Hawaii Cattlemen's Council, Inc.

# PANIOLO STEWARDSHIP & CLIMATE CHANGE

Presented November 17, 2021
Greenhouse Gas Sequestration Taskforce

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# GREENHOUSE GAS SEQUESTRATION TASK FORCE

Agricultural and…land use practices that

- Promote increased greenhouse gas sequestration
- Build healthy soils
- Provide greenhouse gas benefits

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# PANIOLO STEWARDSHIP

- More than 90% of farms and ranches in the US are family-owned
- In Hawai‘i, the paniolo culture represents hard work, and responsibility for the land and the community
- Ranchers must steward the land to ensure it produces for future generations

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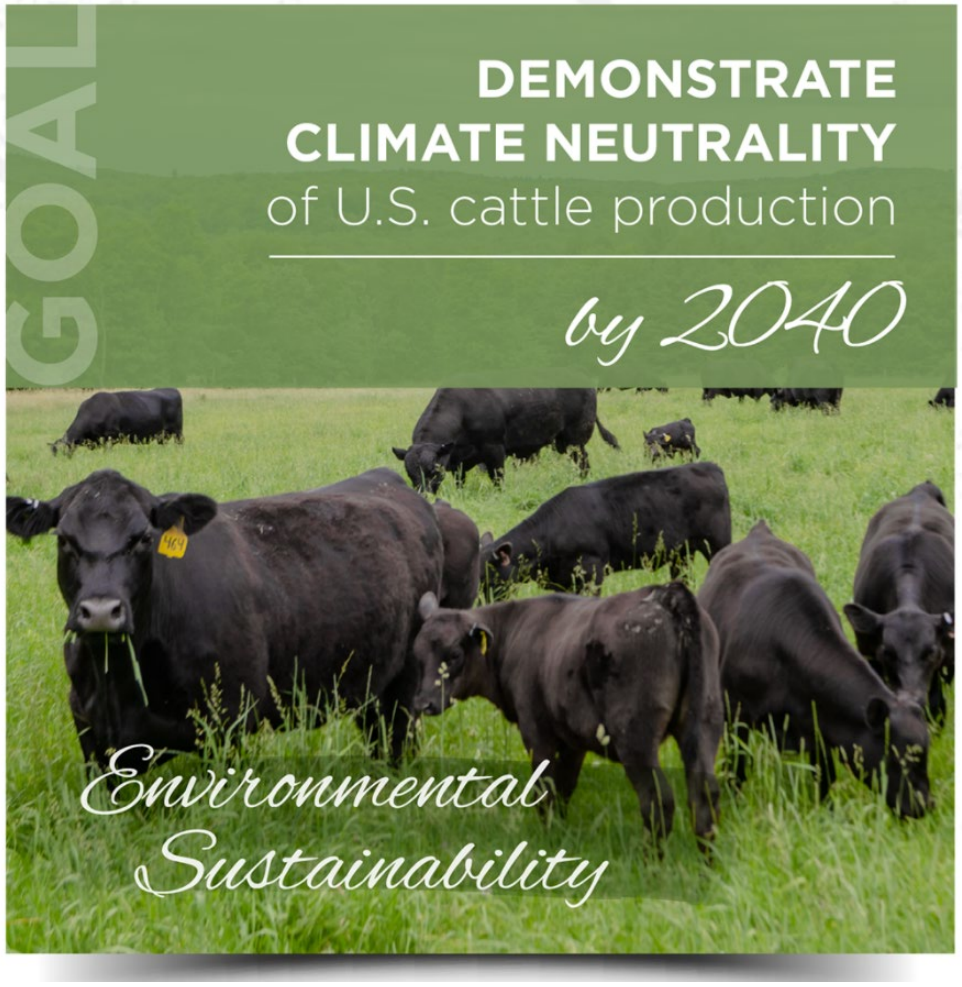
# SUSTAINABILITY

