Green Mountain Biochar

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US Biochar Initiative

UMASS AMHERST

Overview

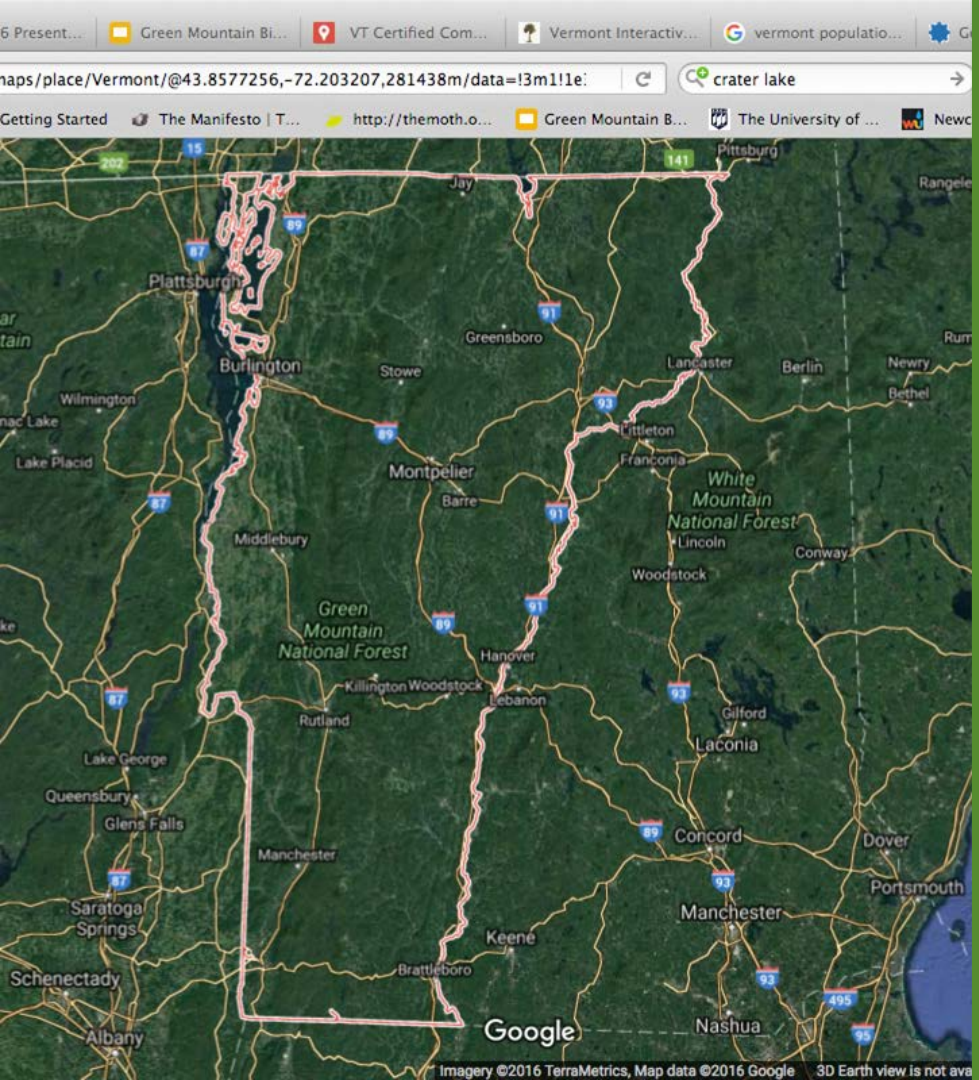
Introduction: Vermont and research agenda

Act 148

VT waste composition study

Conversion to char: Advantages, Challenges, and Opportunities

Next steps and conclusion



Vermont Geography

150 miles North<>South
85 miles East<>West
42-45°N
USDA hardiness zone: 3b-4b
Population: 626,562 (2014)
Major industries: maple syrup, agriculture, tourism, electronics, forest products
7,338 farms (2012)
583 organic farms (2011)
1,251,713 acres of farmland (21.2% TLA)
Average farm size: 171 acres

