Organic Production: Certification and Methods

Dr. Carol Miles
Professor, Department of Horticulture

http://vegetables.wsu.edu
My Organic Experience

• Organic inspector for NOFA-NY 1989-1991

• Organic vegetable production research at WSU 1994-present

• First certified organic land at WSU - 2001, WSU Vancouver REU

• Certify 9 acres and 2 greenhouse bays at WSU Mount Vernon NWREC

• Contributed comments to 2013 petition to NOP Organic Rule
“Organic is a labeling term that indicates that the food or other agricultural product has been produced through approved methods that integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.”

USDA National Organic Program (NOP)

NOP Guide for Organic Crop Producers
http://www.ams.usda.gov
Who Needs to be Certified Organic

- If your farm or business receives more than $5,000 in gross annual organic sales you must be certified

- If you receive less than $5,000 you are exempt from certification:
  - You may sell, label and represent your products as ‘organic’
  - You may not use the USDA label or refer to your products as ‘certified organic’
  - You are not required to document your production practices
1920-1950s – ‘Humus farming’ movement
- Originated in Great Britain, spread to Europe, then U.S.
- Response to increasing use of synthetic chemicals and fertilizer for food and animal production
- Chemicals were produced for WWI and WWII for chemical warfare and explosives

1960-1970s – Increased concern in U.S. over pesticide usage

- Documented detrimental effects on the environment, particularly birds, of indiscriminate use of pesticides
- Accused chemical industry of spreading disinformation, and public officials of accepting industry claims unquestioningly
- Brought environmental concerns to the American public
- Met with fierce opposition by chemical companies
- Spurred a reversal in national pesticide policy
- Led to a nationwide ban on DDT for agricultural use
- Inspired grassroots environmental movement that led to the creation of U.S. Environmental Protection Agency (EPA)
Organic Agriculture U.S. Policy

1990 – Congress passed Organic Foods Production Act (OFPA)
- Uniform standards for fresh and processed organic agriculture
- Consumer assurance regarding organic uniformity
- Facilitates interstate commerce in organic food

OFPA established the National Organic Standards Board (NOSB) for ongoing development of organic standards

1998 – USDA released proposed organic rule; 325,603 public comments (unprecedented) due to allowance of bioengineered crops, sewage sludge, and irradiation ("big three")

2002 – final National Organic Standard released with many changes including removal of "big three"
USDA organic regulations 7 Code of Federal Regulations (CFR) Section 205 includes all USDA organic standards, including prohibited practices, requirements, and the National List of Allowed and Prohibited Materials.

- Describe specific requirements that must be verified by USDA-accredited certifying agent before products can be labeled USDA organic.

- Organic operations must demonstrate they are protecting natural resources, conserving biodiversity, and using only approved substances.
  - Organic crops
  - Organic livestock
  - Organic multi-ingredient foods

http://www.ams.usda.gov/
Certifying Agencies

- **Accreditation** authorizes private, foreign, or State agencies to certify farms or processing facilities.

- Third-party certifying agents are responsible for ensuring that the USDA organic products meet or exceed NOP organic standards.

- 55 domestic agencies and 40 international agencies accredited by the USDA.

- All certified organic producers and handlers must be certified by a USDA accredited certifying agent.

30,000 organic farms and processing facilities around the world are certified to the USDA organic standards.
Certification Process

Seven Steps to Certification

Step 1. Contact a certifier

Step 2. Read the Certification Guide and Organic Rules and Regulations Book

Step 3. Complete the application packet, submit fees

Step 4. Application review and approval

Step 5. Organic inspection

Step 6. Inspection report review

Step 7. Certification status notification
Organic Certification

- Annual and unannounced visits to assure compliance
- Submit comprehensive farm management plan:
  - field history
  - fertility and nutrient management plan
  - seed records
  - insect pest, weed, and disease management plan
  - origin, feed and health care of livestock
- Keep records of all products used on the farm:
  - rate and date of application
  - failure to record use, even if product is approved, can be considered out of compliance and receive reprimand and/or revocation of certification
- 3 years of Transition to Organic
RENEWAL APPLICATION FOR ORGANIC CERTIFICATION – PRODUCERS

The renewal of your organic certification is an annual requirement. Your inspection also occurs annually based on your production season. Regardless of when your inspection occurs, producer renewal packets are due February 1st each year.

