INTRODUCING THE NATIONAL ORGANIC FARMING HANDBOOK

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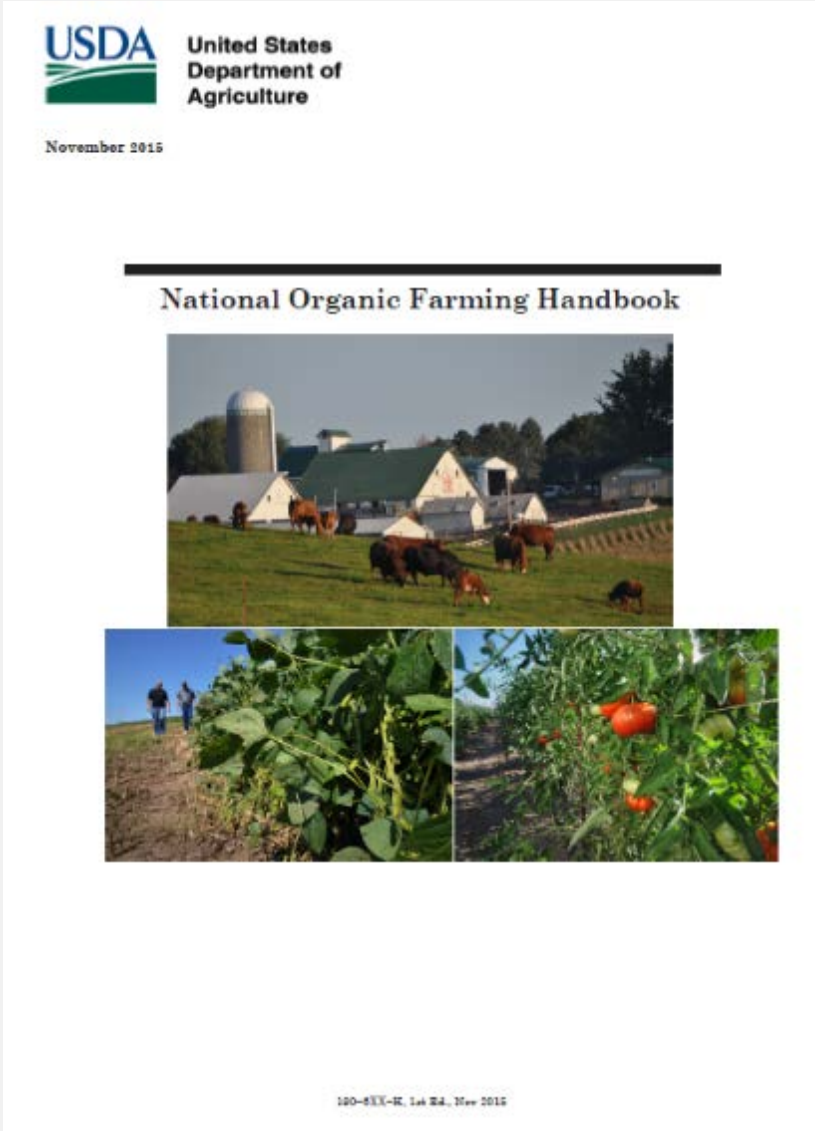
Organic Farming Handbook

Developed to support NRCS field staff, ag, & conservation professionals working with organic producers.

The handbook describes organic systems and identifies key resources to guide conservation planning and implementation on organic farms.

“go-to guide for helping organic farmers and ranchers with conservation” –NRCS Chief Weller



Background: Developed based on a Conservation Innovation Grant with NCAT.

Audience: NRCS staff and Ag Professionals.

Discussed Farmer Audience version/section.

Looking for feedback if there is interest and value in a different approach for a different audience.

nrcs.usda.gov/organic

Organic & Sustainable Agriculture Webinars

National Organic Program

Managed by USDA's Agricultural Marketing Service, the National Organic Program develops, implements, and administers national organic production, handling, and labeling standards. If you're wondering whether organic is a good option for your operation, visit the USDA's Organic Literacy Initiative resources to learn more.

Organic Conservation Planning Resources

NEW: Organic Farming Handbook (eDirectives)

With funding from Western Sustainable Agriculture Research and Education (SARE), the following guides were created by Oregon Tilth for use by NRCS staff:

- Resources for Conservation Planning on Organic and Transitioning-to-Organic Operations (PDF; 1MB)
- Common NRCS Practices Related to Pest Management on Organic Farms (PDF; 15MB)
- Cover Crop in Organic Systems (PDF; 18MB)
- Conservation Buffers in Organic Systems - Western States (PDF; 2MB)
- Conservation Buffers in Organic Systems - New England (PDF; 740KB)
- Nutrient Management in Organic Systems (PDF; 4MB)

The Xerces Society for Invertebrate Conservation has a number of resources related to pollinator habitat assessment and design on organic farms.

The NRCS Organic Initiative Practice List and National Organic Program Rules Matrix (PDF; 52KB) correlates the

United States Department of Agriculture

February 2016

National Organic Farming Handbook

Organic Farming Handbook

Range of NRCS staff worked to develop—a mix of geography, specialty, roles, etc:

- Glen Abney, Area Resource Conservationist, Kentucky
- Thomas Akin, Conservation Agronomist, Massachusetts
- Alice Begin, Resource Conservationist, Maine
- Lindsay Haines, Conservation Program Specialist, National Headquarters
- James Howard, District Conservationist, California
- David Lamm, National Soil Health Team Leader, ENTSC
- Pat Murphy, State Resource Conservationist, Wisconsin
- Todd Peplin, Farm Bill Specialist, Oregon
- Susan Samson-Liebig, Soil Quality Specialist, North Dakota
- Ruth Shaffer, Water Quality Specialist, Michigan
- Cheryl Simmons, Natural Resources Specialist, CNTSC
- Ben Smallwood, Conservation Specialist, National Headquarters
- Sudie Thomas, Wildlife Biologist, South Carolina
- Pedro Torres, Tribal Liaison, California
- Kalven Trice, Senior Economist, National Headquarters
- Rafael Vega, District Conservationist, Indiana

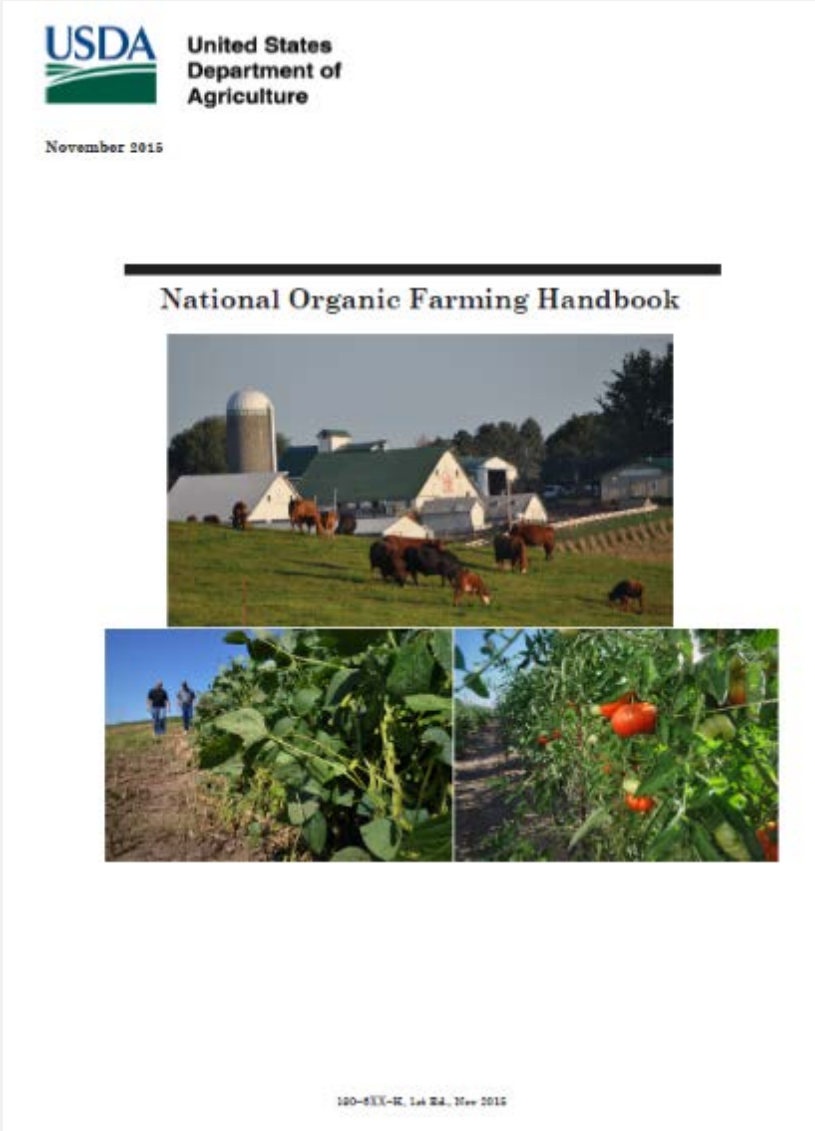
Organic Farming Handbook

Many partner organizations worked with NRCS to develop:

- Black Family Land Trust,
- Carolina Farm Stewardship Association,
- Center for Rural Affairs,
- Florida Organic Growers,
- Midwest Organic & Sustainable Education Service,
- National Center for Appropriate Technology,
- National Sustainable Agriculture Coalition,
- Northwest Center for Alternative to Pesticides,
- Oregon Tilth,
- Virginia Biological Farming Association,
- Wild Farm Alliance