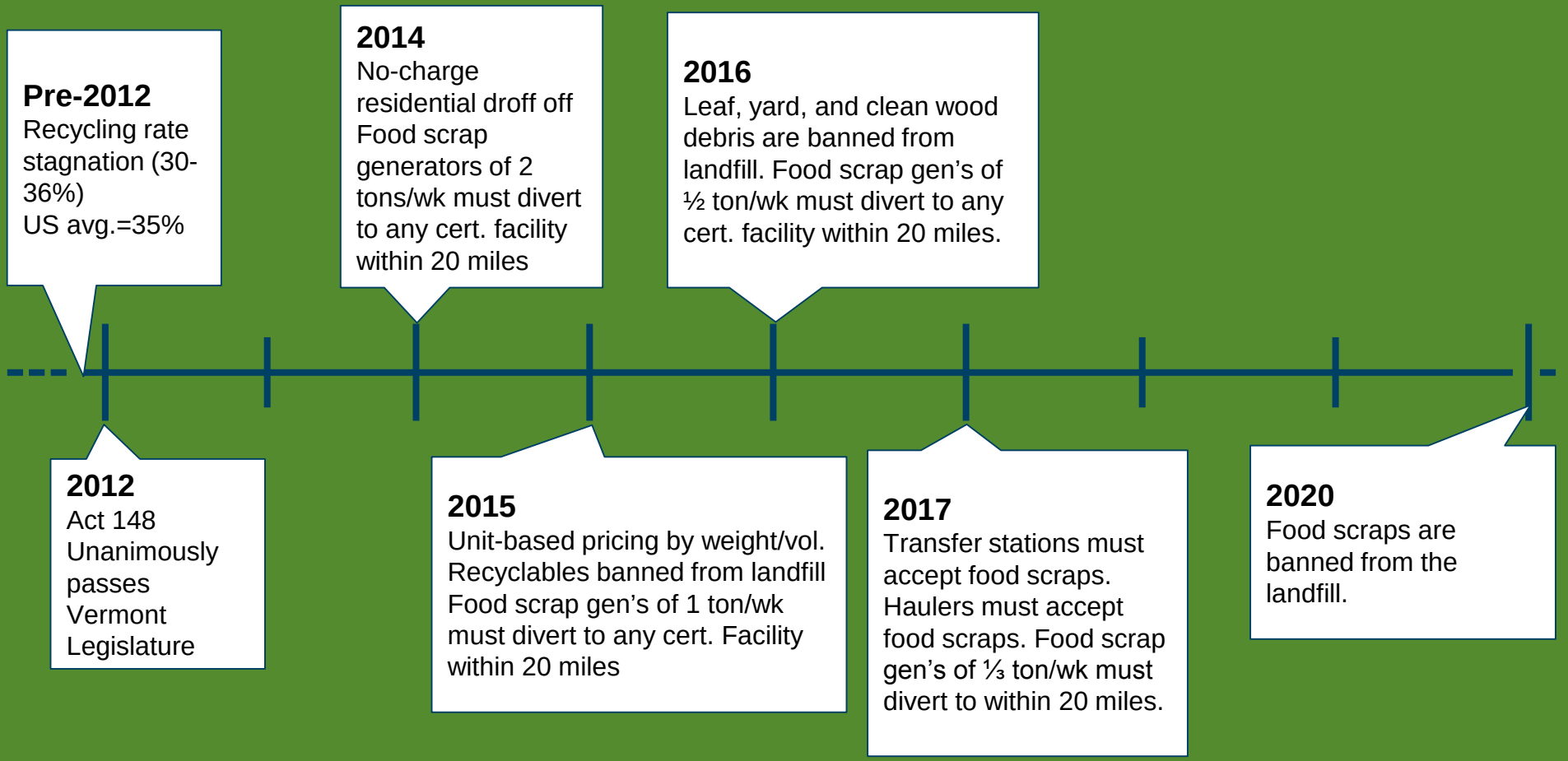
Introduction to research agenda…

“What are the potential advantages, opportunities, and challenges to converting the organic waste stream in Vermont to biochar?”

Timeline: 2016-2017

Methods: Interviews, Participant observation, Document analysis, and Spatial analysis

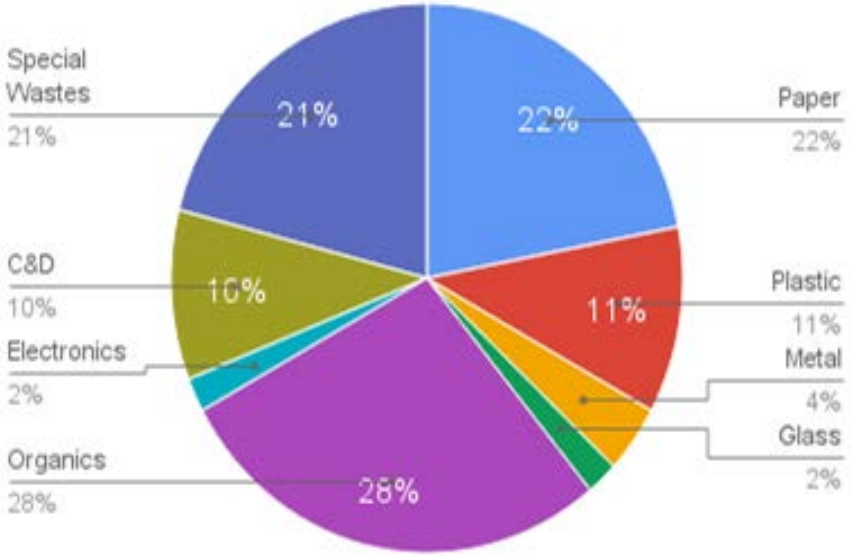
Interviews to date: VT ANR; McNeil Generating Station; Shelburne Farms; Fedco Seeds; biochar producers, educators, and users



