



ONLINE WEBINAR

MICROBIAL CONSIDERATIONS IN AGRICULTURAL WATER

TUESDAY, APRIL 2, 2024
2:00PM CST

WELCOME
WE WILL BEGIN SOON

With Valerisa Gaddy, PhD
Watershed Management Group
Community Conservation Director

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WELCOME



INDIGENOUS FOOD & AGRICULTURE INITIATIVE

Started at the University of Arkansas School of Law by Dean Emeritus Stacy Leeds and Founding Director Janie Simms Hipp in 2013.

Our Mission

Enhance health and wellness in tribal communities by advancing healthy food systems, diversified economic development, and cultural food traditions in Indian Country.



MEET YOUR SPEAKER



Valerisa Gaddy, PhD
Watershed Management Group
Community Conservation Director

Who am I?

- Navajo from Gallup, NM (Lupton, AZ)
- Scientist
- Mom What is the next generation's water quality going to look like?



Why Listen to Me?

- Experience with water quality assessments
- 2018 Yuma Lettuce Outbreak
- Trainer
- Water Policy/Water Science
 - Communication and translation



FSMA: Food Safety Modernization Act

- 2011 - The Food Safety Modernization Act (FSMA) is a law enacted by the US Food and Drug Administration (FDA) to maintain the safety of food
- Under FSMA, **The Produce Safety Rule (PSR)** provides grower regulations for improving food safety

Prevention > Reaction



Increase profits
Prevention
Imported goods meet
US Standards

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No Mention of Tribal Nations!

AZ Tribal Growers & Ranchers

- Represent almost half of the farmers and ranchers in Arizona
- **21 million farm acres** are tended by Arizona's twenty-two Federally recognized tribes and nations
- **~200% larger** than the national farm size average
- **2015 Sold close to \$85 million** worth of agricultural products





**#1 Concern among Tribal Farmers:
Irrigation Rights**



Agricultural Water Assessments

Controlling fecal contamination is one key to minimizing produce safety issues, but keep in mind that the test for generic *E. coli* only indicates fecal contamination not all human pathogens.


The requirement for agricultural water used during harvest and postharvest is no detectable generic *E. coli* in 100 mL of water.

American Indians and Foodborne Illness



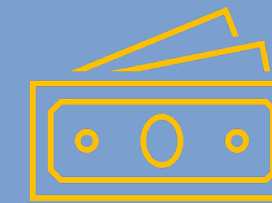
- Foodborne illness (FbI) among American Indian populations *greater than* non-Native populations
- FbI is rarely & severely underreported in Indian Country
 - cases are not reported back to tribal clinics

How do we prevent foodborne illness?

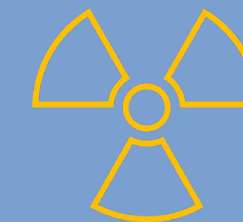
- Antibiotics/Antivirals
- Cleaning  Detergents
- Hand washing
- UV
- Food Prep
- Expiration dates

