Two Faces of Organic Agriculture

Organic Production
Agricultural Management Principles & Practices

Organic Certification
Regulatory Requirements
Presentation Outline

• USDA National Organic Program
• Standards for Organic Agriculture Worldwide
• The Certification Process
• Organic Crop Production Standards
  – Organic Systems Plan
  – Land Requirements, Soil Management and Crop Rotation
  – Pest, Weed, and Disease Management
  – Seeds and Planting Stock
  – Allowed and Prohibited Substances
  – Recordkeeping
  – Labeling and Marketing
Organic Crop Production
As defined by the USDA National Organic Program

“A production system...managed to respond to site-specific conditions by integrating cultural, biological, & mechanical practices that

✓ foster cycling of resources,
✓ promote ecological balance, and
✓ conserve biodiversity.”
Organic Agriculture
Defining Principles & Practices

• Foster cycling of Resources
  – Uptake of nutrients by crops and cover crops, keeping nutrients on the farm
  – Decomposition of crop residues, cover crops, manure, and compost to provide nutrients to crops

• Promote ecological balance
  – Enhance natural enemies of crop pests (insects, mites, and microbes) by using rotations and interplanting host plants

• Conserve biodiversity
  – Protect birds, animals, insects, and plants, that live in and around agricultural production
  – Control invasive species
Organic Agriculture
Defining Principles & Practices continued

• **Cultural practices** NOP 205.2 and 205.206(3)

Methods used to enhance crop health and prevent weed, pest, or disease problems without the use of prohibited substances

Examples:
- Selection of appropriate varieties and planting sites
  - Suitability to site-specific conditions
  - Resistance to prevalent pests, weeds, and diseases
- Proper timing and density of plantings
- Irrigation
- Extending a growing season…with green houses, cold frames, or windbreaks
• **Biological practices** [NOP 205.206]
  – Enhance biological control
    • Crop rotation or intercropping
    • Habitat for natural enemies of pests
    • Beneficial insect releases
    • Application of biological control agents
  – Sanitation: Removal of pest-infested residues from fields
Organic Agriculture
Defining Principles & Practices continued

• **Mechanical practices** NOP 205.206
  
  (1) Augmentation or introduction of predators or parasites of the pest species
  (2) Development of habitat for natural enemies of pests
  (3) Nonsynthetic controls such as lures, traps, and repellents

**Examples:**

– Mulching, mowing, and cultivation
– Physical removal of insects; i.e., bug vacuums
– Pruning for increased air circulation
– Managing humidity in greenhouses
National Organic Program (NOP) History

- **1990** — Organic Foods Production Act (OFPA) passed. Law describes organic production and mandates creation of the National Organic Program (NOP)
- **1997** — First Draft of NOP Standards “Final Rule” released for public comment. Over 250,000 people commented, leading to prohibition of “the big three” in the second draft:
  - genetic engineering
  - ionizing radiation
  - sewage sludge
- **2000** — NOP Final Rule Released
- **2002** — Full Implementation of Final Rule
The NOP is a regulatory entity under USDA’s Agricultural Marketing Service (AMS).

- NOP is responsible for federal regulation of the term “organic” for the marketing of agricultural products.
- The National Organic Program does not directly certify farmers or handlers of Organic products.
- The National Organic Program accredits Certification Agencies to verify compliance to USDA standards through review of organic system plans and on-site inspections.
Who Must be Certified to the NOP?

Farmers and Handlers who sell, label or represent crops, livestock or processed products in the United States as “organic”

**MUST:**
- Meet USDA National Organic Standards
- Be certified* by an Accredited Certification Agency

*Operations selling less than $5,000 of organic products annually are exempt from certification. Both exempt and non-exempt organic operations must comply with NOP organic standards and recordkeeping requirements.
Evidence of Compliance for Exempt Operations

Operations with sales less than $5,000 must be able to produce
  – a farm system plan
  or
  – an affidavit of compliance with NOP regulations*

*For an affidavit form, see the ATTRA publication: Forms, Documents, and Sample Letters for Organic Producers
Evidence of Compliance for Organic Products

How can a consumer recognize product as organic?

- Fresh Produce — Certified operations have a current organic certificate as documentation of organic certification.