Organic Farming Handbook

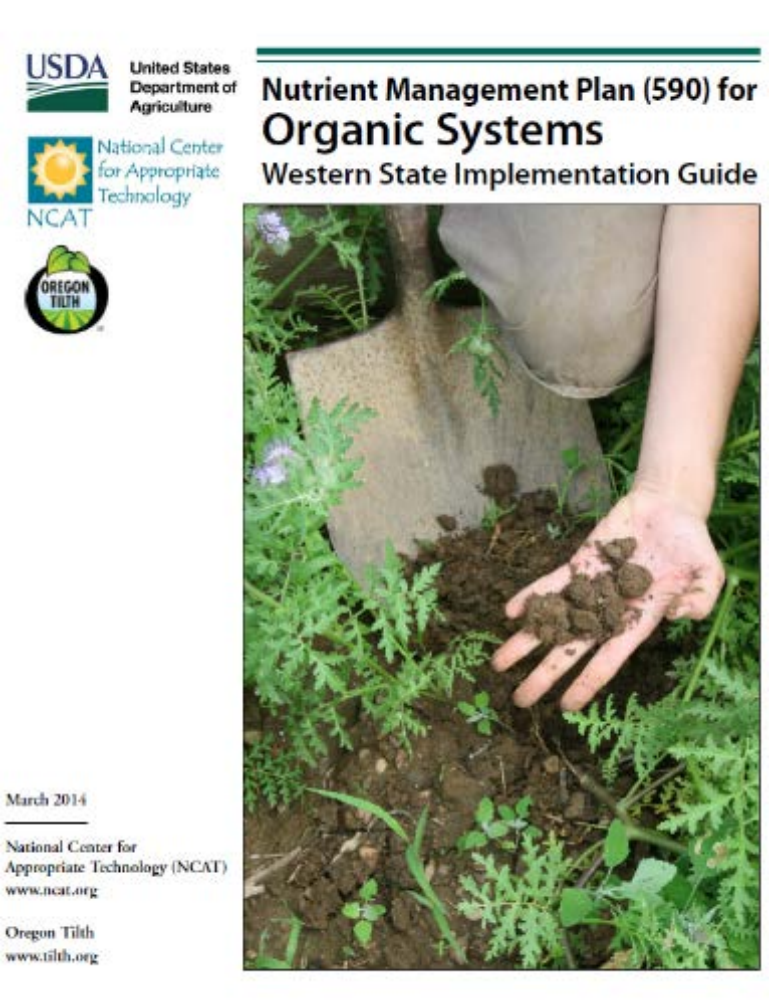
A. Overview of Organic Agriculture (principles, conservation needs & opportunities)
B. NOP (regulations and roles, certification process)
C. Conservation Planning with Organic (considerations for 9 steps, CAP 138)



Organic Farming Handbook

D. Integral Conservation Activities

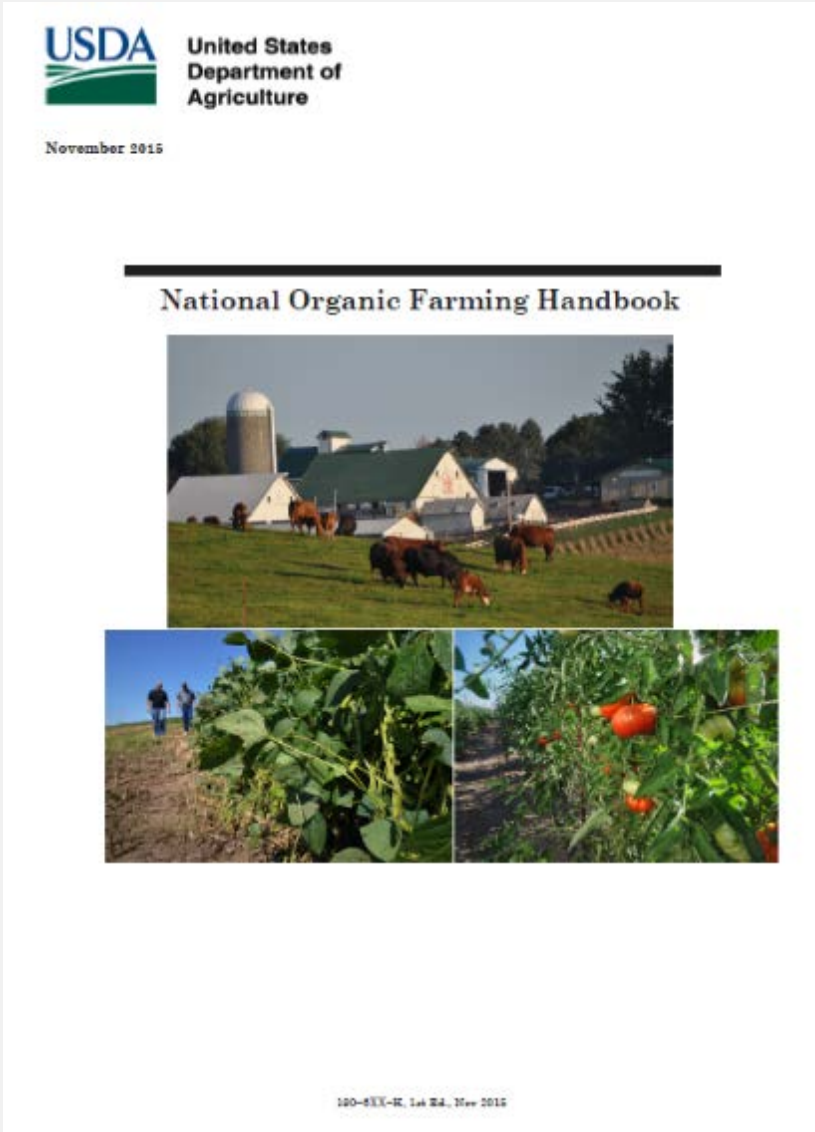
- Nutrient Management
- Cover Crops
- Compost
- Crop Rotations
- Tillage & Residue Management
- Integrated Pest Management
- Buffers and Natural Areas
- Grazing Management
- Livestock Living Conditions, Facilities, and Structures



Organic Farming Handbook

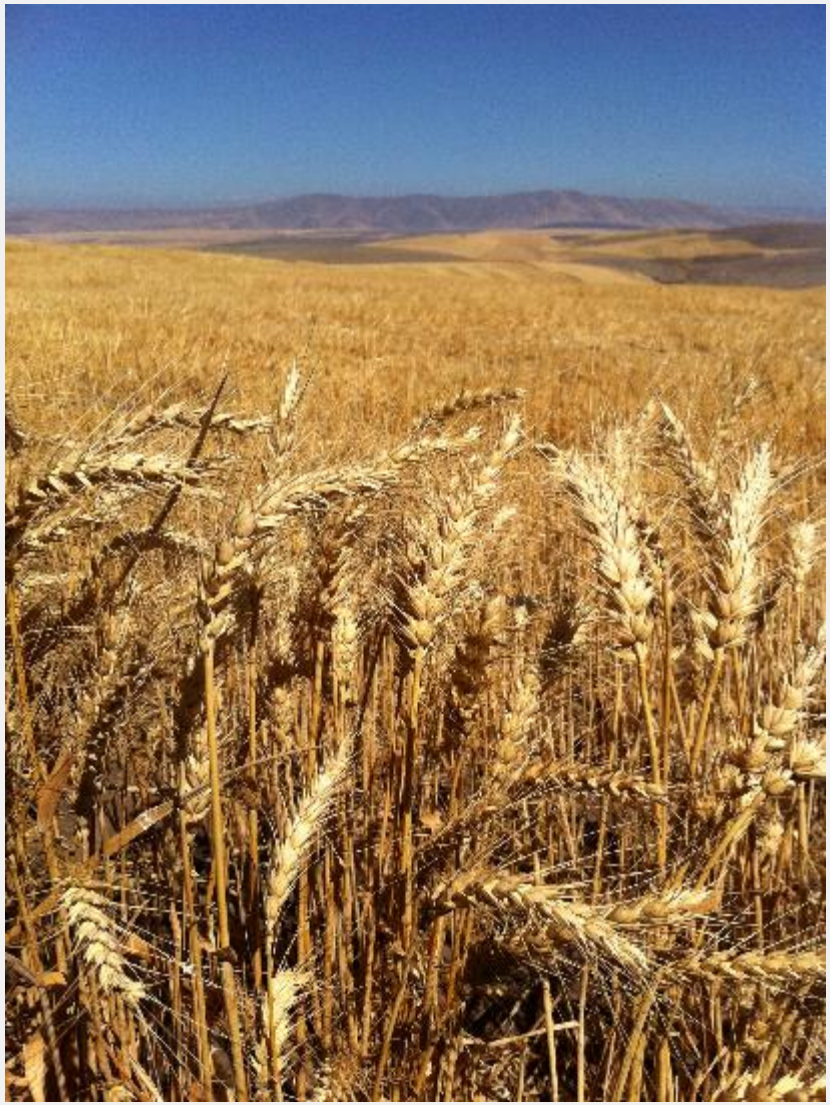
Appendix 1: USDA Organic Regulations related to conservation

Appendix 2: Additional Resources



Transition

- Land free of prohibited substances for 3 years
- “Split” operations are allowed and common
- Transition label / marketing
- **Always encourage checking with certifier!!!**



ORGANIC MATERIALS REVIEW INSTITUTE

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View the OMRI Generic Materials List Glossary in PDF format here.
Click on the arrow or the material name to view more details about each material.

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Bedding

Status: Allowed
Class: Livestock Management Tools and Production Aids
Origin: Nonsynthetic
Description: Roughage (e.g. hay, straw, corn stalks, rice hulls, peanut hulls) used as bedding must be organically produced. Wood products used as bedding may not contain prohibited substances.
NOP Rule:

Plants

Status: Allowed
Class: Crop Fertilizers and Soil Amendments, Crop Management Tools and Production Aids
Origin: Nonsynthetic
Description: Includes aquatic or terrestrial plants or parts of plants such as cover crops, green manures, crop wastes, hay, leaves, meals and straw. Parts of plants used as soil amendments and foliar feeds are permitted. May be from nonorganic sources. Specific materials must be evaluated using the OMRI GMO Decision trees to determine compliance. See also COCOA BEAN HULLS, COTTON GIN TRASH, COTTONSEED MEAL, PLANT EXTRACTS, and individual plant listings.
NOP Rule: 205.203(c)(3) Uncomposted plant materials.