• TESTING

DNA 



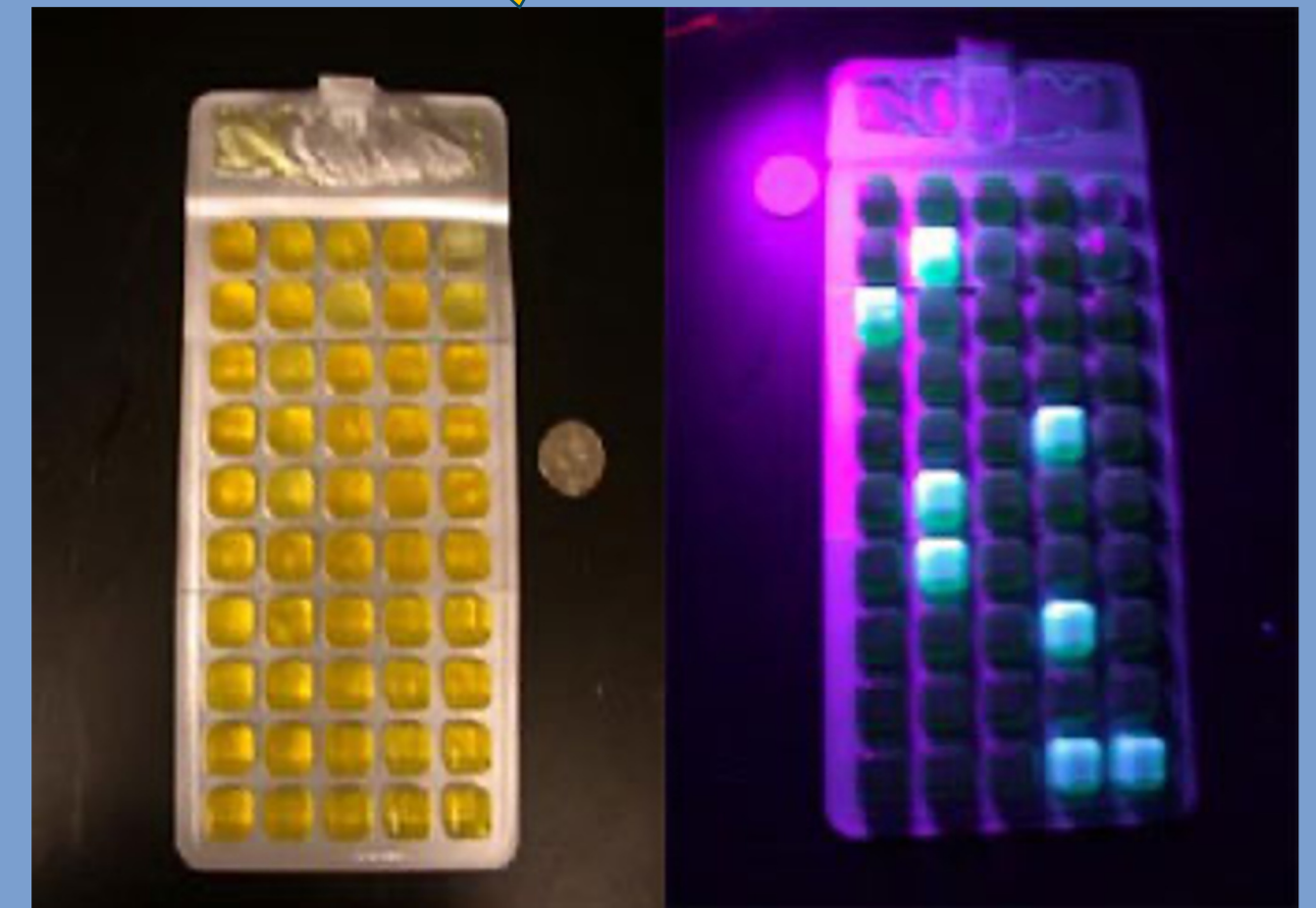
Culturing 



Look for indicator organisms

Easiest Method: Colilert

Looking for an indicator organism



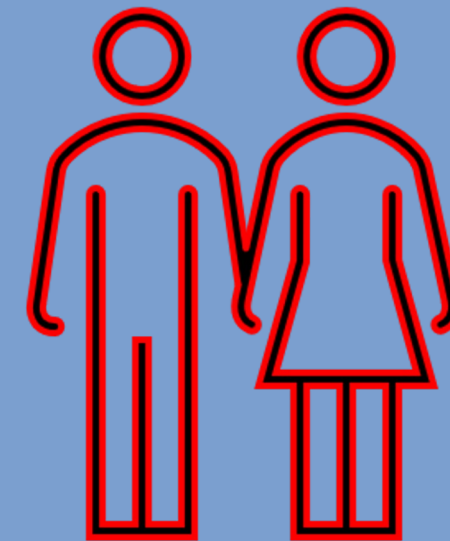
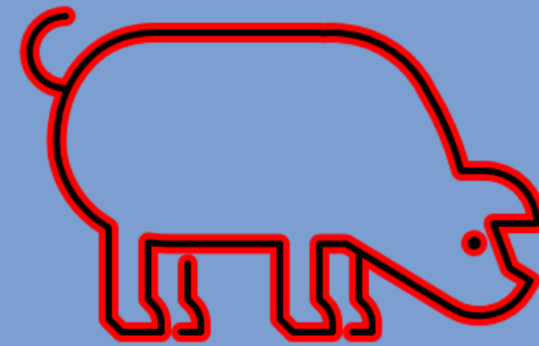
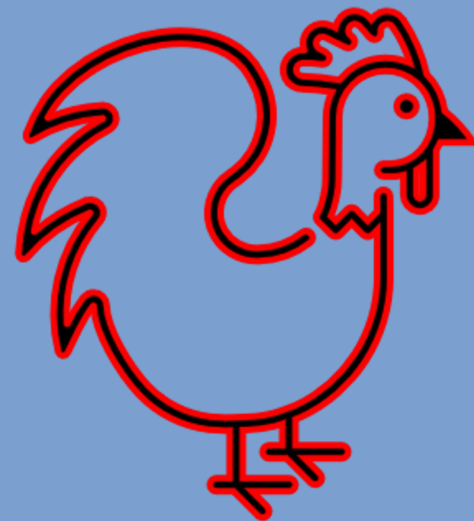
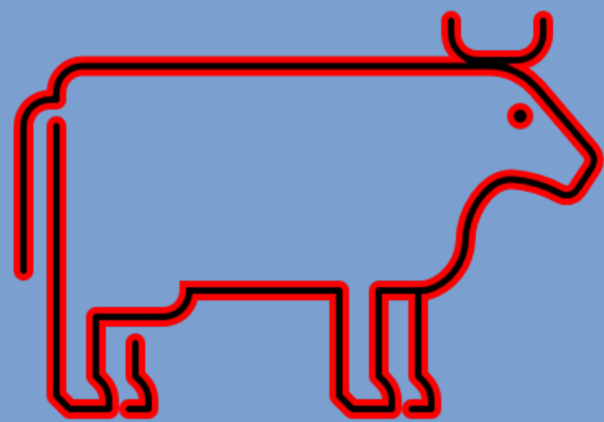
WHAT IS AN INDICATOR ORGANISM?



