Safe, Wholesome, Sanitary Foods
FDA Activities

**Foodborne outbreaks**
- spinach, carrot juice, tomatoes, green onions, raspberries, ice cream

**Dietary supplements**
- ephedra, tryptophan, misbranding

**Cosmetics and Colors**
- mold, fungus, certification

**Chemicals**
- pesticides, bromates, acrylamide, GMOs
What is in your food?

• Food safe today
• More knowledge on nutrition
• People can eat healthier
• But…..
What else is in there?

- Microbes (germs)
  - Bacteria, viruses, fungi, parasites
- Chemicals
- Pesticides
- Filth
Filth

The Food Defect Action Levels
Levels of natural or unavoidable defects in foods that present no health hazards for humans
Filth examples

• Raisins: No more than 5% can be infected with mold

• Chopped dates: Must be less than 10 dead insects in 100 grams

• Canned spinach: Two or more caterpillars within 24 pounds are unacceptable, but only if the caterpillars are longer than 12 millimeters
Filth examples

• Macaroni and noodle products: 225 insect parts or more per 225 grams in 6 or more subsamples (1 insect per gram)

• Chocolate: 3 or more rodent hairs or 90 or more insect fragments per 100 gram sample
BROCCOLI, FROZEN

• Insects and mites
  Average of 60 or more aphids and/or thrips and/or mites per 100 grams

• DEFECT SOURCE: Pre-harvest insect infestation

• SIGNIFICANCE: Aesthetic
CHERRIES Brined and Maraschino

- Insect filth - Average of 5% or more pieces are rejects due to maggots
CHOCOLATE AND CHOCOLATE LIQUOR

- **Insect filth**
  Average is 60 or more insect fragments per 100 grams when 6 100-gram subsamples are examined
  OR
  Any 1 subsample contains 90 or more insect fragments

- **Rodent filth**
  Average is 1 or more rodent hairs per 100 grams in 6 100-gram subsamples examined
  OR
  Any 1 subsample contains 3 or more rodent hairs

- **Shell**
  For chocolate liquor, if the shell is in excess of 2% calculated on the basis of alkali-free nibs
So, what does your candy contain?
CITRUS FRUIT JUICES, CANNED

- **Mold**
  Average mold count is 10% or more

- **Insects and insect eggs**
  5 or more Drosophila and other fly eggs per 250 ml or 1 or more maggots per 250 ml
CORN: SWEET CORN, CANNED

- Insect larvae
  Insect larvae (corn ear worms, corn borers) 2 or more 3mm or longer larvae, cast skins, larval or cast skin fragments of corn ear worms or corn borer and the aggregate length of such larvae, cast skins, larval or cast skin fragments exceeds 12 mm in 24 pounds (24 No. 303 cans or equivalent)
PEANUT BUTTER

- **Insect filth**
  Average of 30 or more insect fragments per 100 grams

- **Rodent filth**
  Average of 1 or more rodent hairs per 100 grams

- **Grit**
  Gritty taste and water insoluble inorganic residue is more than 25 mg per 100 grams
PEPPER, GROUND

• Insect filth
  Average of 475 or more insect fragments per 50 grams

• Rodent filth
  Average of 2 or more rodent hairs per 50 grams
POPCORN

• Rodent filth
  1 or more rodent excreta pellets are found in 1 or more subsamples, and 1 or more rodent hairs are found in 2 or more other subsamples
  OR
  2 or more rodent hairs per pound and rodent hair is found in 50% or more of the subsamples
  OR
  20 or more gnawed grains per pound and rodent hair is found in 50% or more of the subsamples
POTATO CHIPS

• Rot

Average of 6% or more pieces by weight contain rot
TOMATO PASTE, PIZZA AND OTHER SAUCES

Drosophila fly
Average of 30 or more fly eggs per 100 grams
OR
15 or more fly eggs and 1 or more maggots per 100 grams
OR
2 or more maggots per 100 grams in a minimum of 12 subsamples
Main ingredients of filth

• Insects (intact, parts)
  – Aphids
  – Drosophila
  – maggots

• Rodent (rats, mice) hair, feces, urine

• Mold, fungi
Aphids

• small soft-bodied insects
• feed on all types of vegetation
• plump, pear-shaped bodies and two tubes, or cornicles, which project like exhaust pipes from their abdomens
Mites

- migrate from birds, rodents, food materials, vegetable matter and house dust, either attacking or annoying humans
- found in a wide variety of stored products and food and can cause mild dermatitis
Mites
Thrips

• vectors for INSV and tomato spotted wilt virus-infect many different plants
• feed inside developing flower buds and in newly expanding leaves of plants
Thrips
Maggots

• main feeding stage of the fly
• remarkable eating machines
• their front ends are armed with **mouth hooks** with which they rake in decaying flesh, shredded from the corpse
• gregarious animals and travel around in 'maggot masses'
Drosophila

• Fruit flies
• Eggs in/on fruit
Drosophila
Insect larvae
Animal kingdom

- Mice
- Rats
- Cows
- Pigs
Cute?
Rice weevils in rice
Hide beetle (Dermestes sp.) on fish
Fluorescent rodent urine stain
Bird droppings on dried apricots (dried outdoors in the open)
Microbes

• Bacteria, fungi, viruses, parasites
Foodborne Illnesses

• 76 million illnesses in the US
• 325,000 hospitalizations
• 5,200 deaths
• Known pathogens account for an estimated 14 million illnesses, 60,000 hospitalizations, and 1,800 deaths annually
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FDA Update on Peanut Butter Recall

Salmonella found in the ConAgra Plant

As a follow-up to the recent Salmonella outbreak linked to peanut butter, the U.S. Food and Drug Administration (FDA) is conducting an extensive inspection of ConAgra's Sylvester, Georgia processing plant. Samples collected by the FDA revealed the presence of Salmonella. The fact that FDA found Salmonella in the plant environment further suggests that the contamination likely took place prior to the product reaching consumers. Last week, tests by several states identified Salmonella in many open jars of Peter Pan and Great Value peanut butter recovered from consumers. In these instances, the Salmonella found in the plant and in the open jars matched the outbreak strain recovered from consumers who became ill.
Microbes

• Found in most foods
• Most are not a health issue for man
• Many benefits
• However, can be a problem
  – Illnesses
  – Intoxications (toxins)
  – Food spoilage
Spoiled Food

• A good rule is, “When in doubt, throw it out!”

• Do not taste food that smells bad or looks moldy or slimy.

• Avoid cracked jars, or leaking, bulging, badly dented or rusted cans.
Numbers game

• Infectious dose-number of pathogen (bacteria, viruses) that make people ill
• Range-very low (1-10) to very high (10,000)
• Ill people can shed millions to billions per day
• Pathogen can easily spread
Transmission

- Person to person
- Food, water, air
- Inanimate object to people
So, what to eat…

• Handwashing- #1 means to prevent illness
• Pay attention
• Anything-bon apetite
DON'T EAT YOUR SPINACH!!

THERE IS A GOD!
EAT YOUR SPINACH...

GAG YUCK

CHOKE

STAHLER
THE COLUMBUS DISPATCH
2005