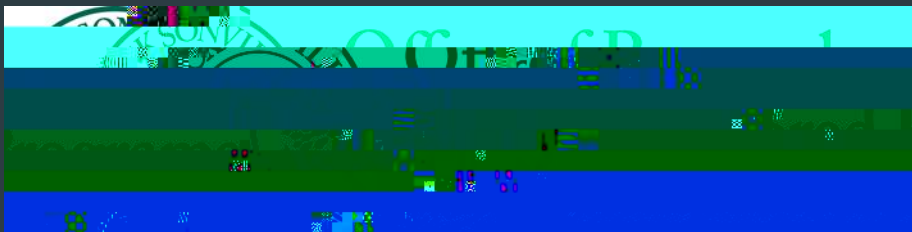


Analysis of biofuels

Carley Kelso

Senior

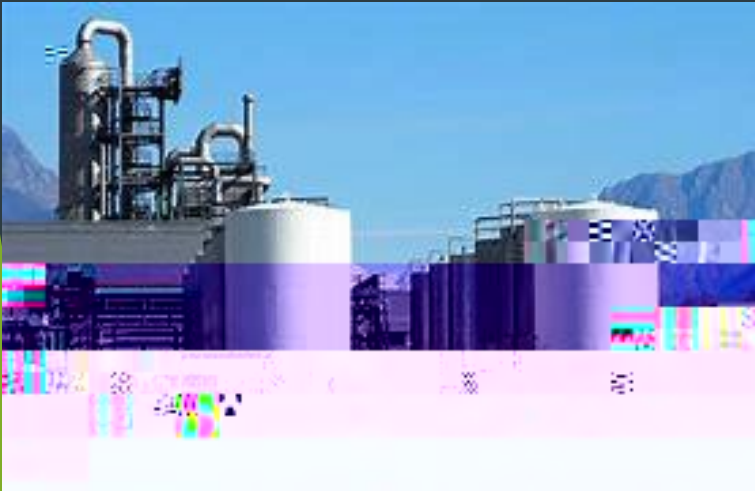
Sustainability and Geography major GIS minor



Introduction

I choose to research Biofuel after listening to a presentation on how an entire bus fleet was being run on a renewable alternative fuel.

The biggest intrigue was that the biofuel was produced by food waste that would be thrown out.



Terms to know

Biofuel- is produced from biomass

Biomass- is plant based material and organic matter that can be used to create fuel

Generation 1 biofuels- this generation is known as conventional biofuels, it is made from sugar, starches, and vegetable oils.

Generation 2 biofuels- this generation of biofuels can be produced by a wide variety of different feed stocks which is not limited to non-edible biofuels

