Food Preparation, Food Safety & Sanitation

NOTE: This presentation is about food safety & sanitation practices in general. It does not relate specifically to the specific food safety & sanitation requirements of the Cottage Food Law

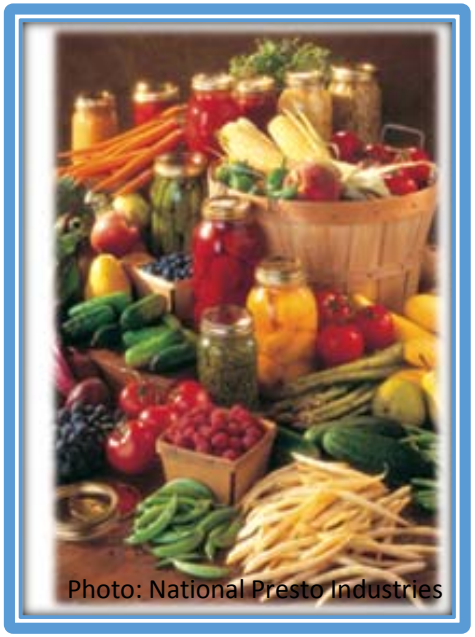


Photo: National Presto Industries

"Partially funded by a California Department of Food and Agriculture Specialty Crop Block Grant"

cdfa
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Is Food Safety Important?

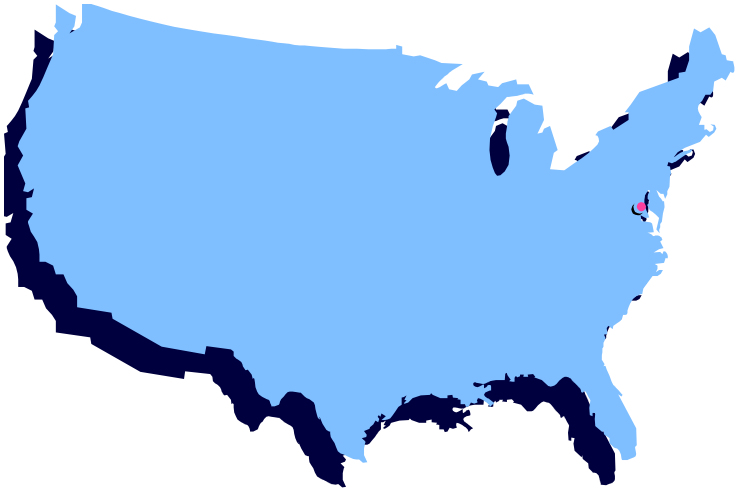
Safe food practices:

- Minimizes the risk of food borne illness
- Less risk for your business and
- Improved customer relations

Is Foodborne Illness Common?

