

Education for Farmers, by Farmers

TRANSITIONING  
TO ORGANIC  
CERTIFICATION

KS Orchards  
Royal City, WA

Monday, August 7th, 2017

presented collaboratively by:

FARMWALK2017



Food Systems  
WASHINGTON STATE UNIVERSITY

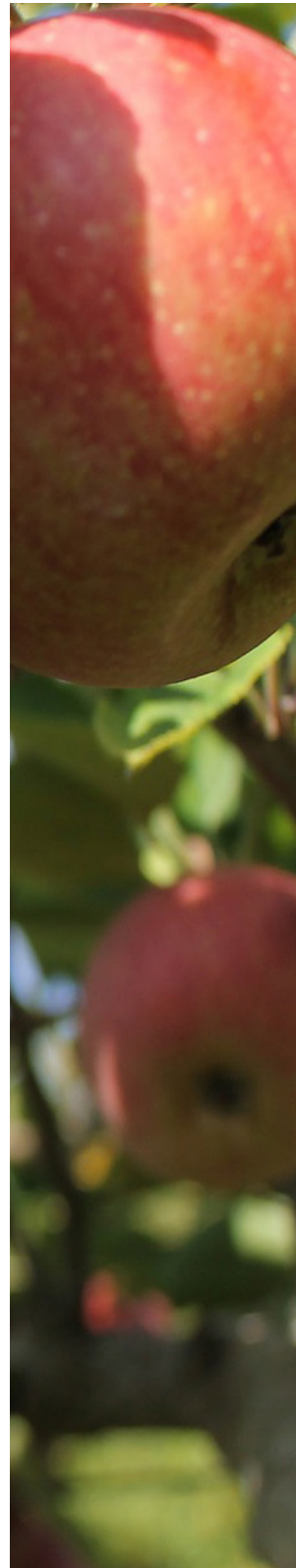
This farm walk  
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Program.



*Certified*  
**ORGANIC**  
Washington State Dept. of Agriculture

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# FARMWALK2017

# ABOUT KS ORCHARDS...



Dain Craver has successfully transitioned several of his orchards to organic, including KS Orchards, which has been certified since 2010.

KS Orchards was purchased 25 years ago by Mr. Keith Stein, a beer distributor from Boise, ID. At that time, it was a 100 acre orchard. Keith passed away but his wife kept the orchards going. Under Dain's management, this 100 acre orchard has grown into an additional four orchard locations and 600 acres.

Dain grows apples, cherries, pears, and nectarines with roughly 80% managed using organic practices and 20% conventional. They grow a very unique

**Orchard Manager,  
Dain Craver,  
doing a tasting  
of their signature  
"Rosalynn" Apple.**



apple variety, known as the 'Rosalynn'. This variety was a chance seedling discovered by Dain and orchard manager, Jose Ramirez. The original tree was discovered in a block containing Fuji, Gala, Winesap, Rome, Red Delicious, and Golden Delicious. Today, Rosalynn apples are produced by Dain's orchards on a limited basis, and packed for the organic market through CMI.

Over the years, Dain has become well versed in practices to grow fruit organically and conventionally – including the "dos and don'ts" of transitioning acreage from conventional to organic. This farm walk will address the challenges he has met and the experience he and his orchard managers have gained in overcoming them.



**ORGANIC**  
Washington State Dept. of Agriculture

# 5 STEPS TO CERTIFICATION

## Develop an Organic System Plan (OSP), Submit Application

An OSP is the foundation of organic certification. Created by the operation seeking certification, the OSP details your business processes and your plan to comply with organic regulations based on the unique characteristics of your operation.

1

## WSDA Reviews Your Application

WSDA staff will review your completed application for compliance with USDA organic regulations. WSDA will notify you on completion of the review, and will request additional information if needed.

2

## Inspector Visits Your Operation

After application review, your operation will be visited by a WSDA field inspector, who will review your operation's records and facilities to verify your practices match the system plan submitted. The inspector will then submit findings to the WSDA Organic Program office.

3

## WSDA Reviews Inspection Report

WSDA office staff will review the inspection report to ensure your operation complies with USDA organic regulations. Additional information may be requested to make a final determination.

4

## WSDA Issues Organic Certificate

If your operation meets USDA organic regulations, an organic certificate is issued. Organic certification must be renewed annually. Operations are inspected on an annual basis.

5

Application forms are available online: [agr.wa.gov/FoodAnimal/Organic/](http://agr.wa.gov/FoodAnimal/Organic/)  
Have questions? Contact us! (360) 902-1805 [organic@agr.wa.gov](mailto:organic@agr.wa.gov)



# 5 STEPS TO CERTIFICATION



## Washington State Department of Agriculture Organic Program



1111 Washington ST SE  
PO Box 42560  
Olympia, WA 98504-2560

[organic@agr.wa.gov](mailto:organic@agr.wa.gov)  
(360) 902-1805  
[agr.wa.gov/FoodAnimal/Organic/](http://agr.wa.gov/FoodAnimal/Organic/)



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Organic Program

Transitional Certification

What is Transitional?

