

# Cool Soils

Minneapolis Biochar Initiative

# Climate Actions

- ▶ Mitigation

Avoiding or reducing GHG emissions

- ▶ Adaptation

Adjusting to future climate



# Biochar Climate Actions

## ▶ Mitigation

Avoiding or reducing GHG emissions

- Carbon removal/Carbon sink
- Lower GHG emissions from soil

## ▶ Adaptation

Adjusting to future climate

- Drought resistance
- Improved soil health, ag/forestry, stormwater



# Carbon Sequestration

▶ Biological



▶ Geological



▶ Technical



# Biological Carbon Sequestration



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- ▶ Trees are nature's best carbon collectors



# Reversals

- ▶ Storms
- ▶ Disease
- ▶ Invasive Species
- ▶ Development
- ▶ Climate stress

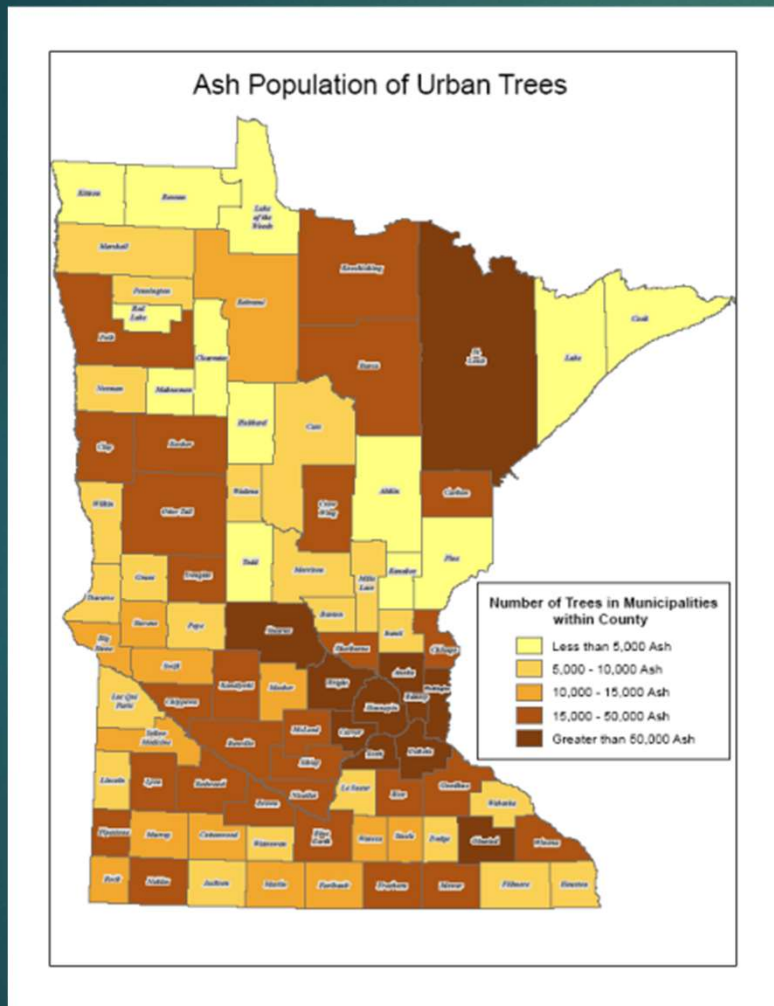


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# Emerald Ash Borer

## Our big reversal



[newbruswicktoday.com](http://newbruswicktoday.com)



# Biochar, a carbon negative solution

- Biochar - charcoal-like substance that can be used as a beneficial soil amendment.
- Harvesting carbon from trees
- Limiting Factor - Availability



Photo credit Nash Leef





# Minneapolis Biochar History

- ▶ 2012- Afghanistan
- ▶ 2014 - **MOU Shakopee Mdewakanton Sioux Community**
- ▶ 2014 - Mashkiikii Gitigan
- ▶ 2015 - Little Earth HUD
- ▶ 2016 - Mpls Parks and Rec study
- ▶ 2017 - Chicago lot
- ▶ 2019 - Stockholm visit, Biochar Resolution, Hiawatha Avenue
- ▶ 2020 - **2040 Comp Plan**
- ▶ 2021 – CNCA grant- biochar playbook
- ▶ 2022 - **Climate Equity Plan, Carbon Sequestration Program**
- ▶ **2023 –Biochar production**



▶ Photo credit Jim Doten



# Issues

- ▶ Technology
- ▶ Feedstock agreements
- ▶ Urban Siting Considerations
- ▶ Environmental Justice
- ▶ Partners
- ▶ Political Support



# Delivery Plan – Carbon Sequestration Program

## Goals:

### Local Production

- Siting
- Industrial Zoning
- Neighborhood involvement

### Climate and Equity

- Climate Equity Plan/Comprehensive Plan
- Community Groups in EJ areas
- On tap – not on top

### Regional Resource

- Hennepin County feedstock catchment
- 7- County Metropolitan area use
- Government/Watershed focus

# Current Minneapolis Uses

- ▶ Urban Agriculture
- ▶ Urban Forestry
- ▶ Transportation corridors
- ▶ Landscaping
- ▶ Stormwater
- ▶ Future
- ▶ Surface water
- ▶ Concrete
- ▶ Remediation



# Carbon Neutral Cities Alliance

- ▶ **Minneapolis, Boulder, Stockholm, Helsinki**
- ▶ Biochar Guidance: Considerations for Municipal Procurement & Application
- ▶ Biochar Benefits Analysis
- ▶ Biosolids to Biochar
- ▶ Urban Forest Biomass to Biochar Playbook  
CNCA Biochar-Urban Forest Strategy



# Network/Partners

- ▶ Minnesota Department of Transportation
- ▶ Minnesota Pollution Control Agency
- ▶ University of Minnesota
- ▶ Natural Resource Research Institute
- ▶ Hennepin County
- ▶ Dakota County
- ▶ Shakopee Mdewakanton Sioux Community
- ▶ Environmental Initiative
- ▶ Xcel Energy



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