

# Are you interested in becoming a Home Based Vender (HBV)?

Learn the rules, tips for success, and stand  
design with food safety in mind

Amanda Deering, Ph.D.  
Department of Food Science  
Purdue University

# IDOH Term: Home- Based Vendor

A “**Home-Based Vendor**” is an individual who:

–Has made, grown, or raised a food product at their primary residence or a building that is on the same residence.

--These products must be “non-potentially hazardous”

What does that mean?



# Why Do We Care About Food Safety?

The Centers for Disease Control and Prevention (CDC) estimates each year:

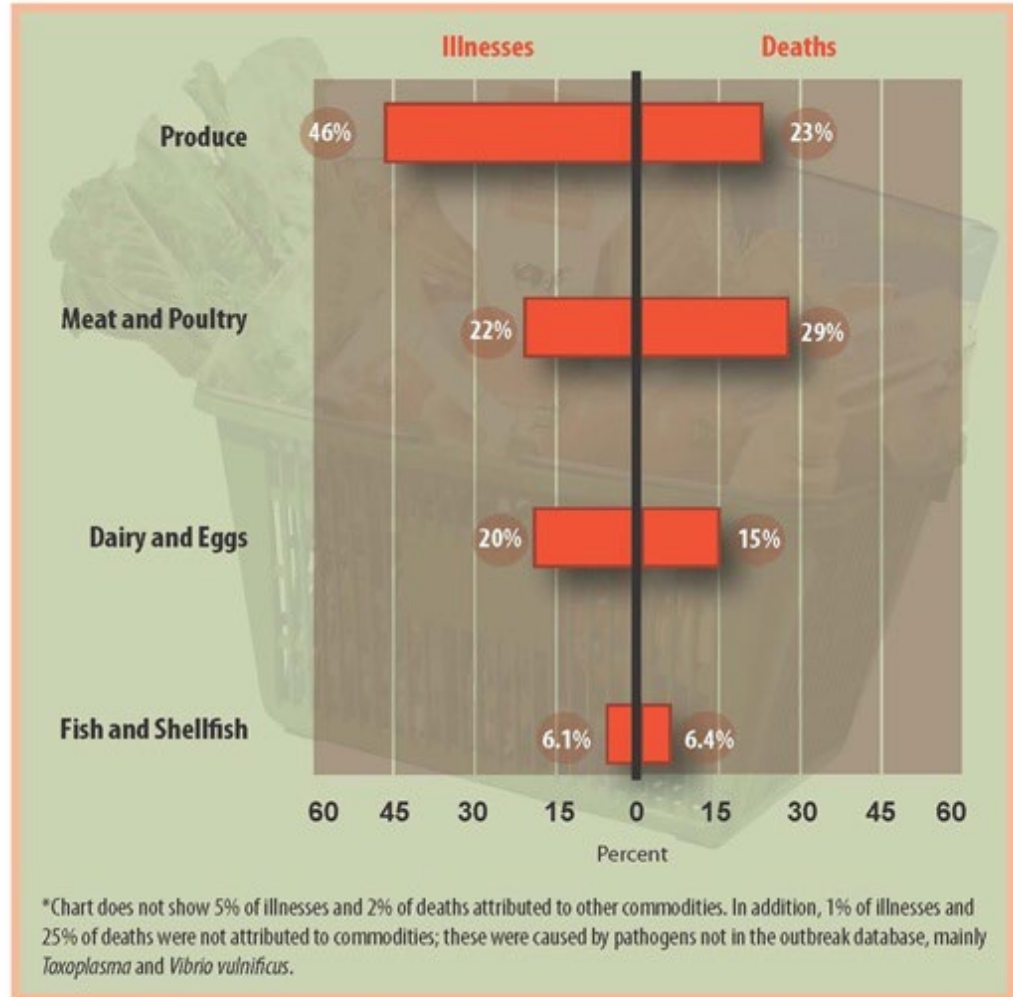
- 48 million people get sick
- 128,000 are hospitalized
- 3,000 die

From foodborne diseases



# Which Foods Make Us Sick?

Figure 1. Contribution of different food categories to estimated domestically-acquired illnesses and deaths, 1998-2008\*



Source: Painter JA, Hoekstra RM, Ayers T, Tauxe RV, Braden CR, Angulo FJ, Griffin PM. Attribution of foodborne illnesses, hospitalizations, and deaths to food commodities by using outbreak data, United States, 1998–2008. *Emerg Infect Dis* [Internet]. 2013 Mar [date cited]. <http://dx.doi.org/10.3201/eid1903.111866>