Transitional is a labeling claim used to describe crops harvested from land transitioning from conventional to organic production. When land is converted to organic production, it must undergo a 36-month transition before an organic crop is harvested. During the transition, organic practices are adopted, but products must not be labeled, sold, or represented as organic.

Transitional certification verifies the land has not had prohibited materials applied for at least 12 months and verifies the adoption of organic practices by the farm.



What are the Benefits of Transitional Certification?

Get Answers Early in the Process

By certifying transitional, you develop a complete understanding of the recordkeeping, auditing, and inspection processes required for organic certification. Certified transitional operations are able to establish systems that pave the way for compliant organic management.

Minimize Your Risk

Certified transitional producers submit their list of input materials for review each year as part of the annual certification process. The review and approval of the input material list, coupled with the annual on-site inspection, help avoid the potentially costly mistake of applying a prohibited material and resetting the transition clock back to day one.

*Realize Marketing Benefits*

Transitional certification enables growers to market their products at a premium by demonstrating a commitment to organic standards.

*Easily Transition to Organic*

If already certified as a transitional site, an organic certificate is automatically issued once the land completes the 36-month transition.

*Access to Financial and Technical Assistance*

The USDA Natural Resources Conservation Service (NRCS) offers financial and technical assistance to producers in transition to organic. More information can be found at:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/crops/organic/>

**How Do I Apply for Transitional Certification?**

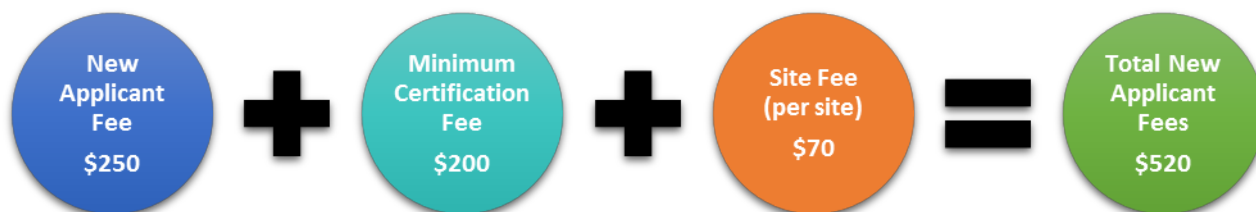
The application for transitional certification is the same as for organic certification.

<http://agr.wa.gov/FoodAnimal/Organic/FoodProducers.aspx>

Download and complete the crop producer application packet and complete a site application for each site you wish to certify as transitional. If already certified as an organic producer, simply submit a site application for your transitioning sites.

**What is the cost of Transitional Certification?**

Renewing transitional producers annually pay the minimum certification fee, plus a \$70 fee for each transitional site. Once an operation becomes certified organic, it is also subject to a certification fee based on its gross annual income from the sale of organic crops.



WSDA Organic Program is a resource for you during the transition period, offering technical assistance to help you understand the requirements, in addition to offering a certification program for transitional crops. Contact us for assistance.



WSDA Organic Program  
 PO Box 42560  
 Olympia WA 98504-2560  
 (360) 902-1805 / [organic@agr.wa.gov](mailto:organic@agr.wa.gov)  
<http://agr.wa.gov/foodanimal/organic>

*Since the beginning of the Organic Program in 1985, WSDA has offered certification to crop producers transitioning to organic production. Prior to the passage of the USDA organic regulations into law, transitional certification was required in Washington State. Since adoption in 2002 of the federal standards WSDA has offered transitional certification as an additional, voluntary service.*



## Introduction to Organic Practices

The USDA organic regulations describe organic agriculture as the application of a set of cultural, biological, and mechanical practices that support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity. These include maintaining or enhancing soil and water quality; conserving wetlands, woodlands, and wildlife; and avoiding use of synthetic fertilizers, sewage sludge, irradiation, and genetic engineering.

Organic producers use natural processes and materials when developing farming systems—these contribute to soil, crop and livestock nutrition, pest and weed management, attainment of production goals, and conservation of biological diversity.

This factsheet provides an overview of some common practices that organic producers and handlers use to ensure organic integrity and operation sustainability.

### Organic Crop Production Practices

**Soil Fertility:** Crops more easily resist disease, survive drought, and tolerate insects when grown in good soil. Organic crop producers build soil quality by adding compost, animal manures, or green manures. As soil organisms break down these inputs, they convert nutrients into forms plants can absorb and create humus that sustains soil quality. Organic producers must not apply sewage sludge or biosolids to soil. Additionally, organic crop producers use cover crops to protect the soil from wind and water erosion. Soil-conserving practices include the use of cover crops, mulches, conservation tillage, contour plowing, and strip cropping.