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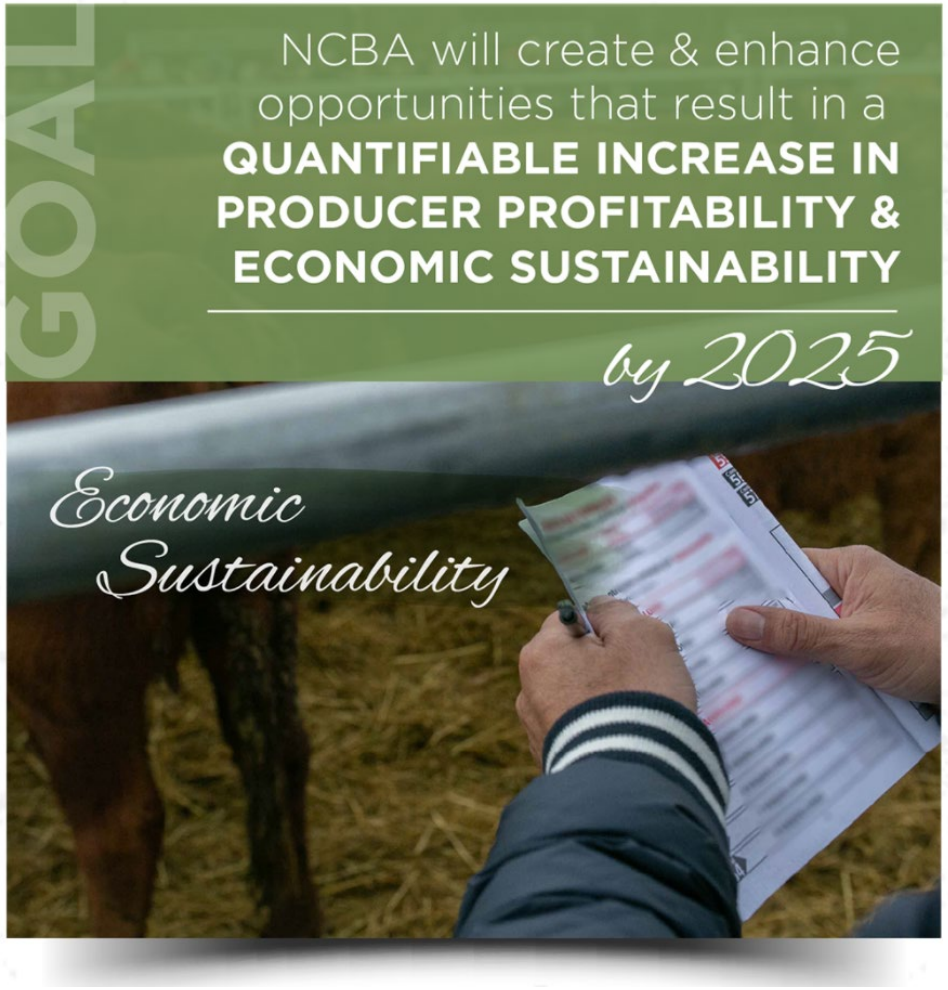


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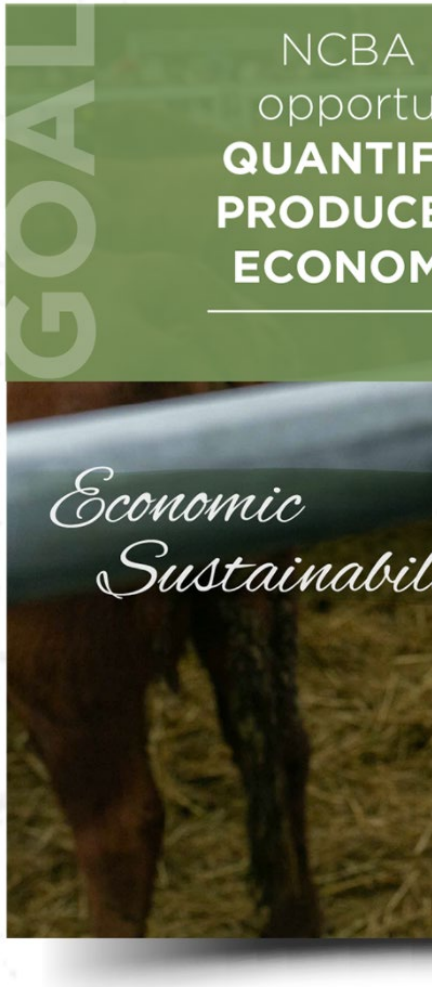



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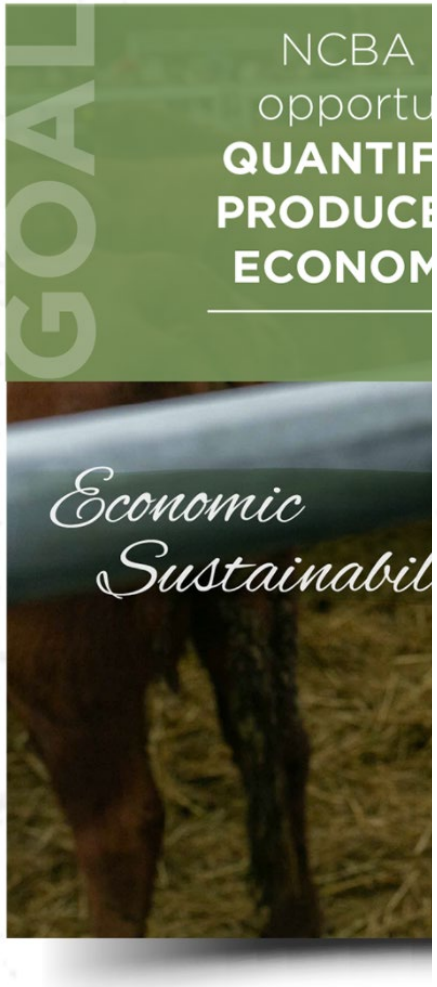



