



# Developing Best Management Practices for Tomato Growers to Use Compost by Understanding Its Effects on C and N Dynamics

UC Davis: Xia Zhu-Barker, Savannah Haas,  
Daniel Geisseler & William Horwath

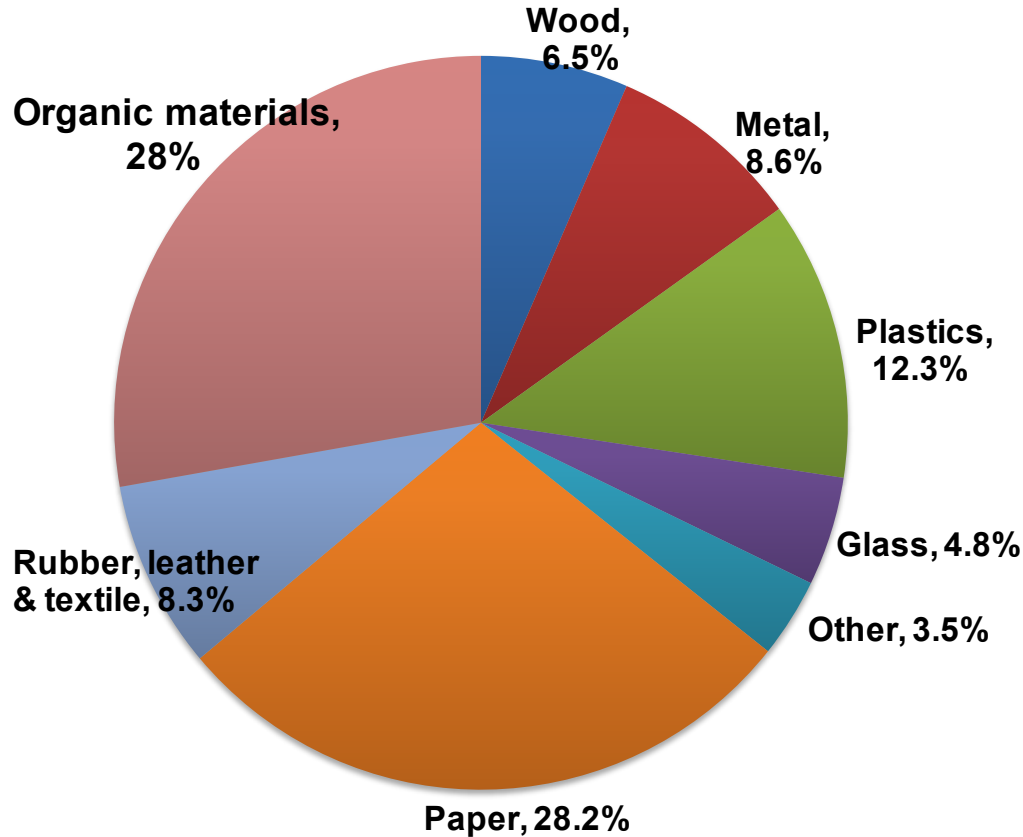
UCCE: Brenna Aegerter

USDA-ARS: Kerri Steenwerth



# Research Motivations

Multiple solid wastes in the United States



California AB 341:  
Solid diversion

Tomato fields