**Seeds and Planting Stock:** Organic crop producers use organic seeds and planting stocks to protect the integrity of their crops. Organic growers may use conventionally grown seeds when an equivalent organic variety is not commercially available, but only if the seeds have not been genetically

modified or treated with prohibited substances, such as fungicides.

**Crop Rotation:** Organic crop producers practice crop rotation (rotating the crops they grow in a field or planting bed over time) to interrupt insect life cycles, suppress soil borne plant diseases, prevent soil erosion, build organic matter, fix nitrogen, and increase farm biodiversity. To effectively reduce insect and disease levels, farmers typically follow one crop with another from a different crop family, then wait a number of years before replanting the initial crop. While crop rotation is also practiced by many conventional farmers, organic producers are required to implement the practice by the USDA organic regulations.

**Managing Pests, Weeds, and Diseases:** Pest management on organic farms relies on the 'PAMS' strategy: prevention, avoidance, monitoring and suppression. Prevention and avoidance are the first line of defense against pests, weeds, and diseases. If pest or weed suppression becomes necessary, producers often use mechanical and physical practices, such as releasing predatory insects to reduce pest populations or laying down a thick layer of mulch to smother weeds. As a last resort, producers may work with their organic certifier to use an approved pesticide, such as naturally occurring microorganisms, insecticides naturally derived from plants, or one of a few approved synthetic substances.

**Maintaining Identity and Integrity of Organic Crops:** Organic crop producers are responsible for preventing contact between organic and conventionally-grown crops, as well as contact with prohibited pesticides or fertilizers. Split operations (farms that raise both organic and conventional crops) must make sure that organic crops don't contact prohibited substances through accidental sprays of conventional agrochemicals, spray drift, or residues on equipment from non-organic fields. Fields from which organic

crops are harvested must have defined boundaries and buffer zones, such as hedgerows or crops, separating them from conventional crops and roadways. Prohibited materials cannot be applied to land used for organic cultivation for 36 months prior to harvest of organic crops.

## Organic Livestock Production Practices

**Livestock Living Conditions and Facilities:** Organic livestock producers provide living areas that encourage the health and natural behavior of their animals. Organic practices reflect concerns for animal welfare and a desire to balance productivity with both animal well-being and environmental quality. Organic livestock must have access to outdoor areas, shade, shelter, space for exercise, fresh air, clean drinking water, and direct sunlight. Livestock shelters should give animals protection from extreme temperatures, adequate air circulation and ventilation, and space to exercise.

**Grazing:** Organic producers must give ruminant animals (e.g., cattle, sheep, and goats) access to pasture during the grazing season. Livestock may not be continuously confined. However, temporary confinement is allowed under specific circumstances, mostly regarding the health and safety of the animal. By providing access to the outdoors, organic livestock producers convert forage, legumes and grasses into meat, milk, wool, and other products. Grazing livestock also provide producers with manure, a very important source of fertility in organic farming systems and an excellent means of recycling nutrients. Rotational grazing may improve forage quantity and quality, while preventing over-grazing.

**Animal Health:** Organic animal health, like organic crop health, relies on preventative practices and systems. Good genetics are important, as organic livestock producers should select breeds that are well adapted to their particular environment. Balanced nutrition, exercise, and a low-stress environment also contribute to building strong immune systems in animals. Vaccination and other preventative measures are common; antibiotics and growth hormones are prohibited. Organic livestock producers work to manage exposure to disease and parasites through grazing management, proper sanitation, and preventing the introduction of disease agents.

**Organic Feed:** Organic livestock must eat certified organic feed. Organic feed must be grown and processed by certified organic operations. Similarly, any pastures, forages, and plant-based bedding (such as hay) accessible to livestock must be certified as organically grown and processed. Certain

additives, such as vitamins and minerals not produced organically, can be fed to organic livestock in trace amounts, but others, including hormones used to promote growth, are strictly prohibited.

**Animal Origin:** Organic livestock generally must be raised organically since the last third of gestation. Birds used for poultry or egg production, may come from any source, but must be raised organically beginning the second day of life.

## Organic Processing Practices

**Organic Ingredients:** Under USDA organic regulations, organic processors must use certified organic ingredients (for a minimum of 95% of the product) and only approved non-organic ingredient in products that are labeled organic. Products labeled as “made with organic” specified ingredients may include up to 30% non-organic agricultural ingredients, but all other additives must be approved for organic use. No ingredients or products may be produced using genetic engineering, sewage sludge, or ionizing radiation.