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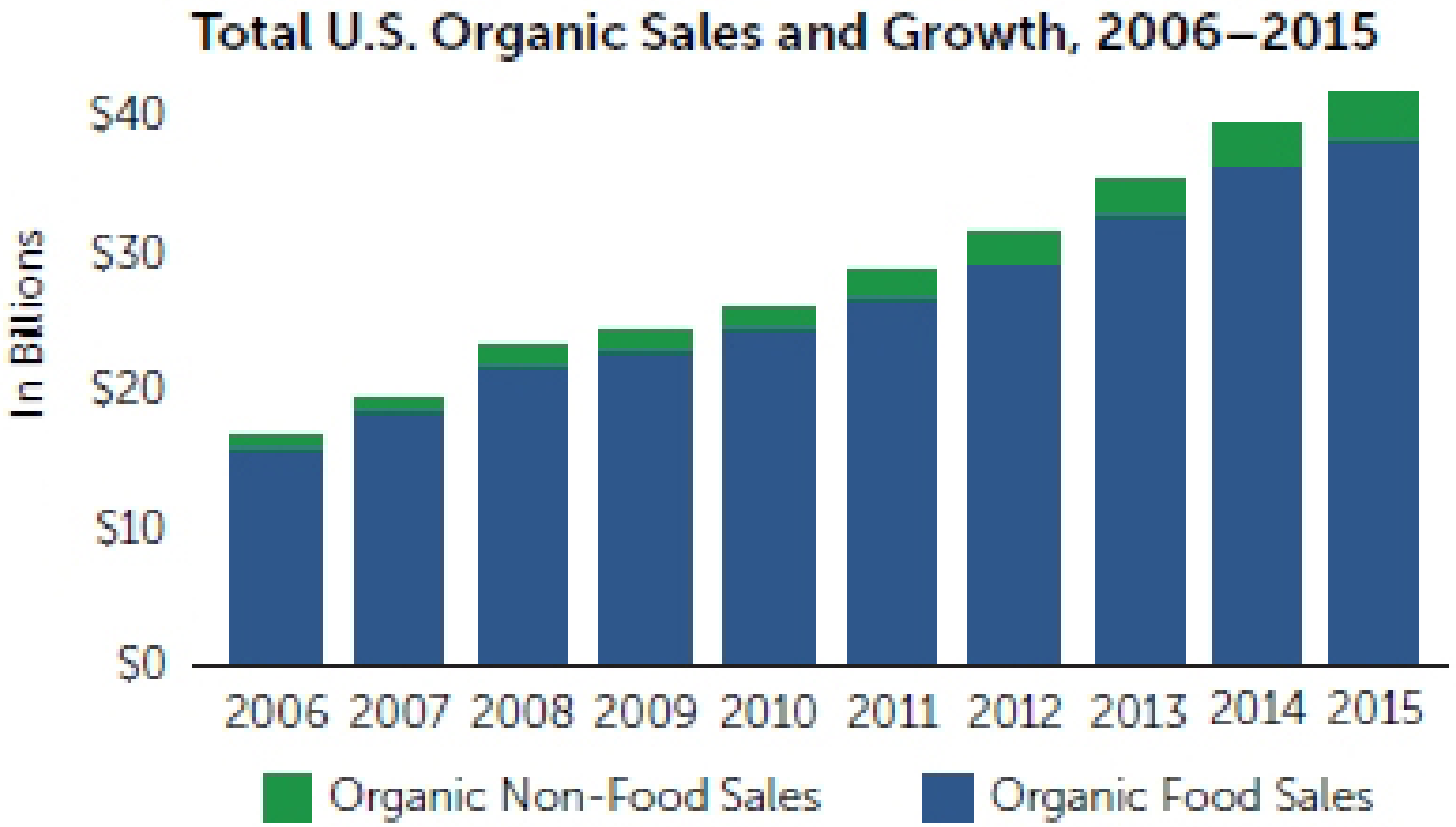
$43.3 billion in total organic sales, $39.7 billion were organic food sales, up 11 percent from the previous year, and non-food organic products accounted for $3.6 billion, up 13 percent. Nearly 5 percent of all the food sold in the U.S. in 2015 was organic.



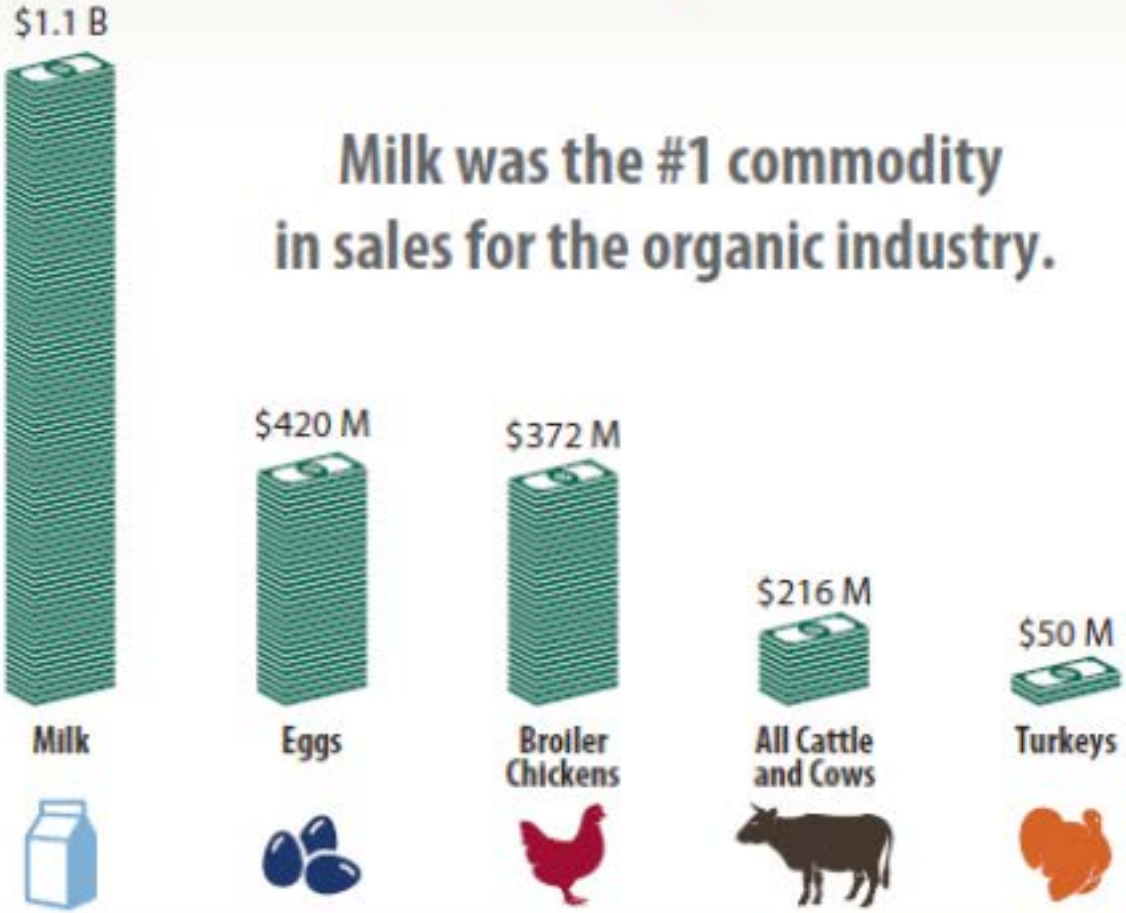
Source: Organic Trade Association

Supply of organic foods is not meeting demand

- **Short domestic supply of organic livestock feed & grains.**

- **High demand for fruits, vegetables, meats, dairy & specialty crops**.

U.S. Sales of Livestock, Poultry and Products, 2014



Milk was the #1 commodity in sales for the organic industry.