Tip! Keep a copy of your annual certification forms for your records and have them available during announced inspections. Your inspection will evaluate your operation’s practices in accordance with the USDA organic regulation and compared to the information you have submitted to our office.

Send Application Forms and Fee To: Washington State Dept of Agriculture Organic Food Program
PO Box 46991, Olympia WA 98504-0991

Part 1 – Contact Information

WSA Organics Certification Number: 1534
UNIT Business Number: LBN Number: 385000328

Business Name: WSU Mount Vernon NWREC
Contact Name (Person to whom correspondence will be addressed): Carol Miles
Title: Vegetable Specialist

Mailing Address (Address to appear on organic certification):
16650 State Route 536
City: Mount Vernon
State: WA
Zip Code: 98273

Primary Phone Number: 360-848-6150
Fax Number: 360-848-6159
Alternate Phone Number: 360-416-5206
Email Address: milesc@wsu.edu
Website: http://vegetables.wsu.edu

Tip! Persons responsible for organic production and farm records must be available during all scheduled inspections.

AGR 0520 (12/13) Renewal Application – Producers
Organic System Plan

Organic System Plan – Crop Producer

Business Name: WSU NWREC
Certificate Number: 1534
Organic Grower/Producer Name: Carol Miles
Farm Location (County/State): Skagit/WA

Section A. Seeds
☐ Not Applicable. No seeds are used for crops or cover crops on my farm. Skip to next section.

1. Check all sources of seed used on your farming operation:
   ☑ Save my own seeds  ☑ Seed companies  ☑ Provided through contract  ☑ Custom seeded
   ☐ Other (please specify):

2. Do you use non-organic seeds? If no, skip to next section.
   ☑ Yes  ☐ No

Tip! USDA organic regulations require use of organically grown seed (even when seeds are provided from a contract-buyer).
- Non-organically produced seeds may be used only if organic forms are not commercially available.
- Commercial availability is defined as “the ability to obtain a production input in an appropriate form, quality, or quantity to fulfill an essential function in a system of organic production or handling, as determined by the certifying agent in the course of reviewing the organic plan.”
- Producers should ensure that they are contacting at least three or more suppliers that offer organic varieties before deciding to use a non-organic untreated variety.
- If non-organic seeds are used, you must maintain records that show you first looked for an organic form.

3. Describe your attempts to source organic seeds. Include details of the records you maintain to demonstrate your ongoing attempts.
   Search at least 3 seed catalogs prior to ordering seed, and record when and where the search was done to check availability of the crop and variety being used in the field trial.

Tip! Genetically modified seeds and seeds treated with prohibited substances are not allowed. Non-GMO seed documentation is required only when varieties grown on your farm are also available in a GMO form. The following USDA website lists crop varieties which might be found in a GMO form in the US market:
Seed Records

V.N.S. Fall Rye Seed 78/85
Lot: 1003/139W.L13 Test Date: 07/2013
Germination: 90%
Wettest: 0.01%
Mollicut Weeds: 0.00%
Grain: Manitoba
Net Wt: 56 lbs
Product of Canada

Non-Treated
June 5, 2014 by Ron D.

Application dates
June 4 - E-4 east Q
June 5 - E-1 north
Rate: 146 lbs/ha
By Ron Dullea

June 13, 2014

To whom it may concern,

This is to certify that the cereal rye seed shipped to Skagit Farmers Supply, Burlington, Washington on our invoice 211368201 dated 8/30/13 was not treated with any chemical seed treatment or any other chemicals.

