Introduction to Good Agricultural Practices (GAPs)

Why are GAPs important?
- Produce safety affects every fruit and vegetable grower and every grower can reduce those risks
- Keeps consumers healthy
- Better business reputations and performance
- Prevent crop and financial loss

Sources of Contamination
- Humans can carry pathogens and spread them to produce, food-contact surfaces, or other people while they work on the farm
- Domesticated and wild animals can carry and transmit human pathogens to produce
- Water carries and spreads human pathogens, contaminating entire fields or large amounts of produce
- Soil amendments like raw manure can be a source of contamination if improperly handled and applied

Microbial Pathogens
- Bacteria: pathogenic E. coli, Salmonella, Shigella, Listeria
- Viruses: Hepatitis A, Norovirus
- Parasites: Giardia, Cryptosporidium, Cyclospora

Challenges
- Pathogens are very small and hide easily
- Microorganisms cannot be seen with naked eye, so contamination is difficult to detect visually
- It can be hard to find the source

• Many fruits and vegetables are consumed raw, with no cooking or “kill step” to destroy pathogens
• It is difficult to know contamination has occurred because events are sporadic and affect only small portions of the crop

FDA Outbreaks Linked to Produce Contamination Likely Prior to Retail: 1996-2014 (Food and Drug Administration)
Note
GAPs are voluntary, but often required by wholesalers and retailers. Don’t confuse GAPs with FSMA (Food Safety Modernization Act), which is mandatory under federal rule.

Prevention is Key!
The focus of produce safety is on preventing contamination from occurring. Once present, microbial contamination is very difficult to remove.

Basics of GAPs
• Clean soil: properly applied amendments
• Clean water: used in production, harvest and packing
• Clean hands: good personal hygiene in the field and packing house
• Clean surfaces: properly washed and sanitized on a regular basis

Example
2017 Leafy Greens
Pathogen: E. coli O157:H7
Case Count: 25
States: 15
Deaths: 1
Hospitalizations: 9
No Recall.

2016 Sprouts (Alfalfa)
Pathogen: E. coli O157:H7
Case Count: 11
States: 2
Deaths: 0
Hospitalizations: 2
Recalled!

Resources
https://extension.psu.edu/food-safety-and-processing
https://producemodernization.cornell.edu/
https://www.cdc.gov/foodsafety/

Supported by a USDA NIFA Food Safety Outreach Program grant titled “Bilingual Produce Safety Educational Programming for Hispanic/Latino Fresh Produce Growers and Farmworkers in Pennsylvania,” USDA NIFA Award number 2017-70020-27236

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Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.
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Code EE0251 04/19 pod