www.agcensus.usda.gov

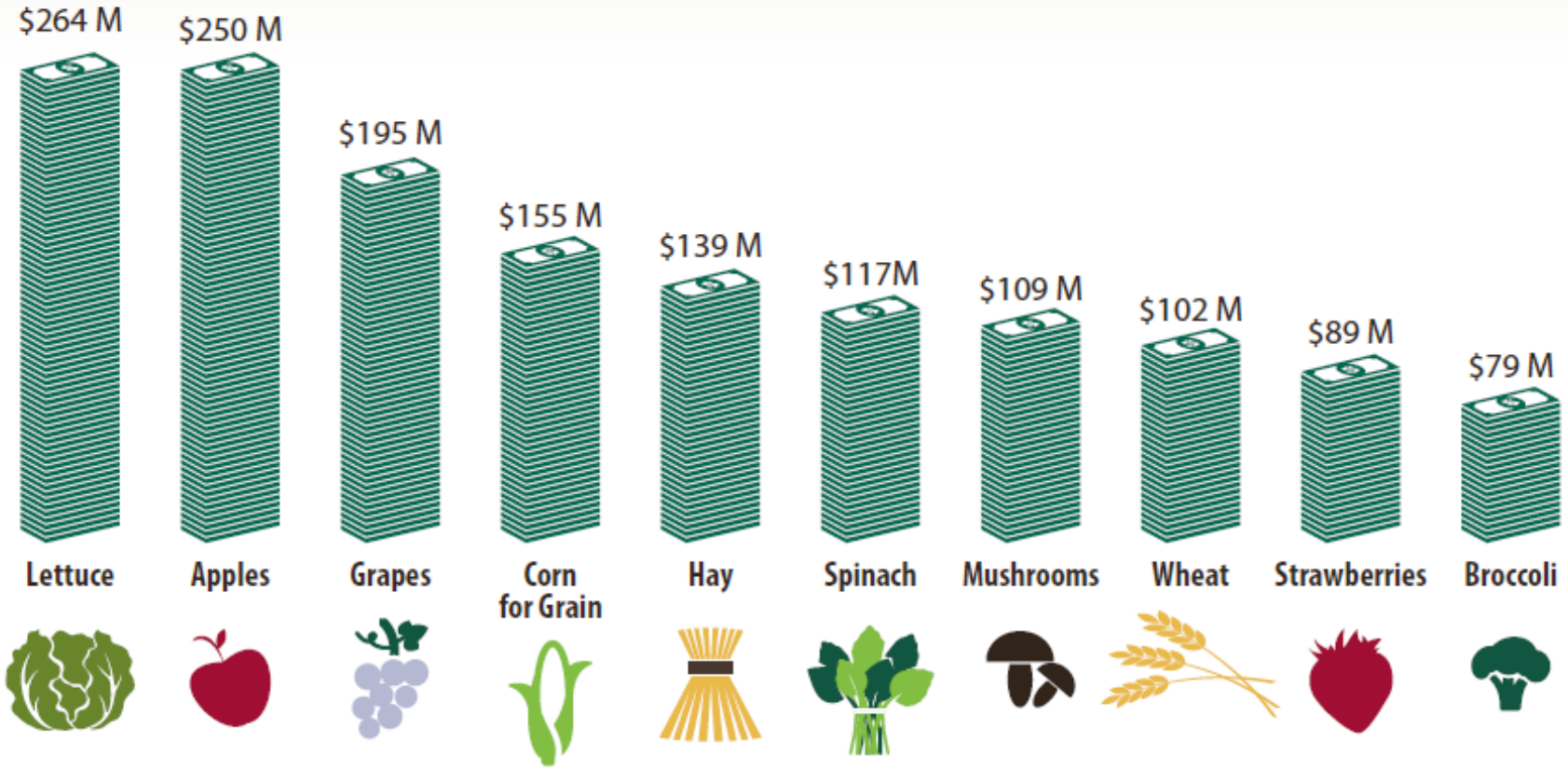
U.S. Department of Agriculture

National Agricultural Statistics Service

USDA CENSUS OF AGRICULTURE

Source: USDA NASS 2014 Organic Survey

U.S. Top 10 Organic Crops by Sales, 2014



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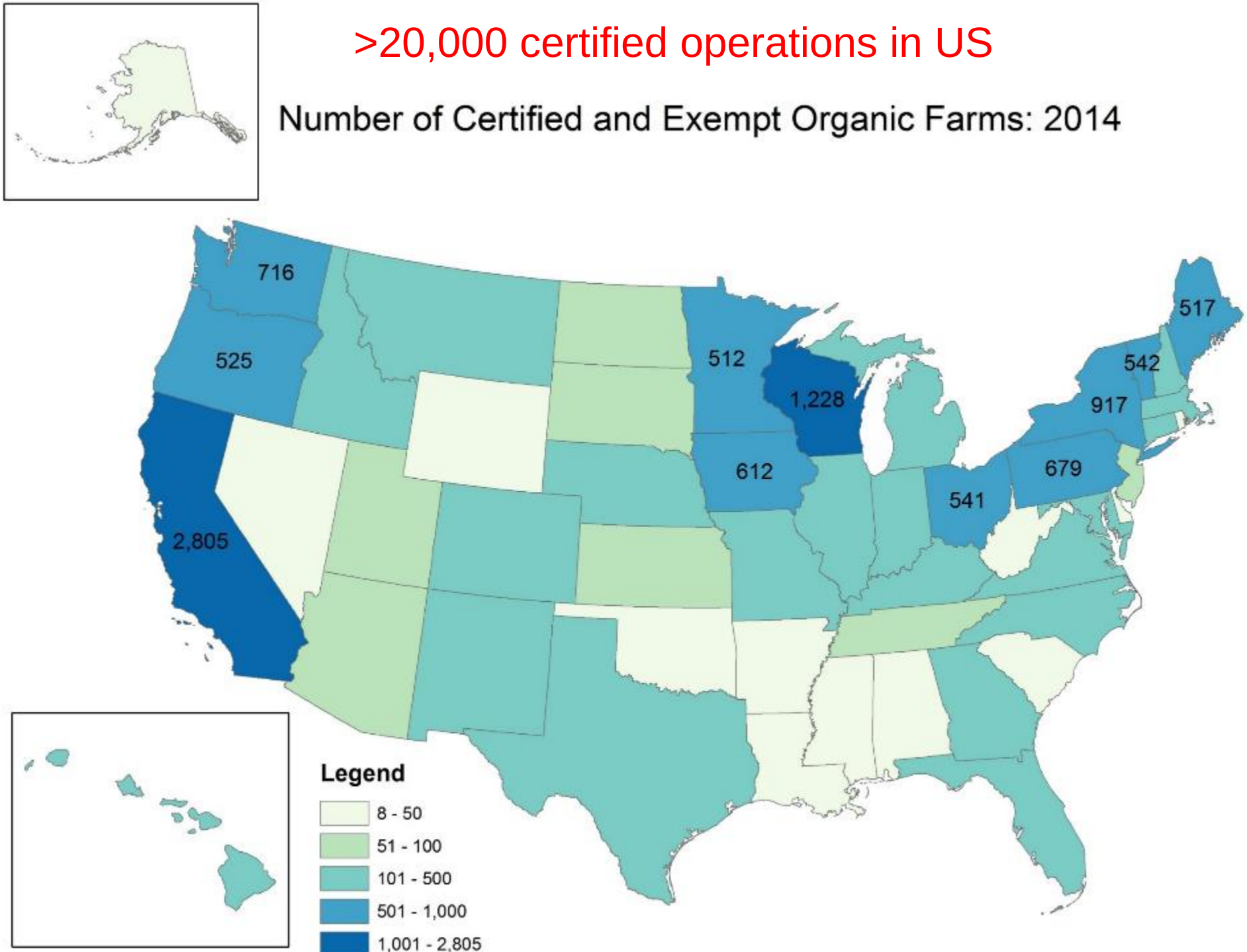
USDA CENSUS OF AGRICULTURE

Source: USDA NASS 2014 Organic Survey

>20,000 certified operations in US



Top Ten States in Organic Sales, 2014

These states account for 78% of all sales in the U.S.

California	$2.2 B
Washington	$515 M
Pennsylvania	$313 M
Oregon	$237 M
Wisconsin	$201 M
Texas	$199 M
New York	$164 M
Colorado	$147 M
Michigan	$125 M
Iowa	$103 M

www.agcensus.usda.gov

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USDA CENSUS OF AGRICULTURE

Source: USDA NASS 2014 Organic Survey

Production Practices Used by Organic Farms, 2008 and 2014

Production Practices	2008 Organic farms that use this practice (percent)	2014 Organic farms that use this practice (percent)
Green or animal manure	65	67
Buffer strip to isolate organic products	58	66
Water management practices	51	53
Organic mulch/compost	51	50
No-till or minimum till cropping	38	41
Planting location planned to avoid pests	35	38

www.agcensus.usda.gov
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USDA CENSUS OF AGRICULTURE

Production Practices Used by Organic Farms, 2008 and 2014

Production Practices	2008 Organic farms that use this practice (percent)	2014 Organic farms that use this practice (percent)
Crop variety for pest resistance chosen for pest resistance	33	36
Maintain beneficial habitat for insects or vertebrates to manage pests or disease	32	34
Biological pest management	31	34
Choosing planting dates to avoid presence of unintended materials	26	29
Practice rotational grazing	21	22
Beneficial organisms applied or released	16	18
Free range grazing	16	15

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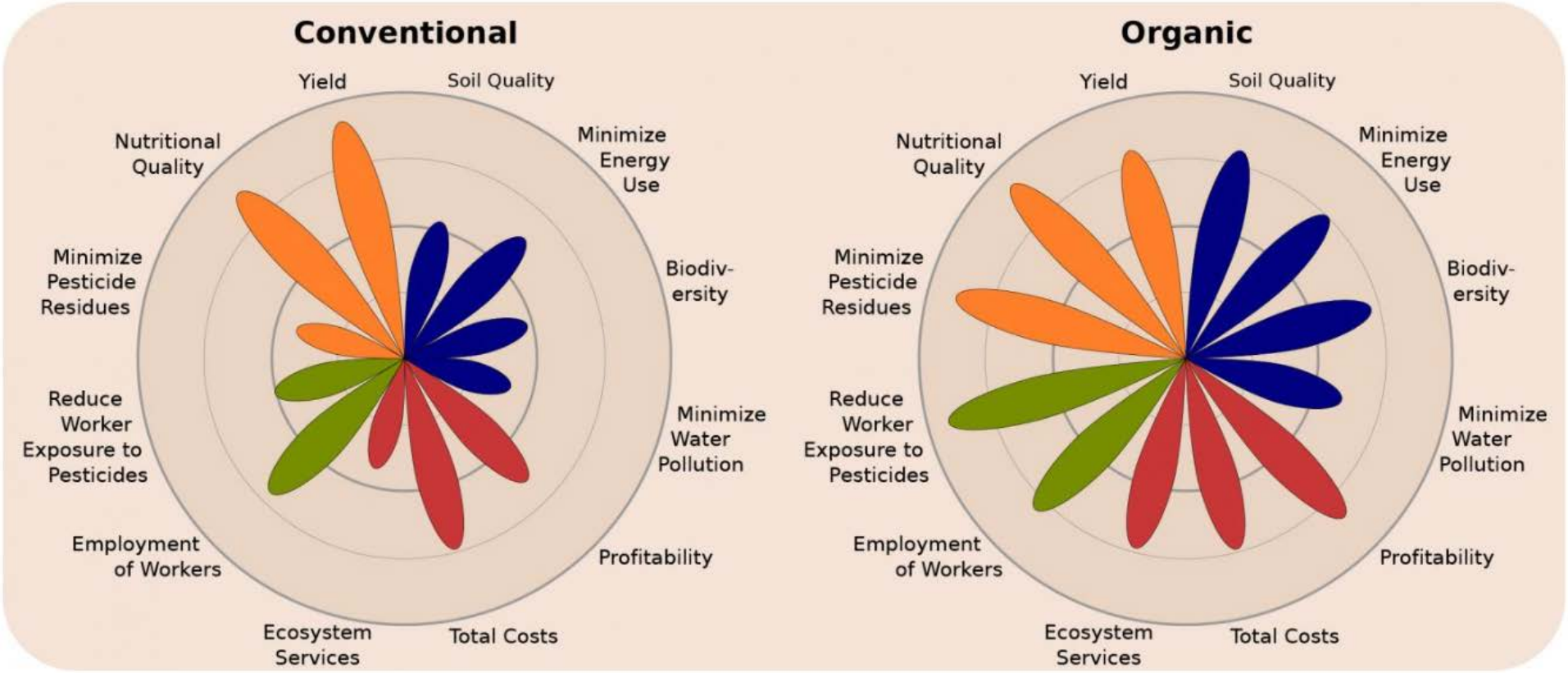
ARS Farming Systems Project

In-Depth Review Briefing Book of
Long-Term Field Experiment to Evaluate Sustainability of Organic and Conventional Cropping Systems
(The Beltsville Farming Systems Project; Project Number 1265-21660-002-00D)

Organic agriculture key to feeding the world sustainably. February 3, 2016 WSU



An assessment of organic farming relative to conventional farming illustrates that organic systems better balance the four areas of sustainability. Credit: Reganold and Wachter. Read more at: http://phys.org/news/2016-02-agriculture-key-world-sustainably.html#jCp

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THE FARMING SYSTEMS TRIAL

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FST FACTS

- Organic yields match conventional yields.
- Organic outperforms conventional in years of drought.
- Organic farming systems build rather than deplete soil organic matter, making it a more sustainable system.
- Organic farming uses 45% less energy and is more efficient.
- Conventional systems produce 40% more greenhouse gases.
- Organic farming systems are more profitable than conventional.