Sincerely,

John Barnes
Senior Trader

Bridgewell Resources

Food & Ag Division
14080 SW Cawston Dr., Suite 101
Corvallis, OR 97330
(877) 396-4412 • BridgewellResources.com
Organic Operator Agreement

<table>
<thead>
<tr>
<th>Business Name</th>
<th>WSU Mount Vernon NWREC</th>
</tr>
</thead>
</table>

1. Carol Miles, as an authorized representative of

- Full compliance with all applicable organic production and handling regulations in accordance with Title 7 CFR Part 205 National Organic Program Rule and Washington State Chapter 16-157WAC Organic Food Standards and Certification.
- Submit all record-keeping required by the National Organic Program Rule (NOS 205.206.003).
- Submit all required reports related to the operation on or before the date due.
- Maintain all records applicable to the operation for a period of at least 3 years beyond the creation of the record.
- Ensure all required information is included in the annual production record.

Signature:

Carol A. Miles

Title:

Vegetable Specialist

Date:

2/1/14
Inspection Report

ORGANIC CROP PRODUCER INSPECTION REPORT
NATIONAL ORGANIC PROGRAM

FARM BUSINESS NAME: WSU Mount Vernon Northwestern WA Research and Extension Center

PRODUCER NAME: Carol Miles

INSPECTOR: Jules Riske

INTERVIEWEE NAME AND TITLE: Carol Miles, Associate Professor/Associate Scientist Vegetable Horticulture

OTHERS PRESENT: Brook Brouwer, Graduate Student; Kyle Craig, research assistant; Steve Lyon, plant breeding program, research technician; Dan Dorton, facility manager

CERTIFICATION #: 1534

COUNTY/STATE: Skagit/WA

INSPECTION DATE: 5/27/14

TIME IN: 12:00 pm

TIME OUT: 2:45 pm

Description of Farm: WSU NWREC is a research farm, the organic fields are part of the overall farm. All production on the organic acreage is for research only, no production occurs for sale. Plant Breeding and Vegetable Horticulture divide the organic acreage under certification. Only those two organic research programs are using organic ground in 2014.

Does the operation produce organic products only? □ Yes - All Organic Operation

☑ No - Split Production Occurring

ORGANIC CONTROL POINTS: Leave unchecked if exit interview comments.

☐ A. GENERAL INFORMATION (CONDITIONS & SITES)

☐ B. SEEDS, SEEDLINGS, & PLANTING STOCK

☐ C. SOIL FERTILITY & CROP NUTRIENT MANAGEMENT

☐ D. CROP ROTATION & BIOLOGICAL DIVERSITY

☐ E. NATURAL RESOURCE CONSERVATION

☐ F. WEEDS, PEST, AND DISEASE MANAGEMENT

☐ G. SPLIT AND PARALLEL PRODUCTION

☐ H. HARVEST & POST-HARVEST

☐ I. YIELD AND SALES AUDIT

☐ J. RECORDKEEPING

☐ K. MATERIALS APPLIED

☐ L. OTHER

Issues Discussed in the Exit Interview:

A. Site #4 and #5 are changing amount of acreage in production. [Food Safety and Quality Services, Organic Food, Planting]

A. Borders/ buffers surrounding area where prohibited material was applied to Site #5 in 2013 are not observed, planting occurring on area where prohibited materials were applied. [205.105, 205.202(b & c)]

K. Materials were applied prior to notifying the WSDA office. [205.201(a)(2)]
Organic Certificate

Organic Food Producer Certificate

Is issued to:

WSU Mount Vernon Northwestern WA Research & Extension Center
16650 State Route 536
Mount Vernon WA 98273
Skagit County

Site  Acreage  Location
2  Crop: 'Old Greenhouse #1 Bay 2' / 15550 SR-536
   OTHER (Plant Starts)
3  Crop: 'New Greenhouse Bay 2 (103 O)' / 16650 SR-536
   OTHER (Plant Starts)
4  Crop: 'Et South' / 16650 SR 536, Mt. Vernon, WA
G R A I N S  A N D  D R Y  S E A N S  (Dry Beans, Mixed Grains), OTHER (Alfalfa Thai, Pea cover crop)