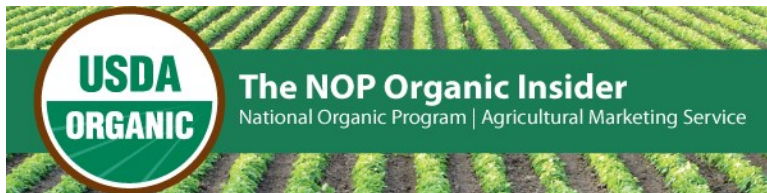
**Commingling and Contact:** To preserve the integrity of organic ingredients and products, organic processors must:

- Prevent commingling (i.e. mixing) with non-organic ingredients and products throughout processing
- Prevent contact between organic ingredients and non-organic substances, including prohibited sanitizers
- Clean and sanitize processing equipment when changing from non-organic to organic products.; many processors run organic products first, after their cleaning with approved materials

**Managing Pests:** Similar to pest management on organic farms, organic processing facilities must emphasize prevention over treatment. Organic processors may use approved synthetic substances if all other approaches have failed but must ensure that these substances do not come in contact with the organic products they handle.

## Additional Information

For more information on organic practices, visit USDA’s Organic Agriculture page at [www.usda.gov/organic](http://www.usda.gov/organic) or the Agricultural Marketing Service, National Organic Program’s “Is Organic an Option for Me?” page at [www.ams.usda.gov/organicinfo](http://www.ams.usda.gov/organicinfo).



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## Disclaimer

The following paper was published in the mid-1990s, as the WA organic tree fruit industry was just beginning to expand. Most of the information presented is still relevant to tree fruit growers looking to transition their orchards to organic production. However, certification and the organic regulations change and evolve through the years and references to input materials for fertility and pest & disease management may be dated.

As noted in the paper, it is important to contact your certifier **before** using any material, even if that material carries an “organic” label. WSDA Organic Program is available to answer your questions and is happy to provide the technical assistance to help you have a successful transition to organic production.

360-902-1805  
organic@agr.wa.gov

# Tree Fruit Production with Organic Farming Methods

David Granatstein

*Center for Sustaining Agriculture and Natural Resources  
Washington State University, Wenatchee, WA USA*

Organic crop production methods are determined to a significant extent by the organic certification standards. In general, the standards allow use of natural methods and products and disallow use of synthetic methods and products. Thus the organic grower's toolbox is greatly restricted relative to what a conventional grower has. This is especially true with regard to pest management, where tools for dealing with pest outbreaks are limited or non-existent, necessitating an emphasis on prevention. Natural fertility sources such as manures, organic amendments, and mineral powders can require changes in fertility management strategies. Many horticultural practices are similar. However, growers who have entered organic farming often describe a mental change that is necessary because of the need to understand natural processes and how to enhance those beneficial to the crop within the ecosystem of the farm.

This paper will focus on some general areas of concern for growers adopting organic tree fruit management and will provide examples of organic practices for soils and pests.

## **1. Major Changes in Moving to Organic Production**

Growers considering a move to organic production should consider the following issues that can pose challenges. Many growers have started with a small acreage to experiment with for several years. Over time, they convert more acres as market opportunities warrant. This helps reduce risk and allows for the necessary learning of new techniques.

### Approved Materials

The first obvious change for the grower is the restriction on what products can be used. While most all synthetic pesticides and fertilizers are not allowed, there are various natural materials available. In the past, organic orchardists relied heavily on botanical insecticides such as rotenone and pyrethrum. However, some certification programs no longer allow these. Other materials such as sulfur that are routinely used in conventional orchards are generally allowed in organic production. A grower must check the status of any material in advance to ensure compliance. Use of a disallowed material can lead to decertification.

Some organic certifiers are now moving towards brand name lists of approved materials to minimize confusion to growers. This is a major change from past practice, when generic lists of materials were used. For example, a generic list might approve the use of B.t. (*Bacillus thuringiensis*) products. However, a brand name list might only allow certain B.t. formulations, based on inert ingredients. A new organization, the Organic Materials Review Institute, is proposing to perform evaluation of all production and processing materials. A uniform national list is a probable outcome. While this will lessen confusion, it will likely decrease the number of products available for use.

The issue of approved materials cannot be overstated. This is where the regulatory focus is aimed, much more so than at management practices and desired environmental

or safety outcomes. Shipments of organic pears from Washington State to Europe have been rejected on the basis of the use of Mycoshield, an antibiotic used to control fireblight. This material is approved by the state organic program but not by most European programs.

### Certification

Virtually all volume markets require that product claiming “organic “ be certified by a third party body. For the grower, there may be several choices in certification agencies. Agencies can vary substantially in their fee structures, reporting requirements, and other aspects, so growers should evaluate these carefully. Also, not all certification agencies have the same status. Some are IFOAM accredited, which helps for international trade. Certain end markets may prefer product certified by a specific agency, based on the agency’s reputation in that market area.

Certification requires careful and extensive recordkeeping that may add to the grower’s administrative workload. Any product claiming organic status must be backed up by a full audit trail. This includes records of all production practices on a given field, receipts of all materials purchased, tracking of lot numbers for storage and handling, and proper indication of organic status on the product label. Growers may need to find new packing, processing, or wholesale partners if the current ones are not also certified to deal with organic product.