Conservation Planning in Organic Systems

USDA Organic Standards & Conservation

- “maintain or improve natural resources, including soil and water quality.”
- Range of conservation topics

USDA Organic Standards & Conservation

- NOP is broader than conservation: includes handling, labeling, marketing, etc.
- Few are quantitative.

USDA Organic Standards & Conservation

- Example: a “producer must manage crop nutrients and soil fertility through rotations, cover crops, and the application of plant and animal materials”

USDA United States Department of Agriculture

PROPOSED RULE: Organic Livestock & Poultry Practices

Proposed changes to the organic regulations would address organic livestock & poultry living conditions, health care, handling & transport.

Proposed Provisions include:

OUTSIDE TIME FOR ALL SPECIES

LIMITS ON
Indoor Ammonia Levels

Defined minimum
perch space per bird

EASY ACCESS to the OUTDOORS

Minimum indoor & outdoor space requirements

GROUP Housing
required for swine
(except for special conditions)

Organic feed & water required
for all species being transported for 12+ hours

Outdoor soil requirements
for all species

Phased-in implementation

60 DAYS for public comment
www.regulations.gov

Agricultural Marketing Service | National Organic Program | USDA is an equal opportunity provider, employer, and lender.

Conservation Planning Considerations

Problems & Opportunities:

- Natural areas—improve biodiversity, beneficial habitat, buffer areas
- Nutrients—manure for N can result in excessive P, compost/manure storage
- Tillage—reduce tillage or mitigate impacts
- Livestock & pasture—pasture during grazing season
- Residues—may be limited
- Transition—incentive to convert conservation land

Conservation Planning Considerations

Inventory & Analyze:

- Soil—complex cropping systems may be challenging in RUSLE2 and WEPS. Accurate tillage operations, compost, etc. [webinar and guide]
- Water—potential for excessive P or soluble N; some pest control (pyrethrum-risk to fish; spinosad to bees), evaluate with WIN-PST

Conservation Planning Considerations

Inventory & Analyze:

- Air—concern about chemical spray drift and airborne soil particulates with prohibited substances
- Plants—prevention, avoidance, and biological controls to deal with crop pests
- Animals—manage pastures to maintain adequate forage (120 / 30%) and protect water resources

Conservation Planning Considerations

Alternatives:

Consider impact of organic regulations/practices:

- Restriction on synthetic substances for weed, insect pest, and disease control; fertility; and seed treatment.
- 3 year land transition
- Organic seed/planting stock
- Treated lumber

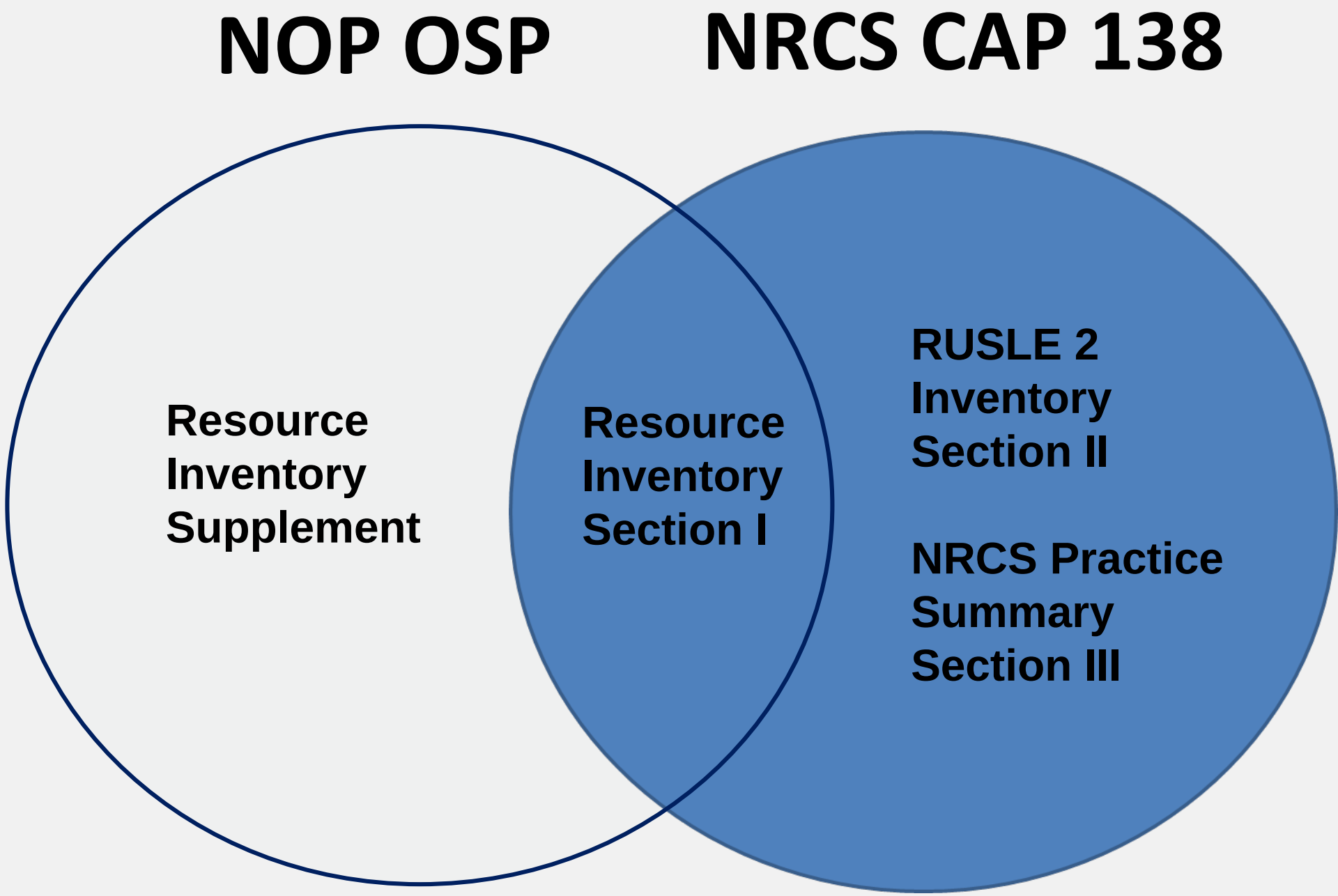
Conservation Planning Considerations

Decision & Implementation

- Producers are responsible for contacting their certifier to verify compliance of planned activities with organic standards.
- Unless included in their OSP, obtain approval prior to implementation.

Conservation Plan Supporting Organic Transition (CAP 138)

An NRCS Conservation Activity Plan that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation.


NOP OSP
NRCS CAP 138
Resource Inventory Supplement
Resource Inventory Section I
RUSLE 2 Inventory Section II
NRCS Practice Summary Section III

Resource Inventory

- May serve as a portion of an OSP, but it is not a replacement for one.
- The producer is responsible for completing all of the OSP requirements not addressed by the Resource Inventory.
- The Resource Inventory, when submitted with the CAP 138 Resource Inventory Supplement, contains all of the required components of an OSP

QUESTIONS?
COMMENTS?


Integral
Conservation
Activities with
Organic

NOP-NRCS Crosswalk

Crosswalk matches USDA organic regulations with NRCS conservation practices.

NOP	NRCS resource concern	NRCS practices
205.205 Crop Rotation	Soil erosion	Conservation crop rotations (328)
	Soil condition	Cover crops (340)
	Water quality	Nutrient management (590)

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1075355.pdf

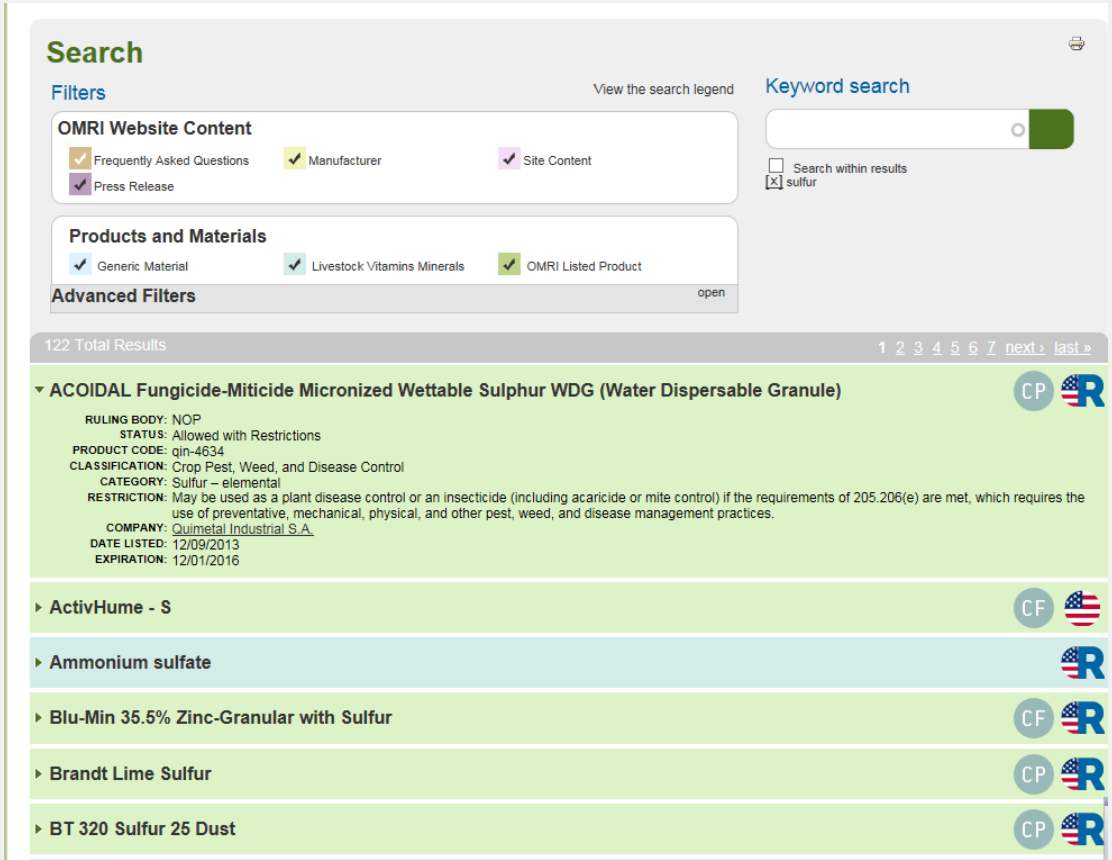
http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/financial/csp/?cid=nrcs143_008316