Total Acres: 3

Certification #: 1534
Current Certificate Issue Date: August 27, 2014
NOP Effective Date: March 22, 2008
Certified by WSDA Organic Food Program Since: 2006

Organic Program Manager
DEPARTMENT OF AGRICULTURE
# Fee Structure

**Organic Certification Fee Form – Producers**

**ATTENTION:** Complete #1 or #2 below, as applicable.

## 1. New Applicants – New operations applying for the first time.

- **Estimated gross annual income of organic products:** $0.00

The fee for a New Producer is $540. In addition to this fee, please include an estimate of the gross annual income from the sale of organic crops, historic year-estimated income on the Gross Annual Income and Yield Estimate form (AGR 2500) and transfer the total here. After your application has been reviewed, you will be provided a cost estimate for certification based on your above information and the below fee schedule. In addition to the number of production sites for which you are seeking certification. Refer to the WAC 16-157 for more information on fees or contact our office.

## 2. Renewing Operations – Operations that are renewing an existing certification. Renewals are due February 1.

Total gross annual income received during your reporting period = $0.00

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<th>Certification Fee</th>
<th>Total Renewal Certification Fee</th>
<th>Fee Schedule</th>
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<td>$ 200.00</td>
<td>$ 280.00</td>
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### Fee Schedule

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<th>Annual Fee</th>
<th>Gross Income</th>
<th>Annual Fee</th>
<th>Gross Income</th>
<th>Annual Fee</th>
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<td>$20,001</td>
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<td>$1,300.00</td>
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Send Application Forms and Fee To:
Washington State Dept of Agriculture
Attn: Organic Food Program
PO Box 42691 (US Mail)
1111 Washington Street SE (Private COnter)
Olympia WA 98504-2691

Checks returned by the bank will be charged a handling fee of $25.00 (RCW 69.925.065) and a 3% charge. All business related information submitted or collected is confidential and exempt from public inspection and copying (RCW 15.09.110).
Gross Income

**Organic Gross Annual Income and Yields – Producer**

1. **Reporting Period** - Select one of the following for reporting the gross annual income received from organic agriculture products.
   - ☑ Last calendar year (Jan. 1 - Dec. 31)
   - ☐ Fiscal or crop year

2. **Income Records** - Select the scenario that best fits your operation and recordkeeping system. Only one or both may apply to you.
   - ☑ Income is managed by market. Complete Table 3a and enter total here.
   - ☐ Income is managed per the crops listed on your certificate. Complete Table 3b and enter total here.

   **Total gross annual income received during your selected reporting period**
   - $0.00

3a. **Income managed by market** - Skip this section if income is only managed by individual crops that correlate with your certificate.

<table>
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<th>Market</th>
<th>Income received during the reporting period</th>
<th>Income during selected reporting period</th>
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<tr>
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<td>From the 2012 Harvest</td>
<td>From the 2013 Harvest</td>
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<td>Farmers Market</td>
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<td>CSA Subscription</td>
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<td>5</td>
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</table>

**AGR 2008 (12/13)**

Gross Annual Income & Yields – Renewing Producer
Statewide Payee Registration
Washington State-Organic Cost Share

STEP 1: Is this a NEW registration or CHANGE to an existing registration (check one)?

☐ NEW REGISTRATION
☐ CHANGE TO EXISTING REGISTRATION – complete the ENTIRE form and check below what is updated:
☐ Name/CIBA
☐ Address
☐ Contact Information
☐ Email
☐ Payment Option
☐ Check Deposit
☐ Additional Information

If you know your Statewide Vendor Number, enter it here: ________________________________

STEP 2: Enter check remittance address and payee contact information:

Washington State University
Legal Name of Payee as it appears on federal tax forms (see Who)

Business Name, IF different from Legal Name above – e.g. Using Business As (EBA) Name
240 French Administration Building, P.O. Box 643025
Mailing Address
Pullman, WA 99164-1025
City, St and Zip Code

Email to receive Statewide Vendor Number and payment notifications
University Research Station - WSU Mount Vernon NWREC
Type of Business

