

This PDF is a version of an online module that is part of the Principles for Transitioning to Organic Farming project. For all of our educational materials, please visit:

<http://organictransition.umn.edu/>

This project is funded by a grant from the [Organic Transitions Program](#), part of the USDA National Institute of Food and Agriculture, under Grant Number [2013-51106-21005](#).



What Is Organic Agriculture?

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What Is Organic Agriculture?

- I. Organic Definition
- II. Cropping Standards
- III. Regulation





Organic
Seal

What Does “Organic” Mean?

- Marketing term
- Defined in the National Organic Program (NOP)
- Food products produced using organic standards



Organic Guiding Principles

Organic agriculture is a holistic ecosystem approach to promote a healthy and diverse landscape



Conventional Agriculture



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Organic Crop Standards

- **Maintain soil health**
- **Protect water resources**
- **Promote biodiversity**
- **Prohibit use of synthetic substances**
- **Prohibit genetically modified organisms**
- **Protect organic land and crops from contamination**

Maintain Soil Health

- By using soil-building rotations that include:
 - Cover crops and perennials to reduce soil erosion
 - Legumes to provide a natural source of nitrogen



Maintain Soil Health



- By building and preserving *organic matter* in soil using:
 - Crop residue
 - Manure and compost
 - Green manures and cover crops



Organic Crop Standards

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Protect Water Resources

- Healthy soils for reduced runoff
- Slow-release fertilizers to reduce leaching
- Conservation buffers to decrease runoff





Buffers



High-quality buffer



No buffer



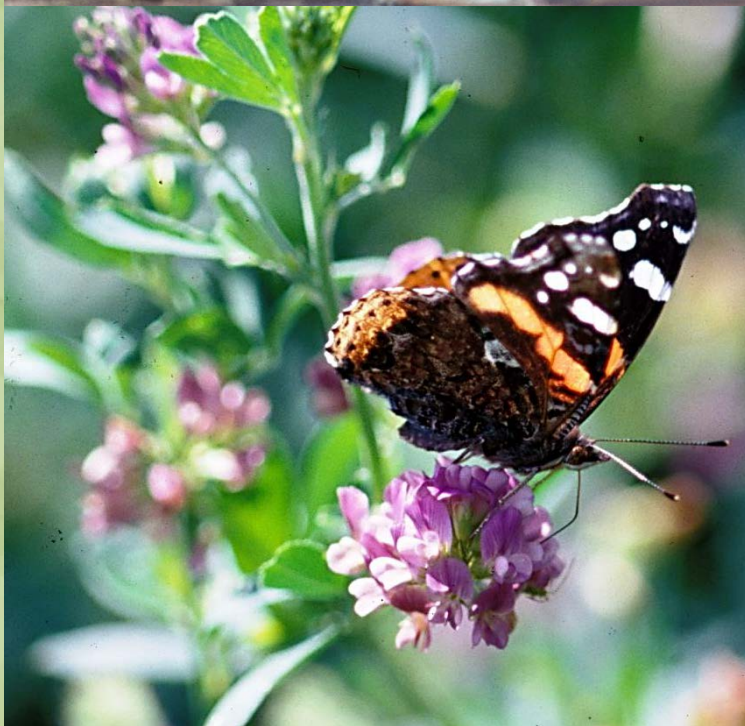
Organic Crop Standards

- Maintain soil health
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Promote Biodiversity

- Diverse rotations with greater number of crops
- No continuous cropping
 - The same annual crop can't be grown on same field two years in a row





Promote Biodiversity

- Habitat
 - Preserve natural areas such as wetlands and woodlands
 - Include conservation buffers
 - Incorporate perennial crops and cover crops

