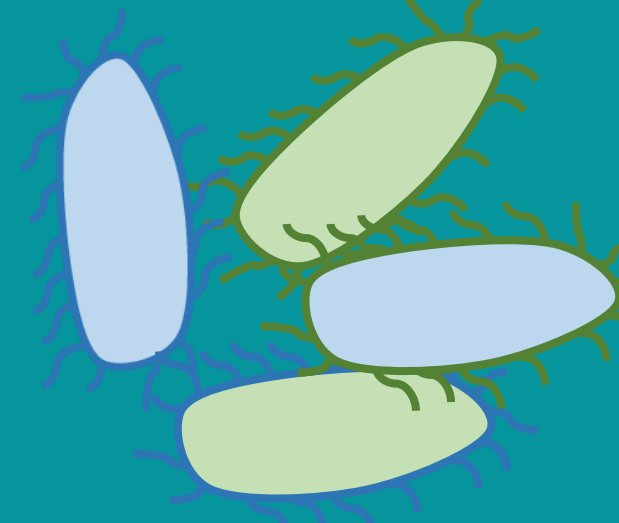


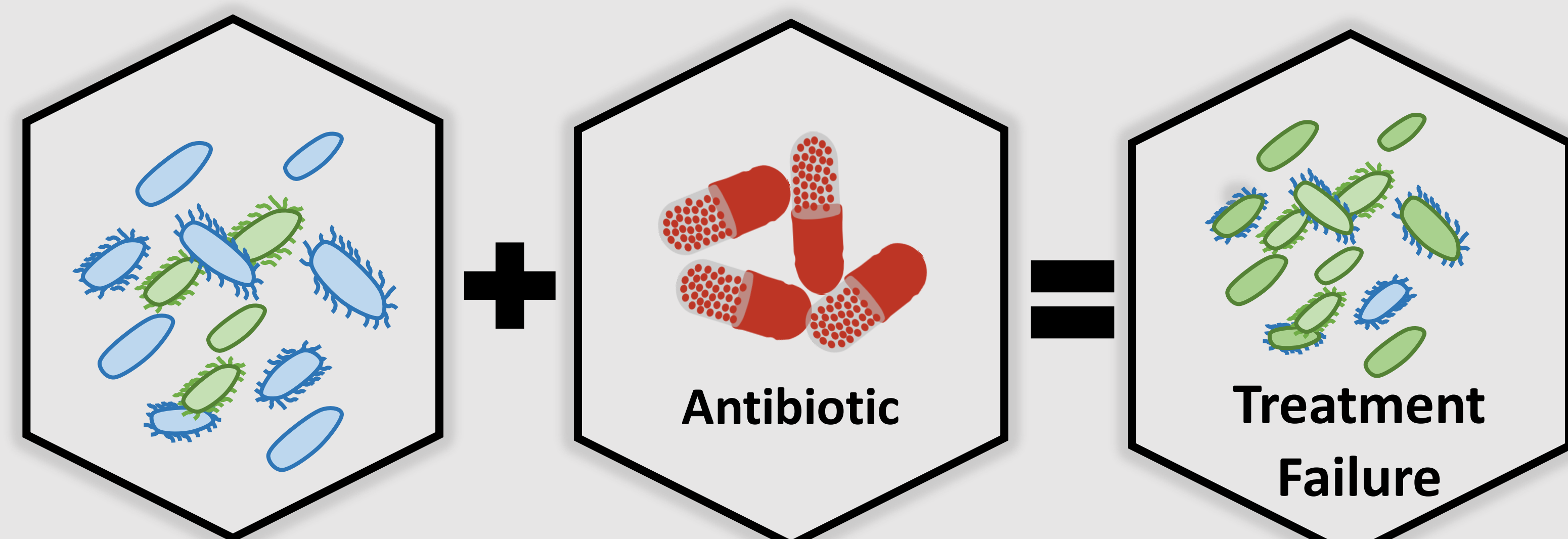


# Profiling of Antibiotic Resistance Genes in Nebraskan Organic Farms

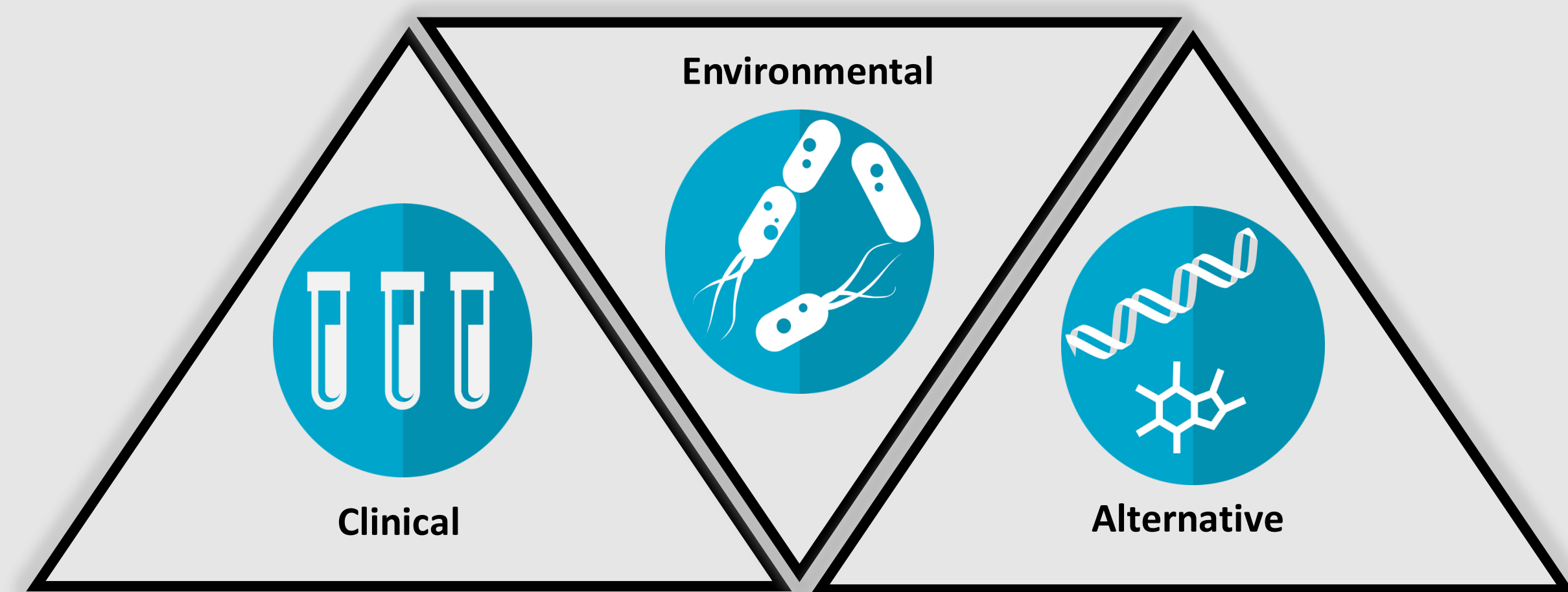


Marlynn Cadena<sup>1</sup>, Lisa Durso<sup>2</sup>, Charles Wortmann<sup>3</sup>  
University of Texas at El Paso<sup>1</sup>, USDA-ARS<sup>2</sup>, University of Nebraska at Lincoln<sup>3</sup>