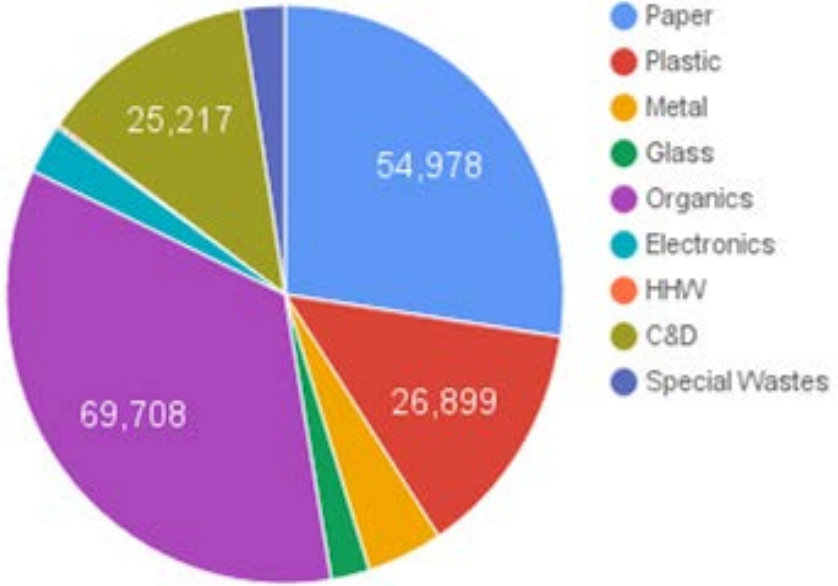
Act 148: Vermont's Universal Recycling and Composting Law

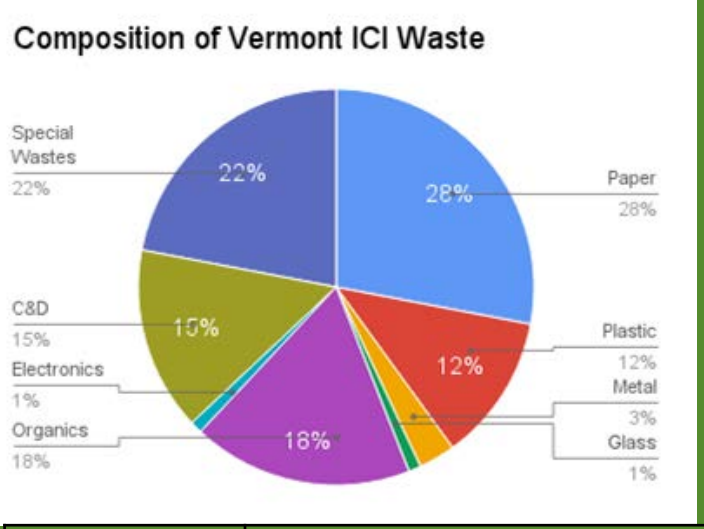
Vermont Waste Composition Study (DES 2012)

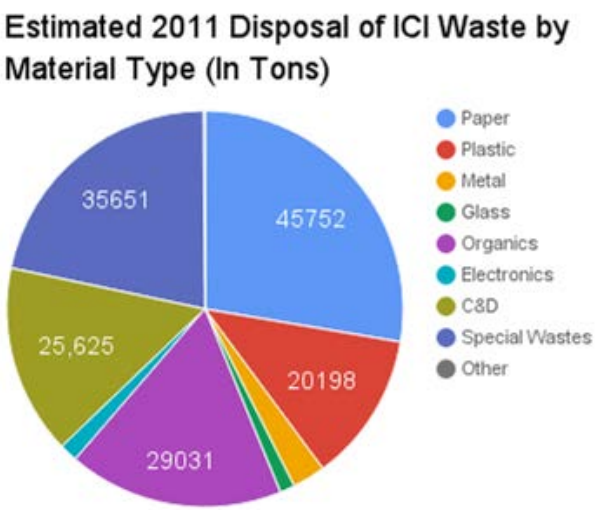
Composition of Vermont Residential MSW (Percentage, By Weight)



Estimated 2011 Disposal of Residential MSW By Material Type (In Tons)







	Results from VT Waste Composition Study (Weight in Tons/Year)		
	Residential	ICI	Aggregate
Paper	54,978	45,752	100,730
Organics	69,708	29,031	98,739
Total	124,686	74,783	199,469

39,893.8

Tons of biochar that could theoretically be converted from Residential and ICI Waste, assuming 20% yield by weight (Kwapinski 2010).