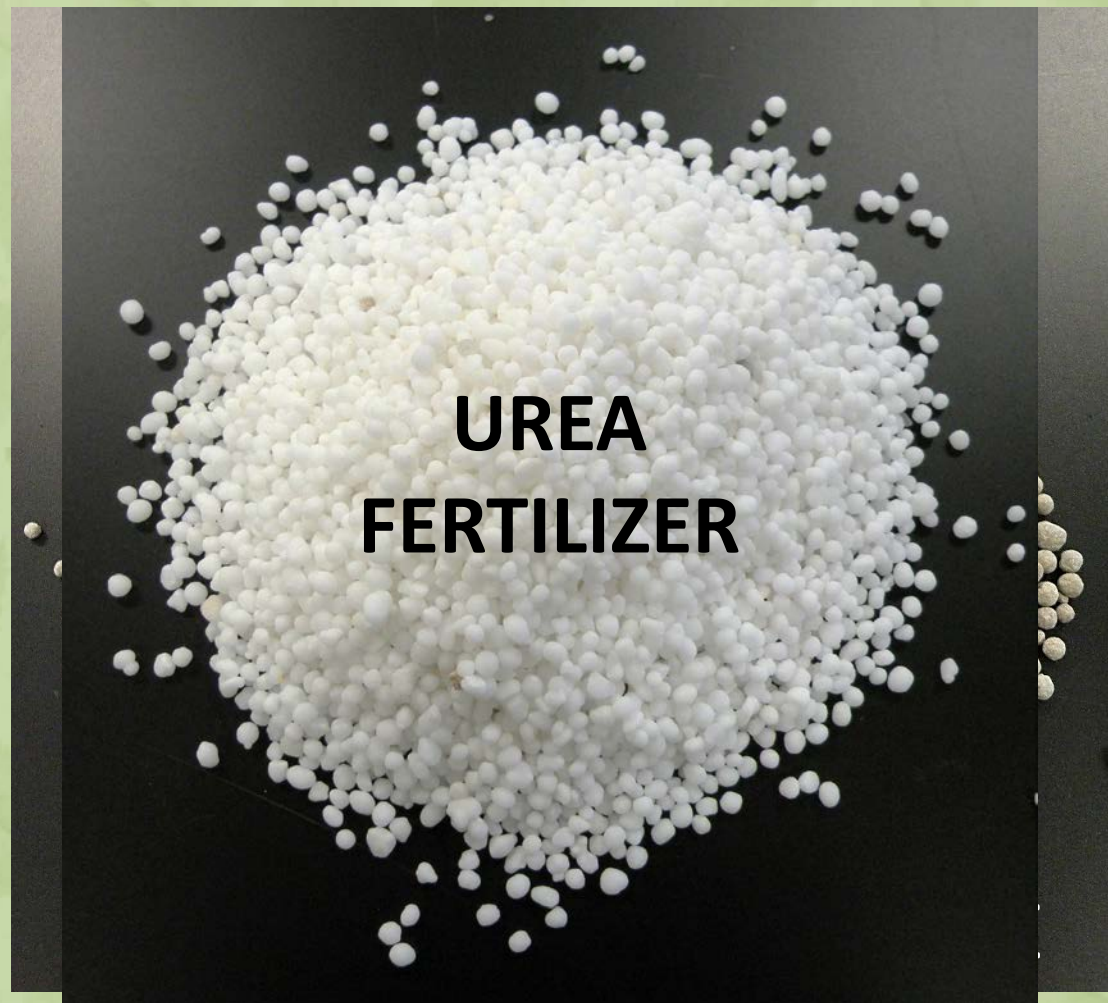


Organic Crop Standards

- Maintain soil health
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- **Prohibit use of synthetic substances**
- Prohibit genetically modified organisms
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What Are Synthetic Substances?

- Artificially created
or
- Originate from natural materials but have been chemically changed



Synthetic Substances



- Prohibited in organic agriculture (some exceptions)
- Examples
 - Fertilizers
 - Herbicides
 - Insecticides
 - Others

Not Allowed = Synthetic Fertilizers

- Derived from chemical processes
- Examples
 - Anhydrous ammonia
 - Urea
 - Triple super phosphate



Organic Alternatives to Synthetic Fertilizers



Compost windrows being turned

- Manure
- Compost
- Green manures
- Legumes in rotation
- Commercial organic fertilizers