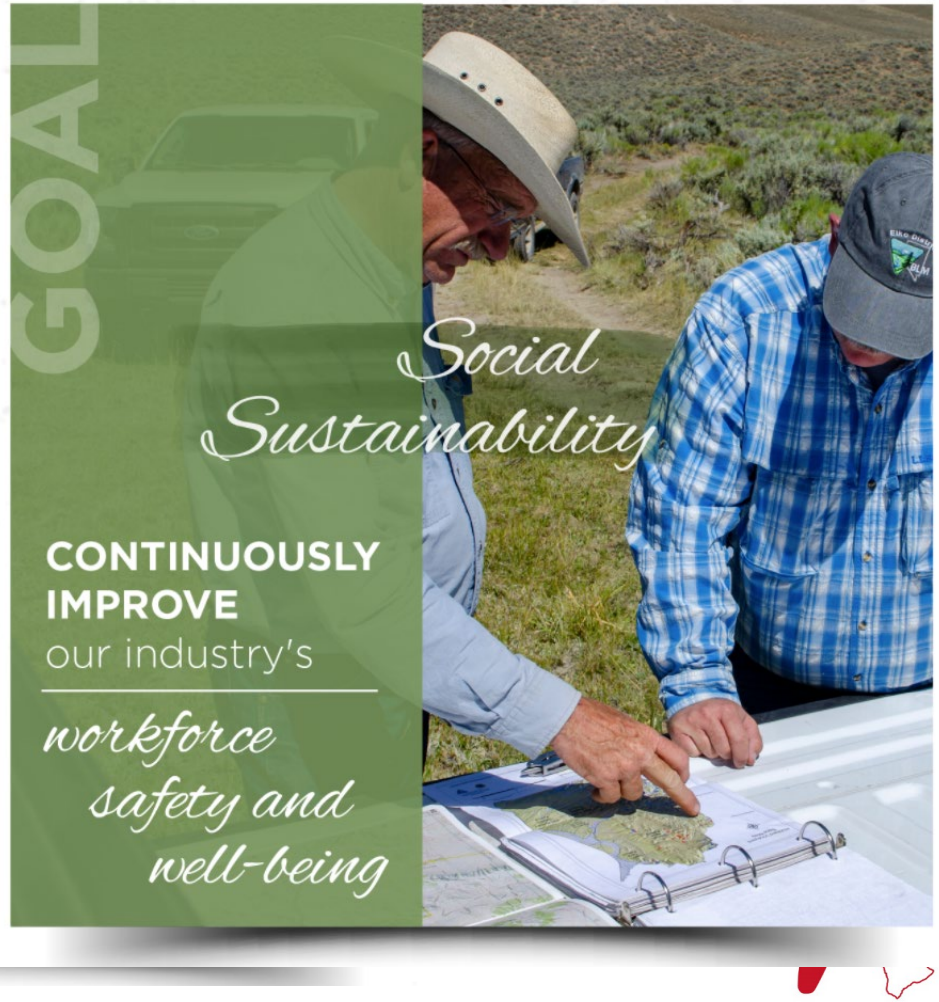

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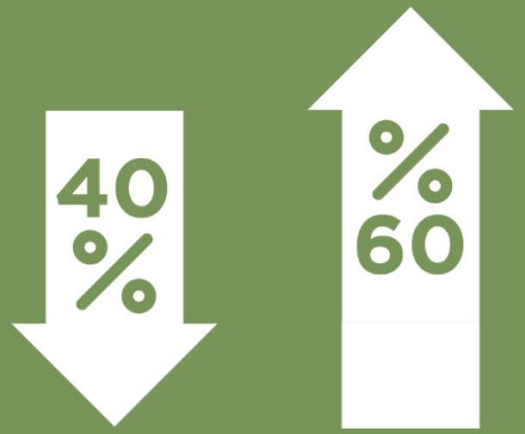
# RECOGNITION OF LAND STEWARDSHIP




Between 1961 and 2018, the U.S. beef industry has reduced emissions per pound of beef by more than 40% while also producing more than 60% more beef per animal. This is a result of continued sustainability efforts and improved resource use.