SOV OR FIM

Carol A. Miller
Contact Person
(360) 848-6150 Ext.
Contact Telephone Number
(360) 848-6159
Contact Fax Number

AppICheese-Int./SystemIdentifier STATE USE ONLY

STEP 3: Select Payment Option:

☐ Direct Deposit to bank (enclosed) or 
☐ Check by US mail (terminates any previous banking information on file)

STEP 4: For Direct Deposit, complete all fields below and sign

Financial Institution Name – must be a US institution
Financial Institution Phone Number

Routing Number – see example at right
Account Number – see example at right
In addition to providing your banking information on this form, you may also attach a voided check.
Account Type: ☐ Checking or ☐ Savings (Checking will be used if neither box is marked)

Authorization for Direct Deposit:

Lisa A. Witham is authorized to purchase the Department of Enterprise Services (DES) and the Office of the State Treasurer (OST) to continue credit card, ES95 payments to the account listed above, and the financial institutions named above is authorized to conduct such accounts. A record of this action is included in the Magnetic Stripe Encoder (MSE) as required by state statute. The signing person(s) have read and understood the terms and conditions of the contract. I understand that if the account is closed, DES and OST may or may not be required to cancel the contract. I understand that, if this account is closed, DES and OST may notify the State of the closure of the contract for the reason given in the notification. This authority is all inclusive until renewed (DES and OST must have a reasonable opportunity to act upon notification), requests to terminate or change the direct deposit service is outlined below.

Authorized Representative (Please Print)

SIGNATURE of Authorized Representative

(Handwritten Signature)
“100% Organic” - 100% organically produced ingredients and processing aids, excluding water and salt; may display the USDA Organic seal

“Organic” - ≥ 95% organically produced ingredients, excluding water and salt, remaining ingredients must be approved nonagricultural substances on the National List, and/or specific non-organically produced agricultural substances not available commercially in organic form; may display the USDA Organic seal

“Made with Organic Ingredients” - ≥ 70% organic ingredients; may not display the USDA Organic seal

Products with < 70% organic ingredients may not use ‘organic’ on the principal display panel of the label, but may list specific organic ingredients in the ingredients statement

The name of the certifying agency must be displayed on the information panel

Certified organic by the Washington State Department of Agriculture in accordance with the organic standards of the U.S. Department of Agriculture.
Organic Label
“Certified Organic” applies only to products grown, not to products used in production

Example: a carrot may be certified organic, but the potting soil or biological pesticide used to grow it is not certified organic

Products are ‘allowable for use in certified organic production’
National List

National List of Allowed and Prohibited Substances identifies substances which may or may not be used in organic production and handling; classifications are:

1. Synthetic substances allowed for use in organic crop production
2. Nonsynthetic substances prohibited for use in organic crop production
3. Synthetic substances allowed for use in organic livestock production
4. Nonsynthetic substances prohibited for use in organic livestock production
5. Nonagricultural, nonorganic substances allowed as ingredients in or on processed products labeled as "organic" or "made with organic"
6. Nonorganically produced agricultural products allowed as ingredients in or on processed products labeled as “organic" or "made with organic"
National Organic Standards Board (NOSB)

Responsible for making the recommendation of whether a substance is suitable for use in organic production and handling

Members of the organic community appointed to advise USDA on substances and other regulatory topics
Organic Materials Review Institute (OMRI) is an independent agency that reviews products intended for use in certified organic production, handling, and processing:

- 501(c)3 nonprofit organization founded in 1997
- Companies pay to have their products evaluated
- OMRI tests products to see if they comply with NOP Standards
- Acceptable products are OMRI Listed® and appear on the OMRI Products List©
Brand Name Materials List (BNML)

- WSDA Organic Program has determined these products meet the requirements under the National Organic Standards.