Not Allowed = Synthetic Herbicides

- Widely used to kill weeds
- Examples
 - Glyphosate
 - Atrazine
 - 2,4-D



Organic Alternatives to Synthetic Herbicides



- Cultural weed management
 - Rotation
 - Perennial crops
 - Cover crops

Alfalfa harvest

Flail mowing a rye-vetch cover crop

Organic Alternatives to Synthetic Herbicides



- Biological weed management
 - Habitat for weed seed predators

Organic Alternatives to Synthetic Herbicides



Flame weeding
Cultivation

- Mechanical weed management
 - Tillage to destroy weeds
 - Fire to burn weeds

Not Allowed = Other Synthetic Pesticides

- Fungicides, insecticides, nematicides, and others



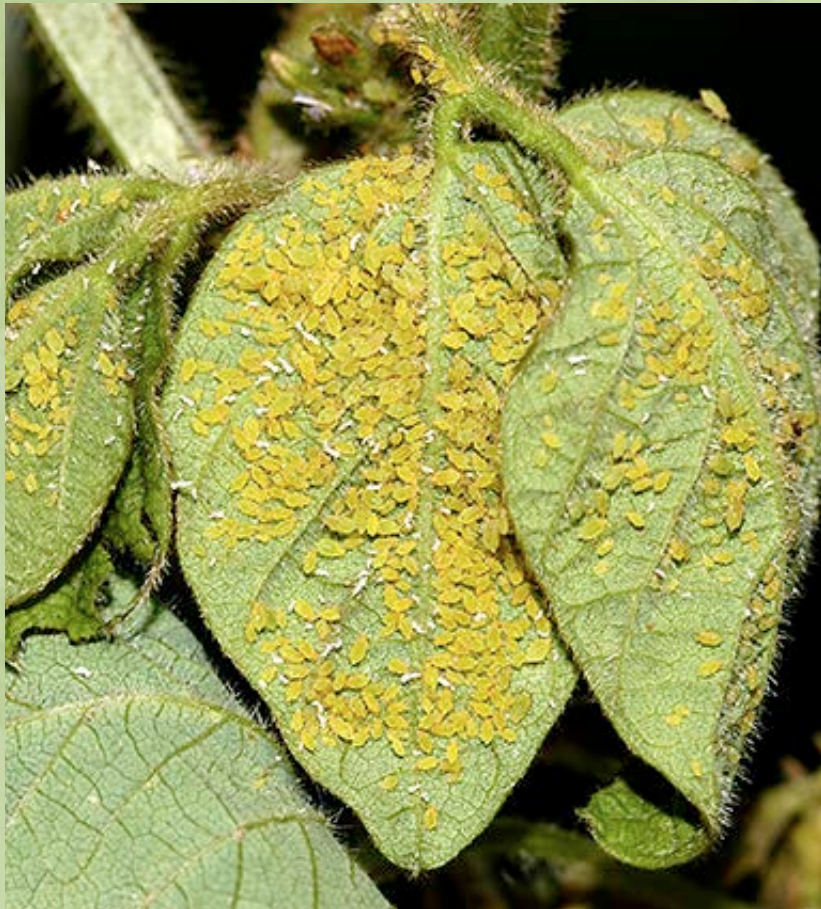
Organic Alternatives to Other Synthetic Pesticides



An Asian lady beetle larva feeds on soybean aphid

- Cultural management
 - Rotation
 - Resistant varieties
 - Planting date
 - Sanitation
- Biological management
 - Habitat for insect predators

Organic Alternatives to Other Synthetic Pesticides



Soybean aphids

- Non-synthetic products
 - Insecticidal soap
 - Neem
 - Pyrethrum
- Select few allowed synthetic products



Organic Crop Standards

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- **Prohibit genetically modified organisms**
- **Protect organic land and crops from contamination**

GMO Definition



- GMO = genetically modified organism
- Technology includes gene deletion, gene doubling, moving genes, and introducing a foreign gene

GMO Example Corn

- Common traits:
 - Bt: tolerance to corn pest insects
 - Roundup Ready: tolerance to glyphosate herbicide



Common GMO Crops

- Corn
- Soybean
- Alfalfa
- Canola
- Sugar beets
- Cotton
- (Papaya and summer squash are common horticultural crops)



Organic Seed



- Organic farmers must use seed that is organic
 - Grown under organic conditions
 - GMO-free
 - Not treated with prohibited substances

Other GMO products



- GM rhizobia used to inoculate legumes
- GM Bt products (Bt products allowed only if non-GMO)
- GM microbial soil products



Organic Crop Standards

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- Prohibit genetically modified organisms
- **Protect organic land and crops from contamination**

Protect Land from Contamination





Buffers

- Protect organic fields from contaminants
- Buffer width varies according to site risk



Protect Crops from Contamination



- Prevention of co-mingling with conventional crops
- GMO testing commonly done on corn and soybean

Protect from Contamination

- No sewage sludge
 - Can contain pathogens and heavy metals
- No irradiated products
 - Not a “natural” process