Why *E. coli*?

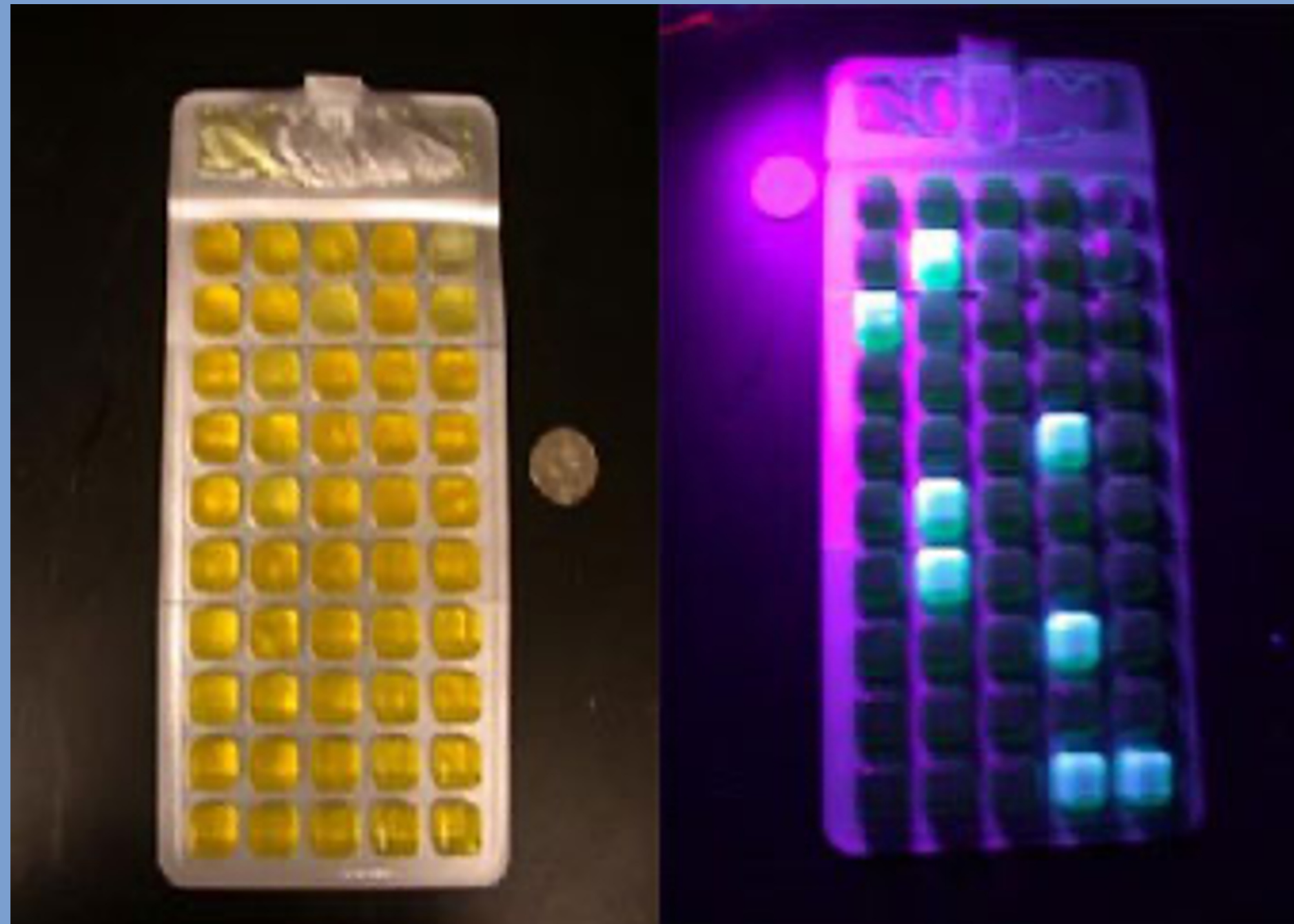
- Comes from the intestinal lining of warm-blooded animals

POOP



Easiest Method: Colilert

Looking for an indicator organism



Why E. coli?

