STOP ● Using Geographic Information Systems
COLLABORATE AND LISTEN ● in Agricultural Education

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What is ArcGIS?

Aeronautical Reconnaissance Coverage Geographic Information System (ArcGIS) is "designed to store, manipulate, analyze, and output map-based, or spatial, information" (Steinberg & Steinberg, 2006, p. 2).

How is ArcGIS typically used?

For planning urban or rural areas, transportation planning, tracking wildlife, environmental impact analysis, and agricultural applications such as soil testing (Grind, 2015).

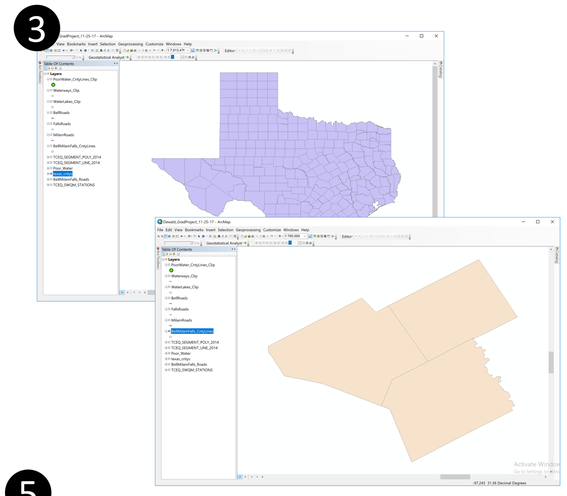
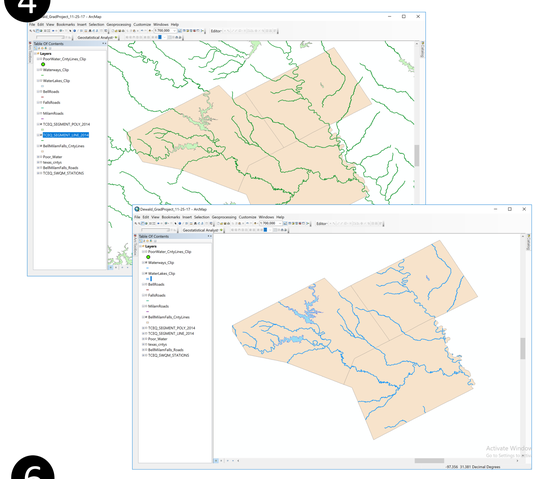
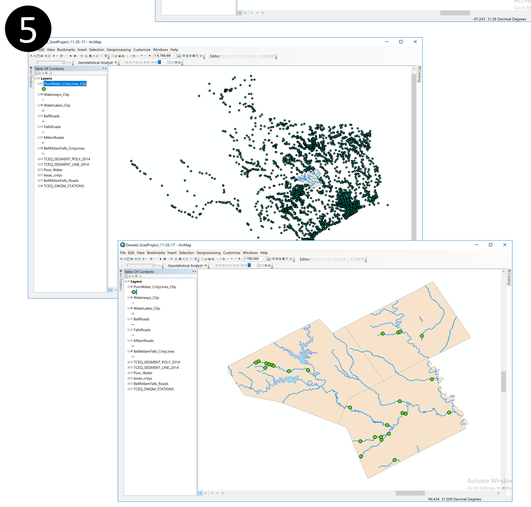
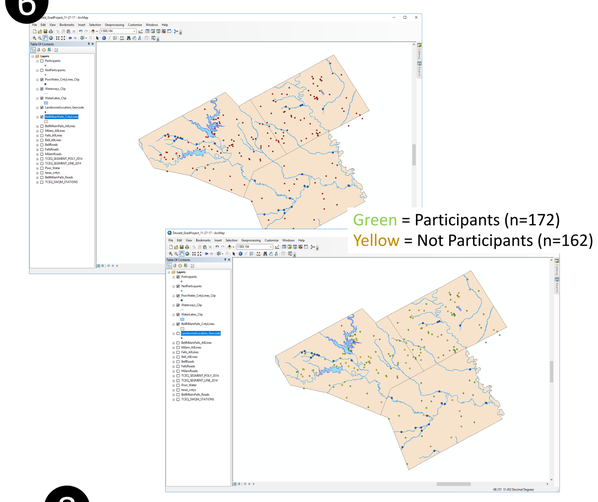
How ArcGIS can be used in Agricultural Education

Identify concerns, motivations, and relationships between humans and the environment (Ballas, Clarke, Franklin, & Newing, 2017).

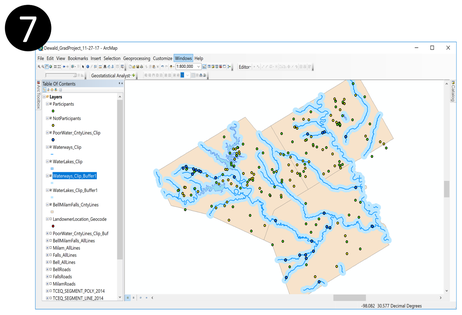
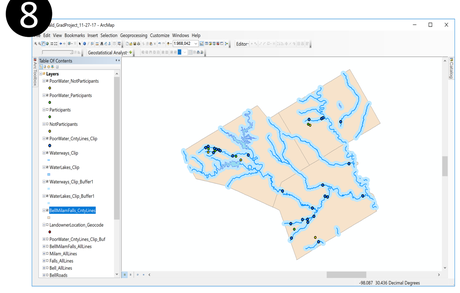
ArcGIS is innovative to agricultural education because it can visually display merging human quantitative and qualitative data, with the environmental data.