- Packaged Product — Any packaged good labeled as organic must include the phrase: “Certified Organic by…(name of certifier)”
Enforcement and Penalties

“Anyone who knowingly sells or labels a product as organic that is not produced in accordance with the Act shall be subject to a civil penalty of not more than $10,000 per violation.”

--NOP section 205.100 (c)(1)

Enforcement of organic regulations varies by state, but is primarily complaint driven. Consumers, farmers’ market directors, and other producers may register complaints to ensure compliance with organic standards.
The NOP creates a uniform standard for organic products sold in the United States.

Anything sold as organic in the U.S. --crops, livestock, and processed food or fiber--must be certified to USDA NOP standards.

**Before the NOP**, independent certifiers across the U.S. and the world had their own standards. Different certifiers were all certifying operations as organic with different standards.

Why is this important?
Imagine making certified organic soup out of ingredients grown and purchased from across the world. Now, whether it is black pepper from India or bell pepper from California, potatoes from Idaho or parsley from Tennessee, all ingredients must be certified to the same standard.
Different standards are still relevant to products sold in other parts of the world.

- **USA: USDA’s National Organic Program**
- **International: IFOAM (International Federation of Organic Agricultural Movements)**
- **Japan: JAS (Japan Agricultural Service)**
- **Europe: EU (European Union)**
- **Quebec, Canada: CAAQ**

Regardless of where they are based, producers and handlers must be certified to the standards required in each of the countries where they sell their products.
Producers and handlers obtain organic certification by having their practices verified by an accredited certification agent.

This provides consumers with a level of confidence that anything they purchase that is labeled “organic” has been certified, or verified by a “third” party to be produced and/or handled according to USDA Organic standards.
To sell, label, or represent a product as organic in the United States, it must be:

- Grown or Produced in compliance with USDA National Organic Standards using
  - an integrated systems approach
  - only approved materials
- Certified by a Certification Agency accredited by USDA’s National Organic Program

The producer and/or certifier may be based either in the U.S. or elsewhere.
Components of Verification for Organic Certification

Organic System Plan (OSP) for Production and/or Handling
A management plan that describes practices. It is developed by a producer or handler; agreed to by a certifier; and verified by an inspector.

Recordkeeping
Documents activities and materials used as described in the organic systems plan (OSP).

On-Site Inspection
The inspector observes the operation’s fields and facilities and inspects records to verify compliance with organic standards and adherence to the organic systems plan that was approved by the certifier.
Organic is a *Process Claim*

Organic certification ensures that products are *grown and handled in accordance with the organic standard.*

- “Organic” means the producer and/or handler *did not use* any materials prohibited by the NOP
- Organic is *not* a residue-testing program (product claim)
Benefits of Certification

**Expanded market options**
Organic certification gives the farmer access to additional market segments. (One can sell organic as conventional, but not vice-versa!)

**Price premiums**
Prevalent but not guaranteed (benefits usually outweigh costs of certification)

**Strengthen the industry**
Consumer recognition stimulates growth of the organic industry

**Inherent benefits**
Recordkeeping required for organic certification can lead to better business management
The Organic Inspection and Certification Process

STEP 1: Choose and contact a certifier

STEP 2: Submit an application and Organic Systems Plan (OSP)

STEP 3: Application and OSP review

STEP 4: On-site inspection

STEP 5: Review of inspection report

STEP 6: Organic Certification
STEP 1
Contact Certification Agent

The organic producer or handler chooses a certification agent and obtains an application.

- Visit the NOP Web site for a list of all USDA accredited certification agencies (ACAs)
- Contact certification agent and request an application packet
Choosing a Certifier

• Choose your certifier carefully. They differ according to:
  – Cost
  – Services available (e.g., trade association, education programs, etc.)
  – Recognition by the organic industry/market
  – Certification to additional standards (e.g., international)

All ACAs—whether private or governmental—certify to the same USDA National Organic Standards
STEP 2
Complete an Organic Systems Plan

The producer submits the OSP to the certification agency with applicable documentation, licensing agreements, & fees.