In the United States, during 2011 it was estimated that…

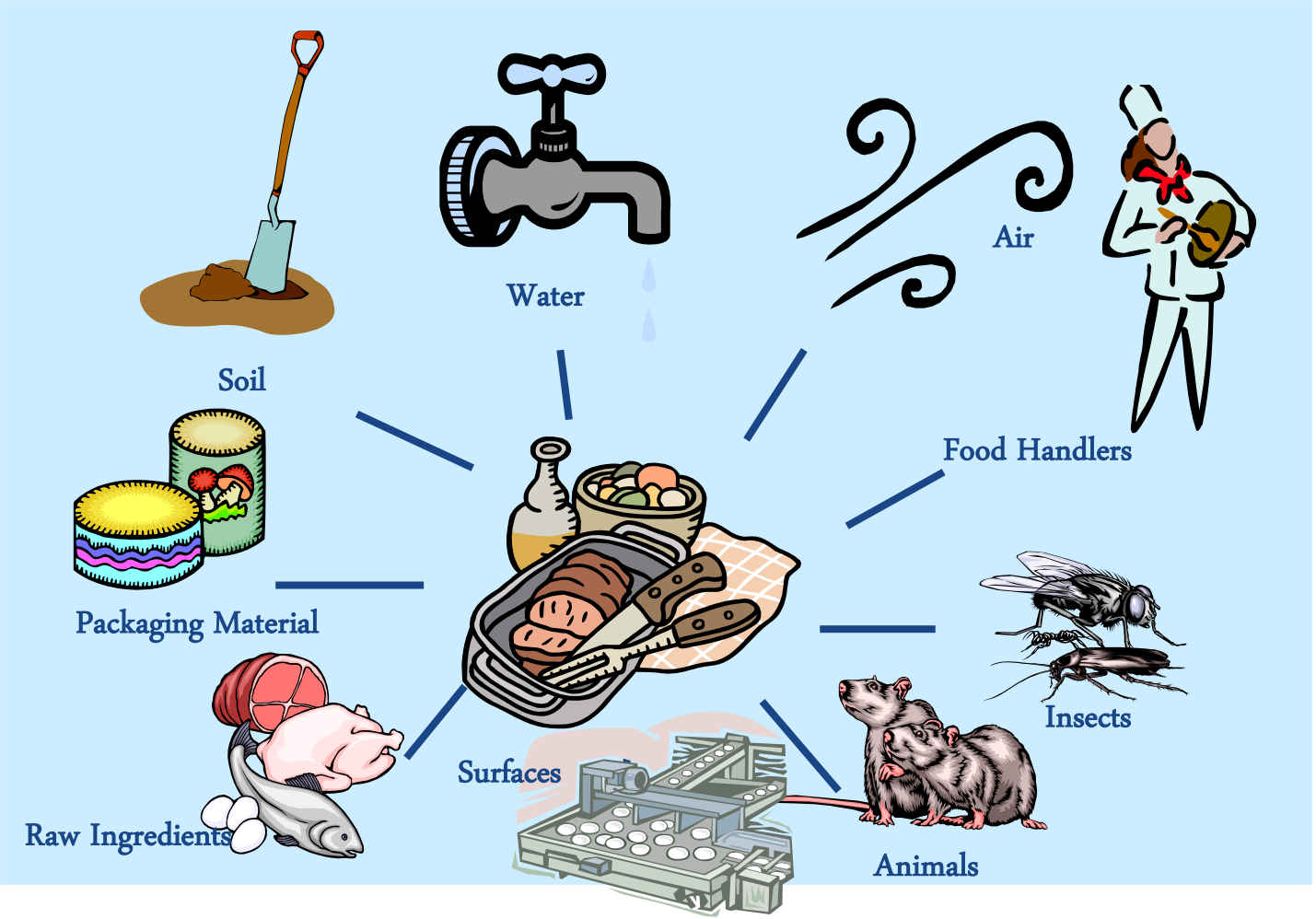
- 48 million people were affected by foodborne illness.
- 128,000 people were hospitalized.
- 3,000 people died.



Source: Centers for Disease Control, 2011


Salmonella bacteria in catered pork linked to food poisonings
Salmonella outbreak suspected
Many become ill after attending parties served by same caterer.
By JoAnne Young
Catered Pork Tied to Salmonella
Caterers commonly unlicensed
Official says there aren't enough resources to enforce state's food codes.
By JoAnne Young
Coliform detected in meat
Shigella sickens Schuyler wedding guests
SCHUYLER (AP) — A bride and about 40 of her guests came down with a food-borne illness after attending a wedding reception in Schuyler.
Lancaster County. There was another last year in Douglas County."

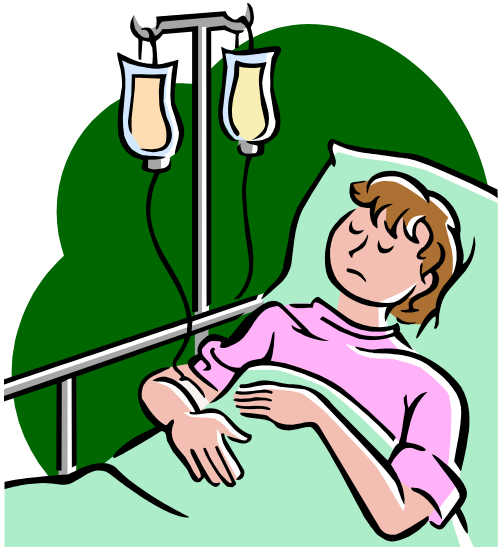
Sources of Microorganisms



People at Higher Risk of Foodborne Illness:

- Infants
- Young children and older adults
- Pregnant women
- People with impaired immune systems
- People with some chronic diseases

May Cause More Severe Conditions such as



Dehydration
(sometimes severe)

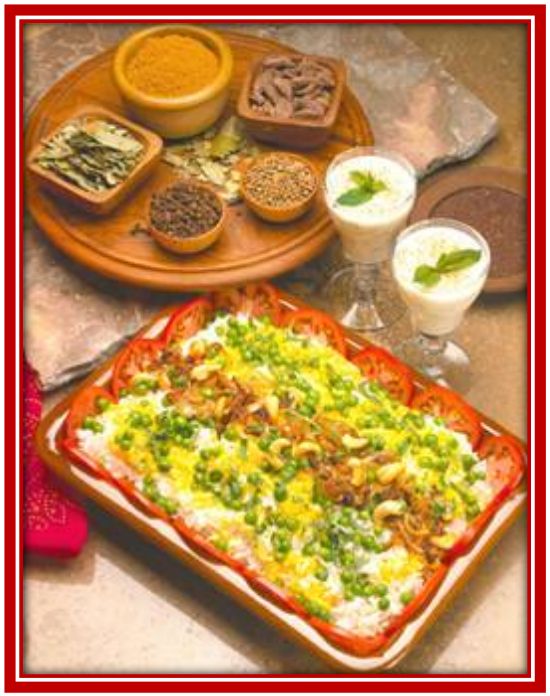
Meningitis

Paralysis

Foodborne Illness Symptoms?

