

# Nutrient Cycling with Regenerative Agriculture

California Bioresources Alliance

November 2, 2017



# Creating Fast Carbon Pathways

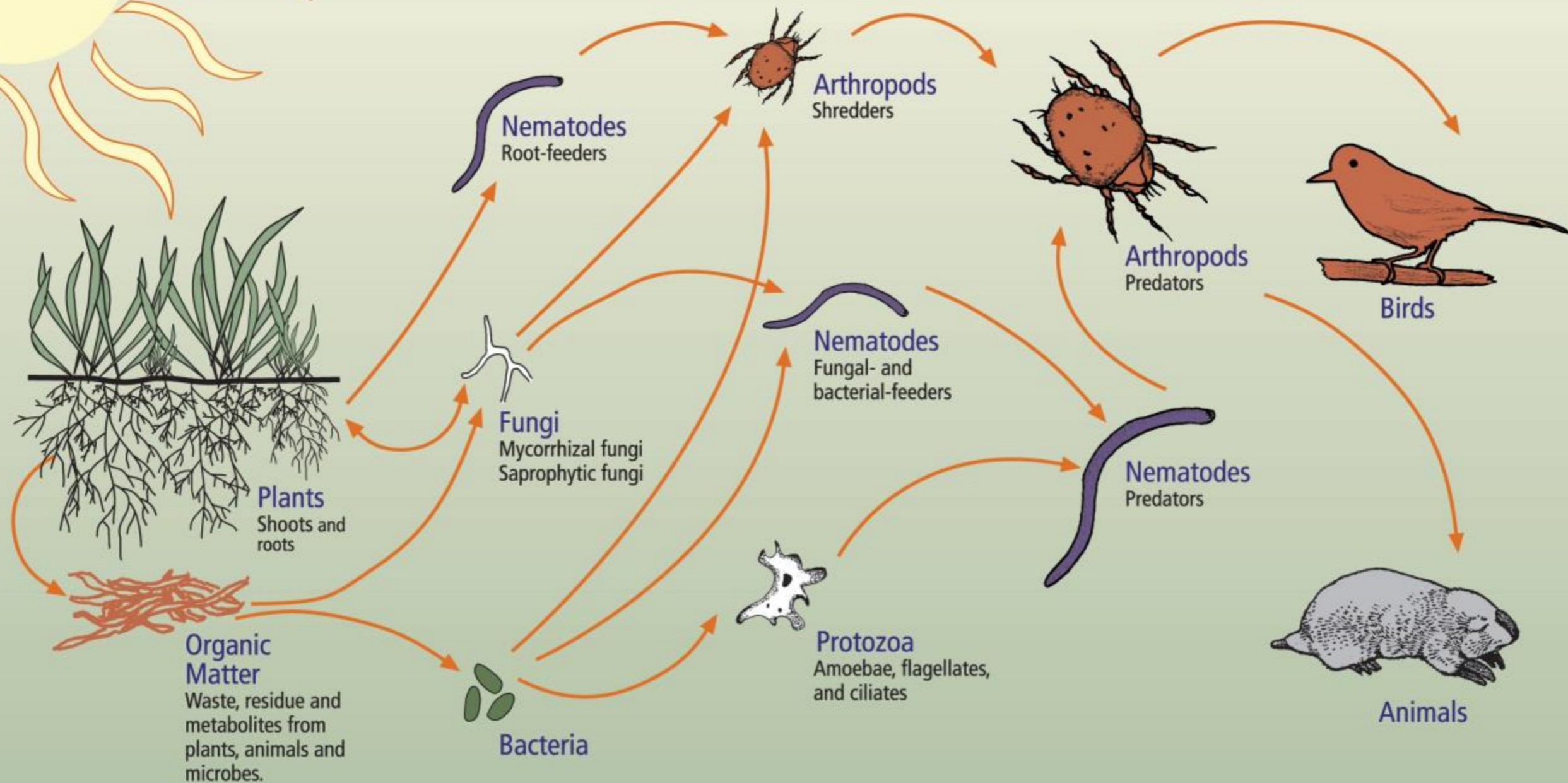


**Regulatory Mandate**

**WASTE = FOOD**

# The Soil Food Web

= California's most essential asset



First trophic level:  
Photosynthesizers

Second trophic level:  
Decomposers  
Mutualists  
Pathogens, Parasites  
Root-feeders