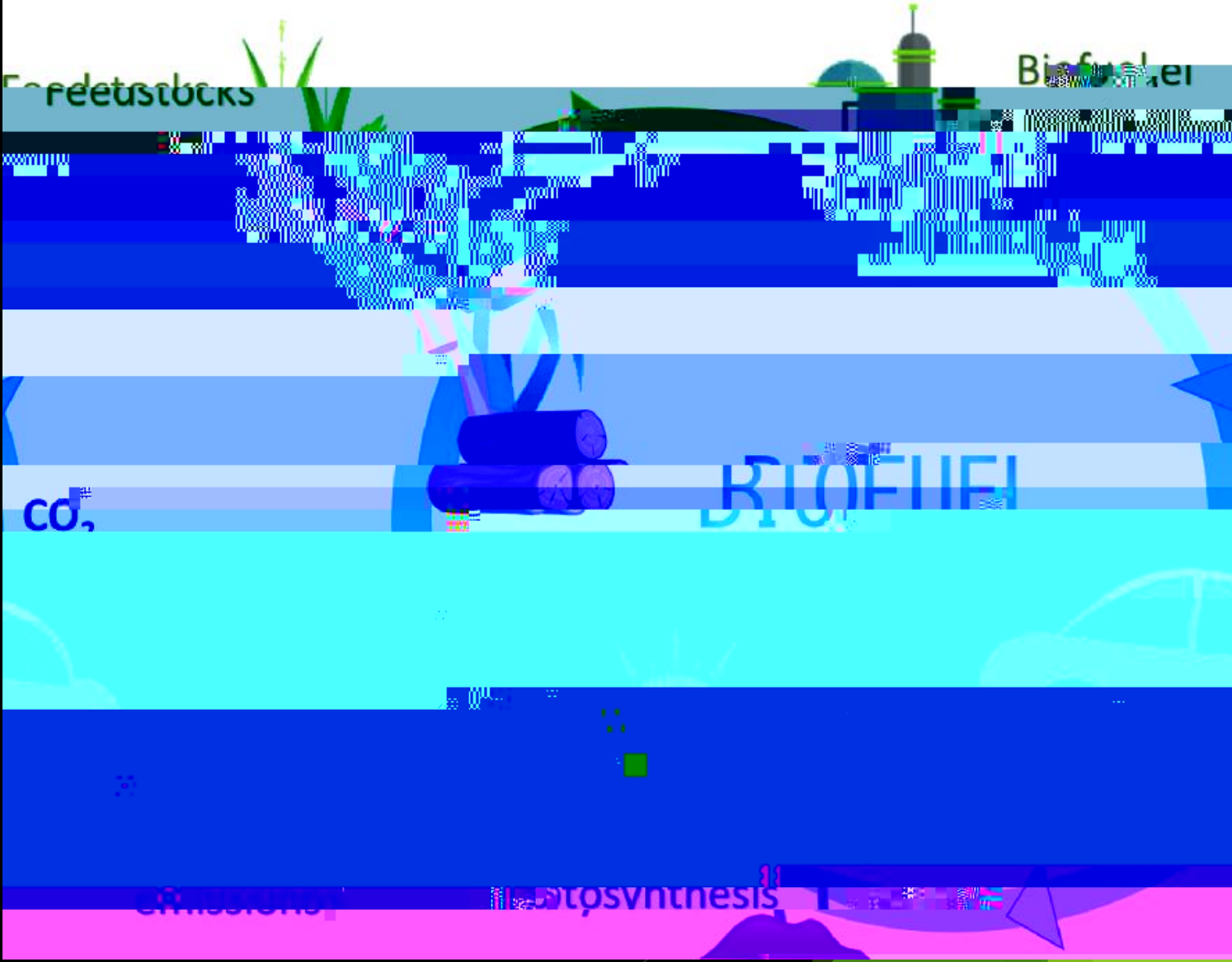
Crops

These are the crops for generation 1 biofuel

Most crops are harvested from the Midwest region in the northern states.



