

# Farming for Success in the 21<sup>st</sup> Century: Resources for Soil Building, Biodiversity and Water Stewardship

## Soil Building

---

California's Resource Conservation Districts (RCDs) — Leaders in on-the-ground conservation efforts, working with landowners on practical, hands-on conservation projects: <http://www.carcd.org/home0.aspx>

Natural Resource Conservation Service (NRCS) — Works with landowners through conservation planning to ensure productive lands and healthy ecosystems. Publications and practical guides available at: <http://soils.usda.gov/sqi/publications/publications.html>. Guide to soil quality, including a glossary of terms and how to test for and manage soil quality: [http://soils.usda.gov/sqi/publications/files/th\\_bk\\_body.pdf](http://soils.usda.gov/sqi/publications/files/th_bk_body.pdf). *Unlock the Secrets in the Soil* has videos, fact sheets and checklists: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health>

UC Cooperative Extension — Provides research-based knowledge and educational programs via county offices throughout California in the areas of farm management and more. <http://ucanr.edu/>

National Sustainable Agriculture Information Service (NCAT/ATTRA) — “Ask an expert” resource and extensive publications covering organic production, livestock, horticultural crops, business and marketing, farm energy, water and pest management and more: <https://attra.ncat.org/>.

COMET-VR 2.0 is a computer-based tool to estimate soil carbon changes from various practices. [www.comet2.colostate.edu/](http://www.comet2.colostate.edu/)

### Nutrient Management

Whole-Farm Nutrient Management Planning for Organic Farms — Guide to interpreting soil tests and using organic nutrient sources: <http://www.sare.org/Learning-Center/Project-Products/Northeast-SARE-Project-Products/Whole-Farm-Nutrient-Planning-for-Organic-Farms>.

Building Soils for Better Crops: Sustainable Soil Management — Practical guide to ecological soil management: <http://www.sare.org/Learning-Center/Books/Building-Soils-for-Better-Crops-3rd-Edition>.

### Cover Crops

UC Davis Agriculture Sustainability Institute — Has an extensive list of practical guides for cover crop management in different cropping systems: <http://www.sarep.ucdavis.edu/covercrop/res/cover-crop-publications/>

Sustainable Production of Fresh-Market Tomatoes and Other Vegetables with Cover Crop Mulches — A practical guide to selecting, establishing, and mulching cover crops in vegetable cropping systems: [www.ars.usda.gov/is/np/SustainableTomatoes2007/TomatoPub.pdf](http://www.ars.usda.gov/is/np/SustainableTomatoes2007/TomatoPub.pdf)

Managing Cover Crops in Conservation Tillage Systems — An overview of the benefits derived from combining CT management and cover crops: <http://www.westernsare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Managing-Cover-Crops-in-Conservation-Tillage-Systems>

Cover Cropping for Vegetable Production — Handbook describing cover crops with specific recommendations for the Central Valley, desert, and coastal regions of California: <http://anrcatalog.ucdavis.edu/Items/3517.aspx>

Crop Rotation on Organic Farms: A Planning Manual — Practical guide to applications of crop rotation including improving soil quality and health, and managing pests, diseases, and weeds: <http://www.sare.org/Learning-Center/Books/Crop-Rotation-on-Organic-Farms>

---

This is one in a series of fact sheets providing practical information on enhancing the resilience of California farms to climate change. For fact sheets or technical resources on soil building, water stewardship or biodiversity, see [www.calclimateag.org](http://www.calclimateag.org). This project was funded by a grant from Western Sustainable Agriculture Research and Education and produced by these partners:



## Conservation Tillage

Conservation Agriculture Systems Innovation — Six-part video series on the benefits of CT in different cropping systems and with overhead irrigation systems, including farmer interviews and demonstration projects in California:

[http://casi.ucanr.edu/Video\\_library\\_636/CASI\\_documentary/](http://casi.ucanr.edu/Video_library_636/CASI_documentary/)

Conservation Agriculture Systems Alliance — Network for farmers and advisors to share information, respond to questions, find out about relevant opportunities and events:

<http://www.ctic.purdue.edu/Conservation%20Agriculture%20Systems%20Alliance/>

## Financial Support

A number of cost share programs that support soil building practices are available through the NRCS.