Third trophic level:  
Shredders  
Predators  
Grazers

Fourth trophic level:  
Higher level predators

Fifth and higher trophic levels:  
Higher level predators

# Benefits of Healthy Soil Food Web for California



- Efficient utilization of organic matter
- Reduced inputs of fertilizer (\$)
- Eliminate need for biocides
- Reduced water usage
- Crops withstand stresses better from extreme conditions (climate smart and resilient)
- Higher nutrition values (protein, brix, chlorophyll)
- Crops matures faster
- Capture carbon and bio remediate the soil
- Increased income

**Foundation of  
Community Resilience**

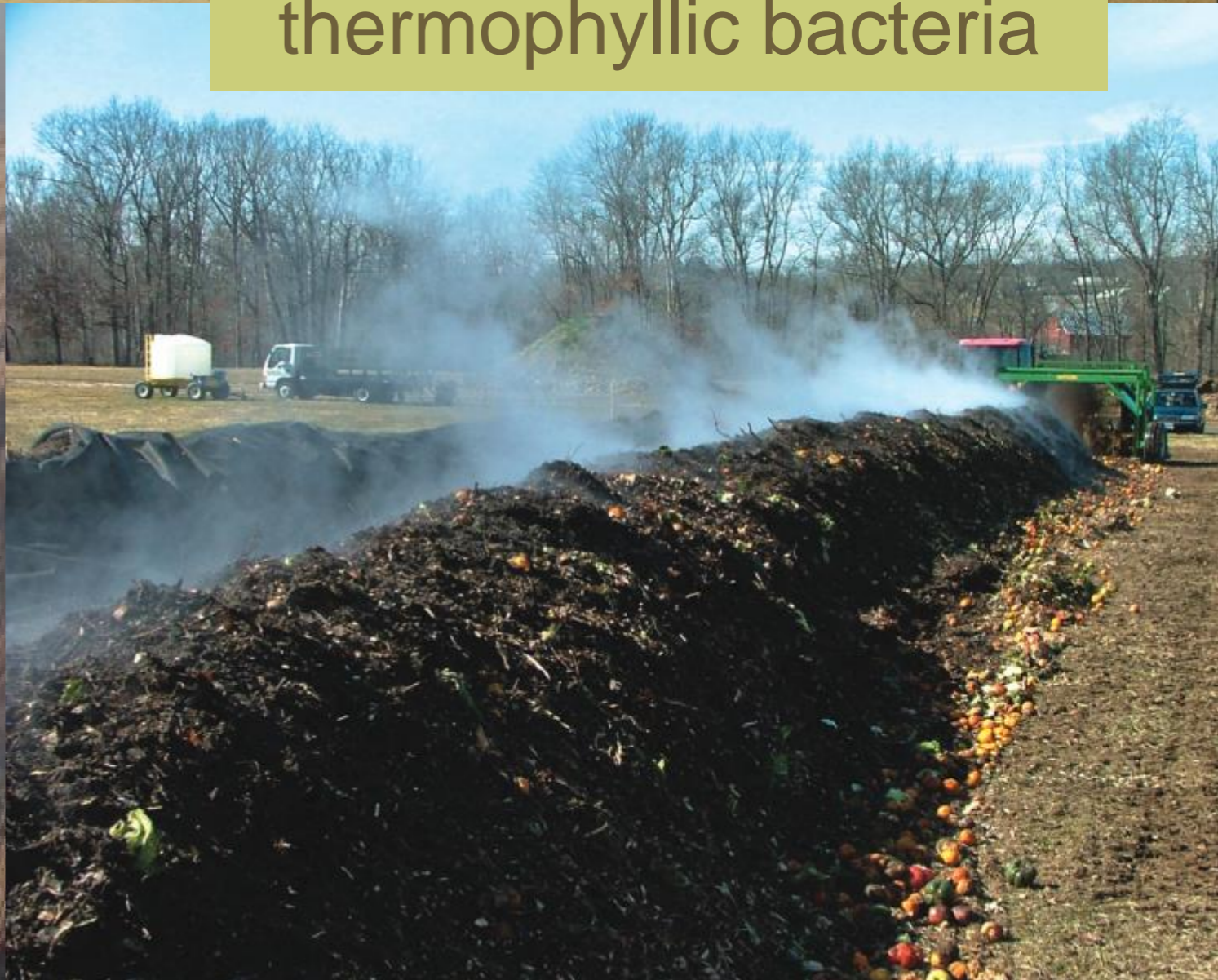
Primary Food Source of  
the Soil Food Web is...