- Upset stomach
- Diarrhea
- Fever
- Vomiting

Food Contamination from farm to the table



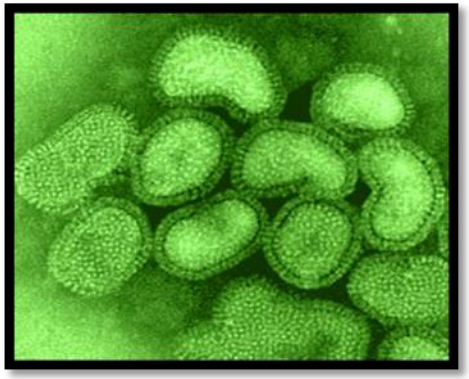
Sources of Food Contamination

Physical:

- Toothpicks
- Metal shavings
- Glass fragments
- Bandages
- Hair

Chemical:

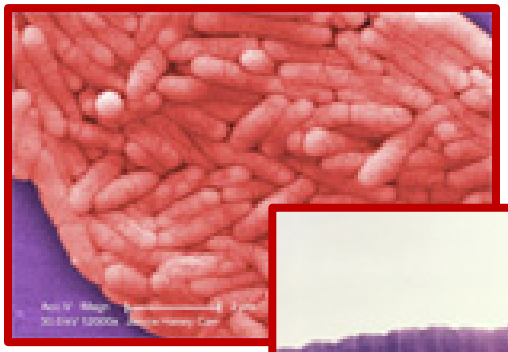
- Cleaning solutions
- Insecticides
- naturally occurring toxins



Biological:

- Bacteria,
- Viruses
- Parasites

Biological Contamination



Bacteria and Viruses

Parasites

Molds and Toxins

Allergens

Foodborne Illness: Sources

Pathogen	Sources
Norovirus	Produce, shellfish, ready-to-eat foods touched by infected food workers (salads, sandwiches, ice, cookies, fruit), or any other foods contaminated with vomit or feces from an infected person
Salmonella	Food: Contaminated eggs, poultry, meat, unpasteurized milk or juice, cheese, contaminated raw fruits and vegetables (alfalfa sprouts, melons), spices, and nuts. Animals and their environment: Particularly reptiles (snakes, turtles, lizards), amphibians (frogs), birds (baby chicks) and pet food and treats.
Clostridium Perfringens	Beef, poultry, gravy
Campylobacter	Raw and undercooked poultry, unpasteurized milk, contaminated water.
Staphylococcus	Foods that are made with hand contact and require no additional cooking, such as: Salads, such as ham, egg, tuna, chicken, potato, and macaroni; bakery products, such as cream-filled pastries, cream pies, and chocolate éclairs; and sandwiches. Other sources include milk and dairy products, as well as meat, poultry, eggs, and related products.

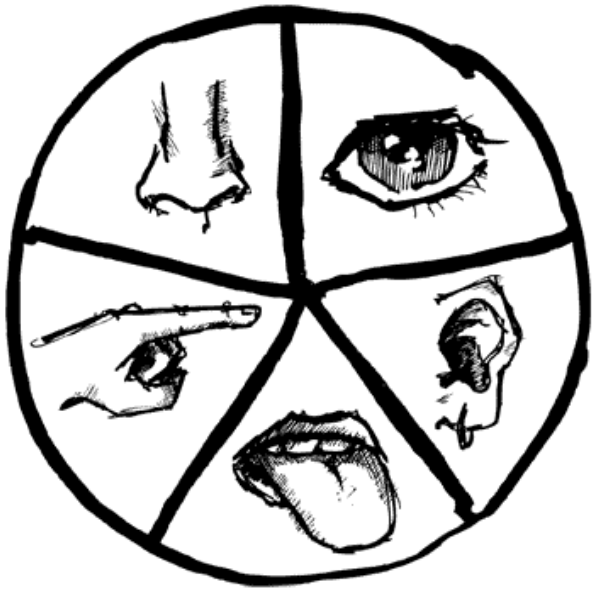
Source: http://www.foodsafety.gov/poisoning/causes/index.html

You can't rely on your sight, smell, or taste . . .

