



Regenerative Agriculture

Supporting climate-resilient, nature-based solutions

CALIFORNIA'S NATURAL RESOURCES—soils, water, air and ecosystems—are all interconnected. As weather events like extreme heat, drought, and flood become more frequent, mitigating the impacts of California's rapidly changing climate requires investing in natural solutions.

Regenerative Agriculture describes farming and ranching practices that support soil health, protect water and natural resources, enhance ecosystems, and limit the severity of climate change. In essence, regenerative agriculture strives to work with, not against nature. Other terms that are often used are nature-based, healthy soils, holistic land management, and more.

Regenerative agriculture practices have been found to create healthy soils that provide more nutritious foods, increase biodiversity and wildlife, reduce greenhouse gas emissions, conserve critical water resources, and more.



Regenerative



Industrial

Regenerative Agriculture & Water Resources

California is an agricultural leader and one of the world's largest producers of food. However, an increasingly hotter and drier climate is expected to diminish California's water supplies, making more efficient water use practices even more important to protect this limited water supply.

How can regenerative agriculture practices support farms and protect water supplies? Healthy soils!

HEALTHY SOILS HAVE BEEN FOUND TO:

- Have higher organic material with larger pore spaces, meaning greater infiltration rates (6-10 times) and greater capacity to hold and retain water.
- Support microbial life that creates a network of fungi and bacteria able to hold onto water molecules, increasing and retaining soil moisture.
- Reduce the need for irrigation, leading to a reduction in water use.
- Grow cover crops that provide protection to the soil, deepening the roots, reducing runoff, and supporting topsoil.
- For each 1% increase in organic matter, USA farms could store the amount of water that flows over Niagara Falls in 150 days, that is over 907 million Olympic-sized swimming pools worth of water.
- Improve groundwater and surface water quality due to less synthetic inputs (i.e., pesticides, herbicides, fungicides, etc.).

Regenerative Agriculture provides a variety of other benefits for farms, including reduced production costs, as well as air and water quality improvements for local communities and surrounding areas.

DEFINITION

As interest grows, the California Department of Food and Agriculture (CDFA) is working to define regenerative agriculture to provide support for farmers, ranchers, and interested parties looking to incorporate this practice. The current working definition is:

"For use by State of California policies and programs, regenerative agriculture is an integrated approach to farming and ranching rooted in the principles of soil health leading to improved target outcomes. This approach recognizes and respects the traditions and innovations from the original Indigenous stewards of the land."

Why should farmers switch to RA?

ECONOMIC BENEFITS

- Flood preparedness. RA reduces costs of flood-related damage such as crops loss due to standing water, if soil is not healthy enough to support infiltration
- Drought mitigation. lower crop loss in dry years due to soil that can hold and use water more efficiently
- Reduced water demand and usage, saving farmers money
- Reduced costs for synthetic inputs and equipment
- RA farms can sell their crops at a premium price due to market demand
- Diversified crop portfolio boosts income reliability
- Groundwater recharge incentives available in some basins

SUPPORTS LOCAL COMMUNITIES

- Food often goes directly to market, supporting local communities
- Increased water quality and air quality in local communities
- Increased local economic prosperity

Five Principles of Regenerative Agriculture

While regenerative agriculture is a relatively new term, the principles behind the concept reflect practices that some farmers and California Tribes have embraced for generations. The top five principles of regenerative agriculture are:

1 No/Low Tillage Healthy soils support a complex network of microorganisms that create a system of air pockets surrounded by soil aggregates, which are clumps of soil particles bound together. Digging or overturning soil, referred to as tilling, disrupts this system and significantly reduces microbial communities.

2 Diversify Crops/Crop Rotation Soil requires multiple plant species to thrive and grow. Each species with different leaf size/shape, capture sunlight and nutrients differently.

3 Maximize Living Root Impact of wind and water erosion and loss of topsoil is significantly reduced with a multi-species cover crop.

4 No/Low Synthetic Inputs Reducing or eliminating synthetic fertilizers and working with the surrounding ecosystem will encourage and maintain soil biodiversity.

5 Integrate Grazing Livestock High-impact rotational grazing mimics the natural grazing patterns of bison. Longer rest periods allow soil and plants to regrow with many benefits.

Resources and Additional Technical Assistance

CA Department of Water Resources (DWR)

Underrepresented Community Technical Assistance Program

www.water.ca.gov/urctaprogram

CA Department of Food & Agriculture

https://www.cdfa.ca.gov/farmerresources/grant_programs.html

UC Agriculture & Natural Resources (Small Farm Advisors)

<https://sfp.ucanr.edu/famap2/>

Community Alliance with Family Farmers

<https://caff.org/>

U.S. Department of Agriculture (Natural Resources Conservation Service)

<https://www.nrcs.usda.gov/programs-initiatives>

CSU Chico (Center for Regenerative Agriculture and Resilient Systems)

<https://www.csuchico.edu/regenerativeagriculture/>

Five Principles of Regenerative Agriculture