# ORGANIC MATTER

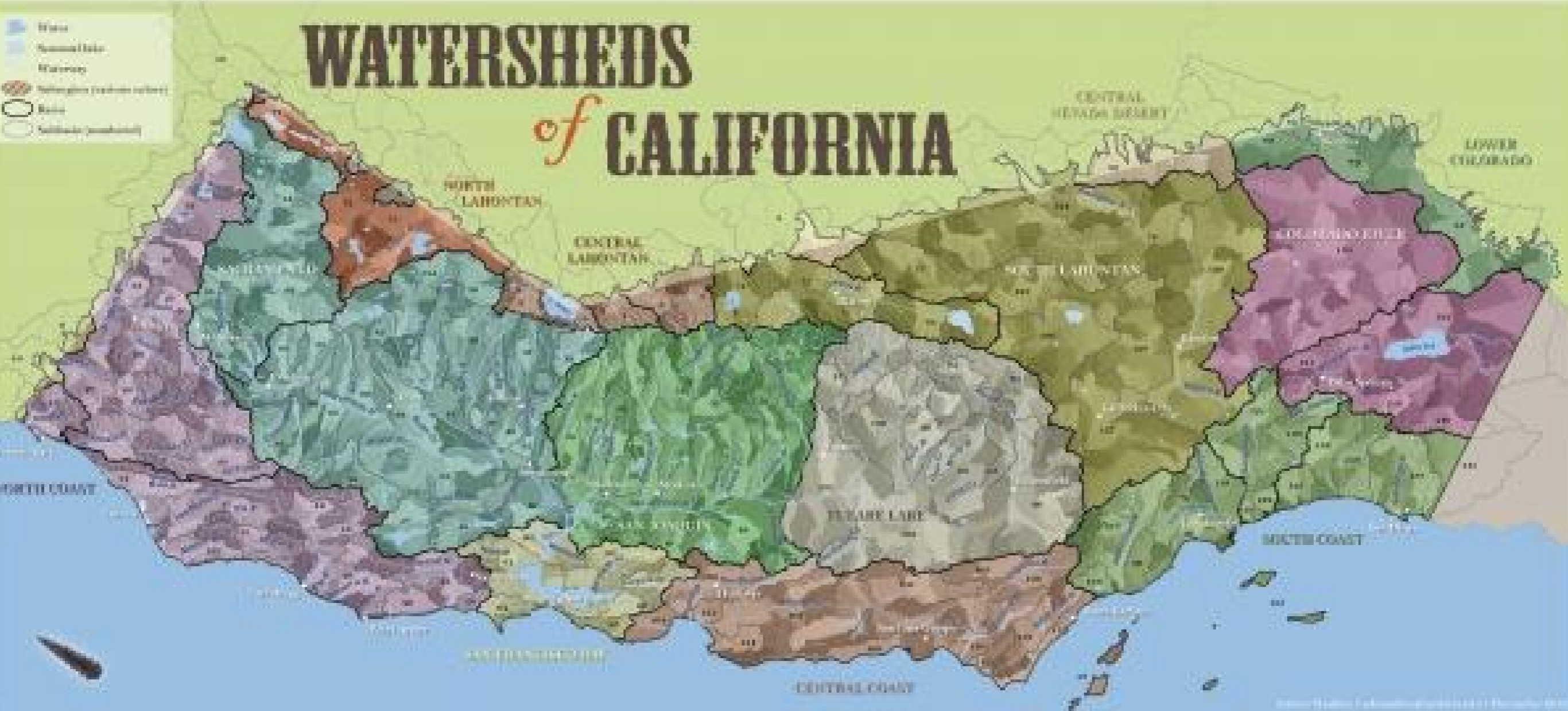
burning crop waste  
with fire



burning crop waste with  
thermophilic bacteria



# Rethinking Nutrient Cascading And Cycling



**Source to Sink and Back Again  
“Resilience In A Watershed”**



# Slow, Spread, and Sink Water and Nutrients

*Harvesting more  
water than you use*