Biofuel Cycle



Methods + python script

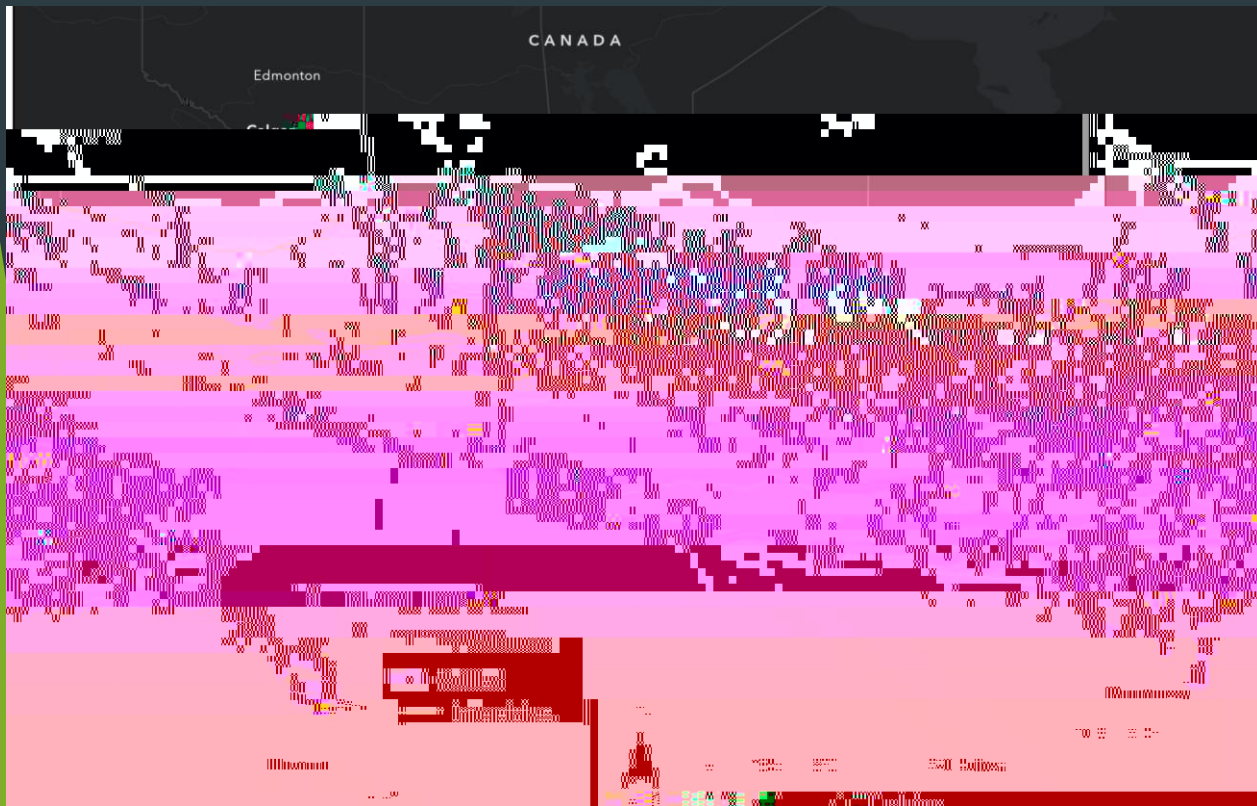
The spatial data of the crops, biofuel stations, and biofuel production plants were used to show

Results of Network analysis

Takes approximately six weeks from the time biofuel is produced to when it is delivered to fueling stations