# Food Spoilage vs. Fermentation

## Food Spoilage

- Microorganisms (M/O) use nutrients in food to further their own growth
- High numbers of M/O required
- **Undesirable outcome**

## Fermentation

- Microorganisms use nutrients (carbohydrates) in food to further their own growth
- High numbers of M/O required
- **Desirable outcome**

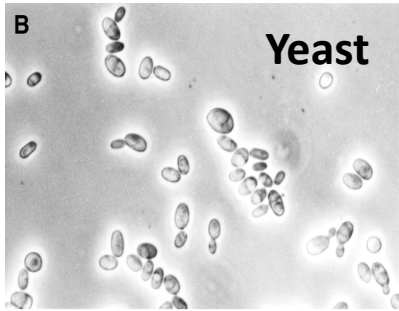


# Foodborne Disease

- Occurs via consumption of food contaminated with pathogenic bacteria, their toxins, or pathogenic viruses
- Requirements for disease: At risk consumer, pathogenic organism, adequate infective dose

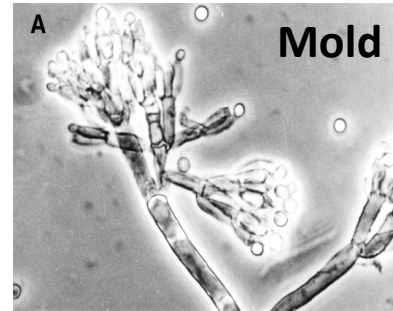


# Who are the players?



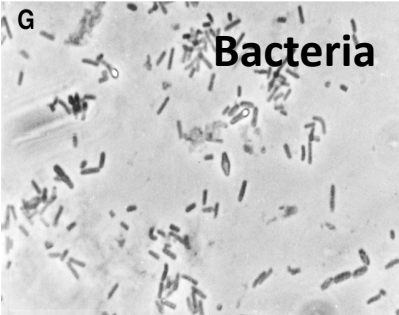
## Yeasts

- Food production
- Food spoilage
- Pathogenic



## Molds

- Food production
- Food spoilage
- Pathogenic



## Bacteria

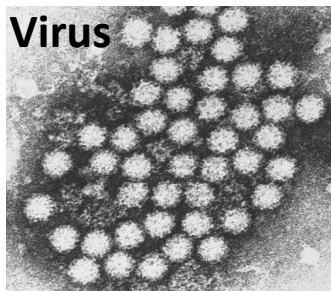
- Food production
- Food spoilage
- Pathogenic



## Protozoa

- Pathogenic

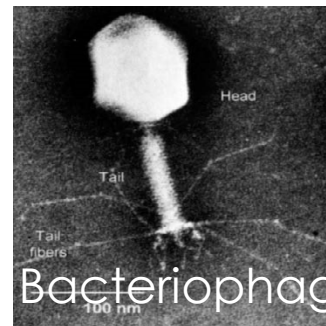
Fig. 2.1, Ray and Bhunia



## Viruses

- Pathogenic

<http://en.academic.ru/dic.nsf/enwiki/13699>  
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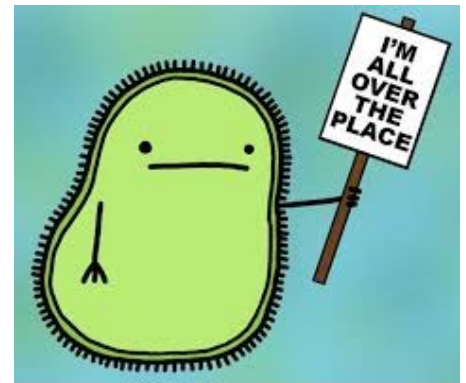


## Bacteriophage

- Bacterial pathogens
- Food production

# Sources of M/O in Foods

- M/O are everywhere
  - Human/mammalian body: Microbial cells outnumber human cells by 10:1
  - Food (e.g.)
    - Raw milk, pasteurized milk
    - Raw ground beef
    - Leafy greens and nuts
- So how do M/O get into foods?
  - “Farm-to-fork” contamination events
  - Natural and external sources of microorganisms



Natalie Deet.com

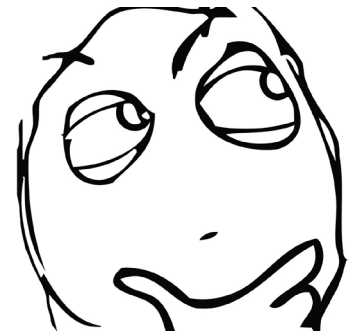


# Food Production: Farm-to-Fork

*Where can contamination happen?*



Think about the ingredients that you use in your product and what could be a source of contamination....