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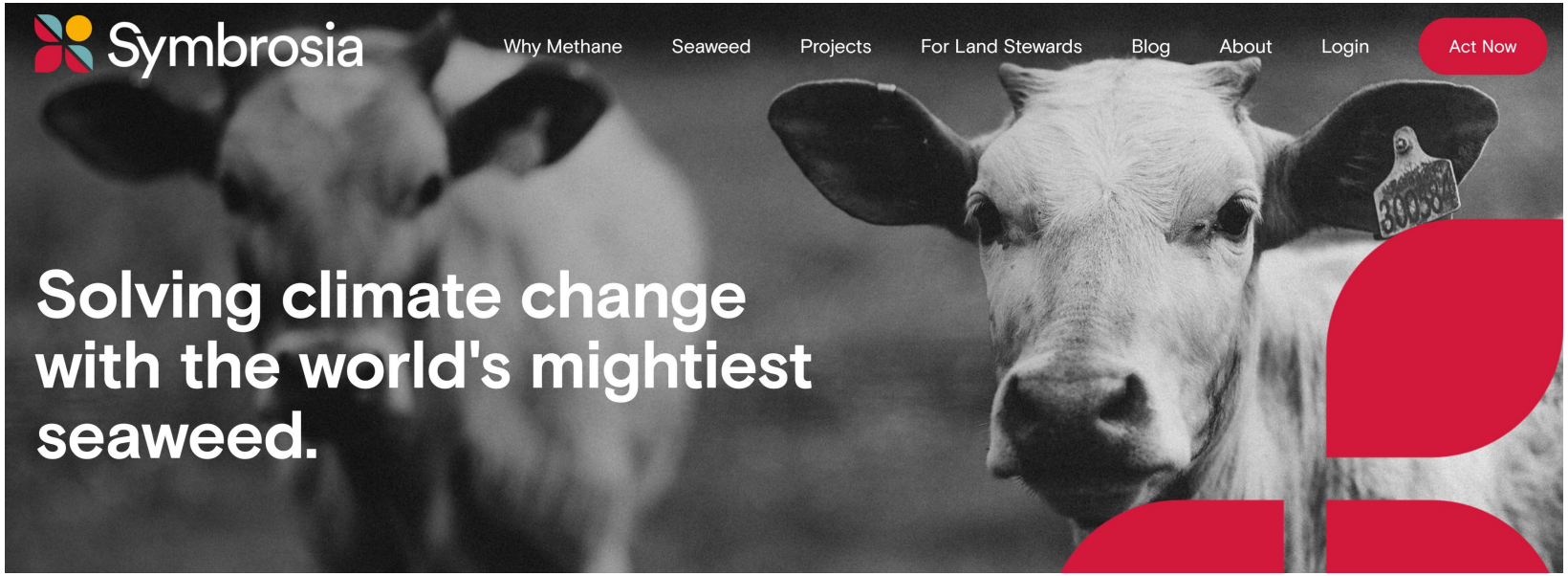
# EMERGING RESEARCH

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# EMERGING RESEARCH

2021 publication in the peer-reviewed, international journal *Land*'s special issue, 'Sustainable Rangeland Management to Protect Habitat and Livelihoods

Open Access Review

## Maintaining the Many Societal Benefits of Rangelands: The Case of Hawai'i

by Leah L. Bremer [1,2,*], Neil Nathan [3], Clay Trauernicht [4], Pua'ala Pascua [5], Nicholas Krueger [6], Jordan Jokiel [7], Jayme Barton [8] and Gretchen C. Daily [3]

### BENEFITS OF RANGELANDS

- Biodiversity
- Soil health
- Wildfire mitigation
- Water quality
- Carbon sequestration
- Cultural value and open space

