

Course 4: Holistic Farm & Ranch Planning and Design

This course supports the transitional process to plan, implement, monitor, and re-plan management framework that encourages producers and ag professionals to work through a systems lens that addresses economic success and improved land health. Participants will develop a vision that incorporates management goals, establish a land management plan, and identify metrics to quantify outcomes and reassess their plan annually.

Topics include:

- Managing complex systems: establishing context to set goals with a vision.
- Farm/ranch assessment: resources and inventories from the ground up.
- Tools for enhancing resources within agroecosystems: a review of conservation practices and conservation effects.
- Whole farm/ranch planning: enhancing resources and meeting goals.
- The decision-making process for putting a conservation plan into action.
- The carbon lens: evaluating a farm/ranch plan for GHG reduction and co-benefits.
- Economic evaluation of farm/ranch plan.
- Monitoring for adaptive management.

Participants can take any or all courses in the series. Though the courses are not sequential, we do recommend beginning with the first course as a foundation for future learning.

Detailed course descriptions are available through Regional & Continuing Education. There is no application required but registration and fees should be submitted more than a week ahead of the start date.

<https://rce.csuchico.edu/regenerative-agriculture>

Center for Regenerative Agriculture & Resilient Systems
www.csuchico.edu/regenerativeagriculture/index.shtml

Program Faculty

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Garrett Liles

Associate Professor of Agriculture at California State University, Chico.

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Regenerative Agriculture Management Systems

Professional Course Series

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California State University, Chico
Regional and Continuing Education



Fully online, take any individual courses or all four to complete the series:

Systems Theory in Regenerative Agriculture Management

Soil Health Systems Management

Science & Practice of Ecological Forest and Range Management

Holistic Farm/Ranch Planning & Design



California State University **Chico**
Center for Regenerative Agriculture and Resilient Systems

Regenerative Agriculture Management Systems

Professional Course Series

Developed by the Center for Regenerative Agriculture and Resilient Systems at Chico State, this four-course series supports the expansion of systems-based farm, ranch, and forest management practices on California working lands. To significantly increase carbon draw-down and climate resiliency, regenerative agriculture practices need to be adopted quickly and at scale. By sheer size and productivity, California can play an important role in the future of agriculture.

Join the conversation and learn innovative, collaborative strategies to address the challenges and create solutions for California agricultural production.

To best meet the needs of agricultural professionals, the class series will be:

- Fully online, completed at your own pace.
- Weekly, one-hour live-online discussions.
- Pass/No Pass quizzes to gauge your mastery of the content.
- Include a certificate of completion given at the end of each course.

Take any of the individual courses or all four to complete the series.



Course 1: Systems Theory in Regenerative Agriculture Management

An introduction to approaches that focus on the interactions and synergies of ecosystem processes (energy flow, water and nutrient cycles, and community dynamics) to leverage the power of photosynthesis to improve water use efficiency and soil health across a variety of agro-ecosystems using appropriate production practices.

Topics include:

- Challenging paradigms to systems management.
- Introduction to agroeco-systems and soil health.
- Minimizing soil disturbance: no-till, strip-till, etc.
- Benefits of biomass: cover crops and crop rotation.
- The biological link between soil, plants, and animals.
- Annual cropping systems: row crop, pasture, etc.
- Perennial cropping systems: rangelands; orchards; vineyards.
- Integrating livestock with adaptive planned grazing.
- Agroforestry systems: timber and grazing.
- Economic view of systems management: short- and long-term ROI.
- Conservation through partnership opportunities.

Course 2: Soil Health Management Systems

Understand the connection between soil health, primary productivity and, ultimately, food and fiber quality. The course will cover soil properties, metrics of soil health, and influences of production practices and soil management systems (integrated practices) on these components. Soil sampling, analysis and interpretation are presented, along with monitoring strategies to ensure on-farm success.

Topics include:

- Basics of soil health: degradation and restoration.
- Organic matter: the living, the dead, and the very dead part of soil.
- Physical nature of soils: the what, where, and how of soil formation and loss.
- Soils and plants: biological, chemical, and physical property influences on plant health.
- Nutrient management using livestock and plant waste to build soil health.



- Irrigation technology and management strategies.
- Soil testing and monitoring: what and when.

Course 3: Science & Practice of Ecological Forest and Range Management

Explore innovative and practical approaches to sustainable and resilient stewardship of working lands and ecosystems with an emphasis on fire. Specific emphasis will highlight cultural considerations in grasslands, woodlands, and mixed conifer forests.

Topics include:

History, science and policy of forest and rangeland management in the West.

High functioning ecological processes in well-managed forests: case studies from public and private lands.

Sustainable rangeland management: case studies from public and private lands.

Fire resiliency measures, methods & controlled burns in forest and rangeland ecosystems.

Fire recovery methods for land restoration incl. soil stabilization & improved water quality.

Grazing systems for working lands: processes, principles and practices.

Pollinators and wildlife habitat management.

Applied agroforestry and watershed management planning and design.

Applied management: sustainable rangeland and ecosystems planning and design.