Most certification fee structures are based on a percent of sales. Thus, as volume grows, so does the cost of staying in the organic business. Also, growers will need to provide confidential information on sales. Certification is generally done on an annual basis, so fees are due every year. There may be additional fees for the initial application. And there are fees for evaluation of products to be approved for use on organic farms. Overall, certification does add to the cost of operation both in terms of fees and added administration of records.

### Labor

One of the criticisms of alternative agriculture systems is their requirement for more labor in a world where fewer people want to work on farms. Organic tree fruit production does require more labor than conventional systems. However, tree fruit is already a labor-intensive crop. Organic farming may provide an opportunity to create more year-round work. However, increases in peak labor needs, especially for blossom and fruit thinning, could prove problematic if large acreages in an area were all competing for a small available labor pool. Organic orchards use different management strategies and thus the increase in labor requirement varies from farm to farm. The areas of increased labor reported by organic growers include thinning, weed control, fertilization, and spraying, in order of importance.

Without traditional chemical thinners, organic apple growers in Washington State report that blossom and fruit thinning represents the largest increase in labor cost. Some growers report that labor costs increase by 15% over conventional systems where chemical thinning and hand thinning are used. Others report cost increases of 50-100%. Thinning can account for 10-20% of the total labor budget.

Weed control, particularly in the tree row, is also more labor intensive in organic orchards. Some growers report twice as much labor for weed control than in conventional systems, while other only require slightly more. The greatest increase

comes with mechanical tillage in the tree row, especially with young trees. Fertilization increases labor costs due to the need to spread bulkier, low analysis organic fertilizers. Some growers have purchased mechanical spreaders, but loading and spreading are still more time consuming than with commercial fertilizers. Also, pest outbreaks may require multiple sprays with approved materials that have low residual activity. For example, one apple grower reported applying 30 sprays of ryania to control codling moth in the early 1990s, prior to the use of mating disruption.

One benefit of organic production on labor is preferential availability. Organic growers often have a waiting list of workers who want to work in an “unsprayed” orchard. In tight labor markets, this positive worker safety aspect could help organic growers find the help they need.

#### Storage and packing

Since organic fruit must maintain its status from the field to the consumer, storage and packing operations must meet organic standards. In the past, when organic fruit volume was small, organic lots were stored with conventional fruit in Controlled Atmosphere (CA) rooms for late-season markets. The organic fruit cannot be treated with post-harvest chemicals, while much conventional fruit is. There have been numerous cases where the post-harvest chemical DPA has volatilized from the conventional fruit and contaminated the organic fruit such that it could not be marketed as organic. This problem occurs even when CA rooms are filled only with organic fruit.

Since organic fruit cannot be exposed to chemicals used on the packing line, most packers arrange to run organic fruit at the beginning of the week, just after the line has been cleaned and filled with fresh water. Also, certain types of cleaners are not allowed. Thus, a packer must be willing to take on the additional management required to handle organic fruit.

#### Horticultural Aspects

Many aspects of tree fruit production are similar in organic and conventional systems. However, three areas in particular can pose challenges. These are weed control, fruit thinning, and fertility management. Proper handling of the latter two is important to avoid alternate bearing, which has been a problem for some organic growers. More details on these management issues are provided later.

In addition, virtually all farms switching from conventional to organic management experience a “transition period” which is biological in nature. For example, campylocoma can be a serious pest during the first year of transition to organic, as there are no effective approved controls. But it quickly becomes a minor pest or non-pest as natural biocontrols get established. Pests such as tentiform leafminer, pest mites, and leafhoppers will decline under organic management, while powdery mildew, scab, rodents, and peach tree borers tend to require more attention. Soil nutrient cycling changes as organic fertility sources are used and organic matter increases. Thus fertilization strategies will need to change over time as the soil changes. Nitrogen deficiencies are common in the first years of organic management.

The transition to organic also increases risks and costs. Growers must learn new skills, and have fewer rescue tools to rely on. Production costs will go up. Over time, however, many growers find that organic orchards become more stable biologically.

Some costs will also decline as organic fertility regimes are established and effective management approaches are refined.

## **2. Soil Management**

A healthy soil is one of the fundamental goals of organic farming. Early organic farming advocates such as Sir Albert Howard and J.I. Rodale made a connection between healthy soils, healthy plants, and healthy people. Also, many organic advocates believe that plants grown on healthy soils can better resist pest attacks. Thus, soil fertility receives much attention on most organic farms. Organic certification programs are also beginning to address this by requiring soil-building plans as part of the certification process. The goal is to eliminate organic farming “by neglect”, where a grower uses no disallowed materials but essentially mines the soil without providing proper organic fertility sources.

### Soil Organic Matter

Organic growers consider soil organic matter (SOM) as the foundation for their farms. SOM provides a reservoir of nutrients, which are released slowly over time through mineralization. SOM can be a major contributor to the cation exchange capacity of a soil. SOM also provides the food base for soil organisms, both micro and macro. Soil physical properties, such as structure, aggregate stability, and water holding capacity, all improve with increasing SOM. Taken together, these attributes are the basis for the healthy soils desired by organic growers.

