

*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

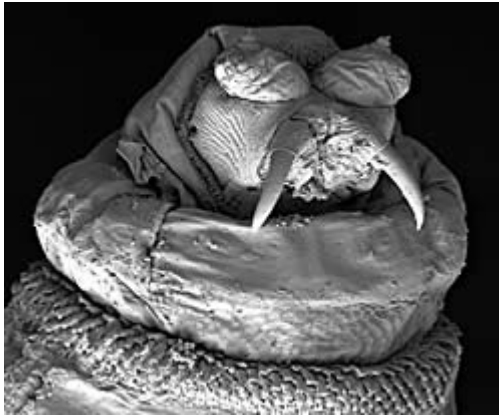
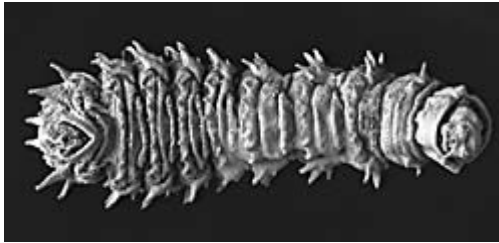
- **vectors for INSV and tomato spotted wilt virus-infect many different plants**
- **feed inside developing flower buds and in newly expanding leaves of plants**

Thrips



Maggots

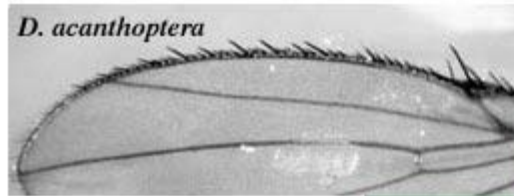
- main feeding stage of the fly
- remarkable eating machines
- their front ends are armed with **mouth hooks** with which they rake in decaying flesh, shredded from the corpse
- gregarious animals and travel around in 'maggot masses'

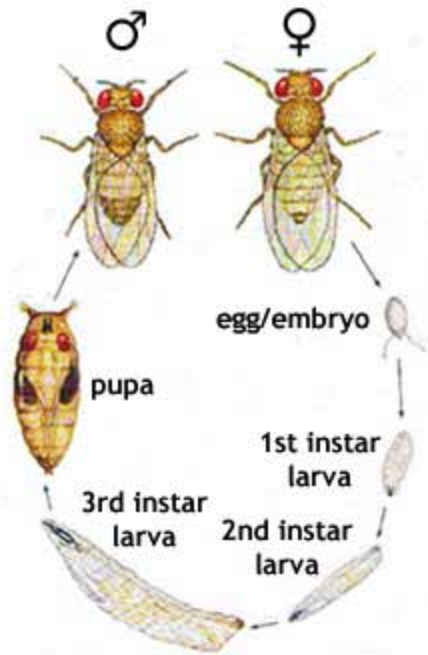


Drosophila

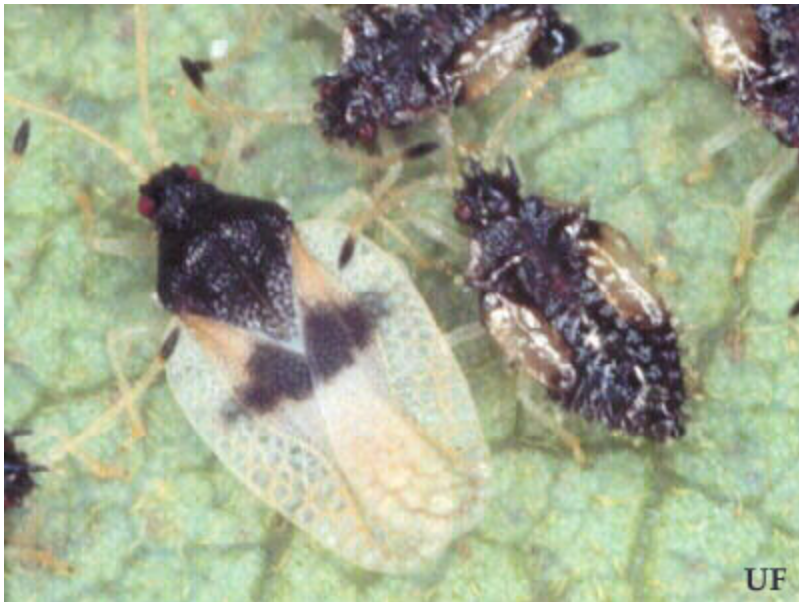
- **Fruit flies**
- **Eggs in/on fruit**