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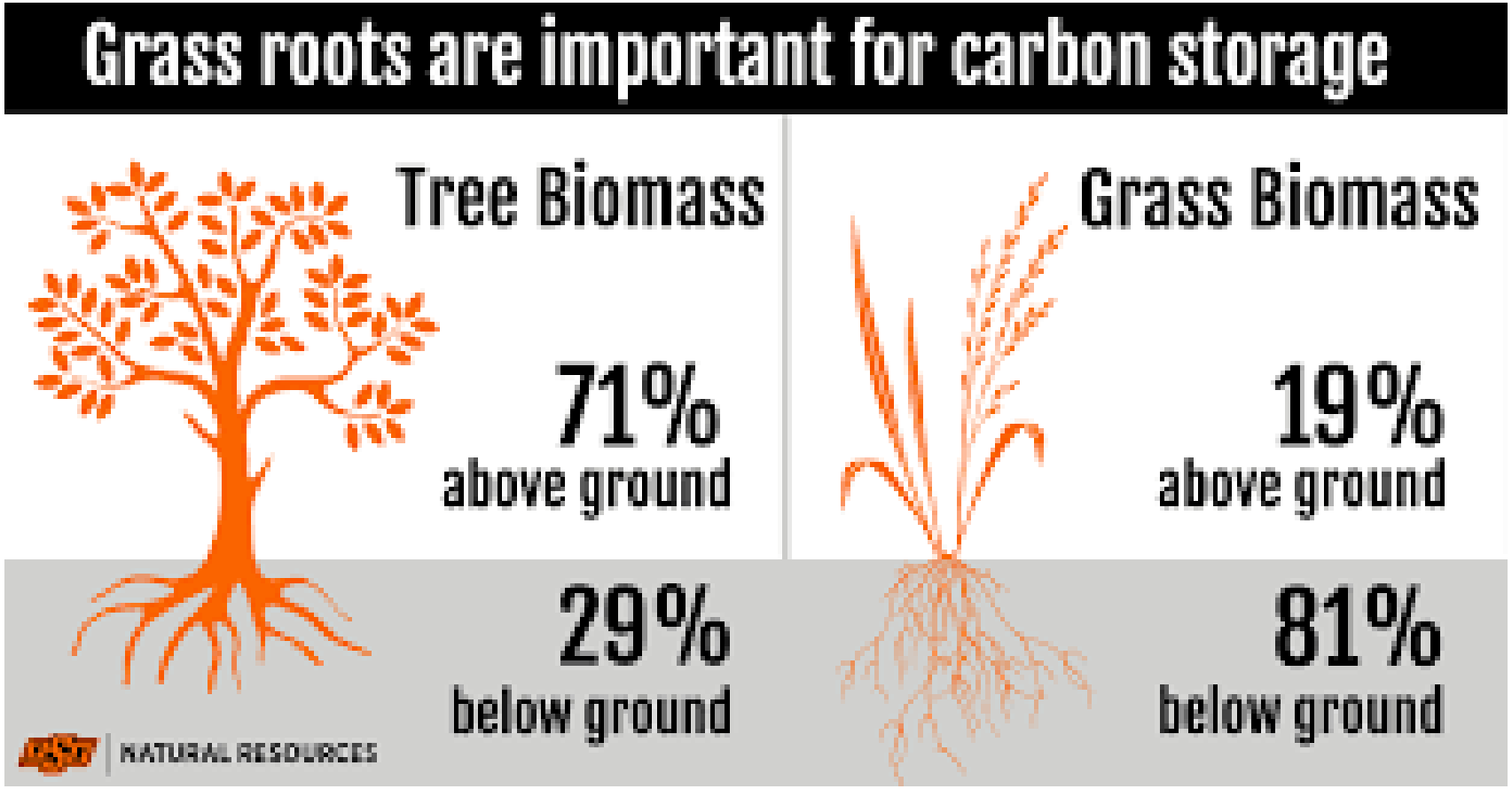
# EMERGING RESEARCH