Symbol for irradiated food



Maintain Food Safety





Manure

- Can contain pathogens that are harmful to people
- Can only be applied at certain times so that food is protected

Compost and Heated Manure

- Can be applied without restriction
- Must be processed according to specific guidelines



Record Keeping



- Detailed record keeping
- Audit trail means product can be traced back to its source

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How Organic is Regulated

- National Organic Program (NOP)
- Part of the USDA Agricultural Marketing Service (AMS)

Acting
Deputy
Administrator
Dr. Ruihong
Guo



National Organic Program (NOP)



United States Department of Agriculture
Agricultural Marketing Service

- Oversees development of organic standards
- Responsible for enforcement of regulations
- Accredits certifying agencies

Organic Standards

- The NOP develops and updates organic standards
- Facilitates the review of allowed materials
- Advised by the National Organic Standards Board (NOSB)

National Organic Program



NOSB – Who They Are



Sonny Perdue

The NOSB is appointed
by the Secretary of
Agriculture

- Federal Advisory Board of citizen volunteers
- Organic farmers, processors, retailers, scientists, environmentalists, certifying agents, and consumers

NOSB Tasks

Makes proposals to the NOP on practices or substances to be allowed or prohibited

THE NATIONAL LIST OF ALLOWED AND PROHIBITED SUBSTANCES

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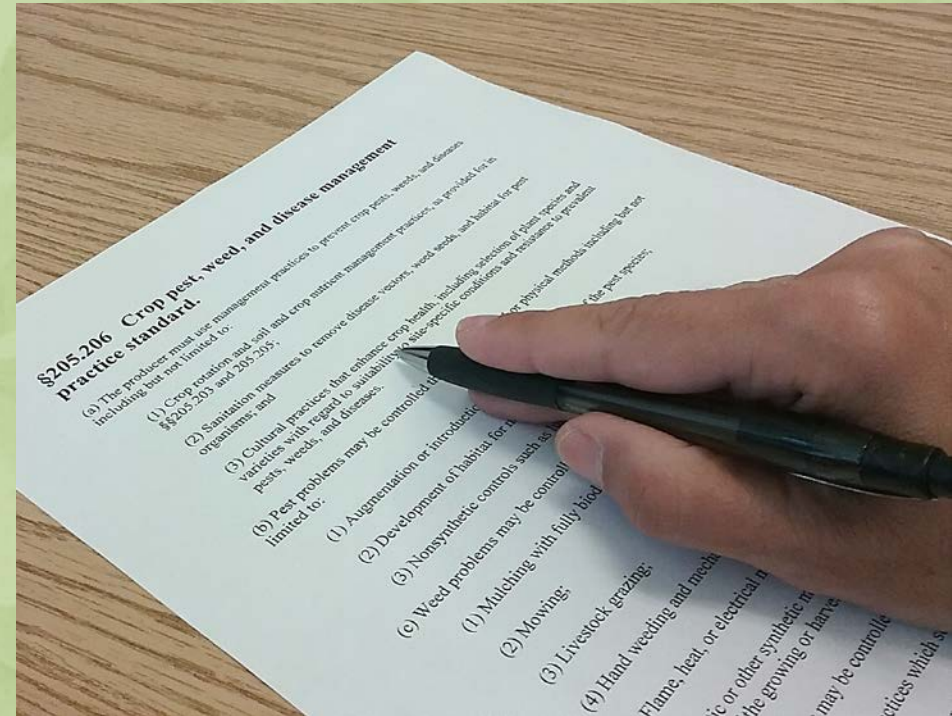
§205.600 Evaluation criteria for allowed and prohibited substances, methods, and ingredients.

The following criteria will be utilized in the evaluation of substances or ingredients for the organic production and handling sections of the National List:

(a) Synthetic and nonsynthetic substances considered for inclusion on or deletion from the National List of allowed and prohibited substances will be evaluated using the criteria specified in the Act (7 U.S.C. 6517 and 6518).

