 40°F
- Place food into a covered container
  - Maintain the depth/thickness of the food at no greater than 3.5" to increase surface area and facilitate cooling
- Place covered food into the refrigerator within 2 hours of cooking
  - Ensure that the internal temperature of the food at no greater than 130°F to prevent raising the internal temperature of either the refrigerator or the other cooled items
- Check the food's maximum internal temperature to verify it is no more than 40°F as soon as possible
  - Attain an internal temperature between 130°F and 80°F for no more than 1.5 hours nor between 80°F and 40°F for no more than 1.5 hours (6.5 hours total cooling time); turning/stirring product can speed cooling
- Consume within 1 week, recook, or discard as waste



\*E.g., move the contents from the 8.5" deep kettle into multiple 3.5" deep containers



## Safe Frozen Leftovers

- If putting food directly into the freezer rather than the refrigerator, follow the same criteria as for refrigeration except
  - Verify that the freezer's internal temperature is at or below 0°F
  - If foods are to be wrapped rather than placed into solid containers,
    - Use freezer wrap that has a wax or plastic lining; the shiny side should be in direct contact with the food
    - Although food can be placed in the freezer in its original retail packaging, this packaging generally is not designed to prohibit oxygen transfer (i.e., it contributes to freezer burn); thus, overwrap with freezer wrap
- Foods with preservatives (e.g., nitrite, sodium, or sugar) have decreased storage time due to increased chemical reactions
- Foods stored at or below 0°F will remain safe but optimal quality will deteriorate over time due to
  - Chemical reactions in the food associated with
    - Natural enzymes that impact odor and flavor
    - Natural pigments that impact color throughout the product
    - Preservatives (e.g., nitrite, salt, or sugar) that impact odor and flavor
    - Oxygen (e.g., air pockets within the package) that causes surface freezer burn (i.e., drying at the surface creating grayish-brown, leathery spots)

## Frozen food guidance

Item	Months
Bacon and Sausage	1 to 2
Casseroles	2 to 3
Egg whites or egg substitutes	12
Frozen Dinners and Entrees	3 to 4
Gravy, meat or poultry	2 to 3
Ham, Hotdogs and Lunchmeats	1 to 2
Meat, uncooked roasts	4 to 12
Meat, uncooked steaks or chops	4 to 12
Meat, uncooked ground	3 to 4
Meat, cooked	2 to 3
Poultry, uncooked whole	12
Poultry, uncooked parts	9
Poultry, uncooked giblets	3 to 4
Poultry, cooked	4
Soups and Stews	2 to 3
Wild game, uncooked	8 to 12

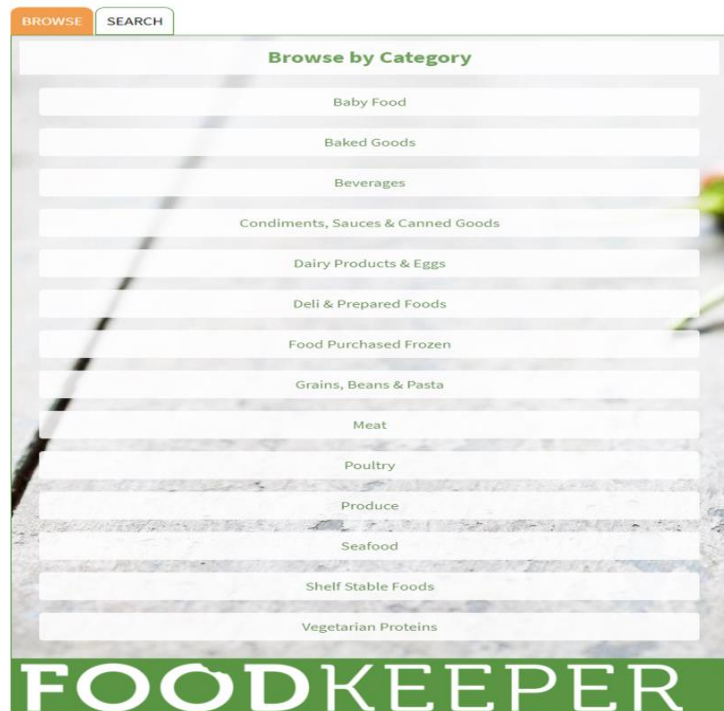
These times provide for optimal quality of foods placed into self-defrosting freezer units (i.e., units that cycle up and down to eliminate frost); freezer units that maintain constant temperature may provide for up to double the optimal storage time)