Nutrient
Management

Substances

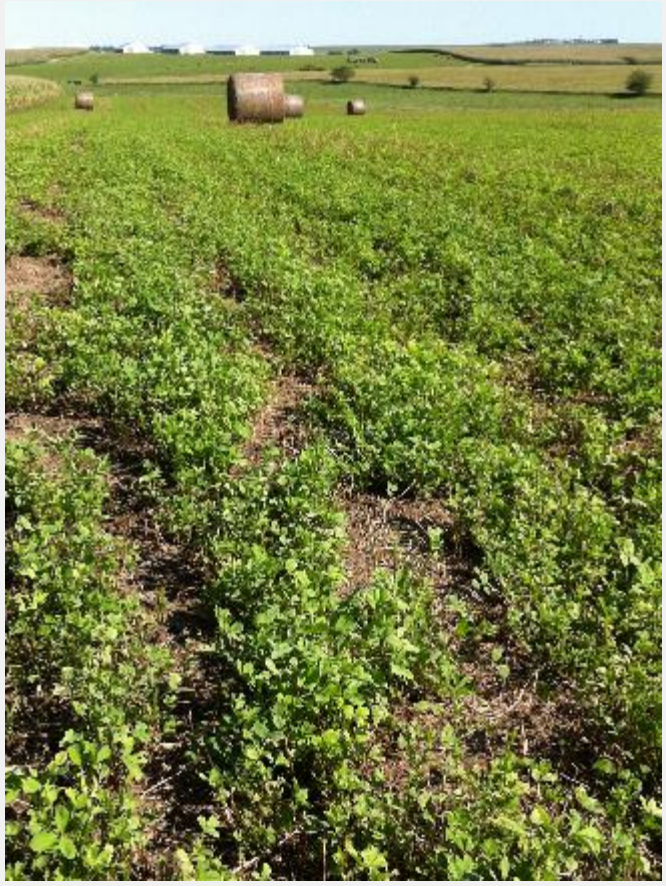
- No synthetic substances
- National List is the list of exceptions
  - Ex: biosolids not allowed; elemental sulfur is allowed synthetic (extraction)

- OMRI



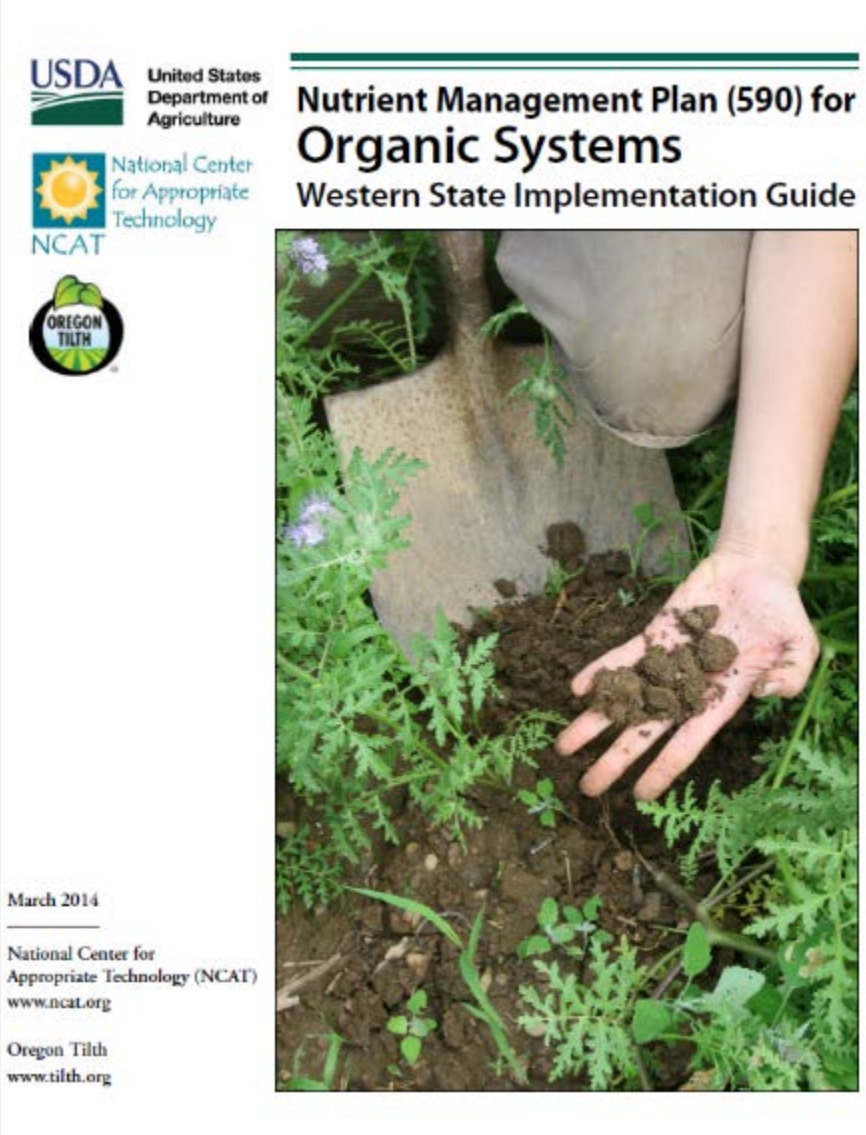
Soil Fertility & Nutrient Mgt

a) …minimize soil erosion
b) …(use) rotations, cover crops, and the application of plant and animal materials
c) …manage plant and animal materials to maintain or improve soil organic matter content



Resources (selected)

- Sources of Organic Fertilizers and Amendments (ATTRA)




Cover Crops

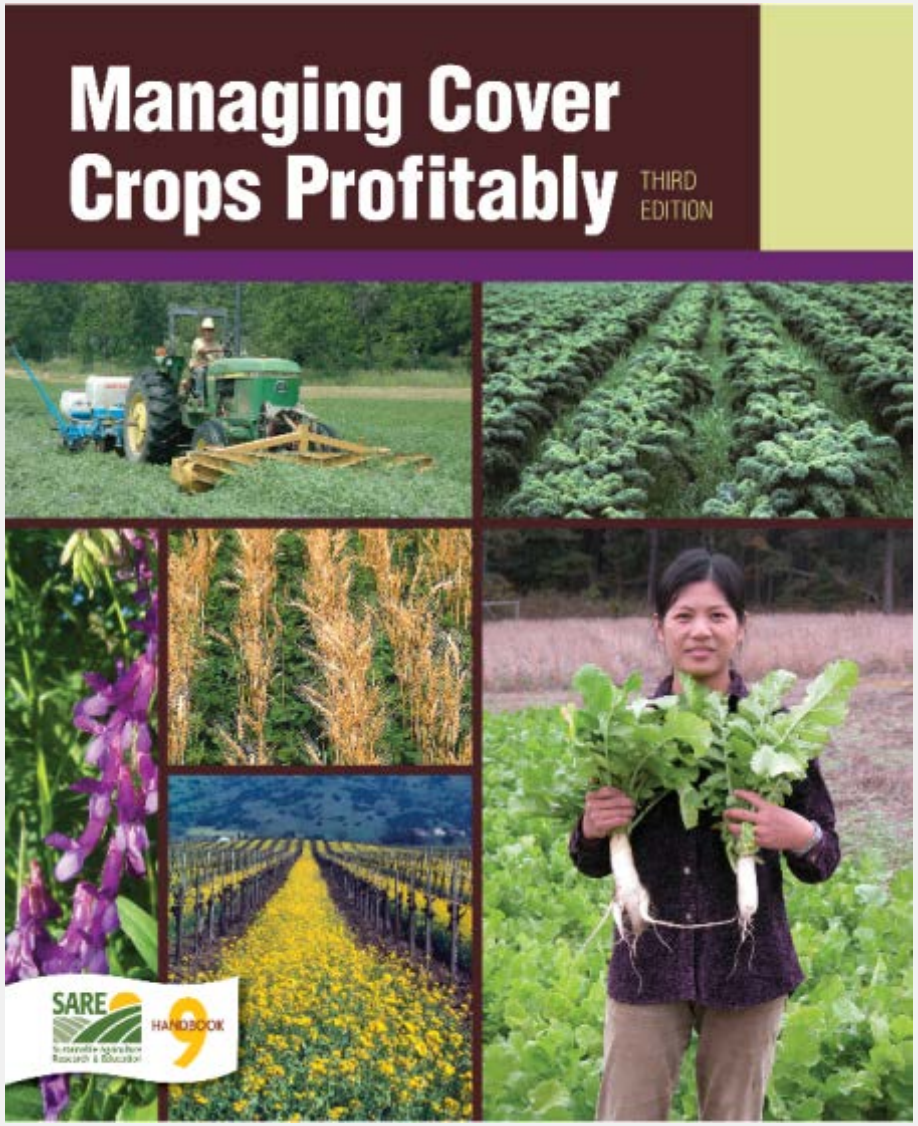
Cover Crops

- …(use) rotations, cover crops, and the application of plant and animal materials (*Soil Fertility & Nutrient Management Standard*)
- The producer must implement a crop rotation including but not limited to sod, cover crops, green manure crops, and catch crops that provide the following functions… (*Crop Rotation Standard)*

Seeds

Resources (selected)