All organic growers add organic matter to the soil as part of their fertility program. This can be in the form of animal manures, composts, green manures, food processing wastes, and other organic by-products. These materials also supply a large portion of the nutrient inputs. Organic orchardists in Washington State monitor changes in soil organic matter as an indicator of their management. It is difficult to increase organic matter levels in semi-arid climates and in coarse soils. However, growers have achieved SOM levels as high as 4-5% after years of organic management. One grower has records showing SOM levels of 0.8-1.5% under conventional management and 2.3-3.6% after 10-15 years of organic management in the same orchard.

Tillage is a major destroyer of SOM and a few growers have measured declines in SOM in the tree row where they use repeated tillage to control weeds. Alternative weed management strategies are badly needed to address this problem.

### Fertility and Plant Nutrition

Nitrogen (N) is often the nutrient of most concern in Pacific Northwest organic orchards. Soils tend to have adequate phosphorus (P) and potassium (K). Calcium (Ca), zinc (Zn), and boron (B) are other nutrients that are often in short supply. Growers typically provide a large nutrient input with a fall application of animal manure (often composted). Chicken manure compost is a widely used product due to its relatively high N content and lower cost per pound of N. A comparison of N sources and costs is provided in Table 1.

The products differ in their N release characteristics and in their spreading requirements and costs. For example, compost is often spread by hand at a cost of \$20-30 per acre,

whereas the Bio-Gro product is prilled and can be spread easily with available equipment.

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Table 1. Organic N Sources and Costs.

<u>Source</u>	<u>% N (dry)</u>	<u>Cost (\$)</u>	<u>Cost per lb N (\$)</u>
Chilean nitrate*	16	560	1.75
Bloodmeal	13	792	3.05
Feathermeal	12	690	2.87
Bio-Gro fish by-product	9	650	3.61
Canola meal	6	395	3.29
Chicken manure compost	4	80	1.33
Alfalfa meal	3	278	4.63

\*Chilean nitrate is restricted or not allowed by most organic programs.

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The organic N sources provide a combination of readily available N (ammonium and nitrate) and slow-release organic N. Over time, the annual application rate can decrease as N released from materials applied in previous years starts to accumulate. This often takes five to eight years.

Growers strive to balance the need for enough N to provide adequate tree vigor and annual bearing while keeping N levels and vigor low enough to discourage pests such as aphid and problems such as fireblight. If N levels appear low during the growing season, foliar fish fertilizers can be sprayed on. Some growers monitor leaf N; however, experience in other crops indicates that the sufficiency levels developed for conventional fertilizer programs often do not apply to organic management. One Washington State orchardist uses leaf analysis and aims to keep N levels 10% below the University recommendation.

For Ca, Zn, and B, there are a number of commercial products available that are approved for organic farms. These include zinc sulfate, Solubor, gypsum, lime, and chelated nutrients. Seaweed extracts are another source of micronutrients. Rock phosphate and other ground minerals can be used as well.

Bitterpit of apple is a nutritional problem reported by a number of organic growers. Thus, they monitor Ca levels and especially the ratio of Ca to N. Some growers subscribe to the cation balance theory, where they want to achieve a base saturation of 65-70% Ca, 10-15% Mg, and 2-5% K. This concept is controversial among soils researchers, and little work has been done on tree fruits. Most organic growers rely on tree growth and fruit yield and quality as the best integrators of soil fertility and plant nutrition.

The cost of organic fertility inputs can be substantially higher than conventional fertilizers. This is especially true during the first years of transition to organic, when N cycling goes through significant changes. One grower estimates that increased fertility costs can reach several hundred dollars per acre, but this only amounts to \$0.20 per packed 40-lb. box of apples.

A potential problem with organic fertility programs is accumulation of late season N that would delay dormancy and reduce winterhardiness. Organic orchardists do not report a problem with this. They propose that the slow-release nature of the fertilizers prevents accumulation of enough N. Few studies have been done looking at leaching losses of N under organic management. Proper irrigation water management is the most important practice in preventing this.

### Ground Covers

Virtually all orchards in the Pacific Northwest grow a perennial ground cover between the tree rows once the orchard is established. This is typically a stand of perennial grass with shallow roots that do not compete with the trees. Most conventional orchards use herbicides to keep a 4 to 6 foot weed-free strip in the tree row. In new organic plantings, maintaining this weed-free strip to allow for maximum growth can be a challenge. Most growers use mechanical tillage with tools such as a Weed Badger or Rinieri. Multiple tillages are required and damage to tree trunks and roots is possible. Some growers have avoided planting a grass cover in the alleys as they have had problems with it creeping into the tree row. A few growers prefer to start a new planting with conventional management and then switch to organic management after the first or second year to help with weed control.