The §205.201 Organic production and handling system plan:

- A written plan concerning all aspects of agricultural production.
- Explains how the farm will be operated in compliance with the National Organic Standard.
- A contract between farmer and certifier
- Required by law
The Certification Agency reviews the Organic System Plan (OSP) and accompanying documentation and determines:

- Completeness of information
- Capacity of the applicant to achieve and maintain compliance with the National Organic Standards
STEP 4
Organic Inspection

Organic inspections
– Include a site visit and an audit of records to verify
  • Implementation of the OSP
  • Compliance with the NOP.
– Are conducted by a qualified organic inspector who reports to the certifying agent
STEP 4
Organic Inspection continued

- Most on-site inspections are scheduled; some are unannounced
- Organic inspections are done prior to certification, then annually
- Inspectors can provide the farmer with information, not consultation services or advice
STEP 5: Certifier Review of the Inspection Report

The certifier makes the certification decision, **not** the inspector.

- If necessary, the certifier may
  - request more information or
  - place conditions on the operation prior to granting certification.
The certifier issues an organic certificate to the production or handling operation

– **If** the certifier determines the operation to be compliant to the NOP standards.

   The operation may begin selling product as organic upon issue of the organic certificate.

   Annual inspection is required for certification renewal.
Crop Production Standards (§ 205.200-207) include requirements for:

- **Organic Systems Plan**
- Land requirements: transition and buffers
- Soil fertility and crop nutrient management
- Crop rotation
- Pest, weed, and disease management
- Seeds and planting stock
- Wild crop harvesting
§ 205.201 OSP for Crop Production must include:

1. Farm management practices
2. Substances to be used: composition, source, use
3. Monitoring practices and procedures
4. Measures to protect organic integrity (prevent contamination and commingling)
5. Recordkeeping methods (including labels, and production, harvest and sales records)
6. Additional information to verify compliance

(We will discuss these in greater detail)
Organic Crop Production

- Crop Production Standards (§ 205.200-207) include requirements for:
  - Organic Systems Plan
  - Land requirements
  - Soil fertility and crop nutrient management
  - Crop rotation
  - Pest, weed, and disease management
  - Seeds and planting stock
  - Wild crop harvesting
An organic farm must have exposure to no prohibited substances for 3 years prior to harvest of an organic crop.

§ 205.202(b)
Land Requirements

Boundaries and Buffers

Organic fields must have distinct, defined boundaries and buffer zones to prevent contact with prohibited substances applied to adjoining land that is not under organic management.

§205.202(c)
Prevent Contamination

Protection from Contaminants

Methods to protect organic production from prohibited materials used on adjoining land

Buffer zones
  Drainage diversion
  Drift Prevention

Signage and notification of neighbors
  (includes agriculture, residential areas, road maintenance, utility companies)
Prevent Commingling and Contamination

The Organic System Plan (NOP 205.201(a) (5) requires

“A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances.
Maintaining Organic Integrity

Avoid and minimize contamination or commingling risks

• Dedicate equipment solely to organic production whenever possible
• If equipment or facilities must be shared with non-organic production,
  – Separate operations or storage in time and space
  – Clean equipment, containers or facilities that were previously used with prohibited materials, non-organic fields or non-organic crops

Avoid using treated lumber where it can have contact with soil, plants or animals; it is prohibited.
Avoiding Risks of Contamination and Commingling

Areas of possible risk:

- Harvest containers and equipment
- Pesticide application equipment
- Pesticide storage areas
- Seed hoppers used for treated seed
- Post-harvest handling areas—wash or pack lines
- Transport equipment
- Product storage facilities—coolers, warehouses, shipping docks, etc.
Organic Crop Production

• Crop Production Standards (§205.200-207) include requirements for:
  – Organic Systems Plan
  – Land requirements
  – **Soil fertility and crop nutrient management**
  – Crop rotation
  – Pest, weed, and disease management
  – Seeds and planting stock
  – Wild crop harvesting
Soil management is fundamental to organic farming

The producer must manage crop nutrients & soil fertility through:
- Crop rotation — Specifically required in §205.205
- Cover crops & green manures
- Application of natural plant and animal materials such as composts and manures

The producer must monitor soil health to:
- maintain or **improve** soil organic matter content
Management practices & allowed synthetics used

• **Must not** contribute to contamination of crops, soil, or water by:
  – Plant nutrients
  – Pathogens
  – Heavy metals
  – Residues of prohibited substances

