

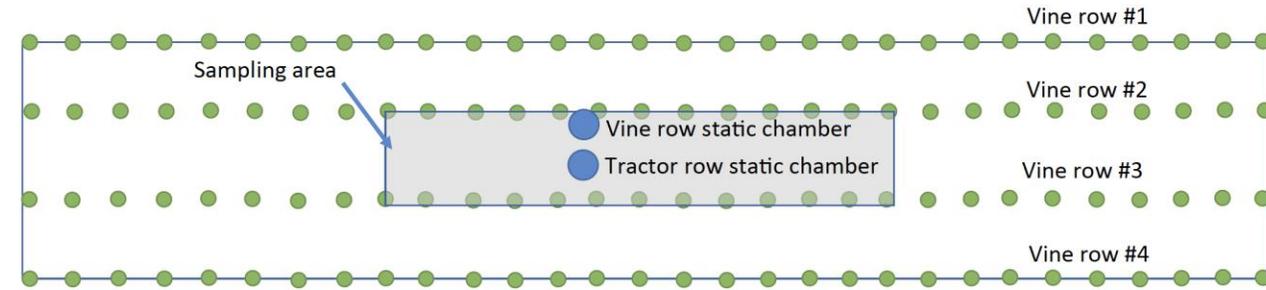
Effects of compost application on soil carbon and greenhouse gas emissions in wine grape production

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Experimental design

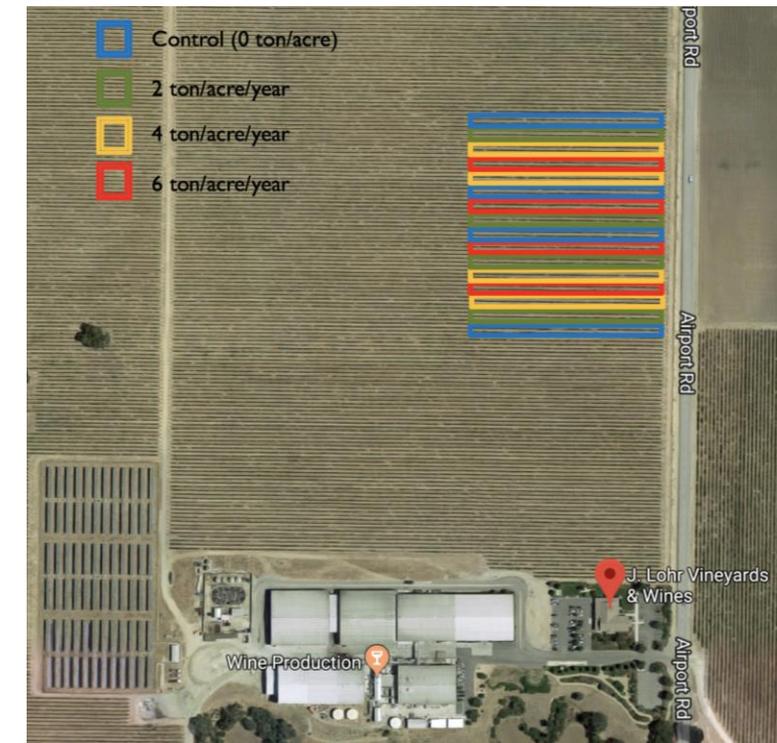


- Objective:

- To investigate the effects of compost application and its rates on soil C sequestration, greenhouse gas emissions, and overall soil health

- J. Lohr Vineyards and Wines

- East of the Salina River within the Estrella District
- Grape varietal: Cabernet Sauvignon
- Soil: San Ysidro Series
 - Coarse texture – sandy loam
 - Low organic matter



Compost application

- Four treatments: 0, 2, 4, and 6 tons/acre/year
- Broadcasting over entire vineyard floor
- Cal Poly Compost
- 1st application: November 9-10, 2018