Even if tasting would

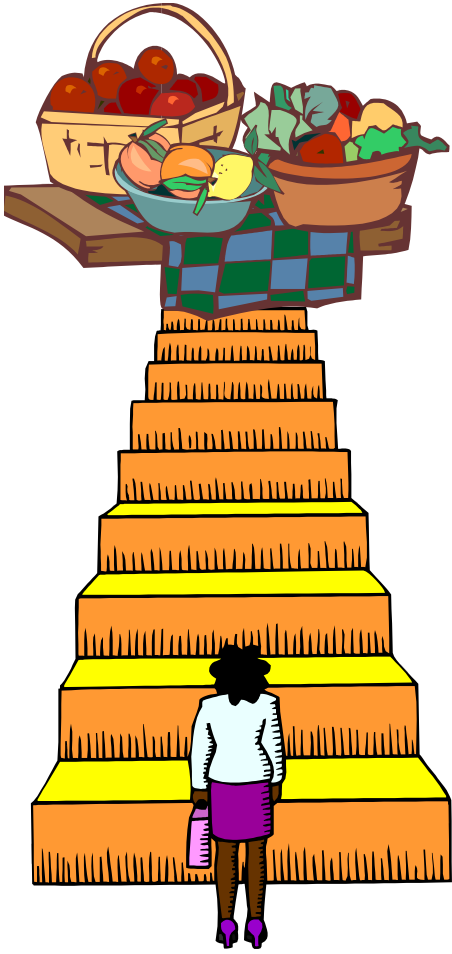
tell...why risk getting sick?

- Even a tiny taste can make you sick
- As few as 10 bacteria can cause foodborne illness!



Four Steps to Prevent Foodborne Illness

USDA Dietary Guidelines give four steps to prevent foodborne illness.



First Step in Food Safety

Personal hygiene is essential for food handlers

This includes:

- Wearing clean clothes.
- Tying hair back or wearing a hat or hair net.
- Not smoking or eating in food preparation and washing areas.
- Not wearing jewelry.
- Proper handwashing.

Wash Your hands!

Handwashing is the most effective way to stop the spread of illness

Know how to wash hands:

- Wet hands with warm water
- Apply soap
- Rub hands for 20 seconds
- Rub between fingers, nails
- Rub forearms; then rinse
- Use single use towel to dry
- Turn off water with towel
- Discard towel

Do not prepare, cook or serve food if you have a:

- Cold
- Cough
- Sore throat
- Symptoms of intestinal illness (vomiting, diarrhea, fever)

Clean and Disinfect Equipment & Surfaces

Cleaning

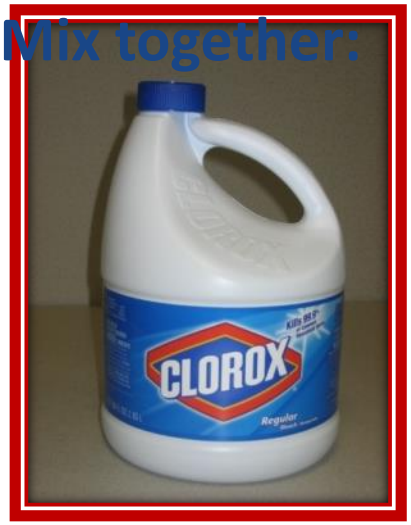
- Removes soil from the surfaces of equipment and utensils.

Disinfecting

- Reduces the number of disease-causing organisms on equipment and utensils.

Recipe for Disinfecting Solution

Mix together:



1 Tablespoon
liquid of bleach

+

4 cups of water

=

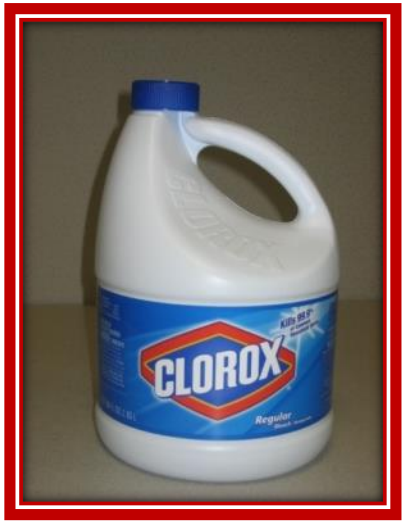
Disinfecting solution!

Make a new batch daily as it loses its disinfecting properties

Recipe for Sanitizing Solution

Make a new batch daily as it loses its sanitizing properties

Mix together:



1 Tablespoon liquid of bleach

+

1 gallon water= 16 cups

=

Sanitizing solution

Clean Fruits & Vegetables

- Wash with cold, running water.
- If there is a firm surface, such as on apples or potatoes, the surface can be scrubbed with a **CLEAN** brush.
- Do **NOT** use soap or other cleaners.