• **Must** provide erosion control

NOP § 205.205
Compost Production
For Manure-Based Compost

• Feedstock (ingredient) mix C:N ratio 25-40:1
• Temperature 131 - 170°F for 3 days in-vessel or static pile
• Temperature 131 - 170°F for 15 days windrow; turned 5 times

NOP 205.203(c )(2)
Manure Application
When applied to food crops

When used on crops intended for human consumption (not cover crops and pastures)

Uncomposted manure must be applied and incorporated:

- Not less than 120 days prior to the harvest of a crop whose edible portion has direct soil contact (most vegetable crops)
- Not less than 90 days prior to the harvest of a crop whose edible portion does not have direct soil contact

— NOP 205.203(c)(1)

NOTE: In contrast to organic agriculture, conventional agriculture does not have regulations on the use of raw manure.
Crop Production Standards (§ 205.200-207) include requirements for:

- Organic Systems Plan
- Land requirements
- Soil fertility and crop nutrient management
- **Crop Rotation**
- Pest, weed, and disease management
- Seeds and planting stock
- Wild crop harvesting
Crop Rotation

Functions

The producer must implement a crop rotation to:

1. Maintain or improve soil organic matter
2. Provide for pest management
3. Manage deficient or excess plant nutrients
4. Provide erosion control

— NOP 205.2 & 205.205
Crop Rotation

Annuals

Annual cropping systems

– Alternate crops on a field in a planned pattern or sequence in successive crop years
– Crops of the same species or family may not be grown repeatedly without interruption on the same field
– Rotations may include sod, cover crops, green manure crops, or catch crops
Perennial cropping systems

Perennials

Crop Rotation

Must introduce biological diversity into fields through the use of alley cropping, intercropping, and hedgerows in lieu of crop rotation.
Organic Crop Production

- Crop Production Standards (§205.200-207) include requirements for:
  - Organic Systems Plan
  - Land requirements
  - Soil fertility and crop nutrient management
  - Crop Rotation
  - **Pest, weed, and disease management**
  - Seeds and planting stock
  - Wild crop harvesting
Three tiers of an organic pest management strategy

I. System-based management or Cultural practices to enhance plant health

II. Mechanical and biological practices

III. Allowed pesticides (as a last resort)
System Based Approaches = Good Cultural Practices

- **Systemic Practices:**
  - adapted and resistant cultivars, appropriate planting time,
  - crop rotation, cover cropping, irrigation management,
  - organic fertilization, composting, and sanitation practices

- **Systemic Effects:**
  - increased resistance and tolerance
  - biological control of pests and diseases
  - disrupt life cycles of weeds and pests
  - reduce weed seed-bank
  - enhance beneficial organisms
System-Based Approaches to Pest Management

- **Selection of crop varieties**
  - Locally-adapted cultivars
  - Resistance to prevalent pests and diseases

- **Irrigation management**
  - Promote good root health
  - Prevent spread of diseases
System-Based Approaches to Pest Management continued

- **Crop rotations and intercropping**
  - Disrupts life-cycle of weeds and pests
  - Provides habitat for beneficial species

- **Cover cropping**
  - Increases biological activity in the soil
  - Reduces spread of soil-borne pathogens
  - Reduces weeds by competing with them for light, water, and nutrients
  - Contributes to soil fertility and good tilth
System-Based Approaches to Pest Management  continued

- Good sanitation practices
  - Removal of pest-infested materials from growing area
  - Prevent damage to plant leaves, stems, or roots that may provide an entry point for pest or disease organisms
Mechanical and Biological Practices for Weed Management

Weed Management
- Cultivation
- Organic mulches
- Mowing
- Grazing
- Hand weeding
- Flame weeding
Mechanical and Biological Practices for Pest & Disease Management

Insect and disease management

- Provide habitat for beneficial species
- Introduce beneficial organisms
- Construct physical barriers
- Use non-synthetic lures and traps
- Use approved repellents
- Adjust timing of planting and operations to promote strong plant growth and avoid times of high pest pressure
Allowed Pesticides
(last resort)

• **Naturals (nonsynthetics)**
  – Minerals (diatomaceous earth, kaolin clay, sulfur)
  – Biologicals (*Bt, B. bassiana*)
  – Botanicals (neem, pyrethrum)

• **Synthetics (on the National List only)**
  – Minerals (copper sulfate)
  – Soaps (insecticidal)
  – Horticultural oils (narrow range)
  – Pheromones
Allowed Pesticides (last resort) continued

Conditions for Use of Pesticide Materials

Allowed pesticide materials may be used only if:
- preventative actions used are insufficient

and

- the conditions for use of the material are documented in the organic system plan (OSP).