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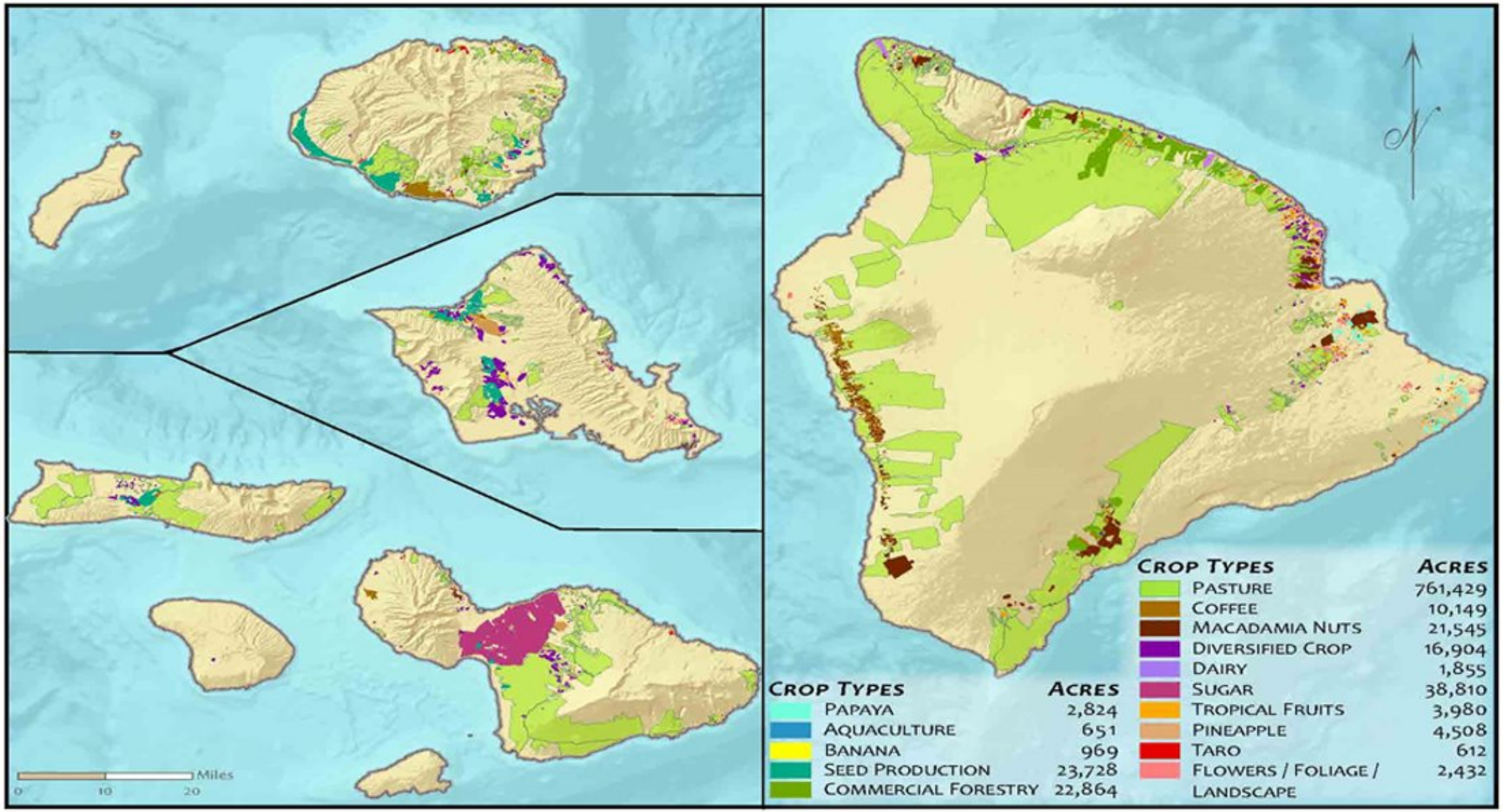
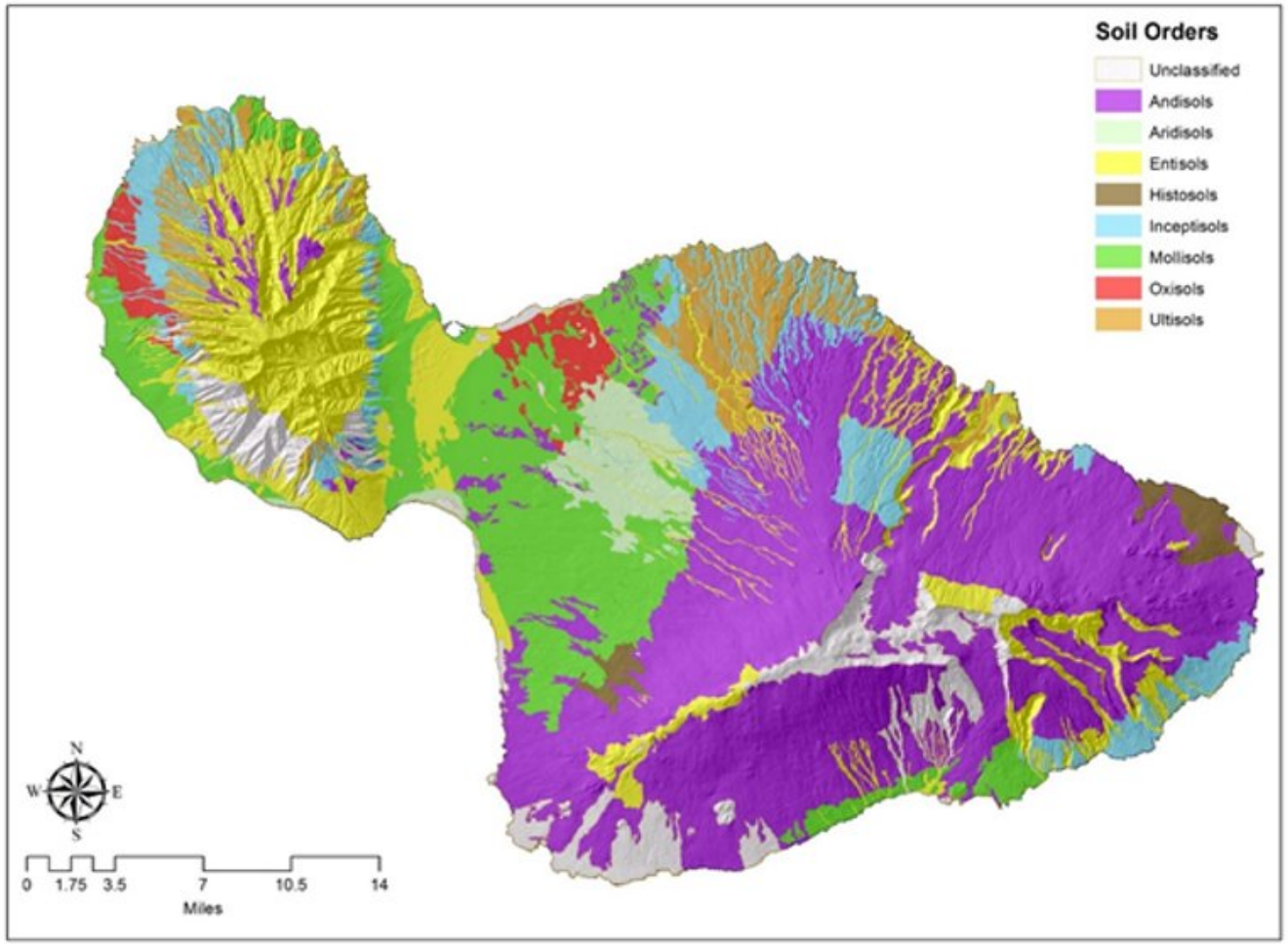