Don’t wash/rinse meat or poultry!

Bacteria in raw meat and poultry juices can be spread to other foods, utensils, and surfaces if it is washed or rinsed.


SEPARATE

Separate to Prevent Cross Contamination

Keep raw, cooked, and ready-to-eat foods separate when shopping, preparing or storing foods.

Separating foods **prevents the transfer of harmful substances** from one food to another.

Prevent Cross Contamination

Use separate cutting boards for:

- fresh produce
- raw meat
- poultry
- seafood
- Bread

Use clean knives:

- Designate a knife for meat and poultry and another one for vegetables and fruit.

Clean & Sanitize Utensils & Surfaces

- After working with raw foods.
- Before working with ready-to-eat foods.
- Use a clean dish towel.
- Wash dish towels on the hot cycle in washer.
- Wash plastic cutting boards in the dishwasher.

Avoid Cross Contamination

- Keep raw foods separate from ready-to-eat and cooked foods.
- Store raw foods below ready-to-eat and cooked foods.


COOK

Cook to a Safe Temperature

- Whole poultry 165° F
- Chicken breasts 165° F
- Egg dishes 160° F
- Ground beef 160° F
- Pork 145° F
- Fish 145° F
- Steaks/roasts 145° F

ALWAYS USE A FOOD THERMOMETER


CHILL

Factors Influencing Microorganism Growth

High moisture

Protein

Low-acid

Bacterial Foodborne Illness

4% Use of leftovers

7% Improper cleaning

7% Cross contamination

11% Contaminated raw food

12% Inadequate reheating

16% Improper hot storage

16% Inadequate cooking

20% Infected persons touching food

21% Time between preparing and serving

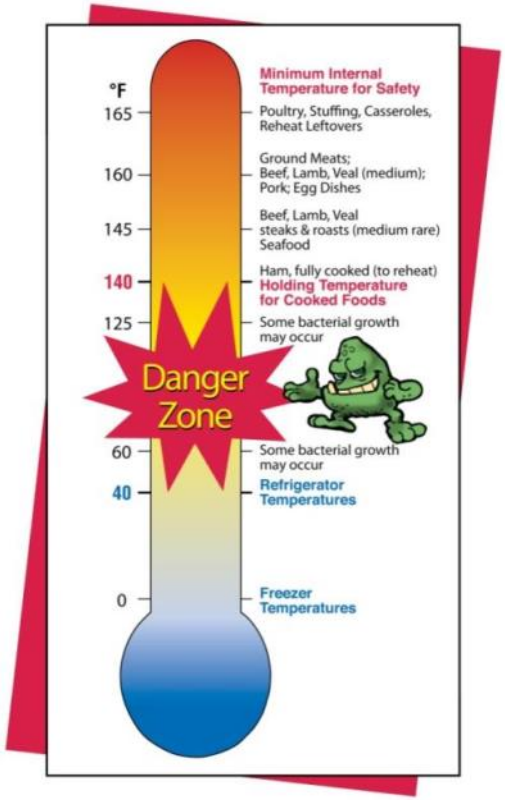
40% Improper cooling of foods

Total = more than 100% due to multiple causes in same case. CDC 1999

What is the “Danger Zone?”

The danger zone is the temperature range between **41°F -135°F**

- Bacteria multiply rapidly between these temperatures.
- Viruses do not grow, but they survive in food at these temperatures.
- Freezing food slows growth, but high temperatures kill bacteria and viruses.
- Cook foods to a safe temperature to kill bacteria and viruses.



Keep Foods out of the DANGER ZONE

- Hot foods should be cooled and reheated only one time.
- Cold foods should be kept on ice or in a cooler.
- Discard food that has been at room temperature of less than 90°F for over two hours.
- If the room temperature is 90°F or more, discard after one hour.