- Review product formulations and manufacturing

- Not a comprehensive list of all materials that are allowed

- WSDA does not guarantee, warranty or endorse materials included on this list

Check with your certifier prior to the use of any material
National Organic Standards - 7 CFR Section 205
§ 205.204 Seeds and planting stock practice standard

The producer must use organically grown seeds, annual seedlings, and planting stock

(1) Non-organically produced, untreated seeds may be used when an equivalent organically produced variety is not commercially available

- Documentation of search from at least 3 sources
- Producer must document why quality standards are not met
- Producer must verify that adequate quantities not available
‘Equivalent’ variety - clear understanding of characteristics of variety being grown

- Size, color, days to maturity, brix, disease resistance, etc.

Commercially available

- Amount of seed and cost
- Seed quality
Organic Seed

New and Standard Varieties

CABBAGE

CARROT

CARROT

2014 SEED CATALOG

Organic Seed
Organic Seed
§ 205.204 Seeds and planting stock practice standard

(2) Nonorganically produced seeds treated with a substance included on the National List of synthetic substances allowed for use in organic crop production may be used when an equivalent organically produced or untreated variety is not commercially available.

(5) Seeds treated with prohibited substances may be used when the application is a requirement of Federal or State phytosanitary regulations.
Seed Treatments

Observations and verification methods: Two inoculants were used prior to updating OSP with WSDA office. Observed invoice for Guard-N Garden Combination Innoculant, confirmation # 937381 5/2/14, and invoice for NDure inoculant, confirmation code #597410, 5/7/12. Brook Brouwer had both material's OMRI tech sheets on file, confirmed. Both were applied to Site #4 in 2013. Discussed NOS 205.201.
Soil Fertility

205.203 Soil fertility and crop nutrient management

“Maintain or improve the physical, chemical, and biological conditions of the soil and minimize erosion”

- Feed the soil to create a healthy, balanced system

- Soil building
  - Green manures
  - Animal manures
  - Compost

- Soil conversation
  - Cover crops
  - Organic mulches
  - Compost tea
  - Vermicompost
  - Conservation tillage
  - Contour cultivation / strip cropping

https://pubs.wsu.edu/
Organic Fertilizer

8-2-4 Granular

Minimum Guaranteed Analysis
Total Nitrogen (N): ............................................. 8%
1% Water Soluble Organic Nitrogen
7% Water Insoluble Organic Nitrogen
Available Phosphate (P2O5) ..................................
Soluble Potash (K2O) ...........................................

Information regarding the contents and levels of metals in this product is available on the internet at http://www.asefco.org/metals.htm

This product is only approved for agricultural use

Net Weight: 40 lbs. (18.14 kg)
Most organic fertilizer products have low N content
• Apply large quantities
• Expensive

Fertigation
• Product must dissolve well
• High salt levels
Organic Fertilizer

VEGETABLE CROPS: Apply 8 liters per hectare with initial planting or transplanting irrigation, and 2 liters per hectare with each additional irrigation.

COTTON: Apply 8 liters per hectare with initial planting irrigation, and 2 liters per hectare with each additional irrigation.

TREES: Apply 24 liters per hectare together with the fertilizer in the spring or fall.

apply 125 mL diluted in 50 liters of water per each 100 m² every month during the year.

BIOSOIL® is compatible with all types of agrochemical and can be applied in conjunction with your fertilization, herbicide programs and fumigation systems.

WWW.YUCCA.COM.MX
Organic Nutrient

LIQUID ORGANICS QUICK CAL

FORMULATED AS AN AID FOR HELPING PREVENT CORK SPOT, BITTER PIT, AND OTHER CALCIUM DEFICIENCY DISORDERS IN FRUIT TREES, FIELD AND VEGETABLE CROPS.

GUARANTEED ANALYSIS
Calcium (Ca) 12.0%
12.0% Water Soluble Calcium (Ca)

Derived from: Calcium Chloride,
This product does not contain more than 28% Chloride (Cl).

CAUTION
KEEP OUT OF REACH OF CHILDREN
See inside label for first aid statement.