# Profitable Biodiverse Farms



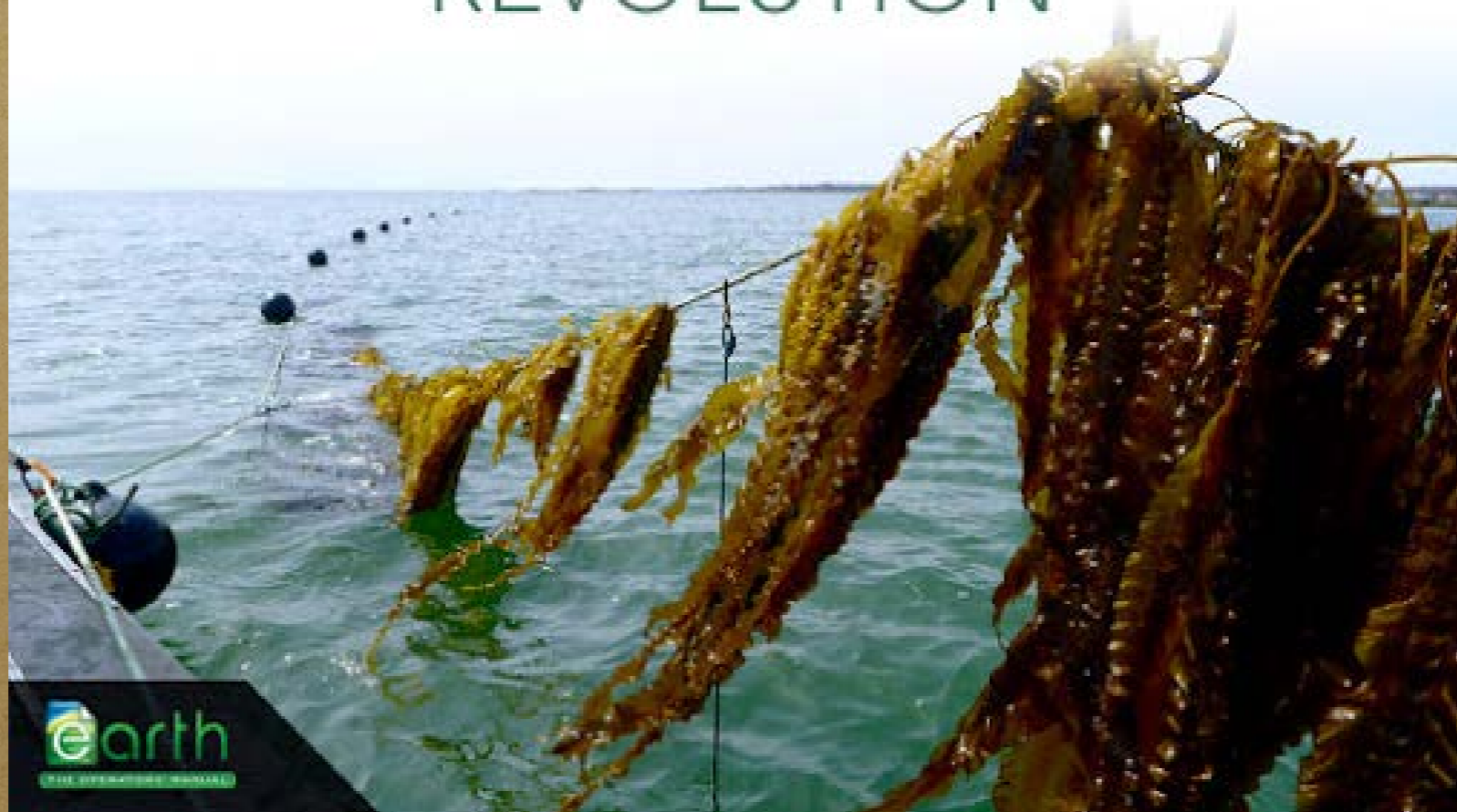


# Ruminants for Nutrient Cycling & Landscape Restoration



# A BIG GREEN WAVE

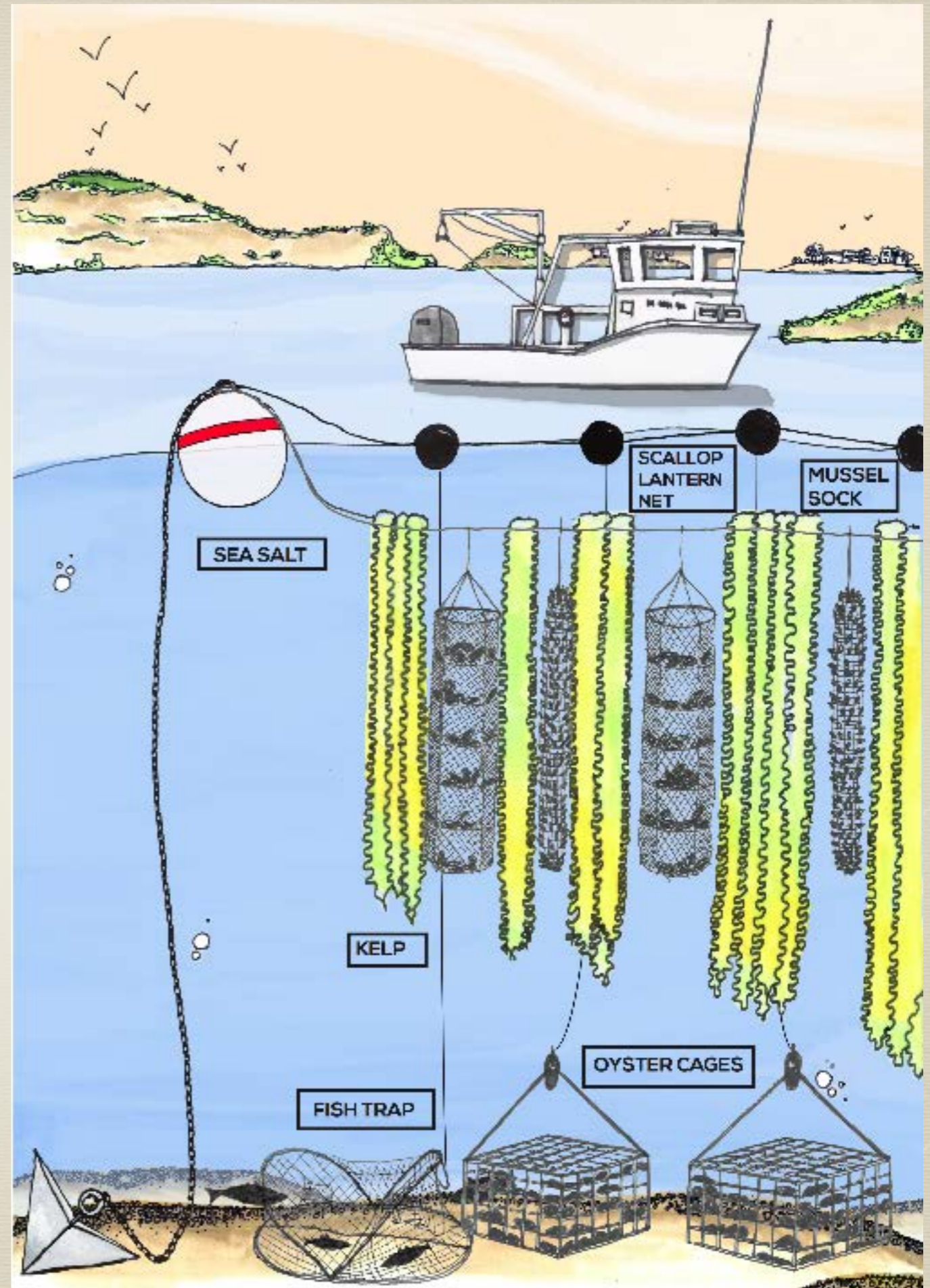
A 3D OCEAN FARMING  
REVOLUTION

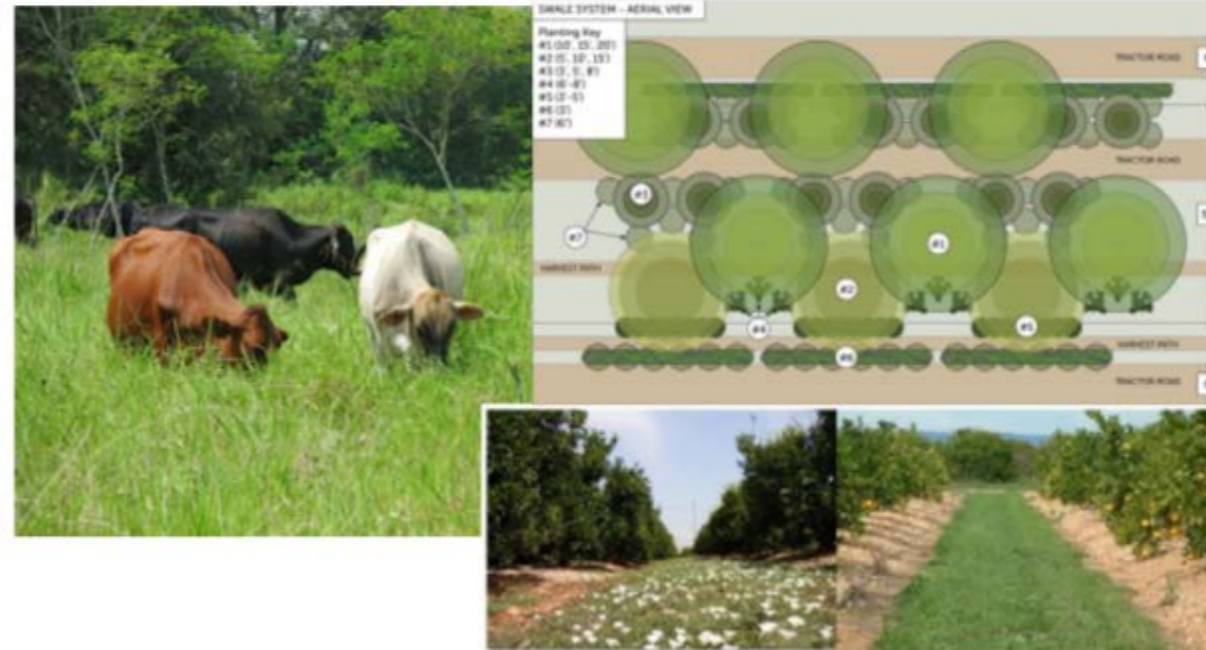


**California Coastal Nutrient Sink**

# 3-D Ocean Farming

- \* Acts as natural filter
- \* Zero inputs
- \* High nutrient food crop
- \* More biodiversity = higher yields
- \* Ecosystem restoration
- \* Ungulate forage, biofuels, ag fertilizer





**Initial Assessment and Feasibility Report -  
Enhanced Facility Performance and the Up-  
Cycling of Biosolids with Regenerative  
Agriculture and Habitat Restoration for LACSD's  
Tulare Lake Facility and Land**

Prepared for: Melissa Fischer and Matt Copeland, Los Angeles County Sanitation District

Project: Tulare Lake Compost Facility and Land

Prepared by: Warren Brush

October 13, 2016

**LACSD - Regenerative Agriculture  
Feasibility Report**

# Healthy People, Soil, & Profits

Family  
Farming

Higher  
Profits Per  
Acre

Resilience  
Through  
Relationships



Thank  
you !

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