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Biochar in the Vineyard

Eric Mayer, Ph.D

Biochar in the Vineyard

- Market
- Methods
- Results
- Costs
- Scale
- Barriers and Opportunities



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Biochar in the Vineyard – Market

- Periodic vineyard replacement



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- 100k acres under vine in Napa and Sonoma



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- More regeneratively-minded farms quench for biochar or chip for mulch



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Biochar in the Vineyard - Methods

- On-site production with flame-cap kilns



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Biochar in the Vineyard - Methods

- On-site production with flame-cap kilns
- Farmers pile vines to cure
- Feed vines into kiln by hand or with mini-excavator
- Leave Biochar in quench patches for farmers to integrate into soil
- Up to 7 dry tons/day of biochar
 - > 30 cu-yds
 - > 6 acres of vines



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Biochar in the Vineyard – Results

In our first full year:

- Processed 45 acres of pulled vines



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- > 25% conversion biomass to biochar
- High-quality biochar (> 65% Carbon, and H/Corg < 0.3).



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Biochar in the Vineyard - Cost

- Fundamentally the same as wood chipping



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- Anywhere from \$750 to \$2500 per day
- \$100 to \$400 per cu-yd of biochar produced
- \$100 to \$1000 per ton of CO₂e sequestered



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Biochar in the Vineyard - Scale

- One kiln crew can conservatively produce 300 tons of biochar per CA burn season



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Biochar in the Vineyard - Scale

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- In Napa and Sonoma, enough pulled vines to fully employ more than 10 kiln crews



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- > 1,000 tons of CO₂e removed from the atmosphere every year
- In Napa and Sonoma, enough pulled vines to fully employ more than 10 kiln crews
- > 10,000 tons of CO₂e per year
- Replication across all the orchards and vineyards in California, > 1 million tons of CO₂e per year



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Biochar in the Vineyard – Barriers and Opportunities

Barriers:

- Farmer knowledge of biochar



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- Water availability (100 gal per cu-yd of biochar)



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- Farmer knowledge of biochar
- Emissions data
- Water availability (100 gal per cu-yd of biochar)

Opportunities:

- Biochar in the woods
- Carbon funding



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Thank you!

The giants on whose shoulders we stand:

USBI

Kelpie Wilson and the Biochar in the Woods group

Sonoma Biochar Initiative

Napa Green

Oasis Vineyard Trial

Darren McAvoy

Our clients who provide the demand:

Silver Oak Cellars

Jackson Family Wines

Tres Sabores

Markham Vineyards

MacRostie Winery

Gloria Ferrer Caves and Vineyards



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