**The agronomic benefits and environmental footprint of compost application is unknown.**

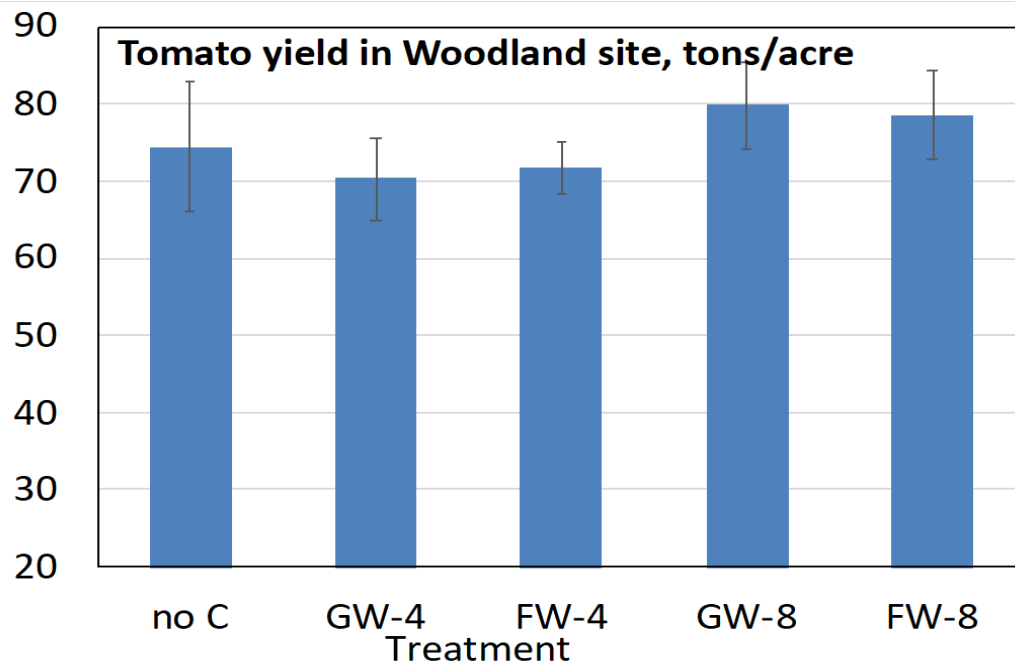
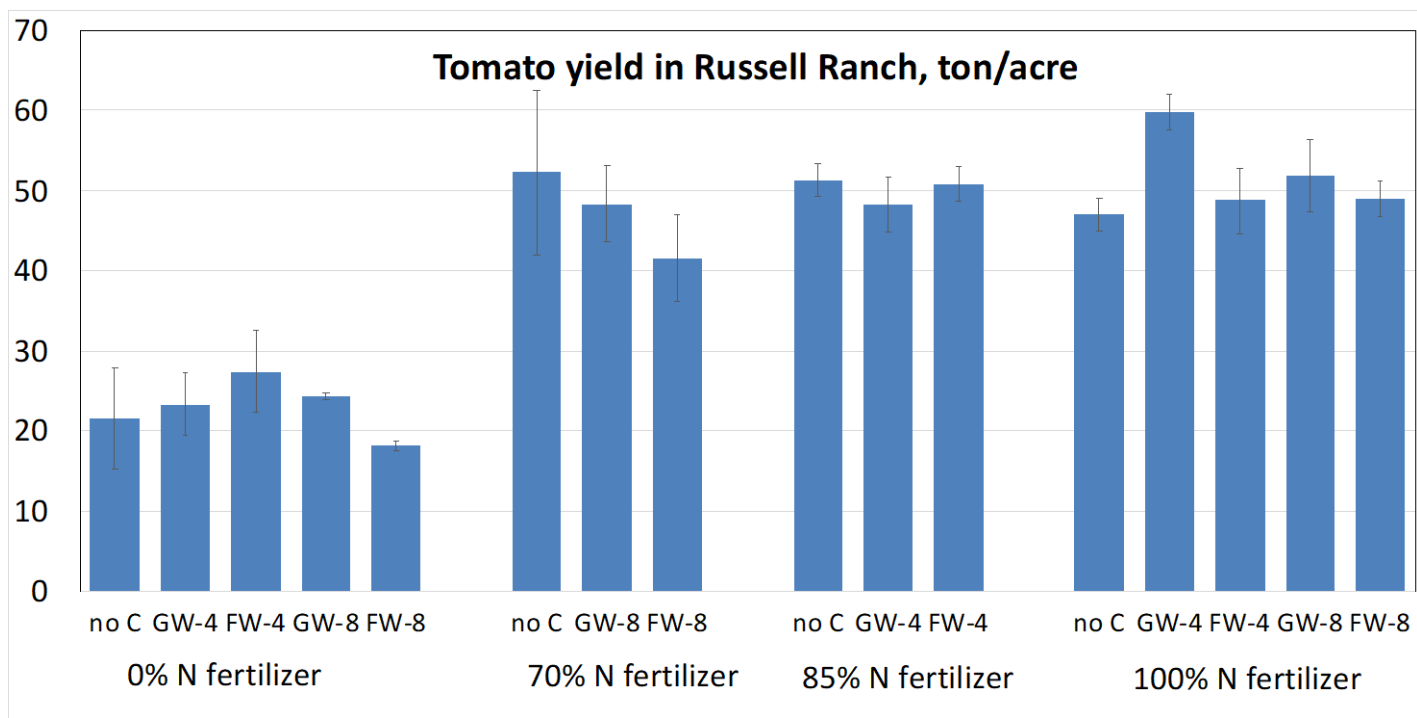
# Field Trials

- Compost type: Foodwaste compost (FW, 5% foodwaste composted with 95% greenwaste); Greenwaste compost (GW, 100% greenwaste composted)
- Compost application rate: 0, 4 and 8 tons/acre
- N fertilizer application rate: 0, 70%, 85% and 100% of recommended N at 185 lb/acre