While the grass alleys are generally considered to have minimal influence on orchard function, organic growers are examining ways to increase orchard biodiversity through manipulation of the ground cover. Growers are interested in the potential to achieve multiple benefits from ground cover, including enhanced biocontrol through beneficial insect habitat, biological nitrogen fixation from legumes, weed suppression, and organic matter additions.

Perennial legumes such as white clover and alfalfa are used in a few orchards. The white clover provides excellent weed control, is low growing, and is shallow rooted. It provides continual bloom throughout the season. One drawback is the lack of traction on steeper slopes. Alfalfa provides much more biomass and N production and requires mowing. It is being used in one orchard as a source of mulch for the tree row as well as a source of N. Alternate rows are cut with a sickle-bar mower and swept to the tree row where they form a thick mulch. Potential pests such as lygus bug remain on the ground in the uncut portions. The mulch controls weeds during the season, provides N, conserves moisture, and is then mechanically removed in the fall to break up rodent habitat. In addition, research is underway to evaluate alfalfa as a source of non-pest leafrollers that will host an established leafroller natural enemy that can be induced to move into the fruit trees at the appropriate time.

Interest in such multi-purpose cover crop systems is increasing, and California grape and almond growers have extensive experience in applying these systems to large acreages. In tree fruit, experience is limited and the few existing studies indicate difficulties in getting the natural enemies into the trees where they are needed. Researchers are currently examining the potential of cover crops to assist in biocontrol of apple replant disease. Initial studies with wheat show promise in its ability to shift the rhizosphere microbial community such that apple seedlings grow as well in replant soil as in pasteurized soil. In the future, ground cover management in organic orchards may include several vegetation zones with different functions, and these zones may change over time with the age of the orchard. For example, a weed-free zone is desired during

the first several years and perhaps a cover crop to suppress replant disease would be grown several years prior to orchard removal.

### **3. Weed Management**

With the prohibition of herbicide use, organic growers use a variety of strategies to control unwanted vegetation in orchards. Competition from vegetation is most damaging to young trees during the first two years. Researchers have shown that a 2 to 3 foot radius weed free zone maximizes tree growth. Weed control in the early season (June) is much more critical than late season. Dwarf trees are more negatively affected by competition than full-sized trees.

Mowing is the most common vegetation management strategy. In addition to standard orchard mowers for the alleys, trim mowers with a trip-mount are available that can mow between trees in row. Most organic growers use some form of tillage to keep a weed-free strip in the tree row during the first few years after planting. Some continue this practice for the life of the orchard. However, this can have detrimental effects on soil organic matter. Mulching the tree row is another strategy. It is labor intensive, does not give complete control, and can lead to rodent problems. Growers have tried hay, straw, wood chips, and landscape fabric as mulches. Researchers are examining shredded paper mulches that can be mechanically applied. Mulches add organic matter and buffer moisture and temperature extremes in the soil in addition to controlling weeds.

Cover crops such as white clover can be used to smother weeds. Some growers keep a weed-free strip for young trees and then let a perennial non-grass cover grow into the tree row. The alfalfa mulch system described under Ground Covers above represents an integrated strategy with multiple benefits. Cover crop growth can be used to regulate nutrient competition and control tree vigor if excessive.

Thermal weed control tools have been developed, using either a propane flame or hot water. These are more effective on young annual weeds than perennials. Tree trunks would need adequate protection from scorching if this type of system were to be used. No relevant biocontrols or microbial herbicides are presently available. A fatty-acid based herbicide is available but not allowed by most organic programs.

### **4. Insect Pest Management**

Codling moth (CM) has been the traditional key pest of apple orchards in the Pacific Northwest. It was difficult to control in organic orchards prior to the advent of pheromone mating disruption (MD). MD has allowed for successful and more cost-effective organic production and is perhaps the single new tool that has allowed for greatly expanded organic apple acreage. However, most growers use MD in conjunction with a number of other preventive and suppressive strategies, as a powerful knockdown tool for codling moth is not available. In the past, ryania, a botanical pesticide, was the primary CM control. It was sprayed as many as 20-30 times per season, and cullage still might exceed 20%. Growers tried codling moth granulosis virus (CMGV), but it had limited effectiveness. New formulations may improve this highly specific biocontrol that holds great promise. B.t. does not provide CM control due to the insect larva's feeding habits.

Other CM controls include: orchard sanitation (picking off infested fruit and removing from orchard); banding trees with corrugated cardboard (remove and destroy larvae and eggs in band); black light traps (effective for some growers); repellents (pepper spray, garlic spray); overhead watering at night (to disrupt moth flight); fish oil and other summer oils (mixed results, potential phytotoxicity). Examples of insect control practices and their perceived efficacy by organic growers are presented in Table 2. No organic orchardist is able to achieve acceptable CM control by relying on natural predation.

Table 2. Insect Control in Organic Apple Orchards. North Central Washington Grower Survey, 1995.