STORE ABOVE
32°F

GUARANTEED BY: WINFIELD SOLUTIONS, LLC, P.O. BOX 64599, ST. PAUL, MN 55164-0599
Product name may state ‘organic’ or list ‘organic ingredients’ – does not guarantee product is allowable

Grower must provide documentation of all ingredients

Check with your certifier before you use a product
Pesticide is “a substance meant for attracting, seducing, destroying, or mitigating a pest”

Only naturally derived pesticides and some synthetic ingredients of low toxicity such as boric acid may be used.

Inert ingredients must be approved for organic production.

Some active ingredients are commonly used in conventional and organic agriculture, but formulation must be approved for organic use:

- Ex: bacteria *Bacillus thuringiensis* (Bt)
- Bt’s effectiveness is threatened by genetically engineered crops that contain Bt – Bt is always present in these crops which selects for insect resistance.
Neem oil is pressed from fruits and seeds of neem tree, *Azadirachta indica*

Azadirachtin is the most well known and studied compound in neem oil; varies from 300ppm to over 2500ppm depending on the extraction technology and quality of feedstock.

Hydrophobic in nature, must be formulated with appropriate surfactants to apply in water.
**Spinosad** insecticide contains chemical compounds obtained by fermentation of the bacterial species *Saccharopolyspora spinosa*

Spinosyns occur in over 20 natural forms, and over 200 synthetic forms (spinosoids)

Active ingredient: spinosyn A and spinosyn D, in a 17:3 ratio
Regalia is an extract from the plant *Reynoutria sachalinensis* (giant knotweed)

Activates natural plant defenses but is not systemic

Translaminar effect or resistance induction - when sprayed on top of a leaf, the leaf bottom is protected; takes 1-2 days and light for activation
Separate Organic and Conventional
Separate Organic and Conventional
Separate Organic and Conventional
Products are alive

Require proper handling and application

Are affected by environmental and field conditions: temperature, moisture, light, soil type, field chemical history

Efficacy can vary by region
Biological Controls

NOGALL™
For Biological Control of Crown Gall

FOR USE ON NON-FOOD & NON-BEARING PLANTS ONLY

ACTIVE INGREDIENT:
Agrobacterium radiobacter (strain K1026)................................. 0.03%

OTHER INGREDIENTS: .................................................................

TOTAL: ..........................................................................................
Contains not less than 1,000 per gram of moist peat medium provide a suspension of not less in the dip solution.

Date Manufactured:
Expiration Date / Batch No:
17th Aug 2006/ B839

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store at refrigeration temperature (35-40°F) and use before the expiration date. Do not store cartons where they can be punctured or crushed by sharp or heavy objects. Do not store part of an opened packet as it may deteriorate through contamination. Store NOGALL separate from other pesticides, fertilizers, food and feed to prevent cross contamination. Maximum period of storage is 6 months.
Organic Farming Update for Washington State

E. Kirby and D. Granatstein

WSU CSANR in cooperation with Washington State Department of Agriculture Organic Food Program and Oregon Tilth Certified Organic

Data as of Dec. 15, 2012

Document date: April 3, 2013
Organic food sales increased 9.4% in 2011.

Fruits and vegetables = 39.7% of organic food sales and 12% of all national produce sales in 2010.

Source: OTA, Nutrition Business Journal
### WA share of U.S. Production

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. farms</td>
<td>1.9%</td>
</tr>
<tr>
<td>Acres</td>
<td>0.7%</td>
</tr>
<tr>
<td>Harvested acres</td>
<td>1.5%</td>
</tr>
<tr>
<td>Farmgate sales</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

Comparisons are based on 2007 Census of Agriculture and 2008 organic certifier data.
WA Certified Organic Farm Acres

Acres

108,664
89,889

Certified + Transition

95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12
<table>
<thead>
<tr>
<th>No. Farms*</th>
<th>731 certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 transition</td>
<td></td>
</tr>
</tbody>
</table>

