# Can biochar in soil reduce tree disease?

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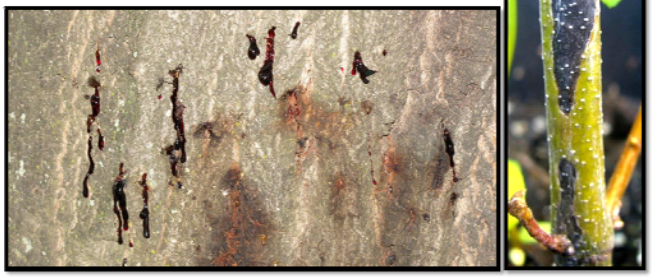
## Purpose:

• The purpose of this research was to determine if **Biochar,** an organic soil amendment, can reduce damage caused by ***Phytophthora*** spp. in tree species.



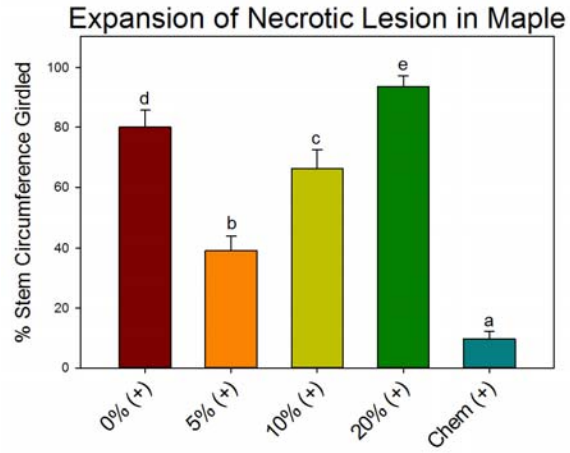
**Above**: 'bleeding' symptoms of Sudden Oak Death (L) and necrotic lesion on experimental seedling stem (R)

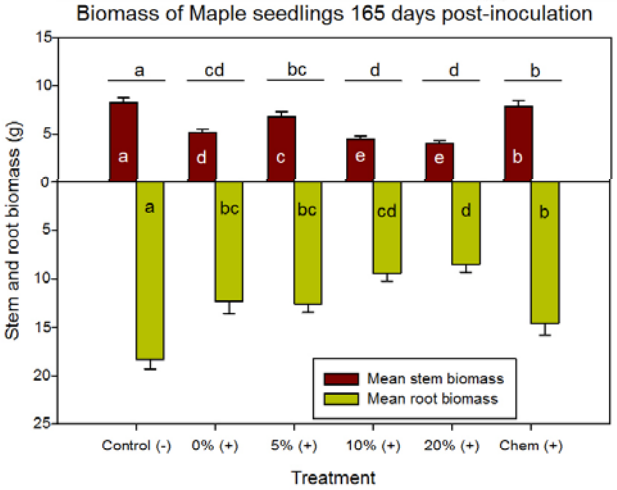
## *What is Biochar?*

• "Burnt" organic matter used as a soil amendment
• Considered a 'permanent' sink for atmospheric $CO_2$
• Produced as a co-product of bio-fuel production
• Research in agriculture has shown that as a soil amendment, biochar can: Increase soil nutrient retention, Reduce run-off, Increase plant vigor and crop yield, Increase beneficial soil microbes, ***Induce resistance to a variety of above-ground plant diseases…***

## Experiment:

• Maple seedlings were planted with 0%, 5%, 10%, 20% biochar amendment or chemical treatment and inoculated with canker-causing *Phytophthora* species
• Disease progression, plant health, and growth monitored




## Results:

• 5% biochar sig. **reduced canker size** compared to 0% control, but not as well as industry standard chemical treatment (upper figure).
• 5% biochar sig. **increased shoot biomass** compared to control (lower fig).
• All treated plants maintained **higher rates** of max **photosynthesis** than 0% control over the experimental period (data not shown)

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