Advantages

Absorption of organic waste stream

Bio-abundance

Carbon sequestration

Utility value of char

Production of multi-use material

Cascading benefits in soil

Rurality

Challenges

Underdeveloped market

Contingent lack of production

Counter-cultural

Lack of education

Lack of funding

Lack of research

Rurality

Opportunities

Policy & Legislative Measures

Dairy industry

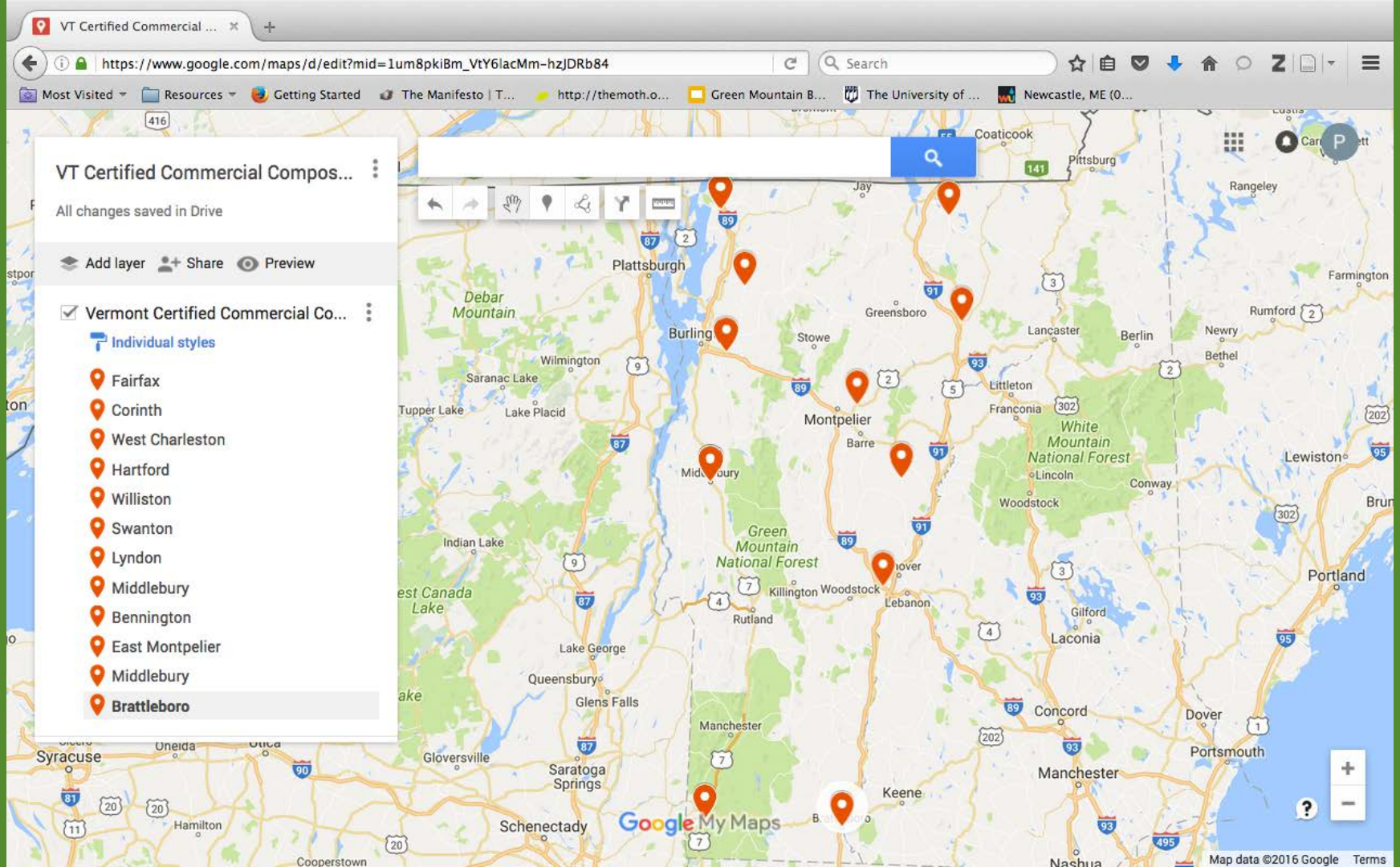
Multiplicity of relevant use-values

Compost-Char synergies

Distributed production

RGGI carbon offsets

Domino effect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Conclusion

Thank you!

Questions, comments, and next steps...