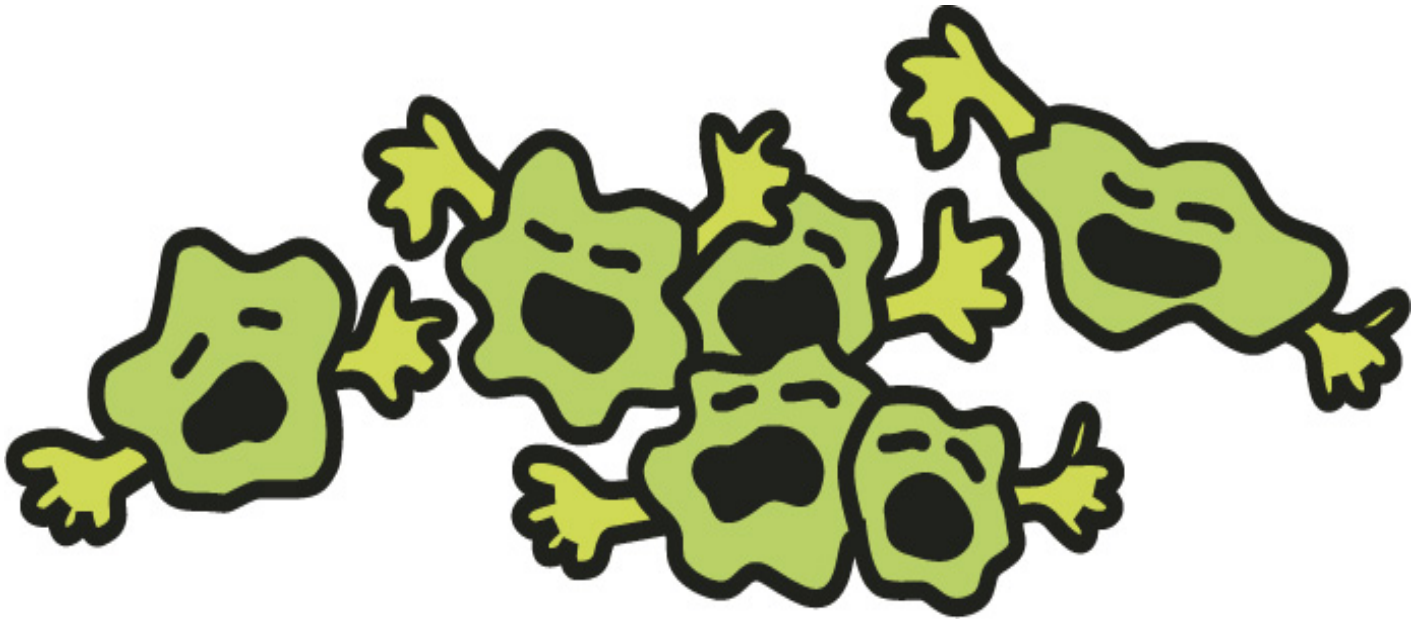
Bacteria Multiplication

Bacteria numbers can double every 20 minutes!

How many bacteria will result if

1 BACTERIUM is left at room temperature for 7 hours?

Answer: 2,097,152!



Refrigerate perishable foods quickly!

Keep Cut Fruits and Veggies Out of the Danger Zone

Cut fruits and vegetables can grow bacteria

Do not leave out for more than 2 hours

Thaw Frozen Foods Safely

Follow the “Thaw Law!”

Thaw frozen foods in the refrigerator.

Chill Hot Foods Quickly

Refrigerate! Refrigerate! Refrigerate!

- Refrigerate foods within 2 hours.
- Over 90°F, refrigerate within 1 hour.
- Chill foods down quickly.
- Cool foods in shallow containers.
- Stir to speed up cooling.
- Ok to refrigerate foods while they're still warm.
- Do not overstuff your fridge.

Refrigerator & Freezer Temperatures

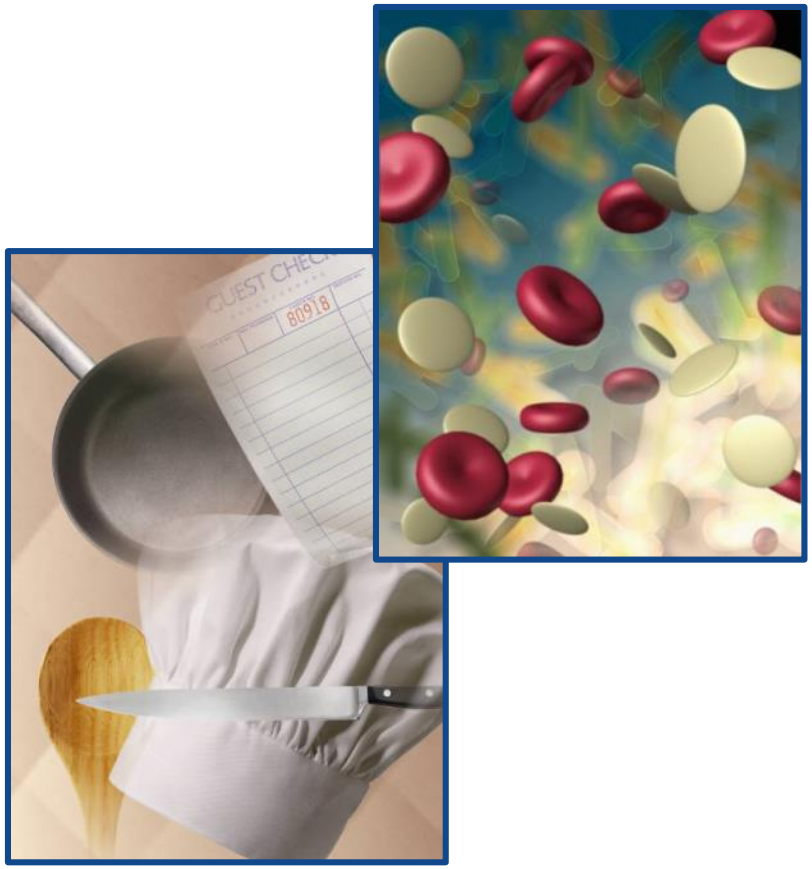
- Set refrigerator at 40° F or lower.
- Set freezer at 0° F or lower.
- Use thermometers in refrigerators and freezers.
- Place thermometers in an easy to read location.
- Check temperatures weekly.