NOSB Process of Review

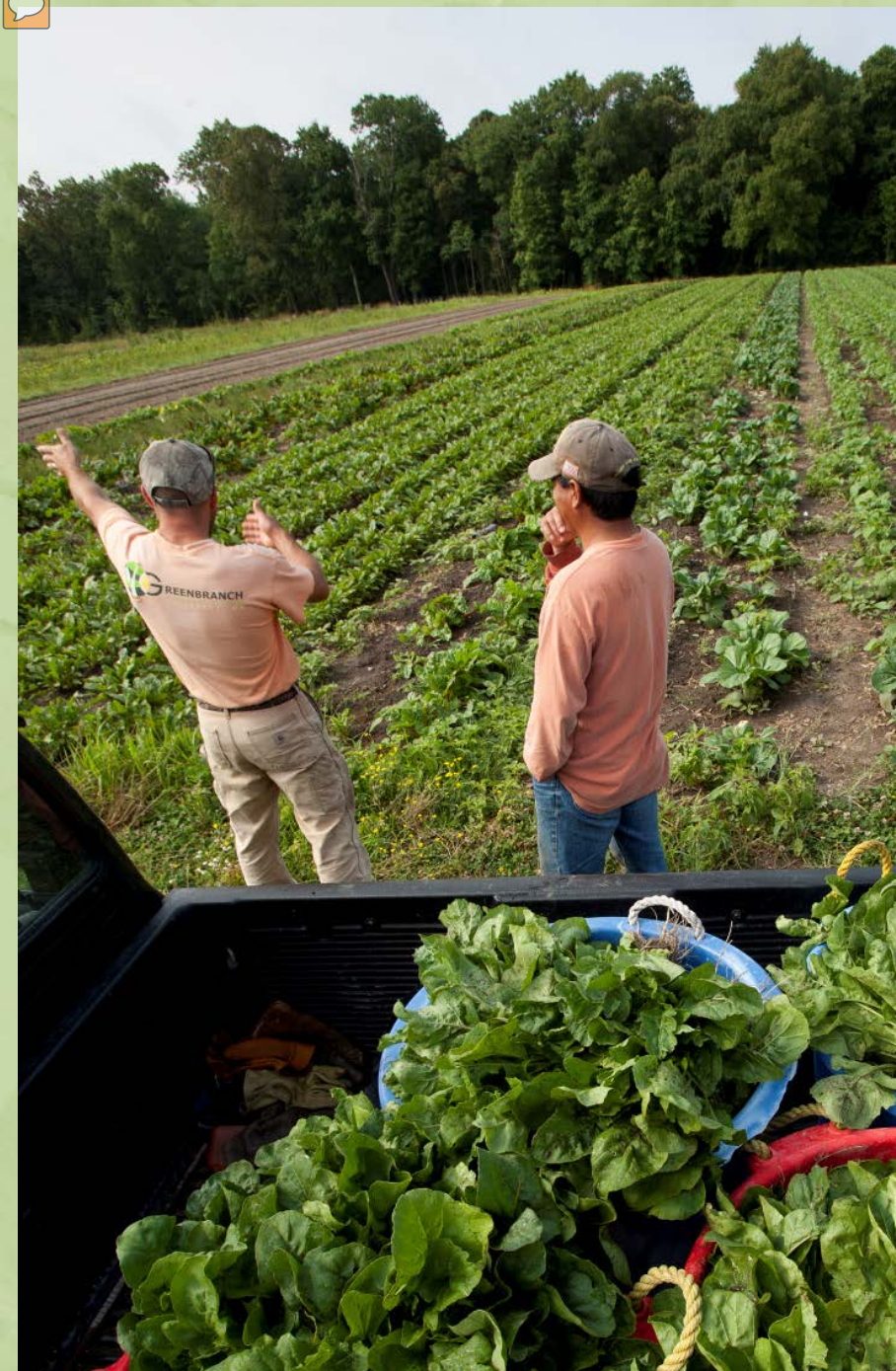
- Gathers public input
- Reviews and votes on proposals
- Accepted proposals become recommendations to the NOP





Organic Certification

- Certification of organic farmers performed by certifying agents
- NOP assesses certifiers every 2.5 years



NOP Enforcement

- Investigates alleged violations
- Levies financial penalties for violations



Hierarchy

USDA-AMS

- Creates and maintains regulations w/ NOSB
- Accredits certifying agencies

Certifying Agencies

- Inspect farms
- Verify rules are followed
- Certify farms

Certified Farms

- Follow NOP rules
- Work with certifiers to get certified

Retailers & Consumers

- Purchase organic products
- Assured that organic label has integrity

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opportunity educator and employer.
2013-51106-21005.



United States Department of Agriculture
National Institute of Food and Agriculture

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