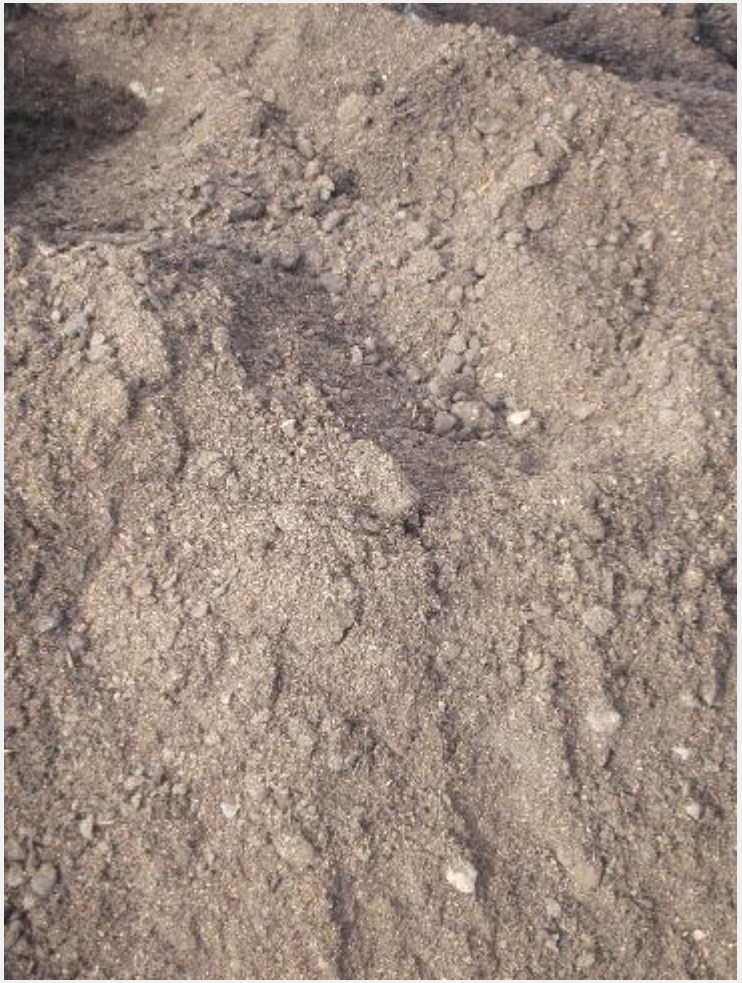
- Cover Cropping in Organic Farming Systems (eOrganic)



Compost

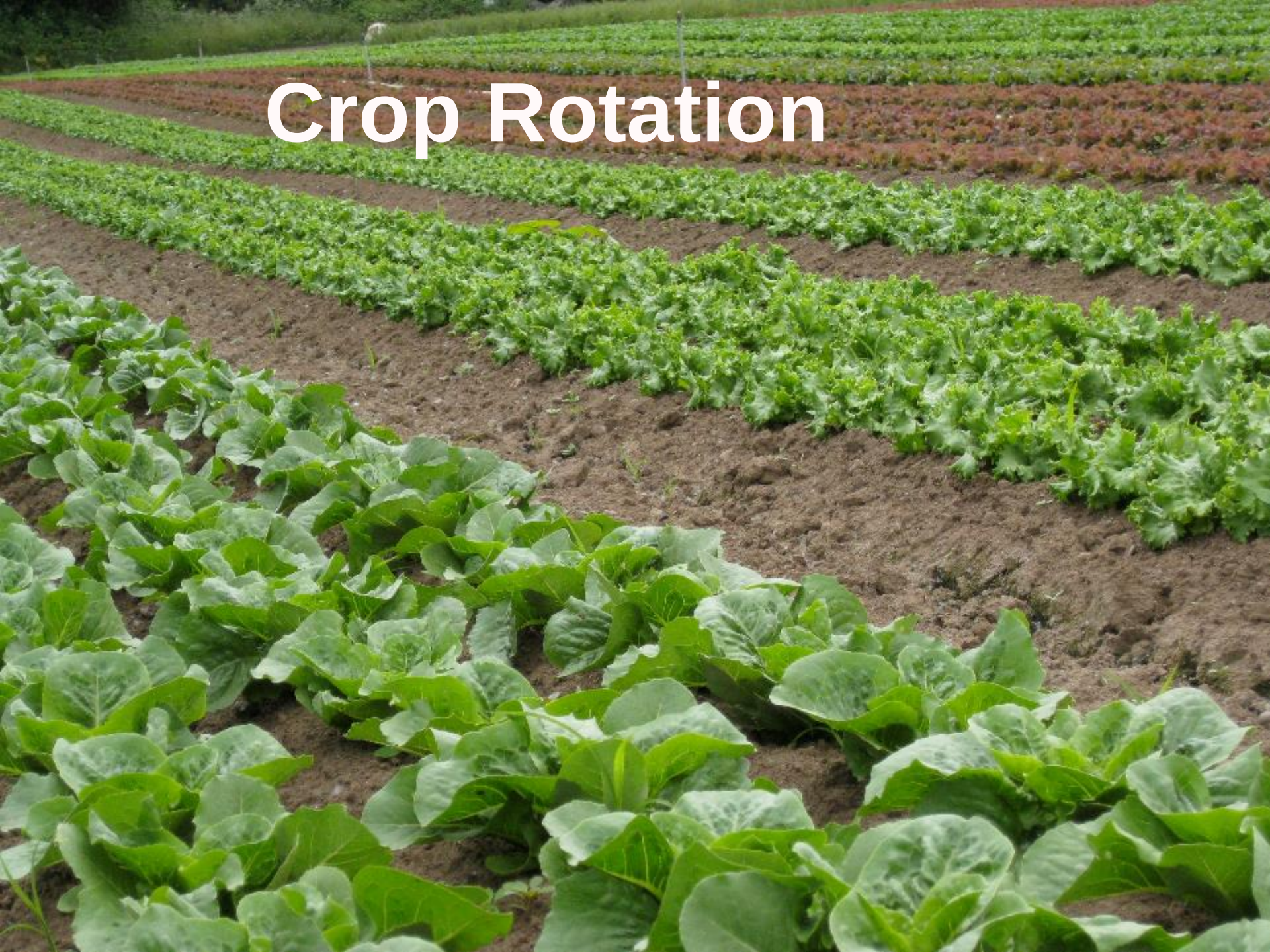
Manure Standard

- Crop for human consumption—raw manure incorporated at pre-harvest intervals:
  - 90 days if edible portion does not have contact with soil
  - 120 days if edible portion does have contact with soil particles
- “Conventional” manure
- Composted



Compost Standard

- NOSB Guidance
  - Attain 131˚ F for at least 3 days and mix or manage pile to ensure all feedstock heats to that temp
  - Processed manure: heated to 150˚ F for at least 1 hour and dried to 12% or less, or equivalent heating and drying that produces product that is negative for *Salmonella* and fecal coliform.


Crop Rotation

Crop Rotation

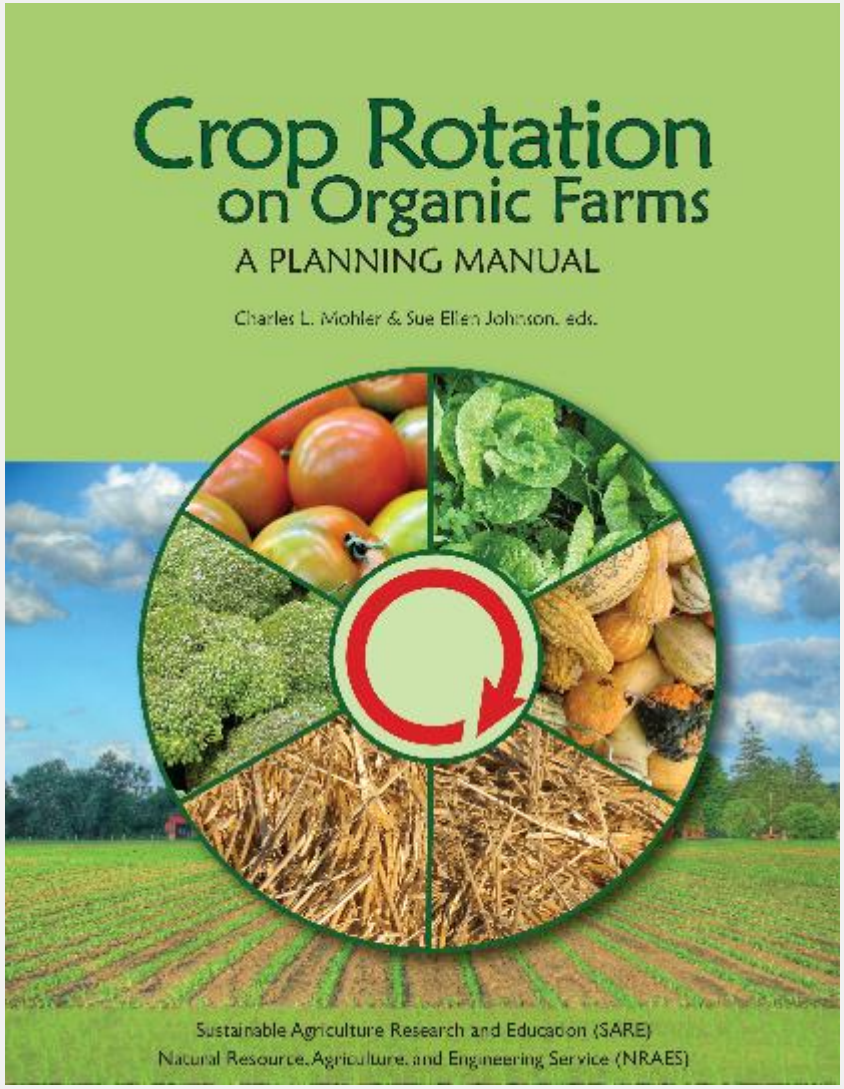
must implement a crop rotation to provide these functions:

(a) Maintain or improve soil organic matter content;
(b) Provide for pest management in annual and perennial crops;
(c) Manage deficient or excess plant nutrients; and
(d) Provide erosion control.

§ 205.205

Resources (selected)

- Crop Rotations on Organic Farms (Center for Environmental Farming Systems)



Tillage and Residue Management

Tillage & Residue Management

Tillage and cultivation practices should maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion *(205.203(a))*

Integrated Pest Management

Pest Management

1. Prevention: crop health, resistant varieties, etc.
2. Mechanical, physical, cultural: beneficials, mulch, cultivation, etc
3. Use allowed inputs when other practices are insufficient

Weed Management

(1) Mulching with fully biodegradable materials;

(2) Mowing;

(3) Livestock grazing;

(4) Hand weeding and mechanical cultivation;

(5) Flame, heat, or electrical means; or

(6) Plastic or other synthetic mulches:

Provided, That, they are removed from the field at the end of the growing or harvest season.


Buffers &
Natural Areas

Buffer

Fields or farm parcels must have:

> “buffer zones such as runoff diversions to prevent the unintended application of a prohibited substance to the crop or contact with a prohibited substance applied to adjoining land that is not under organic management.”