Conservation Stewardship Program (CSP) — On an annual basis, farmers can receive land-use payments for environmental benefits produced on-farm. Soil building practices selected by farmers that received compensation in 2009 and 2010 included: cover crop mixtures, crop rotations, and continuous no-till:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp>

Farmers Guide: <http://sustainableagriculture.net/wp-content/uploads/2011/09/NSAC-Farmers-Guide-to-CSP-2011.pdf>

Environmental Quality Incentive Programs (EQIP) — EQIP contracts provide financial, technical and cost sharing assistance for conservation farming practices that improve environmental quality:

<http://www.ca.nrcs.usda.gov/programs/eqip/2012/index.html>. An online tool is available for limited resource and beginning farmers to see if they qualify for up to 90% cost share payment rates: <http://www.lrftool.sc.egov.usda.gov/>

---

## Water Stewardship

Fish Friendly Farming — Environmental certification program offering expertise on erosion and soil loss, stream bank failure, and water quality degradation. Operates in Mendocino, Sonoma, Napa, Solano, and El Dorado counties:

<http://www.fishfriendlyfarming.org/>

California Agricultural Water Stewardship Initiative — Resource center for growers, ranchers, and others interested in sound farm water management: <http://agwaterstewards.org/>

Department for Environment: Food and Rural Affairs — Practical tools to enhance resource conservation. *Catchment Sensitive Farming: Practical Tips* has information on constructed wetlands, buffer strips, recycling water, swales and more:

<http://adlib.everysite.co.uk/adlib/defra/content.aspx?id=000HK277ZX.0HCIIG33ALM59DZ>

Smart Water Use on Your Farm or Ranch — Covers compost, conservation tillage, cover crops, crop rotation, water-conserving plants, rangeland drought mitigation, low-volume irrigation, water recycling: <http://www.sare.org/Learning-Center/Bulletins/Smart-Water-Use-on-Your-Farm-or-Ranch>

Vegetative Filter Strips for Improved Surface Water Quality — A practical guide to designing, installing and maintaining vegetative filter strips: [www.extension.iastate.edu/Publications/PM1507.pdf](http://www.extension.iastate.edu/Publications/PM1507.pdf)

---

## Increasing Biodiversity

Dietrick Institute for Applied Insect Ecology — Offers training on practical strategies that benefit biodiversity. *Biological Control of Insect Pests Using Pest Break Strips* available at: <http://dietrick.org/projects/naturfarm.html>.

Wild Farm Alliance — *Biodiversity Conservation Guides* describe methods to maintain and enhance on-farm biodiversity: [www.wildfarmalliance.org/resources/BD%20Guide%20Organic%20Farmers%20.pdf](http://www.wildfarmalliance.org/resources/BD%20Guide%20Organic%20Farmers%20.pdf). Practical guide for hedgerow installation and maintenance: [http://caff.org/wp-content/uploads/2010/07/Hedgerow\\_manual.pdf](http://caff.org/wp-content/uploads/2010/07/Hedgerow_manual.pdf)

Sheep Grazing to Manage Crop Residues, Insects & Weeds in Northern Plains Grain & Alfalfa Systems — <http://www.sare.org/Learning-Center/Fact-Sheets/National-SARE-Fact-Sheets/Sheep-Grazing-to-Manage-Crop-Residues-Insects-and-Weeds-in-Northern-Plains-Grain-and-Alfalfa-Systems>

Steel in the Field: A Farmer's Guide to Weed Management Tools — Practical guide to the implements and techniques that can control weeds while reducing, or eliminating, herbicides through improved cultivation tools, cover crops and new cropping rotations: <http://www.sare.org/Learning-Center/Books/Steel-in-the-Field>