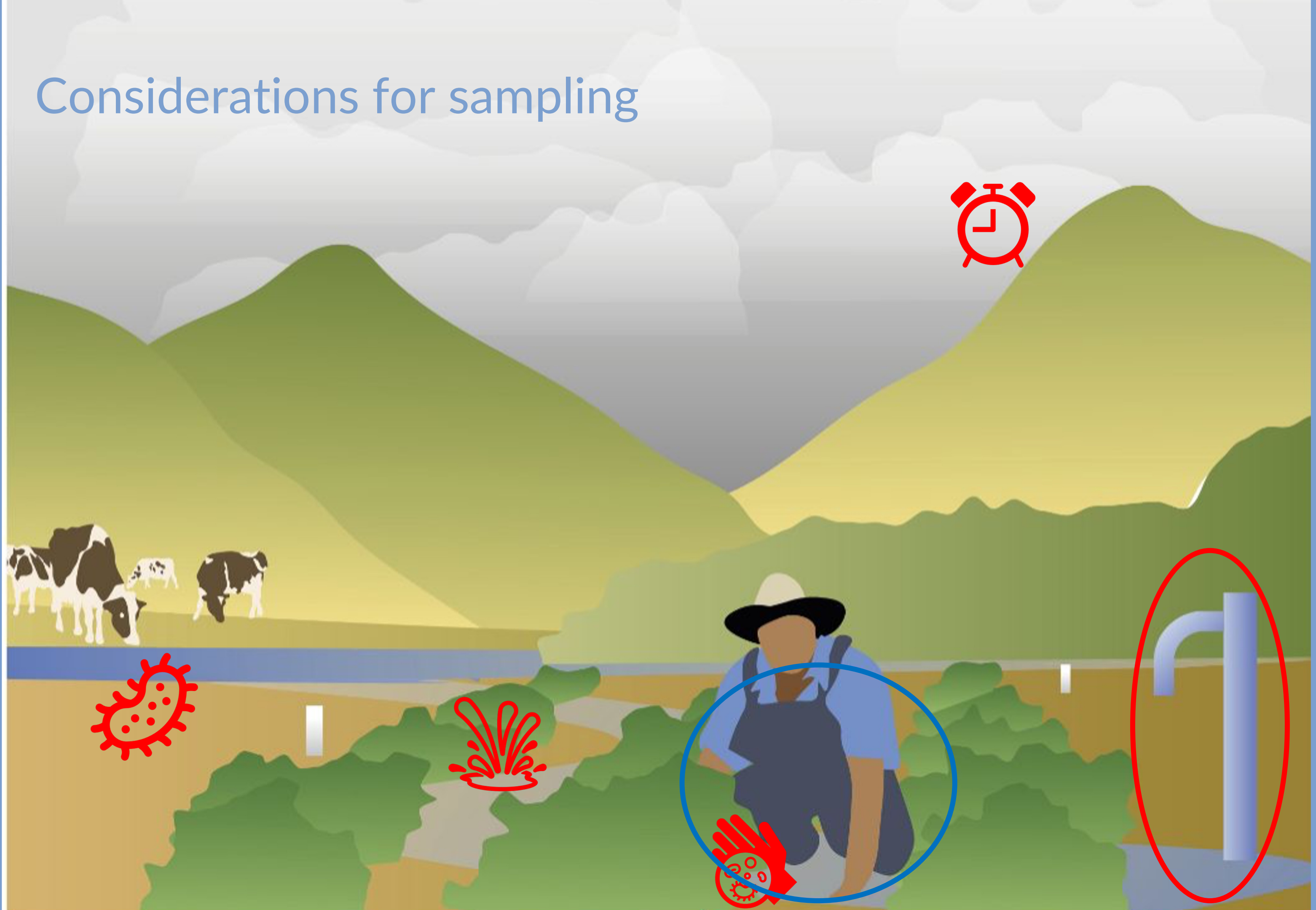


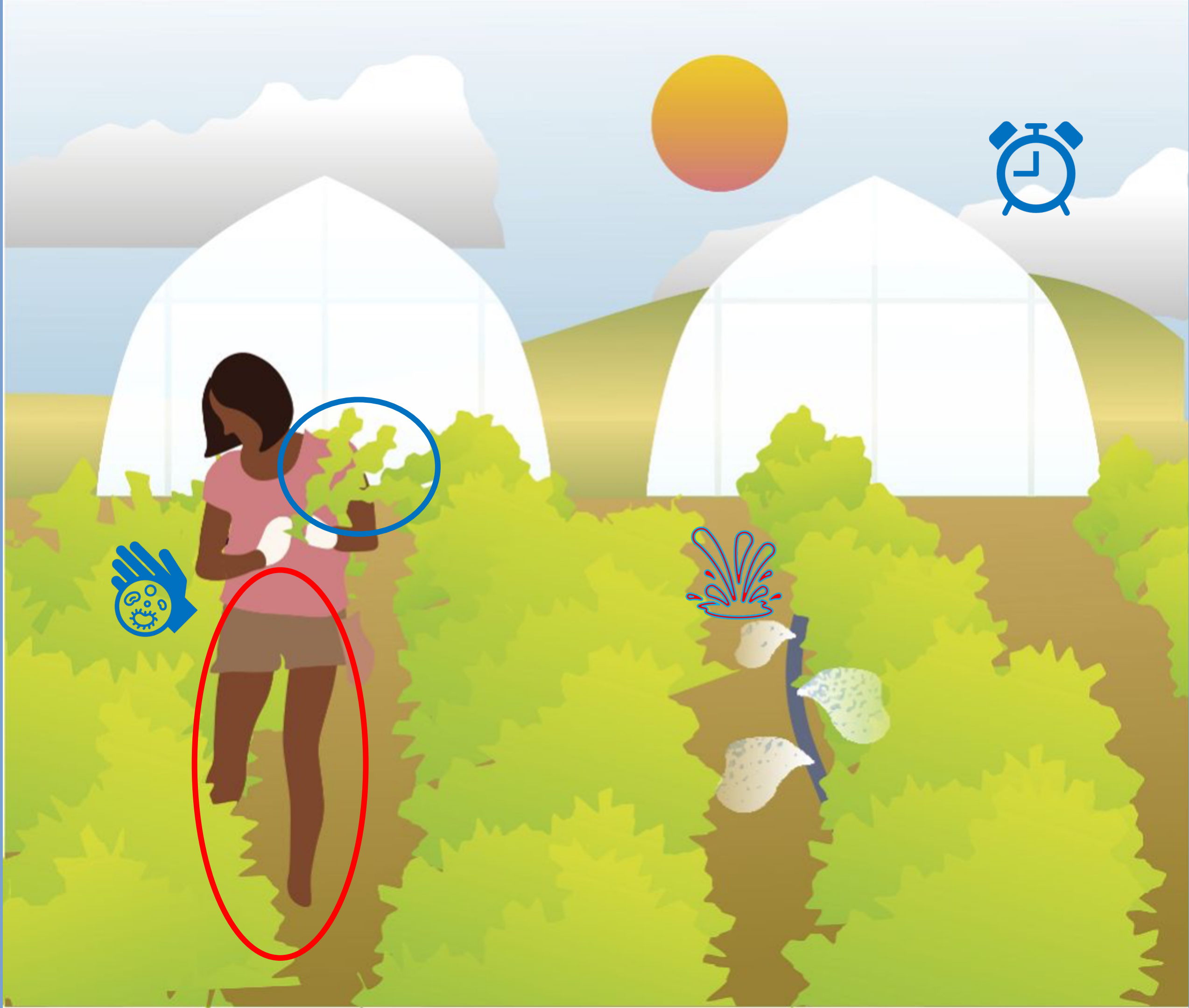
Total Coliform - a group of bacteria containing both non-fecal coliform (found in soil and surface water) and fecal coliform.

Fecal Coliform - a subset of coliform that are heat tolerant. A common source is animal waste.

E. Coli - a type of coliform often found in the intestines of warm-blooded animals.

Considerations for sampling





Considerations



Time: Day, Season, weather



PPE: Personal Protective Equipment



Contamination sources:
What is around you?



Water Source: Ground Water, rainwater, city water, etc. location,

THANK YOU



Valerisa Gaddy, PhD
Watershed Management Group
Community Conservation Director

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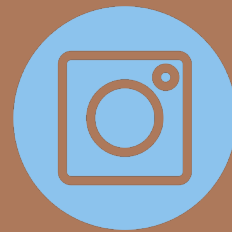


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