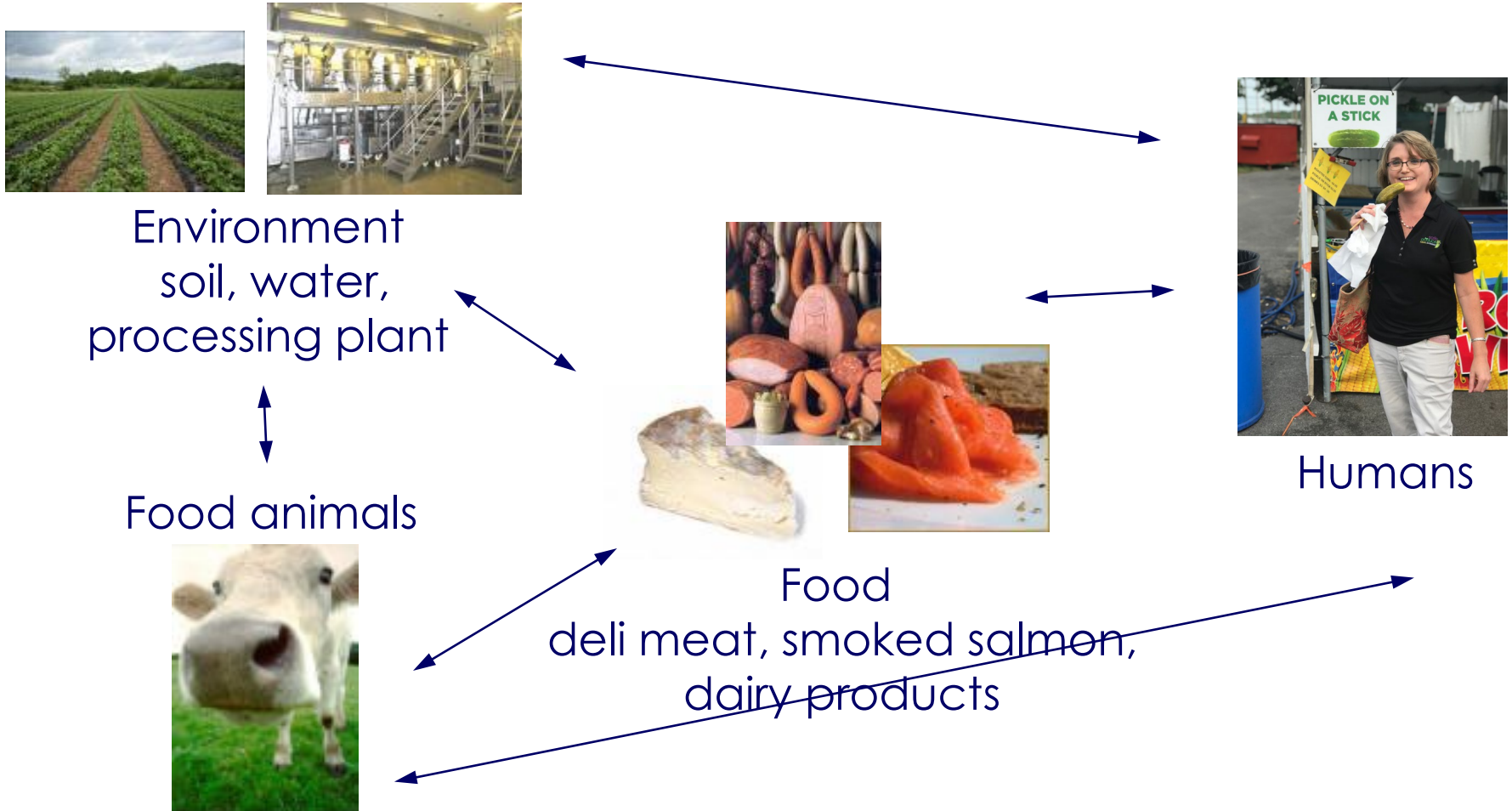


# Natural Sources of Microorganisms in Foods

- Plant products (fruits/vegetables)
  - Surface contamination – from microorganisms in soil, water, manure/fertilizer
    - Molds, yeasts, bacteria – both nonpathogenic and pathogenic.
- Animal products (meat, poultry, fish, dairy)
  - Muscle tissue of animals and fish is sterile
    - Contamination from: gastrointestinal tract, skin, hair, feathers, scales, urogenital tract, respiratory tract
  - Raw milk – not sterile
    - Contamination from: inside milk ducts, skin on outside of udder



# Transmission of Microorganisms



# pH of a Food Product

- Most M/O can grow over wide range of pH, but optimal growth usually occurs at more narrow range
- Yeasts and molds most problematic