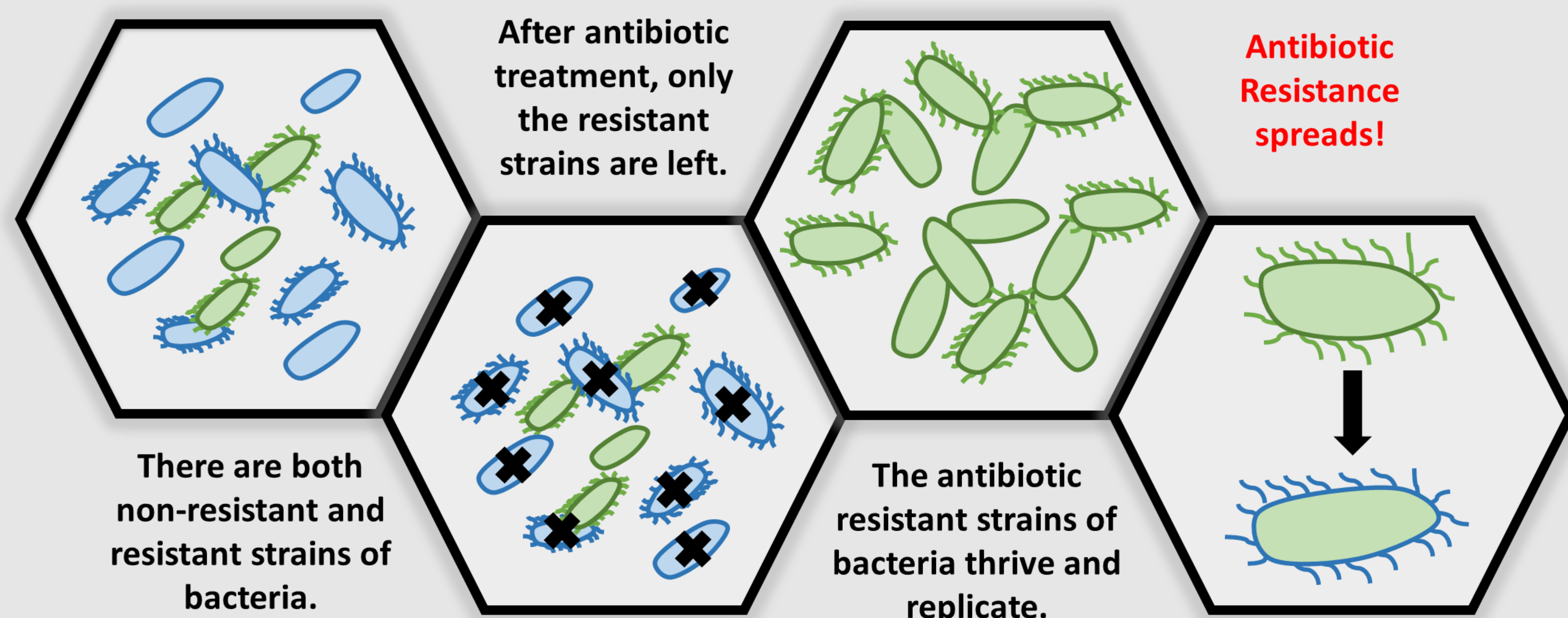
## Background



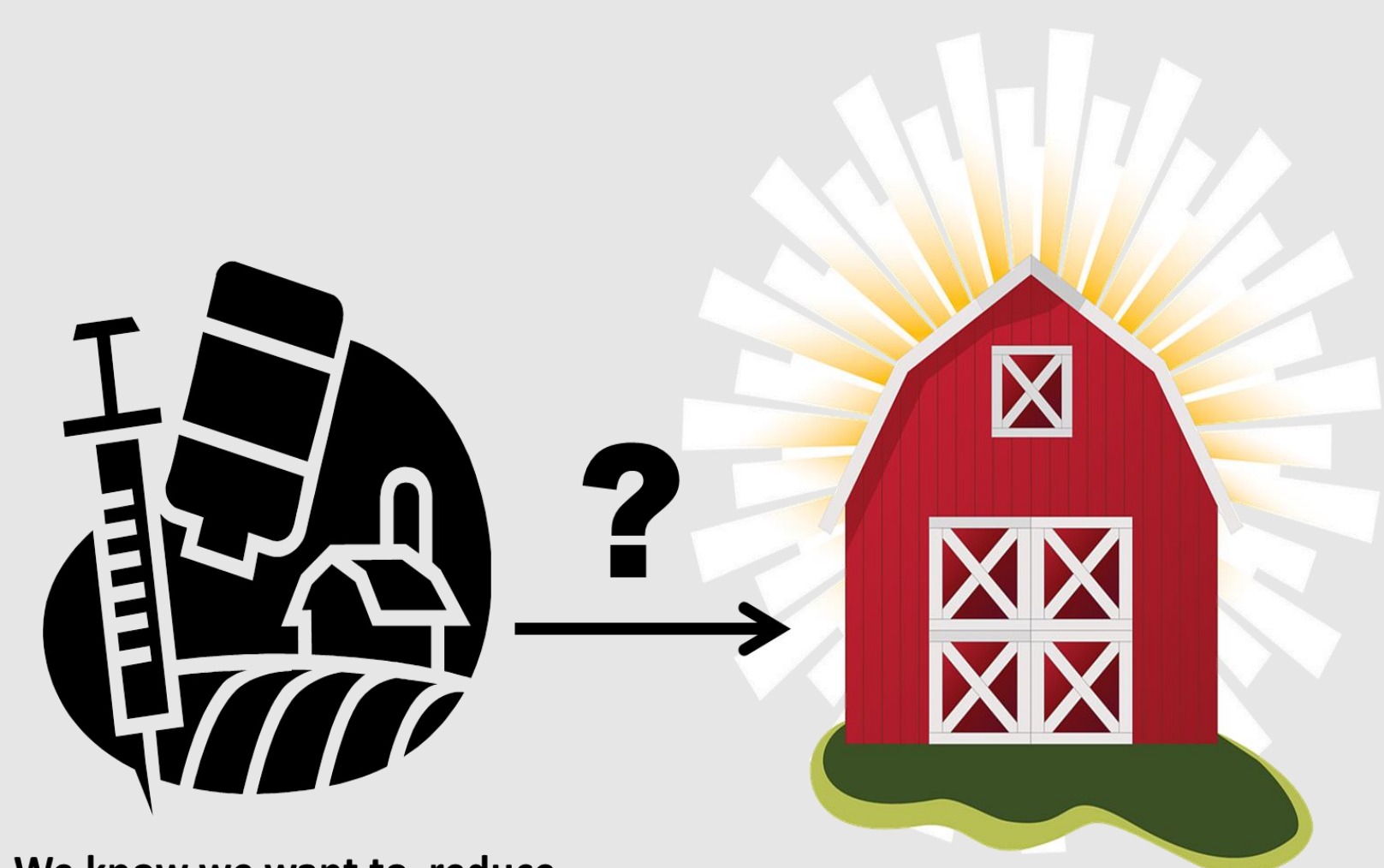