Organic production is a systems approach – not input substitution!
Organic Crop Production

- Crop Production Standards (§ 205.200-207) include requirements for:
  - Organic Systems Plan
  - Land requirements
  - Soil fertility and crop nutrient management
  - Crop rotation
  - Pest, weed, and disease management
  - Seeds and planting stock
  - Wild crop harvesting
Seed and Planting Stock

Organic Seeds and Planting Stock must be used except when not commercially available (form, quantity, quality)

If these are not certified organic, grower must document:

a) Search for organic seed and its commercial unavailability

b) Seed and planting stock used is
   - not genetically modified (GMOs), including inoculants; and
   - not treated with prohibited materials, including seed coatings

(Exception: when application of materials is required by Federal or State phytosanitary requirements)
Seed and Planting Stock

continued

• Annual transplants must be organically grown
• All organic requirements, including use of organic seed, apply to cover crops
• Seed for sprouting **MUST** be organic
• Perennial planting stock must be used if commercially available
• If organic is not commercially available; non-organic perennial stock must be managed organically for one year (ask your certifier to explain).
Organic Crop Production

- Crop Production Standards (§ 205.200-207) include requirements for:
  - Organic Systems Plan
  - Land requirements
  - Soil fertility and crop nutrient management
  - Crop rotation
  - Pest, weed, and disease management
  - Seeds and planting stock
  - **Wild crop harvesting**
Wild Crop Harvesting

Applies to the harvest of non-cultivated produce such as herbs and mushrooms

• Harvest area must be:
  − Designated
  − Protected from contamination
  − Free of prohibited substances for 3 years

• Harvesting must be:
  − Sustainable
  − Environmentally sound
Organic Crop Production

Additional Requirements

• All inputs must be allowed by the National List: Allowed & Prohibited Materials (§ 205.600-603)

• Recordkeeping appropriate to the operation and sufficient to demonstrate compliance with the NOP (§ 205.103)

• All Labels, Labeling and Marketing Information must be consistent with NOP regulations (§ 205.300-311)
Crop Production Materials

Allowed or Prohibited?

- All inputs — seeds, soil amendments, fertilizers, pest control products — must be NOP approved
- The National List of organic inputs
  - §205.600 Natural materials are allowed (unless prohibited),
  - §205.601 Synthetics Allowed
  - §205.602 Nonsynthetics Prohibited
Some materials or ingredients are not obvious. Seek more information and beware of possible:

- Inert ingredients
- Spreaders and stickers
- Seed coatings and inoculants
- Natural materials that are prohibited
- Materials that can be either natural or synthetic. Be sure you can document the source of the material you are using.

To be sure, CONSULT YOUR CERTIFIER before you use it!
Examples of Allowed Materials

- **Manures and Composts**
- **Plant materials** (residues, seed meals, seaweed, kelp meal, vegetative “composts”)
- **Animal by-products** (bone meal, blood meal, fish products)
- **Natural rock powders** (lime, rock phosphate, greensand, gypsum, rock dust, potassium sulfate, mined minerals)
- **Wood ash**
Examples of Annotated (Restricted) Materials

- **Micronutrients**
  (Soluble boron, sulfates, carbonates, oxides, silicates, and lignon sulfonate chelates. Deficiency must be documented)

- **Sodium nitrate**
  (No more than 20% of crop’s total N requirement; prohibited at any level in IFOAM standards)

- **Potassium chloride**
  (Mined source only; no chloride accumulation)
Examples of **Prohibited** Materials

- Synthetic fertilizers
- Biosolids (sewage sludge) [§205.105(g)]
- Ash from manure burning [§205.602(a)]
- Contaminated natural materials (leather meal, cottonseed meal, and poultry litter are often suspect)
- GMO soil inoculants
Inputs —*Allowed* or *Prohibited*?