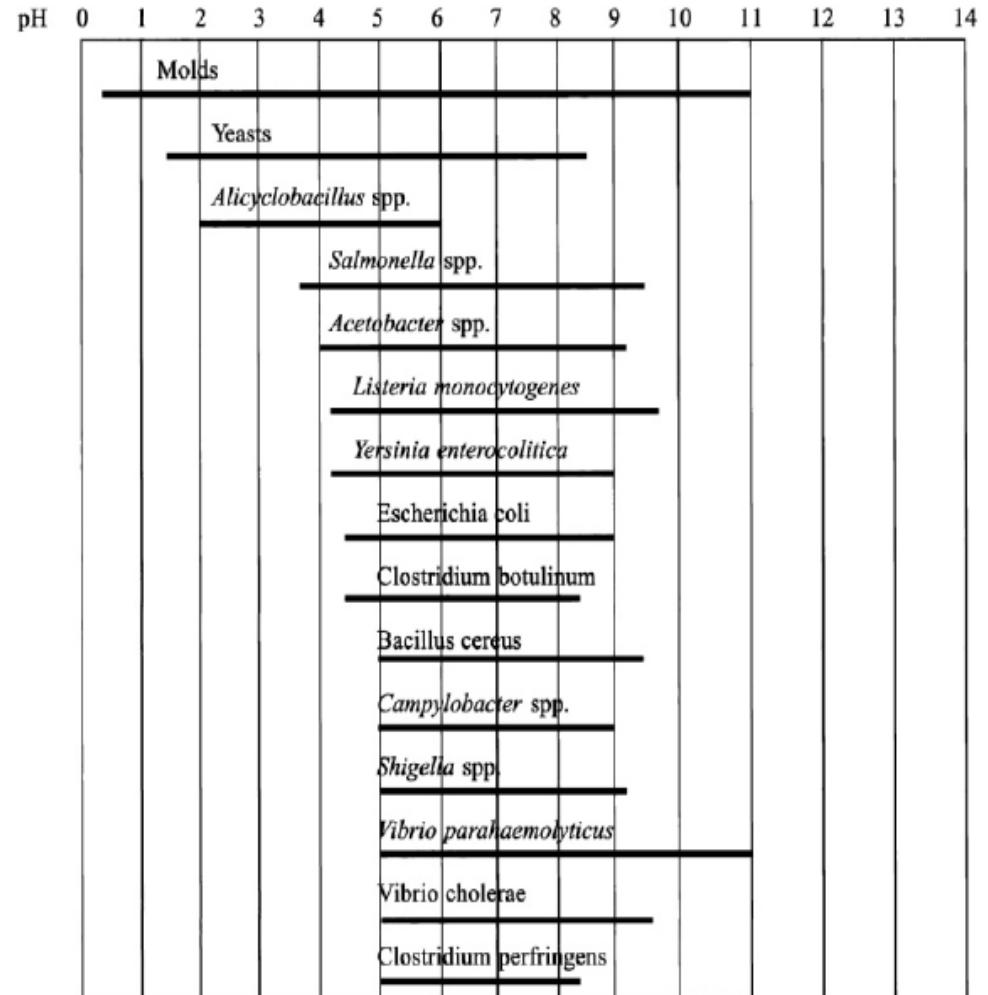


Figure 3-1 Approximate pH growth ranges for some foodborne organisms. The pH ranges for *L. monocytogenes* and *S. aureus* are similar.

# pH of Various Food Products

**Table : pH values of some food products**

<b>Food type</b>	<b>Range of pH values</b>
Beef	5.1 - 6.2
Chicken	6.2 – 6.4
Milk	6.3 – 6.8
Cheese	4.9 - 5.9
Fish	6.6 - 6.8
Oyster	4.8 - 6.3
Fruits	< 4.5 (most < 3.5)
Vegetables	3.0 – 6.1

**Disease-causing bacteria grow at a pH of more than 4.6**

# Water Activity ( $a_w$ )

- $a_w$  – water in foods that is available for metabolic purposes
- Total water in food = Bound + free water
  - Bound water = fraction used to hydrate hydrophilic molecules and dissolve solutes in food matrix
  - Free water = unbound
- **Free water is essential for growth of M/O**



# $a_w$ Requirements of M/O

<b>Microbe</b>	<b>Minimum <math>a_w</math></b>
Most Gram-negative bacteria	0.95
Most Gram-positive bacteria	0.90
Most Yeasts	0.85
Most Molds	0.70 - 0.80
<i>Staphylococcus aureus</i>	0.86
Halophilic microorganisms	0.75
Xerophilic Microorganisms	0.61
Osmophilic microorganisms	0.60