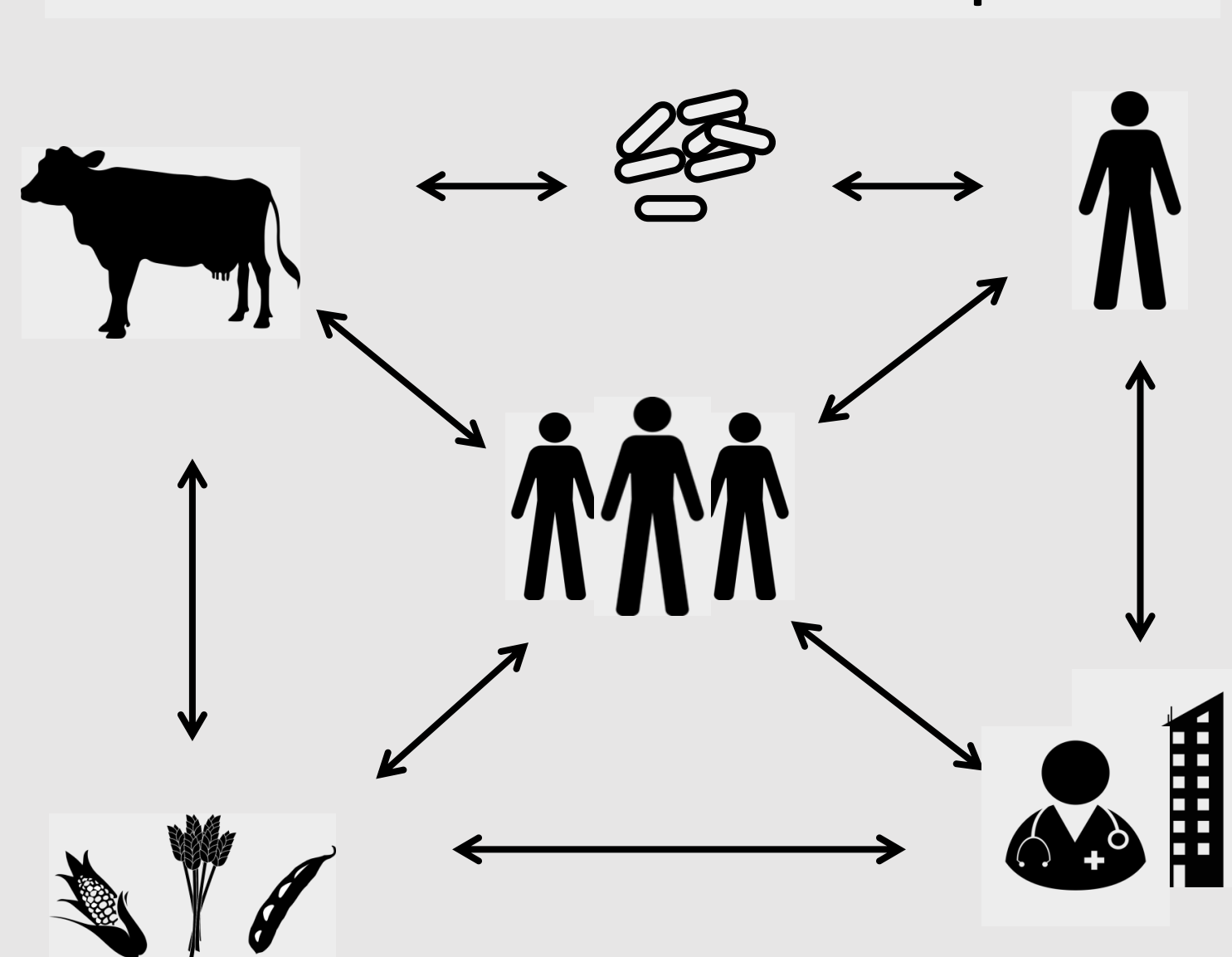
Normal (sensitive) bacteria    Resistant bacteria