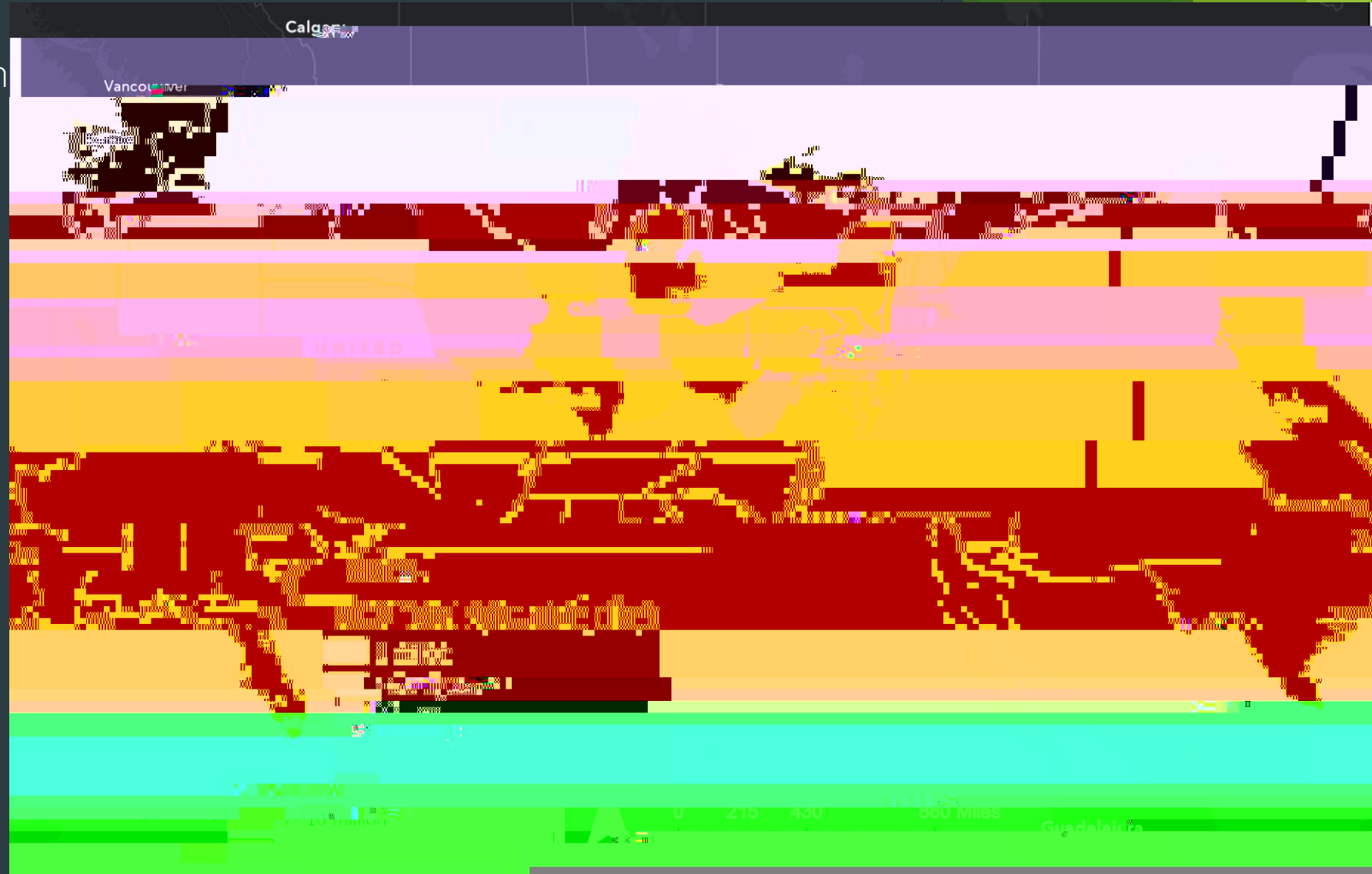
Biodiesel average trucking distance in kilometers is 201.2 km min distance= 0.63 km max distance= 1,123.3 km

Ethanol average trucking distance in kilometers is 163.0 km min =36 km max distance= 1,151.3 km



Connection with Population

I wanted to see if there was a connection between population and Biofuel



Public Outreach



NORTH CAROLINA HAS A STATEWIDE BIOFUEL STRATEGIC PLAN THAT WAS PUT IN PLACE IN 2008

THEIR GOAL IS THAT 10% OF ALL FUELS SOLD IN THE STATE TO BE BIOFUEL

THEY PLAN TO REACH THIS GOAL BY:
EDUCATION & PUBLIC OUTREACH
ACCESSIBILITY OF BIOFUEL
AFFORDABILITY OF BIOFUEL

Fuel type	E10	E20	E85	Regular
Prices	\$3.92	\$3.60	\$3.49	\$4.33



Legislative

The energy policy act of 2005 stated that biofuel or ethanol must be incorporated into all gas sold

This was followed by the Energy independence and security act that says by 2022 6 billion gallons of renewable fuel must be blended into domestic transportation fuels each year.

Conclusion

Biofuel is available across the United States to consumers.

Fossil Fuels are a finite resource, and the use of biofuels are a good alternative. Biofuel is a renewable resource

I would like to investigate other generations of biofuel. My study was limited to ethanol based, Generation 1 Biofuel.

References

Ahmed, J. O., & Blosci, E. J. (2014). Food security, food prices and climate variability.