Agricultural Education and collaborators in other scientific disciplines, can have a holistic systems thinking (Weinberg, 1975) approach to solving problems, by visually representing relationships between humans and environmental elements.

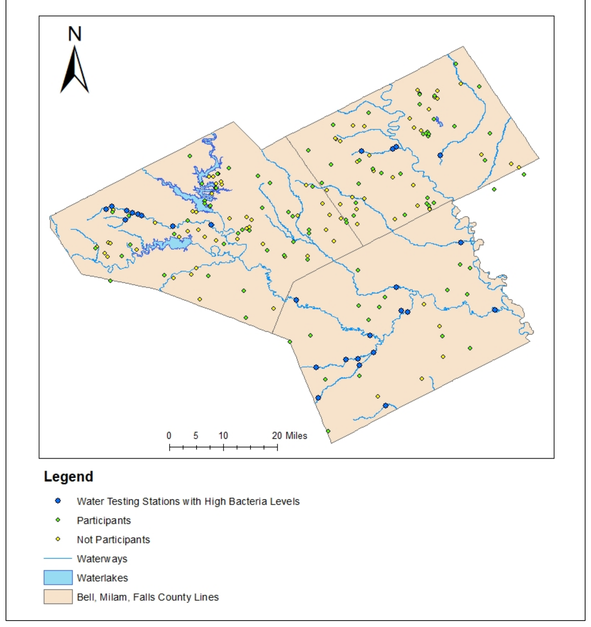
How it works

1. **IDENTIFY THE GOAL**: visually identify landowners who are within a 2-mile radius of water testing stations where higher levels of bacteria are present.
2. **GATHER DATA**: Map of Texas county lines, waterways, water testing stations, landowners' addresses (study survey sample)
3. 
4. 
5. 
6. 

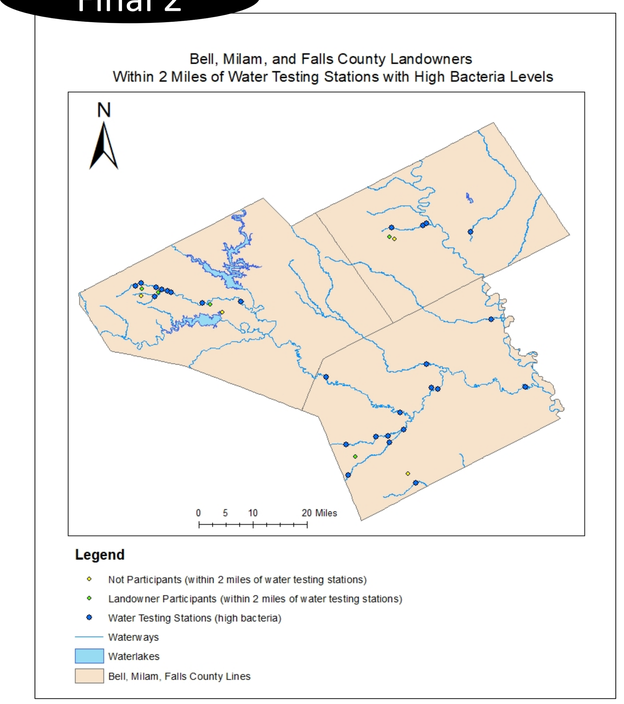
Green = Participants (n=172)
Yellow = Not Participants (n=162)

7. 
8. 

Final 1



Final 2



What do these maps show us?

What action should we take?

Implications

Visually communicate with others
Create interpretive maps can be disseminated to stakeholders, partners, or the public in a visually appealing way.

Analyze humans and the environment
Spatially analyze the relationship between humans and the environment and provide for outreach and education. In turn, positively change the way humans interact with environmental systems.

Identify specific audiences
Depending on your goal, be specific. Instead of using a broad sample of an entire location (e.g., U.S., state, etc.), be more direct and identify a specific location (e.g., region, county, etc.) or region to more accurately disseminate educational resources. Agricultural education can identify target audiences of a specific characteristic (e.g., live within a food desert, own land near housing development), or educate homeowners about monarch butterfly migration sites (e.g., parks, grasslands) near their home (Tapaneeyakul, 2017).

Advice, Cost, & Resources

Know the goal of the project – before starting
Sometimes the goal of the project might not be what the study research objectives are asking. It is imperative to know what the purpose of the map or reason for using ArcGis is.

Gather accurate and credible data
By knowing the goal of the map, you can gather appropriate data sources to use. It is important to identify each variable and source to most accurately present the goal of your project.

ArcGIS program is expensive and requires training
Although the ArcGIS program is effective, it is expensive to purchase and does require training to operate. Therefore, it is imperative to collaborate with a colleague or resource that knows how to use ArcGIS programs.

Collaborate with others
Collaboration, partnership, and coalition themes were only identified 19 times in articles across Agricultural Education journals (Edgar, Briers, & Rutherford, 2008). Additionally, research priority four of the National Association of Agricultural Educators identifies the use of collaboration and partnerships important to delivering effective agricultural education programs (Roberts, Harder, & Brashears, 2016).

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