There are three different aspects when talking about antibiotic resistance and each brings their own research.



### How Does Antibiotic Resistance Spread?



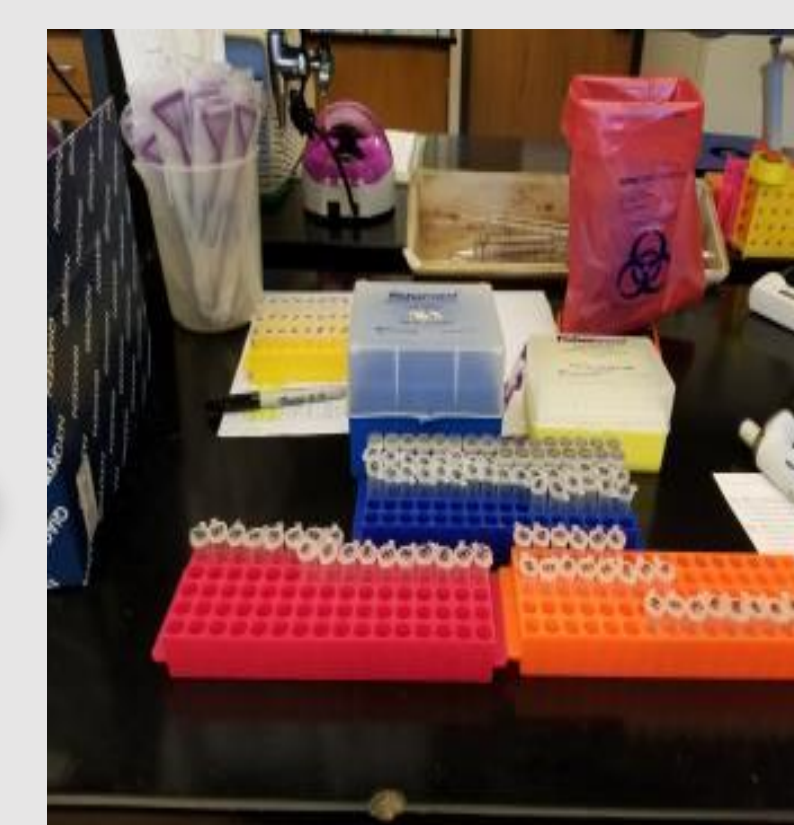
We know we want to reduce antibiotic resistance in agriculture. But **how low can we go?**

Looking at organic farms can help answer that question.