**Sources of Information**

References and resources to help you interpret the National List:

  Maintains generic and brand names materials lists

- **WSDA Brand Name Materials List**

- **US EPA Pesticide Labeling** (not yet widely used)

*To be sure:*

*Always CONSULT YOUR CERTIFIER* before you use a product.
Organic Crop Production
Additional Requirements

- All inputs must be allowed by the National List: Allowed and prohibited materials (§205.600-603)
- **Recordkeeping appropriate to the operation and sufficient to demonstrate compliance with the NOP (§205.103)**
- All Labels, Labeling and Marketing Information must be consistent with NOP regulations (§205.300-311)
205.103 Recordkeeping

Records must be:

- Adapted to the operation
- In sufficient detail to be readily understood and audited
- Kept at least five years beyond their creation
- Sufficient to demonstrate compliance, including
  - Management practices
  - Purchase and application of inputs
  - Harvest, handling, storage, and sale of organic products
- Available for inspection and copying during normal business hours
Records to Keep

- Field Maps and Land Use History
- Farm Management Records
  - Crop rotation
  - Soil management and monitoring (soil & water tests if applicable)
- Input Records
  - Purchase receipts
  - Material Labels
  - Seed and planting stock sources
  - Application records
- Harvest and Sales Records
- Post-harvest Handling and Storage Records (if applicable)
Records to Keep

For More Information

See ATTRA’s Organic Documentation Forms (Field Crops; Orchard Vineyard and Berry; Livestock) and Recordkeeping Forms for Organic Crop Producers
Organic Crop Production

Additional Requirements

- All inputs must be allowed by the National List: Allowed and prohibited materials (§205.600-603)
- Recordkeeping appropriate to the operation and sufficient to demonstrate compliance with the NOP (§205.103)
- All Labels, Labeling and Marketing Information must be consistent with NOP regulations (§205.300-311)
Label Claims

- 100% Organic
- Organic (95% organic)
- Made with organic ingredients (>70% organic)

These three types of organic claim may be displayed on the front panel of a package.

Products with less than 70% organic cannot claim organic on the label, but may list organic ingredients in the ingredient statement.
If labeled as “100% organic” or “organic”

- Label must contain statement “Certified organic by ...(name of certifying agent)” on the information panel below the company’s identifying information.
- Label may include the NOP seal; it is optional.
- If the USDA seal and the Certifier’s seal are both used, the certifier’s seal must not be displayed more prominently than the USDA seal.

Ask your certifier to review your proposed labels before printing!
Regulatory Definitions—Producer or Handler?

- **Post-harvest handling**: typically describes simple operations such as washing, cooling, brushing, field packing of fresh produce, etc.
  - Simple postharvest handling activities can be included in the Producer’s Organic System Plan
Regulatory Definitions—Producer or Handler?

• **Handling:** Mechanical or biological methods, including but not limited to cooking, baking, curing, heating, drying, mixing, grinding, churning, separating, distilling, extracting, slaughtering, cutting, fermenting, eviscerating, preserving, dehydrating, freezing, chilling, or otherwise manufacturing, and the packaging, canning, jarring, or otherwise enclosing food in a container may be used to process an organically produced agricultural product for the purpose of retarding spoilage or otherwise preparing the agricultural product for market.

  – These activities require a separate Organic Handling System Plan
Useful Resources

• National Organic Program
  www.ams.usda.gov/nop/indexNet.htm

• National Campaign for Sustainable Agriculture
  www.sustainableagriculture.net

• Organic Trade Association
  www.ota.com/index.html
Additional Useful Resources

• **ATTRA — National Sustainable Agriculture Information Service**
  www.attra.ncat.org

• **OMRI (Organic Materials Review Institute)**
  www.omri.org

• **Washington State Department of Agriculture**
  http://agr.wa.gov/foodanimal/organic
ORGANIC STANDARDS AND CERTIFICATION

For more information, please contact:

National Center for Appropriate Technology
PO Box 3657
Fayetteville, AR 72702
479-442-9824
www.ncat.org

USDA Risk Management Agency
Mississippi Regional Office
8 River Bend Place
Jackson, MS 39232
601-965-4771
www.rma.usda.gov/

Reducing Transition and Compliance Risks for Organic Crop Producers in the South

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