When Transporting Food, Remember to…

- Be sure food is tightly wrapped.
- Pre-portion and pre-package food in clean containers.
- Transport in clean vehicles.
- Do not transport pets or livestock with the food.

Food Handlers can Contaminate Food

- Many enteric organisms
- *Staphylococcus aureus*
- Viruses
  - Hepatitus A
  - Norwalk Virus



Cottage Food Kitchens

- When Cottage food preparation, packaging, or handling occurs in the home kitchen, no other household activities such as family meal preparation, kitchen cleaning, etc. can take place at the same time.
- No infants, small children or pets may be in the home kitchen during any part of cottage food preparation and packaging.

Cottage Food Kitchens

- A sink must be available for handwashing with soap, hot and cold water and clean towels (single use towels are most sanitary).
- Kitchen equipment used to prepare, package and handle cottage foods must be clean and maintained in a good state of repair.
- When ill, stop preparing and selling cottage food products.

Cleaning Guidelines --Safe Food Handling

- Water used during the preparation of cottage food products must meet safety standards.
- If you have a private well or septic system, contact your Environmental Health agency .
- Surface sanitizing solution is 100 ppm chlorine; this is made using 1 tablespoon bleach per gallon of warm water. Or use ¾ teaspoon per 4 cups of warm water.

Cleaning Guidelines --Safe Food Handling

- Wash, rinse and sanitize all food contact surfaces every four hours and before each use.
- Wash hands, nails, and arms frequently.
- Remove garbage regularly; wash hands afterwards.

Cottage Food Safety Points

- Keep all food and non-food surfaces clean.
- All food preparation and food and equipment storage areas must insect and rodent free.
- Smoking is prohibited in the food preparation portion of the home.
- All ingredients must come from an approved source ---registered producer or food store or facility.

Storage Guidelines

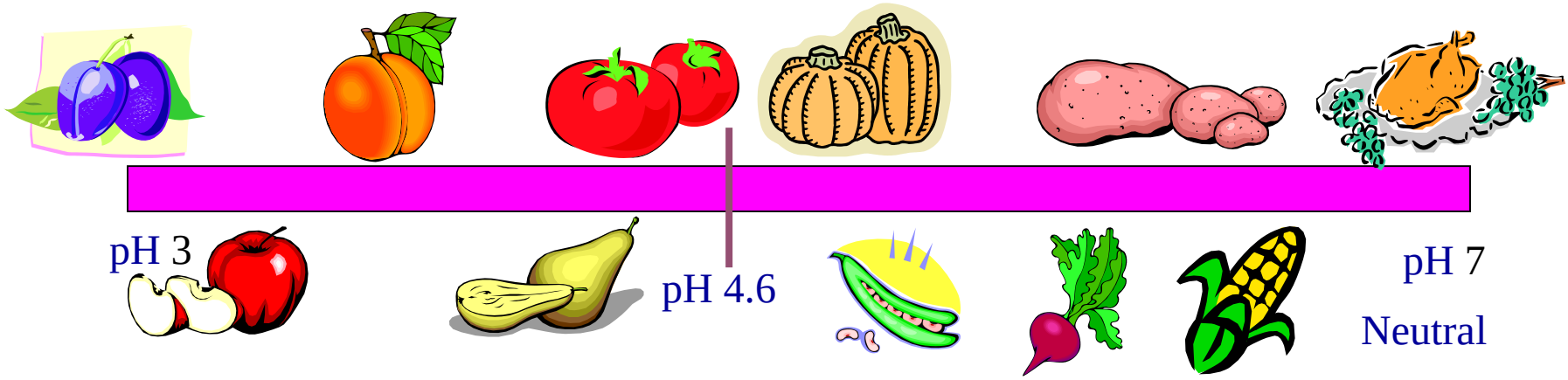
- All equipment and utensils must be stored and used within the home.
- Keep all food ingredients separate from non-food (examples: pesticide and cleaning items).
- All food shall be protected from dirt, vermin, droplet contamination, overhead leakage, etc.
- All food must be stored at least 6 inches off the floor.