Eastern WA
64% of farms

Western WA
36% of farms
**WA Organic Farmgate Sales**

**Gross Farmgate Sales (Mil) vs. Year**

- WA: Green Line
- East: Blue Line
- West: Red Line

**2011 Farmgate Sales Data**

<table>
<thead>
<tr>
<th></th>
<th>Mil. $</th>
<th>% of sales</th>
<th>% of acres</th>
<th>% +/- 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>East</td>
<td>234.6</td>
<td>82</td>
<td>71</td>
<td>+26</td>
</tr>
<tr>
<td>West</td>
<td>49.8</td>
<td>18</td>
<td>29</td>
<td>-5</td>
</tr>
<tr>
<td>Total</td>
<td>284.4</td>
<td>100</td>
<td>100</td>
<td>+19</td>
</tr>
</tbody>
</table>

WSDA and OTCO data only. Farmgate sales do not include values from farms that did not renew certification during reporting year or reported as processor or handler sales.

*Photos courtesy of Red Dog Farm, Organic Valley and WSU Small Farm Program*
### WA Organic Farm Size by Sales

<table>
<thead>
<tr>
<th>Sales Category</th>
<th>% of Farms</th>
<th>% of Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ann. gross sales</td>
<td>2006</td>
<td>2010</td>
</tr>
<tr>
<td>&lt;25K</td>
<td>38</td>
<td>31</td>
</tr>
<tr>
<td>25-100K</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>100-250K</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>250K-1MM</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>&gt;1MM</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

WSDA certified organic farms only
Certified land area = 88,072 ac including 1,522 unidentified ac. Additional double-crop = 1,189 ac
WA Organic Vegetable Acres

Reported 2012 certified vegetables = 15,586 ac

- Other & Mixed
- Onions
- Snap Beans
- Potatoes
- Peas
- Sweet Corn

Acres

Certified organic onions, Lynnwood Farm, Connell, WA
Photo courtesy of Dr. Lindsey du Toit
Certified organic carrots, AgriNorthwest, Paterson, WA
Photo courtesy of Dr. Lindsey du Toit
Certified organic sweet corn, AgriNorthwest, Paterson WA

Photo courtesy of Dr. Lindsey du Toit
Reported 2012 total WA certified berries = 1,780 ac
Estimated organic share of WA blueberry ac = 17%
West = >95% of area

Estimated U.S. Certified Organic Apple Production

Acres

US Total*

West*

Washington State

East/Midwest*

CA 3,334

1997 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12

19,824 18,932 13,655 811 3,334 0

25,000 20,000 15,000 10,000 5,000 0
See CSANR website for more information

http://csanr.wsu.edu/pages/Organic_Statistics

Why Organic Agriculture

Pesticide Mismanagement

*Pesticides are toxic deadly chemicals*

- Mixing at drinking water source
- Handling without protective clothing
- Mixing chemicals together illegally
- Spraying under windy conditions
- Application rates too high
- Application frequency too high
- Applying to crops not on the label
- Not following preharvest interval

Concerns

- Human health
- Environmental pollution
Organic Agriculture

Provides safe and healthy food today and in the long term (no accumulated pesticide effects in the environment)

Certification system ensures uniformity and that practices are being followed correctly

Third party verification provides consumer confidence
Organic Agriculture Systems
Undergraduate Major
✓ 4-year program
✓ Pullman-based with online course options

Organic Agriculture
Undergraduate Certificate
✓ 18 credits (6 classes)
✓ in Pullman, online, or mix

Sustainable Agriculture
Graduate Certificate
✓ 9 credits (3 classes)
✓ Pullman-based or online mix

http://afs.wsu.edu  509-335-4562
academic@cahnrs.wsu.edu
WSU Center for Sustaining Agriculture and Natural Resources
http://organicfarming.wsu.edu

Washington State Organic Food Program
http://agr.wa.gov/FoodAnimal/Organic/

USDA National Organic Program (NOP)
http://www.ams.usda.gov/nop

Organic Materials Review Institute (OMRI)
http://www.omri.org/

ATTRA (Appropriate Technology Transfer for Rural Areas)
http://www.atra.org

Organic Farming Research Foundation
http://ofrf.org