## Methods



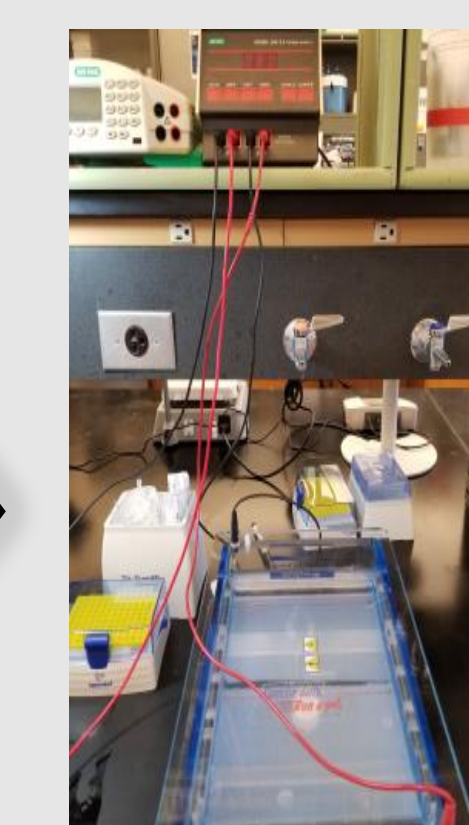
Collection of n=99 Soil Cores from 13 NE Farms