Preserved Cottage Foods

- Fruit Butter, Jam, Jelly, Fruit Preserves
- Dried Fruit and Vegetables
- Herb blends
- Vegetarian Dried Soup Mixes
- Granolas – Trail Mixes
- Vinegars -- Mustards

Why are These Allowable Cottage Foods?

pH Examples of Some Foods



High acid foods

pH Scale

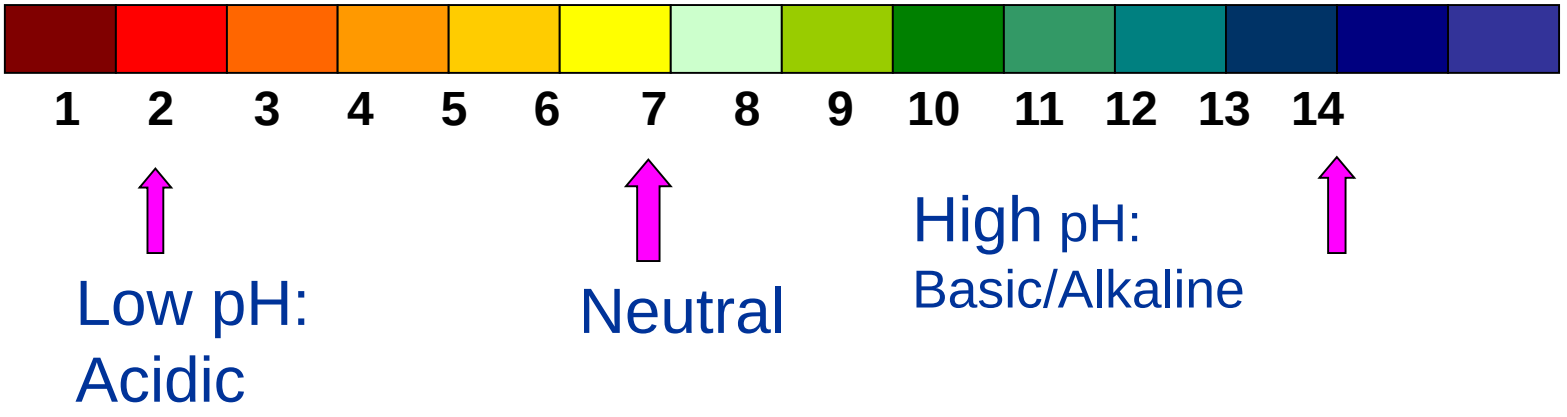
Low acid foods

What is pH?

pH is a measure of acidity

pH = -log (H^+ ions)

Scale ranges from 0 to 14



SPEED of Bacterial Growth is Influenced by:

- ✓ **Properties of the Food**

  Nutrients Moisture Acidity

- ✓ **Properties of the Environment**

  Temperature Relative Humidity Air

Growth Factors - Nutrition

- Foods we find nutritious
  - also good for microorganisms

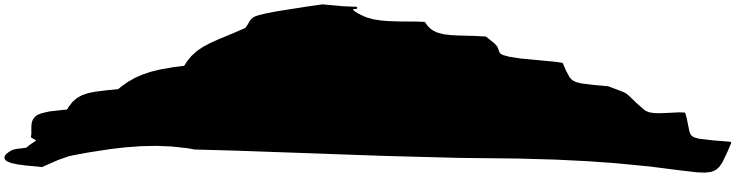
Water Activity (a_w)

- Most foods greater than 0.95 allow microorganisms to grow
- *C. botulinum* prevented from growing
  - ✓ a_w less than 0.93
- All pathogens inhibited
  - ✓ a_w less than or equal to 0.85

Salt and a_w

C. botulinum **strains are prevented from growing at a salt concentration of 10%.**

10% salt is a water activity of about 0.93.



BOTULISM-Home Canned Food

- Low acid foods
  - Vegetables
  - Meat and fish
  - Mixtures with lows acid food such as meat sauce
  - **NEVER** allowed as Cottage Foods
- For safety, preserve in Pressure Canner –not a boiling water canner **!!!**

BOTULISM — Toxicity Causes

- Anaerobic conditions
- Water activity must be high
  - salt has inhibitory effect on growth due to water binding properties
- pH must be high (greater than 4.6 – equals a low acid food)
- Nitrite - $NaNO_2$ has inhibitory effect

Cottage Food Operators

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