University of Hawai'i Hilo

SDAV UH Hilo

# Hawai'i Agricultural Land Utilization (2015)

Department of Agriculture State of Hawaii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Aridisols
Entisols
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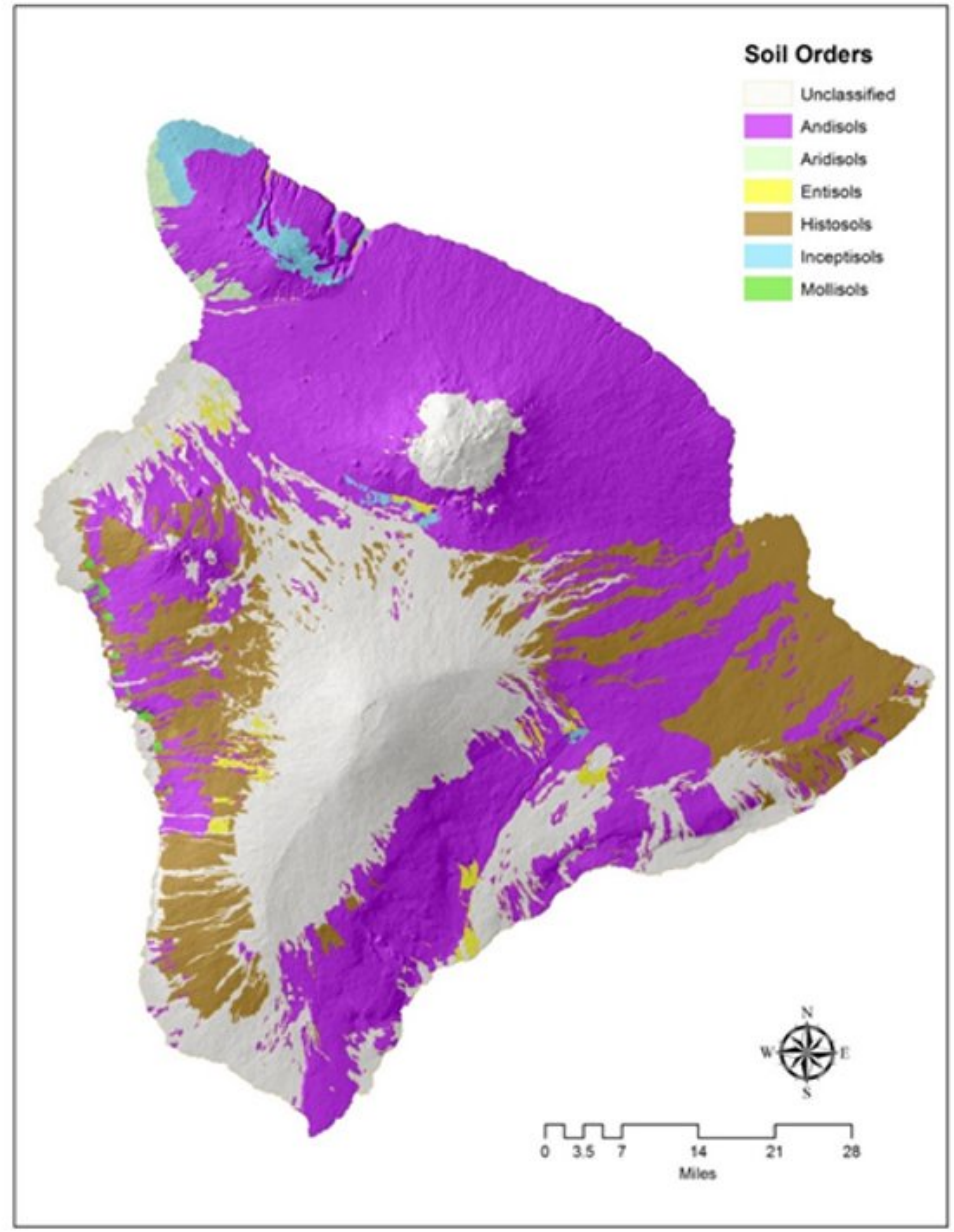
Soil Orders
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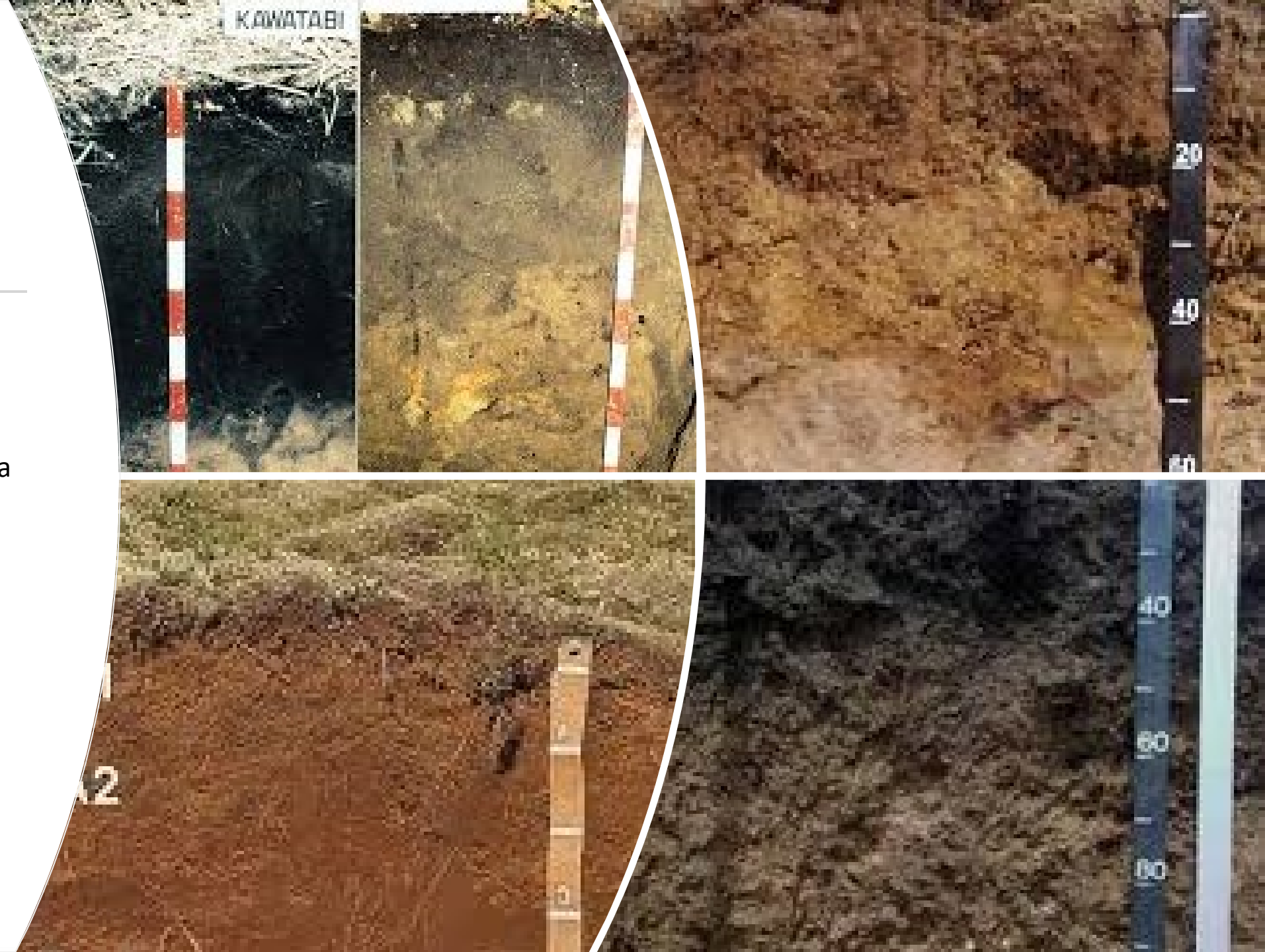
Miles

# Andisols

- <1% of the world's soils
- Store 1.8 – 5% of the world's soil organic carbon
- ≈39% of Hawai'i's land area (818,479 acres)
- Unique mineralogy = extremely high surface area
- Not all Andisols are weathered equally



# Grazing and Carbon Sequestration

Grazing does not equal carbon sequestration

Responsible grazing encourages closed canopy and vigorous plant growth

Rangelands possess diverse value

Diverse ecosystem types increase resiliency and decrease impacts from natural disaster

# SILVOPASTURE

- Integrating cattle and forest to harvest beef and timber from the land
- Rancher must be able to be profitable in order to maintain
- Consider that disturbing soil may release more carbon than captured

(Crow et al. 2017, Gross et al. 2017)

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# SHOWCASE AND IMPROVE

- Establish baseline carbon stocks in Hawai‘i’s rangelands
- Assess effects of grazing management on soil carbon stocks by comparting different grazing systems
- Measure soil carbon sequestration rates for grazing over different soil types.
- Support for ranchers to implement well-managed grazing

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