# $a_w$ of Food Ranges from ~0.1-0.99

Food	$a_w$
Fresh foods (meat, fish, vegetables, milk, eggs), canned fruits and vegetables	0.98-0.99
Some bakery products and bread, medium-aged cheeses (cheddar, swiss), processed cheese, evaporated milk, tomato paste, bread, fruit juices, sausage	0.93-0.98
Fermented sausage, dry cured meats, sweetened condensed milk, maple syrup	0.85-0.93
Jelly, dried fruits, parmesan cheese, nuts	0.60-0.85
Noodles, honey, chocolate, dried egg	<0.60
Cereals, crackers, sugar, salt, dry milk	0.10-0.20

# Testing pH and $a_w$

- Commercial testing labs can do this test
- This can also be done at Purdue Food Science – Food Manufacturing Entrepreneur Institute (FEMI)

<https://ag.purdue.edu/departments/foodsci/femi/index.html>

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# Examples of PHV's

- Use of “reduced oxygen packaging” (ROP) methods
- Canned or hermetically sealed containers of acidified or low-acid foods; produce items in an oxygen sealed container
- Cut melons, raw seed sprouts
- Jerky
- Non-modified garlic-in-oil mixtures
- Cut tomatoes and cut leafy greens



# So What Can I Sell as a HBV?

- Baked goods –cakes, fruit pies, cookies, brownies, dry noodles
- Candy and confections –caramels, chocolates, fudge, hard candy
- Whole, uncut produce
- Tree nuts and legumes
- Honey, molasses, sorghum, maple syrup
- Jams, jellies, preserves –only high acid fruit in sugar
- May be temperature controlled only for quality
- Meat, poultry, and in-shell chicken eggs
- Fermented produce “traditionally pickling” ... when not in an oxygen sealed container



# Labeling Requirements

- The name and address of the producer
- The common or usual name of the food product
- The ingredients of the food product, in descending order by predominance by weight
- The net weight or volume of the food product by standard measure or numerical count
- The date on which the food product was processed
- **The following statement in at least 10 point type: “This product is home produced and processed and the production area has not been inspected by Indiana Department of Health. NOT FOR RESALE.”**

# Where can I sell as a HBV?



Farmer's Markets



Roadside Stands



From the farm



Online



Products can be shipped or delivered to the end consumer who are in **Indiana** – **Can not ship outside of Indiana**

# Training Requirements

- All home-based vendors must “obtain a food handler certificate from a certificate issuer that is [accredited by the American National Standards Institute” \(ANSI\)](#). ServSafe Food Handler training fulfills this requirement. This certification is valid for three years. You have training options to fulfill this requirement.
- The Purdue Extension Food Safety Team is offering in-person food handler trainings. Call your local Purdue Extension office or visit the [Purdue Extension ServSafe website](#) to find classes as they are scheduled.
- For those who prefer an online option, the ServSafe Food Handler training can be taken online at the [ServSafe website](#).



# Stand Design - Customers

- **Can carry human pathogens**
  - *Shigella*, Hepatitis A, Norovirus, and others
- **Can spread human pathogens**
  - Touch produce with their hands
  - Fecal-oral route
- **We can reduce risks by**
  - Proper handwashing
  - How to handle illnesses and injuries



More people touching the produce could increase cross contamination!

# To Wash or Not to Wash?



Is washing necessary?  
Washing and washing with a sanitizer will reduce the number of microorganisms present, however, if not done correctly could make the problem worse

Is water tested and potable?  
Are sanitizers needed?

# To Wash or Not to Wash?

- Washing will help reduce spoilage bacteria, yeasts, and molds
- This will help increase your shelf-life
- More people touching the produce will introduce more spoilage bacteria



# Think about Food Contact Surfaces

- The surfaces the produce touches need to be cleanable and sanitizable
- Avoid anything that is porous if possible  
Example?
- Single use containers are the best (from a food safety perspective)
- Reuse containers that can be cleaned and sanitized



# Pets and Wildlife at the Market



- Place produce higher up so dogs or other pets are not able to touch the produce
- If pets or wildlife contact produce it's best to not sell those items and discard them (or plan to cook them!)

# Traceability

- Make sure people can contact you should there ever be a problem
- Prominently display, at the point of purchase, the name and complete business address of the farm where the produce was grown, on a label, poster, sign, placard



# Questions?

Contact Information:

Amanda Deering

[adeering@purdue.edu](mailto:adeering@purdue.edu)

765-494-0512