## Safe "Expired" Foods

- USDA FoodKeeper app
  - On your iPhone or android device, download the app to assess the timelines for freshness and quality – when the food should be consumed by
  - You can add a reminder date on your calendar to reassess and throw out the item when the date arrives
  - Educational videos are included on the app
  - Allow notifications of food safety recalls

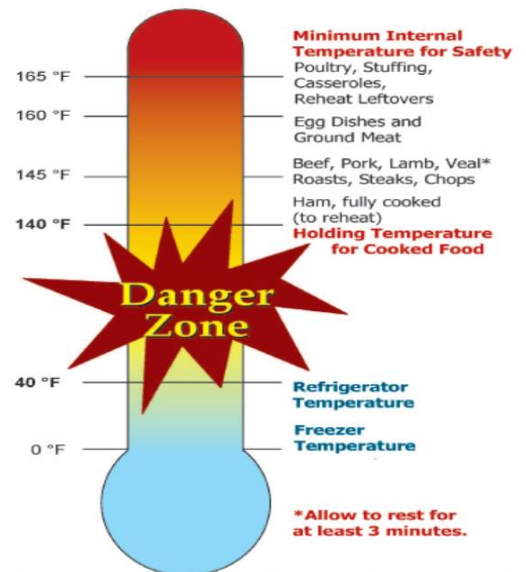
### FoodKeeper App

The FoodKeeper helps you understand food and beverages storage. It will help you maximize the freshness and quality of items. By doing so you will be able to keep items fresh longer than if they were not stored properly. It was developed by the USDA's Food Safety and Inspection Service, with Cornell University and the Food Marketing Institute. It is also available as a mobile application for Android and Apple devices.



## Food Temperature Safety and Rules

- **Temperature/time** must be addressed before, during, and after handling food for consumption:
  - The “Danger Zone” is real!
    - Although microorganisms multiply between 40 °F and 140 °F, they also die in a predictable manner
      - Destruction occurs above 140 °F
    - Always verify the internal safety of food by use of a food thermometer
  - 4 food safe rules
    - Clean
    - Separate
    - Cook
    - Chill



## What's Your Answers?

1. Identify two food safety issues wrong with this pic (as opposed to issues with Steven or there being a man in the kitchen)
2. Learn the difference between food loss and food waste
3. Know the percentage of food Americans buy that is believed to be thrown out?
4. Consider two issues you would assess before discarding food.
5. Determine how soon leftovers should be placed under refrigeration after cooking/serving since the “use by” date is not a food safety indicator.



## Informed Answers

1. Identify two food safety issues wrong with this pic (as opposed to issues with Steven)
  - Answer – hot, heavy kettle (Note: Steven effort); placing hot item next to highly perishable milk; placing hot kettle on “glass” shelf; not portioning contents into smaller containers (e.g., quart size)
2. Identify a difference between food loss and food waste
  - Answer – loss is available but unconsumed food; waste is discarded plate content that is not reused
3. What percentage of food Americans buy is believed to be thrown out?
  - Answer – 25%
4. Since the “use by” date is not a food safety indicator, identify two issues you would assess before discarding.
  - Answer – noticeable odor changes that are objectionable; noticeable appearance (e.g., slim, mold) changes that are objectionable; significant freezer burn that if trimmed away would result in negligible remains)
5. How soon should leftovers be placed under refrigeration after cooking/serving?
  - Answer – Within 2 hours (however, if the environmental temperature and/or the temperature of the food is 90°F or greater, 1.5 hours)



## Discussion, Questions, and Answers

- What's on your mind?
- Did anything resonate with you?
- How are you going to change your behavior?





# Thank you!

- If you have follow-up questions, I am happy to seek science-based answers for you
  - Keep yourself and your loved ones aware
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- Resources:
    - <https://www.usda.gov/foodlossandwaste>
    - <https://www.foodsafety.gov/> (Note: FoodKeeper App also is available at this site)