Buffer

“A buffer zone must be ***sufficient*** in size or other features (e.g., windbreaks) to prevent the possibility of unintended contact by prohibited substances applied to adjacent land areas”

Natural Resources & Biodiversity

- “maintain or improve the natural resources of the operation, including soil and water quality.”
- “natural resources of the operation” defined as *soil, water, wetlands, woodlands, and wildlife*.”
- Guidance: Natural Resources and Biodiversity Conservation (NOP 5020)
- Examples that demonstrate compliance with this broad section

Topics	NRCS Assistance May Be Available[3]	Examples of Activities[4]
Examples Relevant to All Types of Organic Certification		
Soil Stability and Water Quality	☑	Creating, conserving, and restoring vegetative covers (forests, shrublands, woodlands, grasslands, riparian areas, and wetland areas) that control erosion and filter nutrient, pesticide, and pathogen pollutants. Minimizing disturbances, maximizing diversity, living roots and cover.
	☑	Using no-till or permanent cover, conservation tillage, terracing, contour farming, micro-irrigation, windbreaks, cover crops, grass waterways and soil health practices.


Organic
Grazing

Livestock Feed

- All feed, pasture and forage must be organically produced
- Allowed substances may be used as additives and supplements (vitamins, minerals)

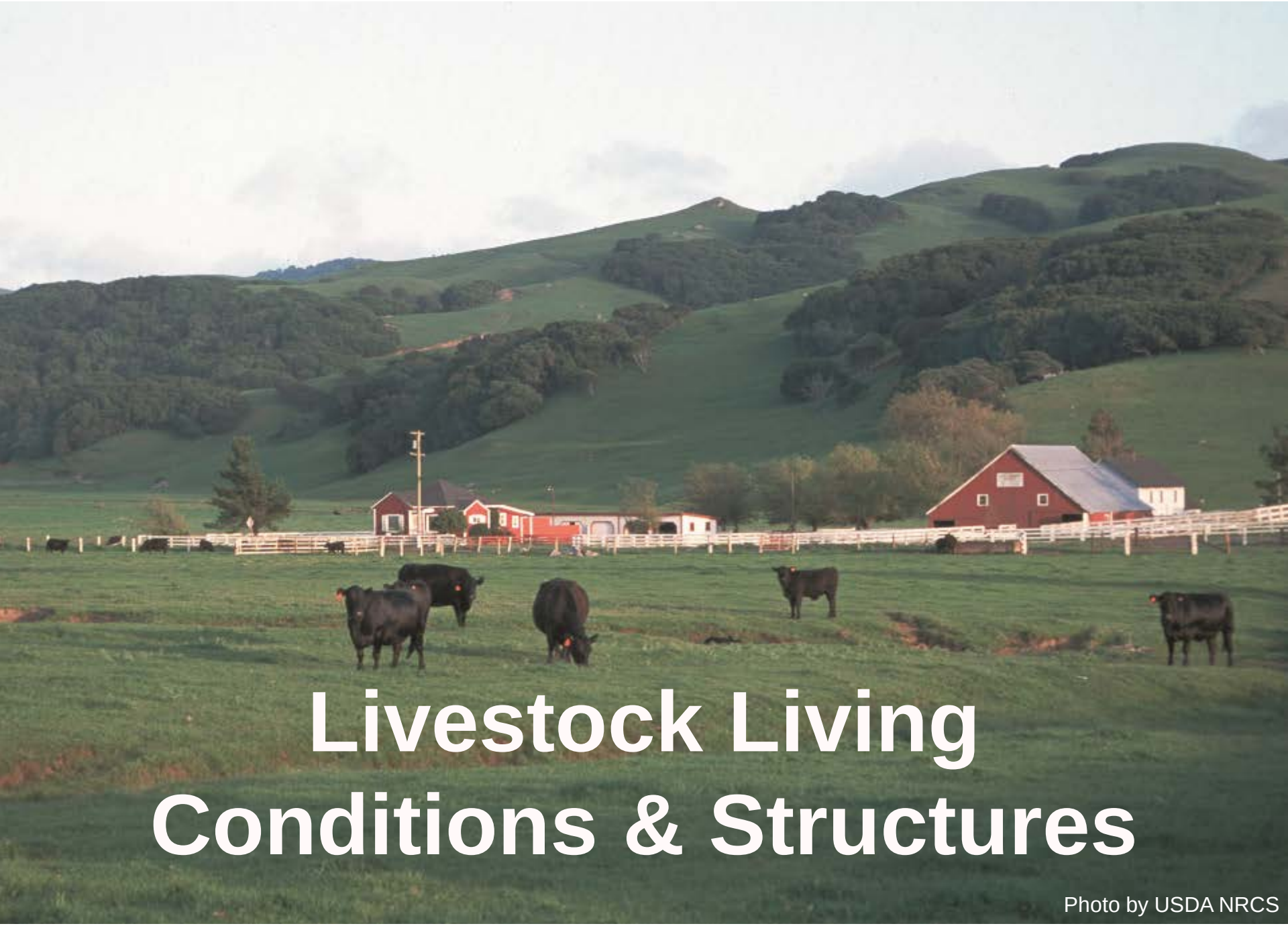
Pasture Requirement

- During the grazing season, ruminant animals must be able to obtain feed grazed from pasture
  - Not less than 120 days/year
  - Pasture must account for 30% of their Dry Matter Intake/DMI on average

Pasture Requirement

- Pasture must be managed as an organic crop
- Don’t put soil and water quality at risk
- Buffers, possibly with secondary fencing (farm boundary)
- No pressure treated lumber in contact with animals or soil (fences)


Photo by USDA NRCS



Livestock Living Conditions & Structures

Photo by USDA NRCS

Livestock Living Conditions

- Year-round access to the outdoors, shade, shelter, exercise areas, fresh air, clean water for drinking, and direct sunlight…
- …must be well-drained and managed to prevent runoff of wastes and contaminated waters.

USDA United States Department of Agriculture

NATURAL RESOURCES CONSERVATION SERVICE

2016 WEBINARS

ORGANIC
AGRICULTURE WEBINAR SERIES

The Organic Agriculture Webinar series was developed by NRCS and Oregon Tilth for NRCS field staff, and may also be of interest to partners, producers and others.

Join the webinars live at 3 p.m. EST at **ConservationWebinars.net**. Webinars will also be archived for later viewing. Nearly fifty organic webinars are currently available (use the search term "organic").

Webinars are free, open to all, and brought to you by the NRCS Science and Technology Training Library.

See full details on reverse.

February 2, 2016, 3 p.m. EST
Conservation Buffers to Support Beneficial Insects on Organic Farms

March 17, 2016, 3 p.m. EST
Natural Resource and Biodiversity Conservation in Organic Production

April 5, 2016, 3 p.m. EST
Transitioning to Organic Production

June 7, 2016, 3 p.m. EST
Weed Management in Organic Cropping Systems

August 2, 2016, 3 p.m. EST
Residue and Tillage Management in Organic Farming Systems: Eastern States

October 4, 2016, 3 p.m. EST
Residue and Tillage Management in Organic Farming Systems: Central States

December 6, 2016, 3 p.m. EST
Residue and Tillage Management in Organic Farming Systems: Western States

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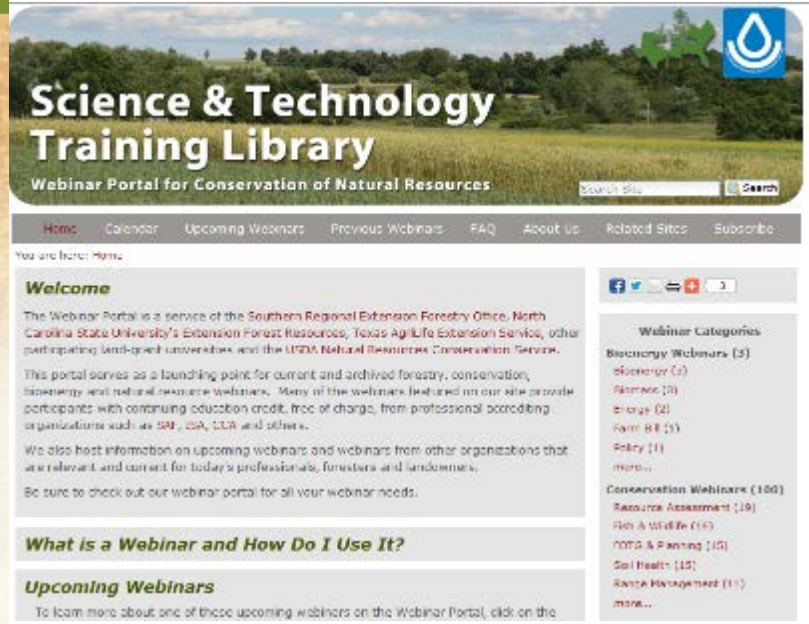

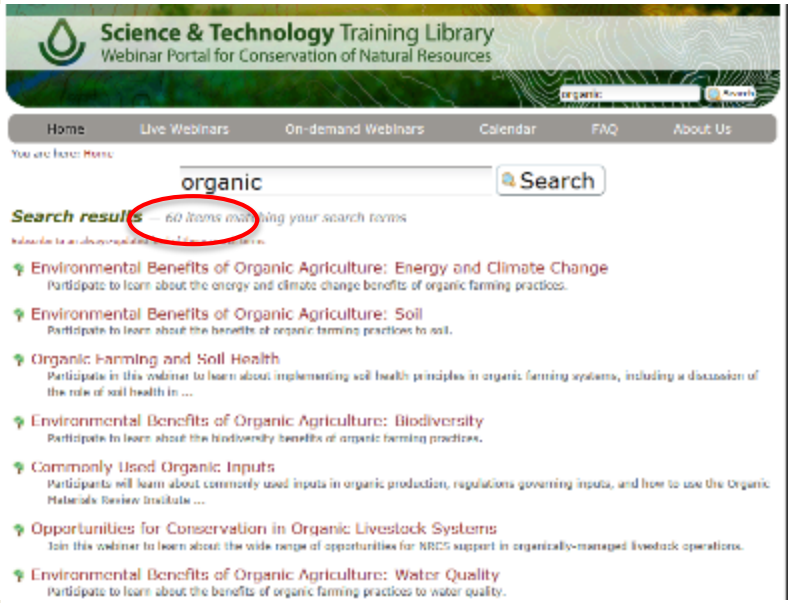

QUESTIONS?
COMMENTS?

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