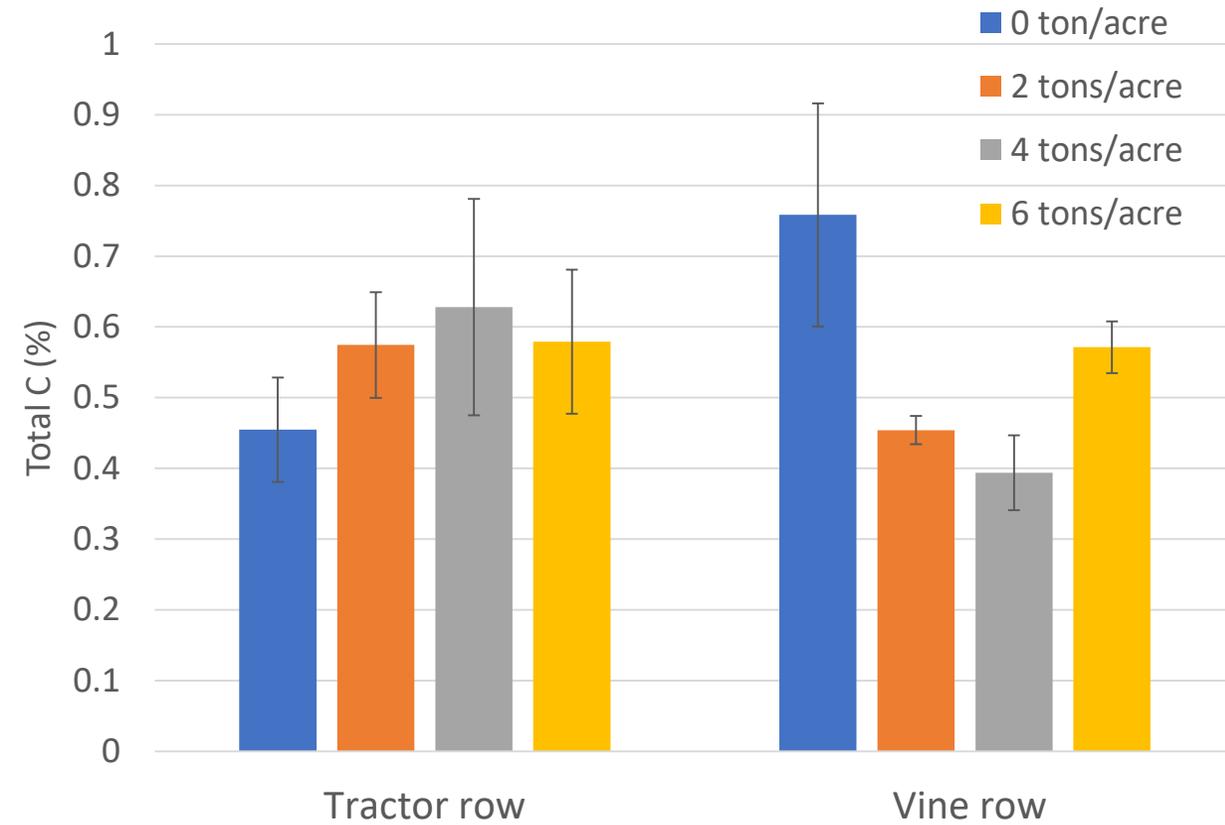
Cover crop on site

- Mixture of Zorro fescue and Foxtail barley
- Planted 10+ years ago
- Seeds go dormant throughout summer
- Sprout in fall after 1st rain
- Mow 2x in spring and leave residue on floor
- No disking and not incorporated in soil

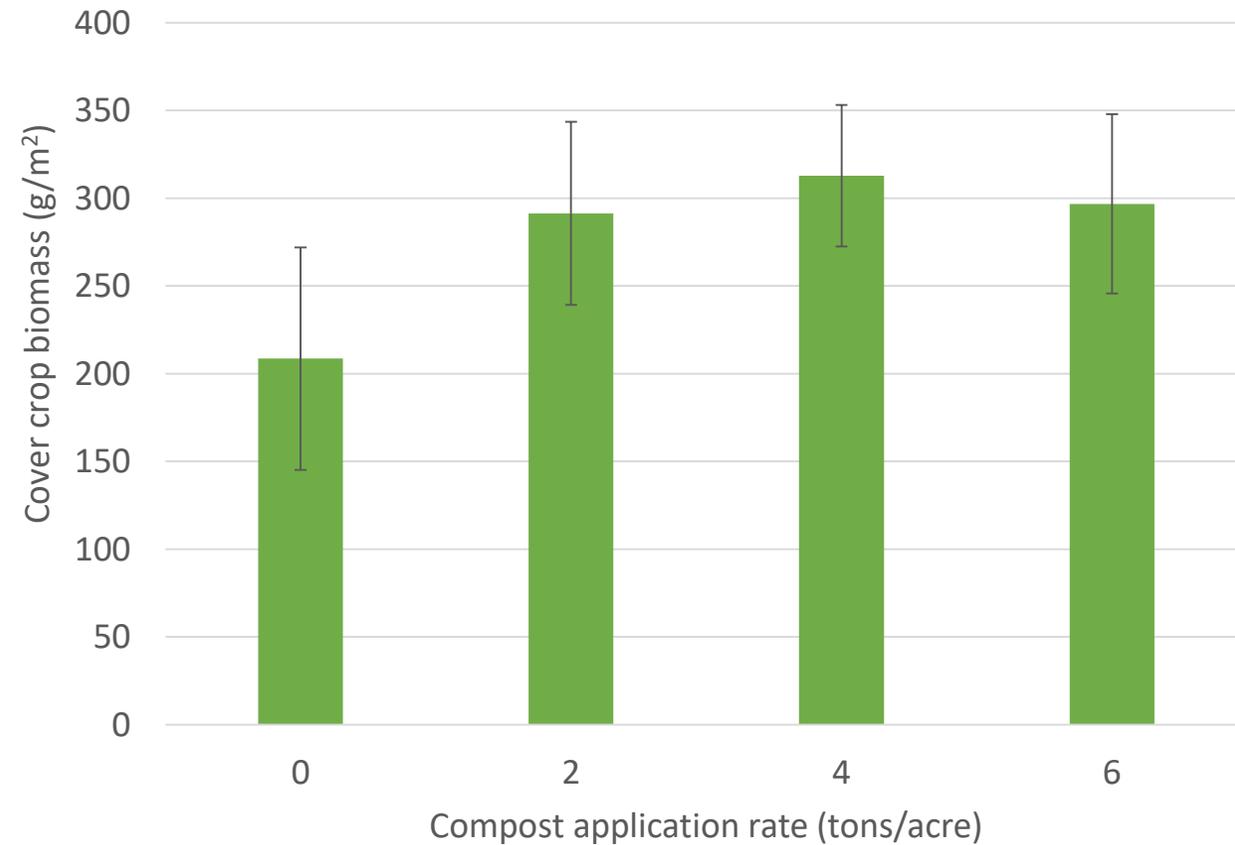


Preliminary data: soil C and cover crop biomass

Soil total C (0-6")



Cover crop biomass



Summary

- Compost application boosts cover crop growth
 - ↑ root system → ↑ microbial activity → ↑ C input and nutrient cycling
 - ↑ aboveground biomass → ↑ residue → ↑ C input via decomposition
- Time is needed for soil C response