Tomato fields

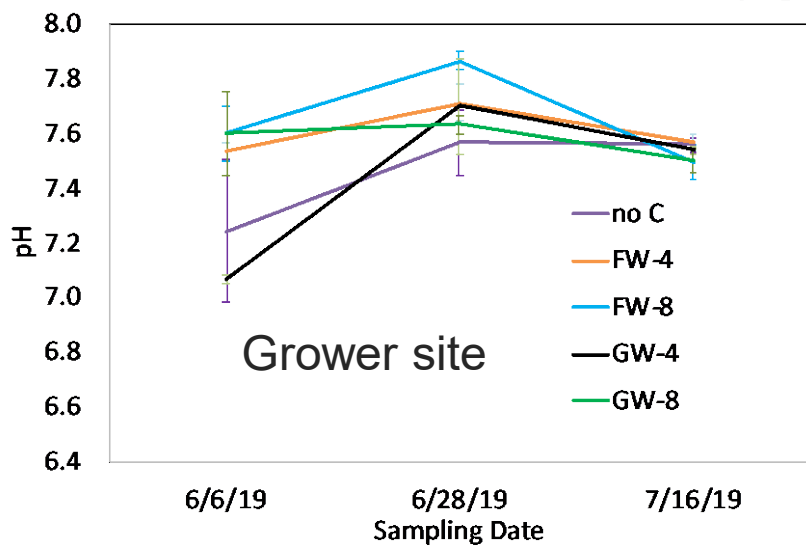
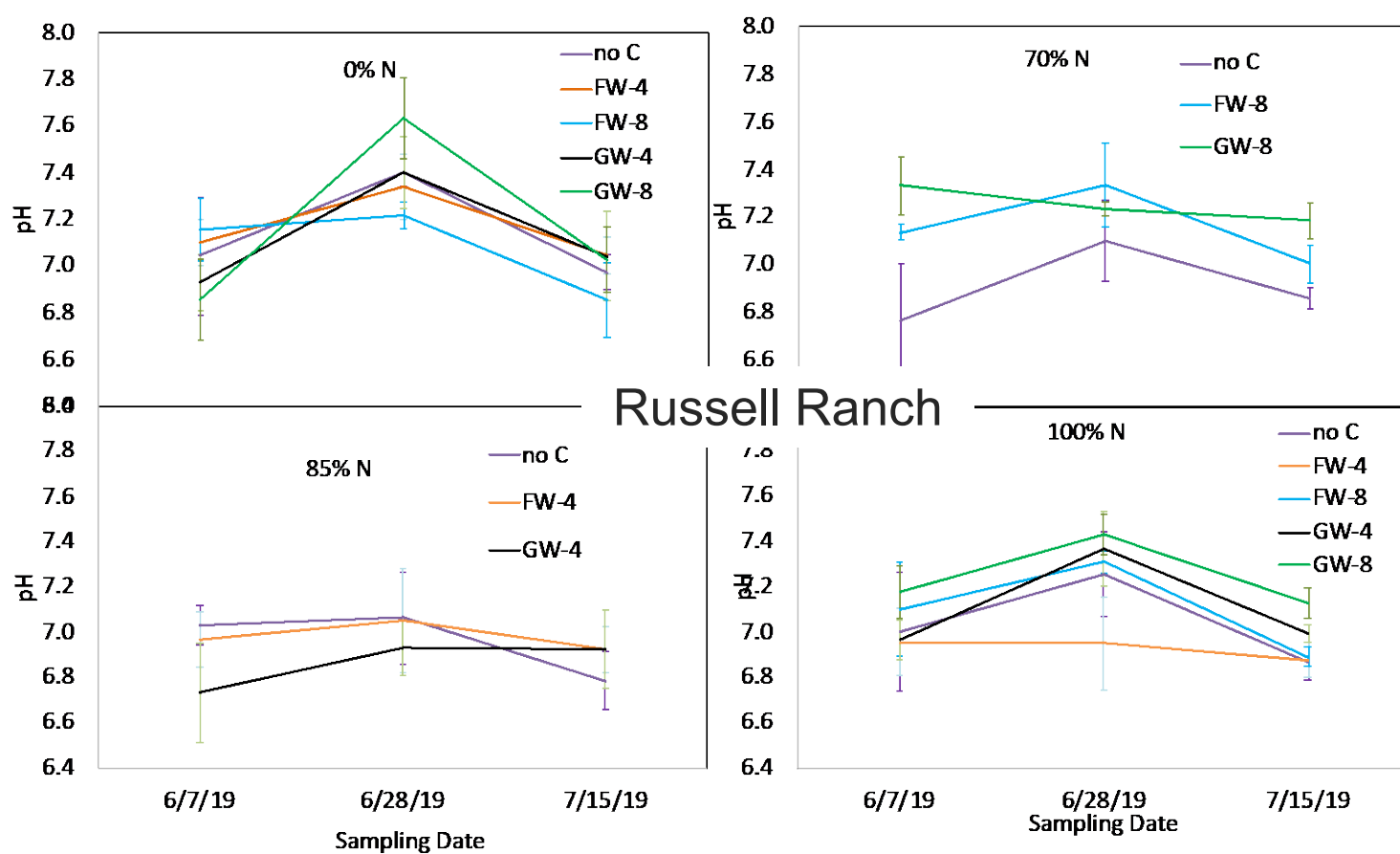