DNA Isolation



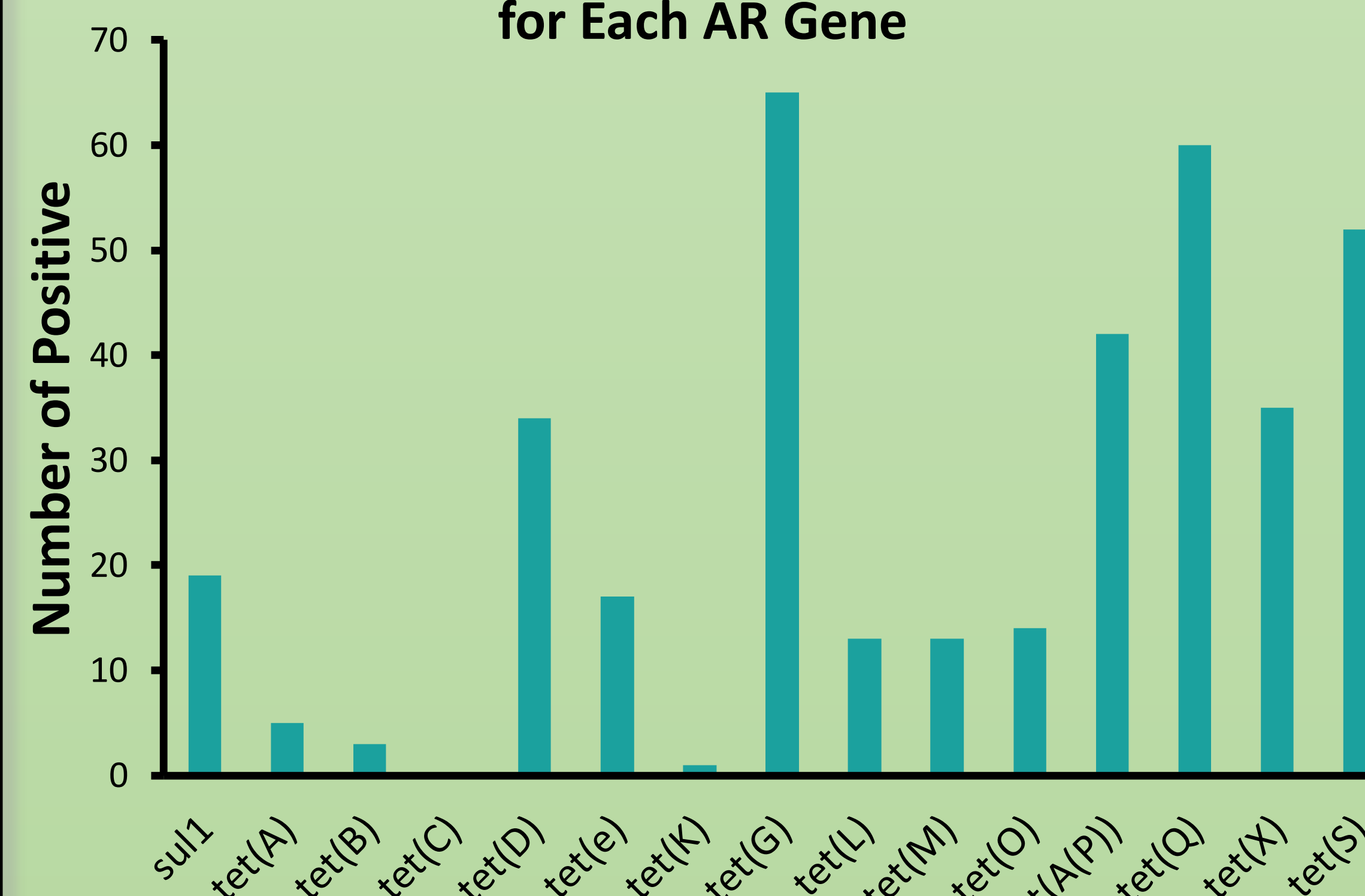
Polymerase Chain Reaction



Gel Electrophoresis

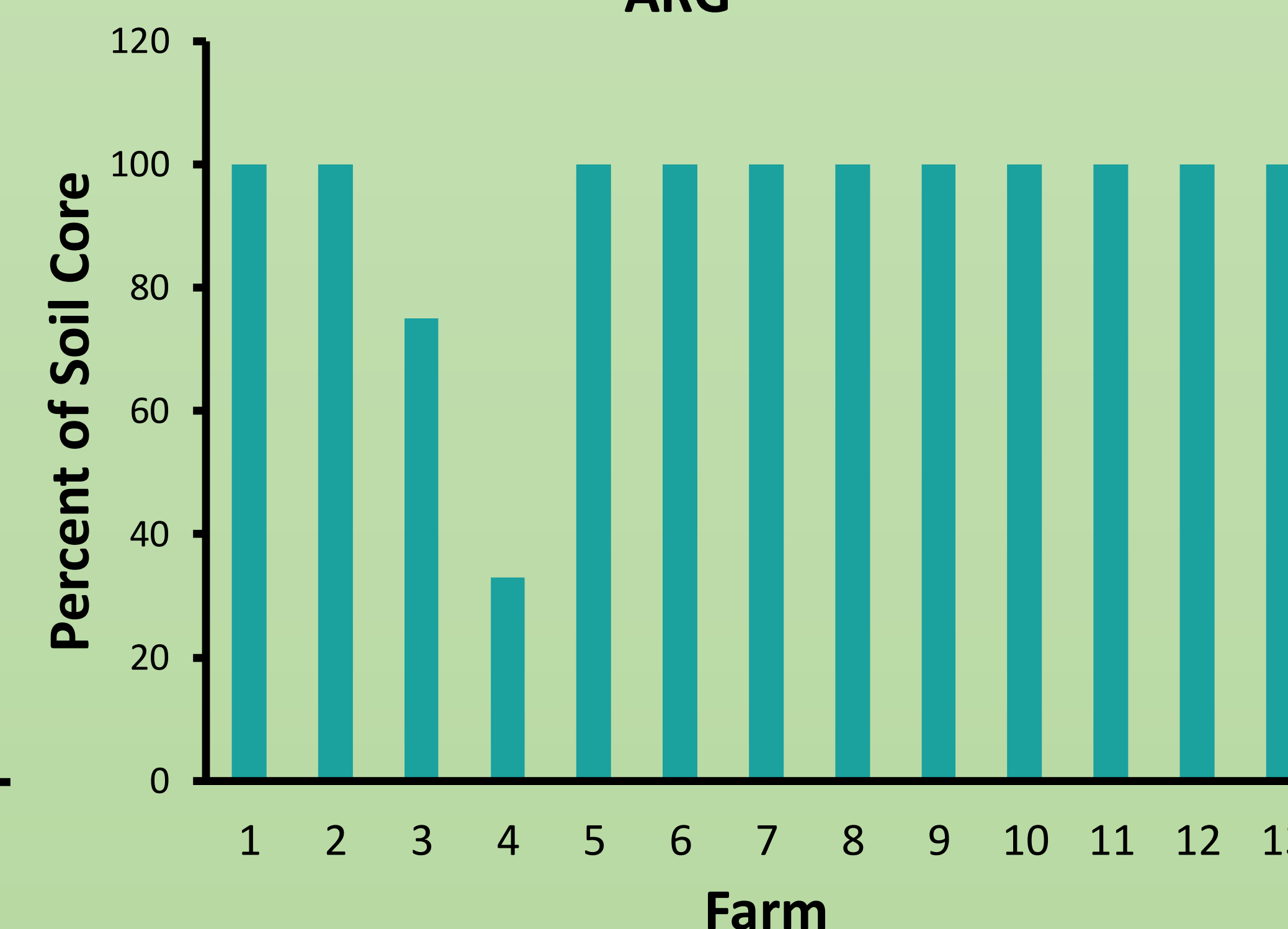
## Results

Number of Cores (n=99) Displaying Resistance for Each AR Gene



Antibiotic Resistance Gene

Percent of Soil Core (n=99) with At Least 1 ARG

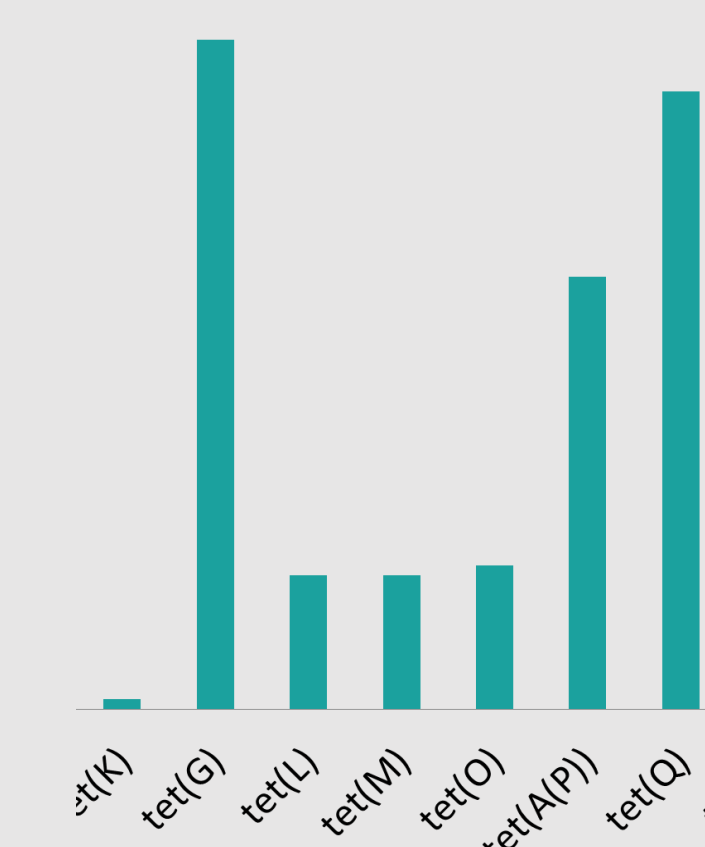


Number of antibiotic resistance gene positives 0-3" = 91 3-6" = 89

## Conclusion

**100%**

All the Organic Farms tested had at least 1 antibiotic resistance gene present.



The most common antibiotic resistance genes present were *tet(G)* and *tet(Q)*

**91 vs 89**

There is no significant difference between the 2 different depths.