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**



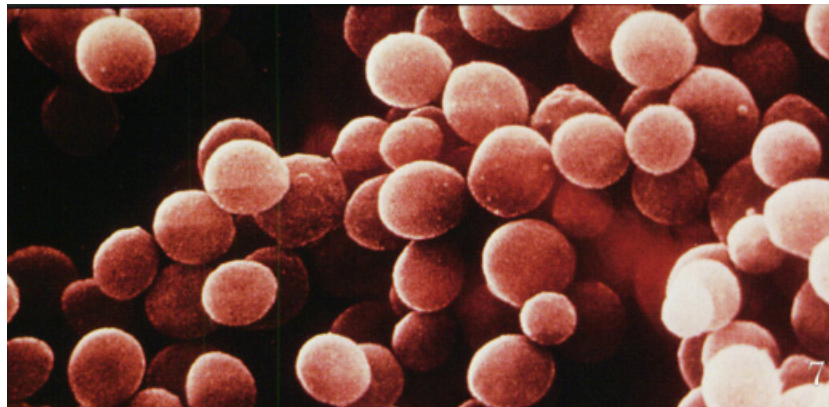
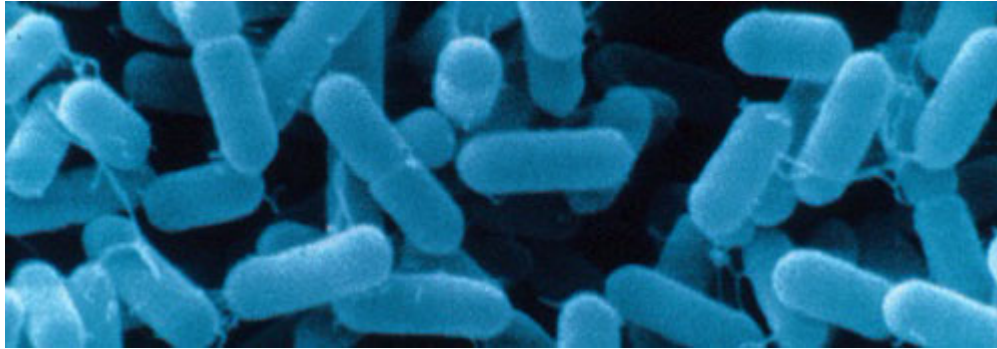
FOR IMMEDIATE RELEASE March 1, 2007

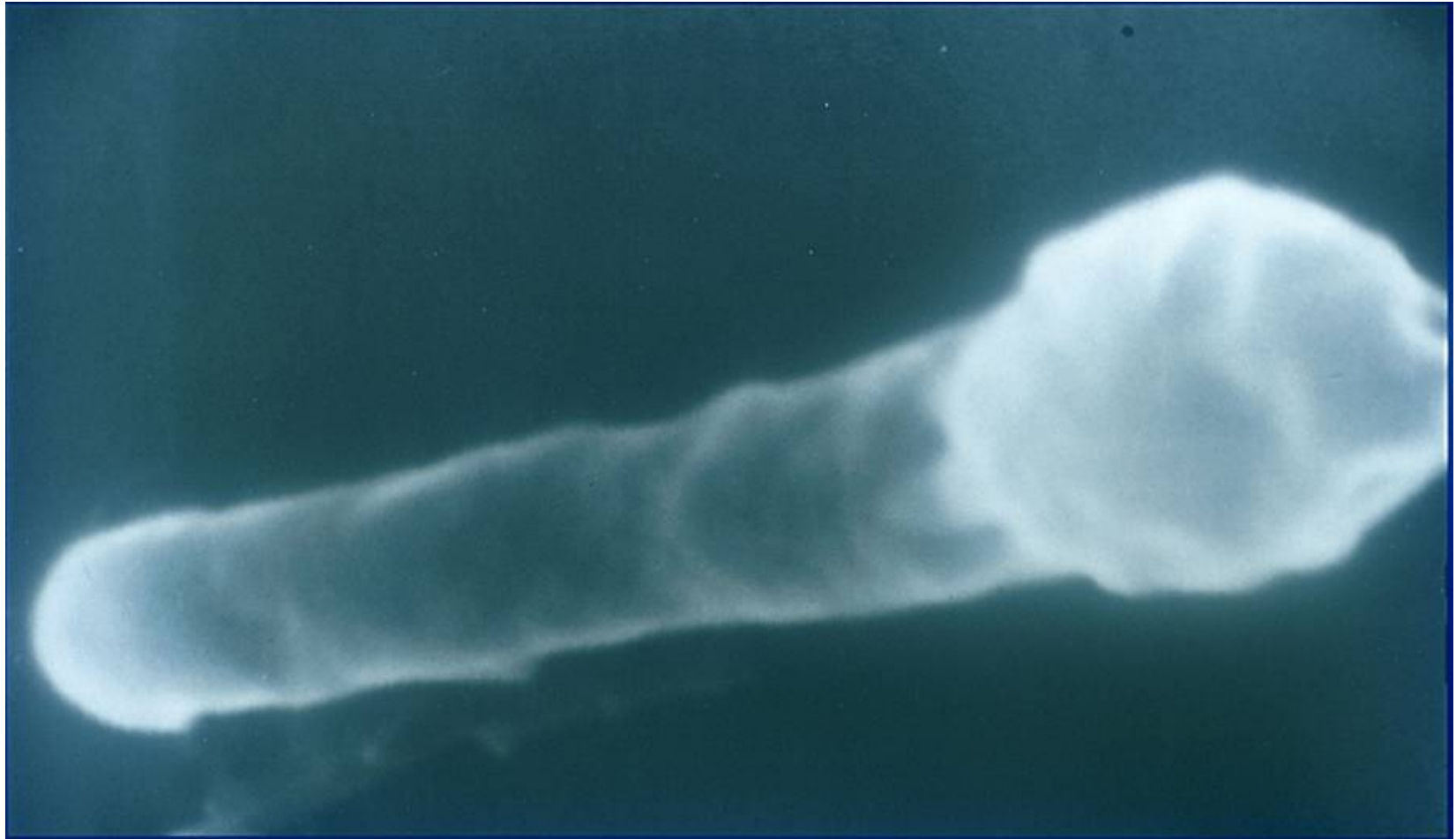
FDA Update on Peanut Butter Recall *Salmonella* found in the ConAgra Plant

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.



Bacteria







Fujino, *et al.*, 1953

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 appetite**

DON'T EAT
YOUR SPINACH!!

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OS
AG

THERE IS
A GOD!



STAHLER.
THE COLUMBUS DISPATCH · 2006.



EAT YOUR ~~SPINACH~~...

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