

IN THE SPOTLIGHT: DR. ANDREW JONES

The Many Benefits of Compost

Compost: A Triple Win

Mitigating Climate Change

When organic waste is composted instead of filling landfills or manure piles, methane emissions are reduced. Recent work suggests that adding ground rock can further reduce emissions.

Improving Soil Health

As compost slowly degrades in the field, it acts as a sort of time-release fertilizer, continuously improving soil health.

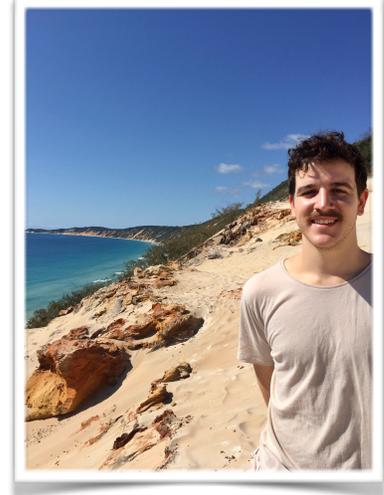
Benefiting Plants

The benefits to agriculture are many!

Increase Organic Matter	✓
Increase Microbial Activity	✓
Increase N	✓
Increase K	✓
Increase P	✓
Increase Micronutrients	✓
Increase Cation Exchange Capacity	✓
Increase Water Holding Capacity	✓
Reduce Soilborne Disease	✓
Reduce Soil Erosion	✓
Reduce Compaction	✓
Increase Carbon Sequestration	✓

A childhood in Queensland, Australia inspired Dr. Andrew Jones' interest in soils.

DR. ANDREW JONES is a Postdoctoral Scholar working on soil climate mitigation research in the [Silver Lab](#) at the University of California Berkeley. Originally from Queensland, Australia, Andrew grew up enjoying time outside.



When he reached the University of Queensland as an undergraduate, his love of nature inspired him to explore soils and plants in coastal dune ecosystems. “Soil is a medium between earth and plants,” Dr. Jones shared, noting that soil is “a platform to explore planet’s natural and agricultural ecosystems.” After time spent as a soil scientist for the Queensland Department of Science and Innovation working toward Australia’s National Soil Carbon Research Program in agricultural settings, Andrew pursued his PhD at the University of Queensland, focusing on mechanistic drivers of soil carbon cycles in agriculture and natural systems, before bringing his expertise to California.

Healthy Soils, Healthy Crops, Better Climate

Soils are major reservoirs of carbon and the ability to store CO₂ from the atmosphere in soils is one opportunity to mitigate climate change *and* benefit soil functions *and* benefit agriculture and ecosystems. Through increasing soil carbon storage, soils are more fertile, can hold more water, and lose fewer nutrients. This is why healthy soils mean healthy ecosystems and improved agricultural productivity. But getting more carbon in the soil

requires increasing soil carbon inputs and reducing soil carbon losses. Ensuring a net positive balance of soil carbon storage requires thoughtful land management strategies. Dr. Jones and his colleagues with the Working Lands Innovation Center are studying how to scale up the use of compost, biochar, and [ground rock](#) soil additions, and to do so in an economically feasible way.

Compost Comes Full Circle: Reducing Food Waste While Increasing Crop Productivity

Food waste is a major source of methane emissions from landfills. But what if we could put our food waste to better use? “Soil amendments not only have the potential to help mitigate climate change, but also present an efficient way to reduce organic waste material,” Dr. Jones says. Compost in particular provides

a unique opportunity to reduce greenhouse gas emissions from landfilled waste, while also mitigating climate change by improving soil health and in turn increasing soil carbon storage over the long term.



Compost being spread at the UCANR Healthy Soils Demonstration Project field research plots. [Photo from UCANR.](#)

Looking to the future, Dr. Jones notes that it is important to understand what types of carbon stay in the soil long term versus what types of carbon do not. Andrew noted some of the limitations to measuring the types of carbon best suited for soil carbon storage. For example, some of our current efforts are “limited by costly and time-consuming equipment,” while the variability in soil characteristics and biogeochemistry across space make large scale

modeling difficult. However, individuals and society should be motivated to make strides in climate mitigation actions that provide the kinds of societal benefits that composting and soil amendments can. As Dr. Jones notes, “improving soil health through compost and other amendments is key to maintaining food security and sustainable use of [agricultural] land.” Ultimately, food security and sustaining California’s agricultural legacy are efforts that we can all get behind.

Read More About Dr. Jones and the Working Lands Innovation Center

- What are Dr. Jones and his colleagues in the Silver Lab at UC Berkeley up to? [Check it out!](#)
- How is the WLIC working to reduce net carbon emissions on working lands in California? [Read more about their shovel-ready solutions here.](#)

The California Climate Hub will occasionally spotlight our collaborators or impactful research projects relevant to California agriculture, forestry, and rangelands. If you know of a researcher, resource manager, producer, or project that should be highlighted, please let us know. For recommendations or more information, contact Lauren Parker at leparker@ucdavis.edu