# Tomato yield



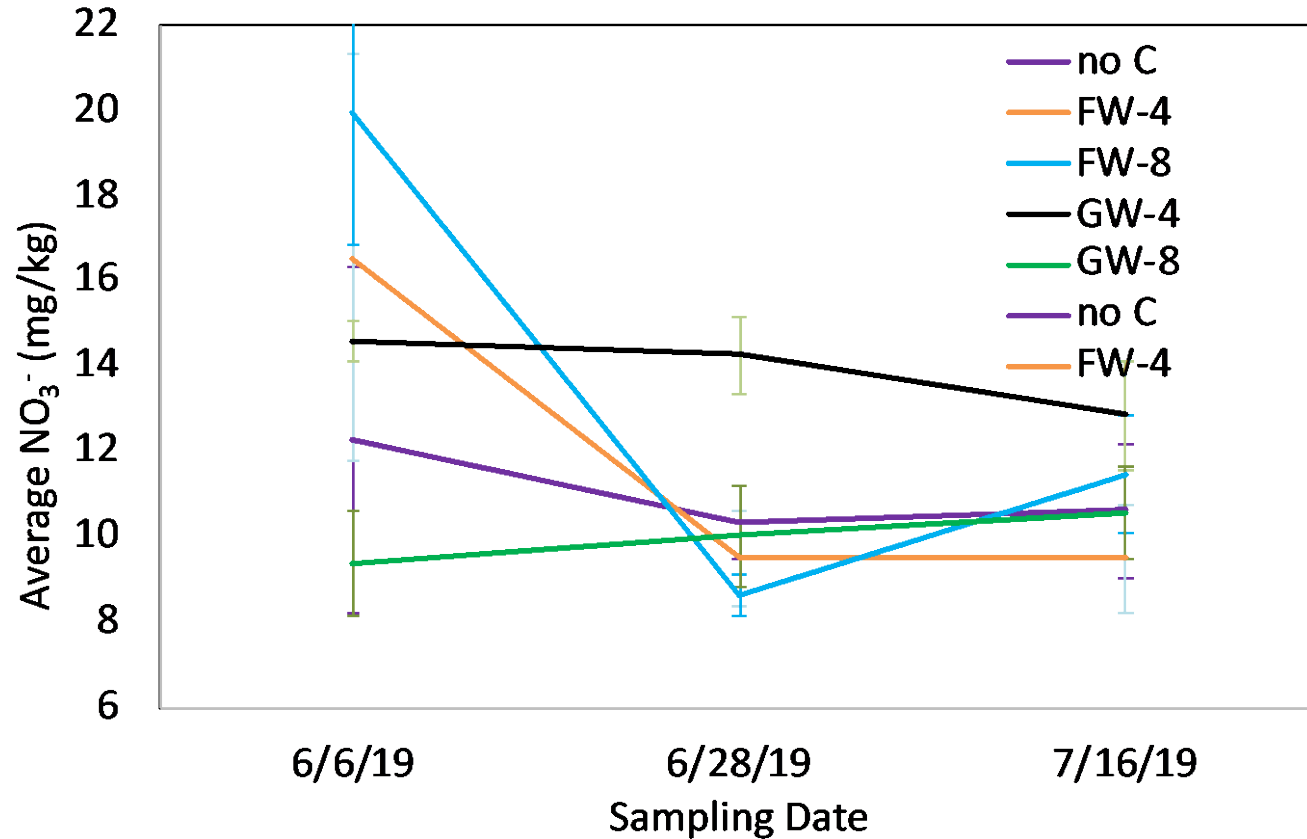
- ❖ The application of compost didn't impact tomato yield significantly
- ❖ The reduction of N fertilizer input didn't reduce tomato yield

# Soil pH



- The application of composts generally increased soil pH

## Soil NO<sub>3</sub><sup>-</sup> in grower's site



- Food waste compost increased soil NO<sub>3</sub><sup>-</sup> than green waste compost did at the beginning of the tomato growing season

# First year results

- ❑ Tomato yield was not significantly impacted by compost amendments in the first year of the field trials
- ❑ A reduction of N fertilizer rate in conjunction with compost amendments didn't impact tomato yield
- ❑ Soil pH was generally increased by the use of composts
- ❑ At the beginning of the growing season, higher soil nitrate content was found in the foodwaste treatment than in the greenwaste treatment
- ❑ More information on soil total C and N, GHG emissions is coming