<u>Insect Control</u>	<u>Effectiveness of Control</u>		
	<u>Major</u>	<u>Contributing</u>	<u>Negligible</u>
Mating disruption (CM)	14	0	0
Dormant oil	9	2	1
B.t.	7	2	4
Cover crops	5	0	1
Sanitation	4	5	0
Pheromone traps	4	1	0
Summer oil	3	1	1
Ryania	2	7	1
Fertility management	2	1	0
CM Granulosis Virus	1	3	3
Soap	1	1	4
Lacewings	1	1	0
Black light traps	0	2	0
Trichogramma wasp	0	1	4
Diatomaceous earth	0	0	3

Few other pests are consistent problems on apples. Leafrollers can generally be controlled with a dormant oil and B.t. sprays. Vigor control prevents aphid problems. Feeding stimulants appear to improve control with B.t.

Psylla is the most common pest in organic pears in the Pacific Northwest. Many orchards have low populations due to natural predation. Dormant oil is an important practice for psylla. During the growing season, growers can use insecticidal soap, Pyrellin (a pyrethrum product), rotenone, or detergent soap.

New insect control products such as Neemix are becoming available, but often do not perform very well. Established products such as rotenone are losing their pesticide registration. Thus, organic and conventional growers both face an ever-changing mix of tools.

Organic growers vary in their approach to monitoring. Some have very formal programs using degree-day models for insect development and extensive trapping. Others, particularly smaller growers, have faith that the system will self-regulate to a large degree. They know their key pests and visually monitor for them while in the orchard.

In a survey of organic orchardists in Washington State, six out of 14 were using ten or more insect pest management strategies. Seven used five to nine strategies, and only one used less than five. Since no powerful interventions are possible, organic growers need a broad approach to pest management that is based on prevention.

## **5. Disease Management**

Diseases are generally not a severe limiting factor to organic tree fruit production in the Pacific Northwest. In other more humid regions, organic production may be impossible due to disease that cannot be controlled adequately to produce a marketable product.

On apple, scab and powdery mildew are the two most frequent disease problems for organic growers. Mildew is becoming more prominent as growers switch to more mildew susceptible varieties such as Gala. Dormant and early season sulfur and lime sulfur are primary controls. Pruning to improve air movement is a cultural control. Other effective controls reported by growers include moderate N levels, Ca sprays, kelp, and soap.

Growers attempt to prevent disease through a balanced soil fertility program. Composts show some promise for controlling certain soil-borne diseases, including *Phytophthora*. Copper sprays, water management, N management, (e.g. for fireblight), and sanitation are other disease control strategies available. More biological disease control materials are being developed, but some are prohibited for organic production.

## **6. Rodent Control**

Some aspects of organic production (e.g. weeds, cover crops, mulches) can enhance rodent habitat. One rodent poison available to organic growers is Quintox, a vitamin D<sub>3</sub> based product that is not toxic to animals that might eat rodents. Other rodent control strategies include tree guards, trapping, and encouragement of predators such as owls, coyotes, and snakes. A few growers do some early pruning in the fall to leave branches on the ground that act as preferential food for rodents under the snow.

## **7. Summary**

More tree fruit growers are using organic farming practices on some or all of their acreage due to favorable economics, improved management options, and potential loss of pesticides. Shifting to organic production entails more than merely substituting organically approved products for conventional fertilizers and pesticides. Organic growers must be more aware of the entire agroecosystem and employ a range of strategies to achieve a particular goal. Rescue treatments are seldom an option and preventive strategies are critical. Increasingly, agricultural supply companies are introducing products for conventional growers that have great potential for organic production as well. The best example is pheromone mating disruption, which has enabled organic growers to successfully control codling moth and produce high quality fruit comparable to conventional systems.

## **8. References**

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*Washington State Dept. of Agriculture  
Organic Food Program*

*Certification Fact Sheet*

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## **Preventative Practices – Crop Pest, Weed, and Disease**

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### **What are Preventative Practices?**

Preventative practices are techniques that help farmers avoid crop pest, weed, and disease problems in their organic farming system. Preventative practices may also help minimize damage from these problems if they occur.

The USDA organic regulations require that producers use a three-tiered approach in dealing with crop pest, weed, and disease problems (7CFR 205.206). An organic producer must be able to demonstrate through records and observable practices that they implemented each level before the use of any approved materials to control pests, weeds and diseases.

- **Step 1** – Prevention of the problem through crop rotation and soil management practices, sanitation, and cultural practices.
- **Step 2** – Use of mechanical or physical methods to prevent problems
- **Step 3** – The application of approved synthetic materials.

Many of the step 1 and step 2 preventative practices outlined in the organic standards are methods farmers are already using to produce quality and healthy crops. These practices may include:

- Consistent observation and monitoring of fields and storage areas, recording potential issues and taking action before a problem arises.
- Crop rotation and use of cover crops.
- Selecting varieties of seeds and plants suited to a farm's conditions and/or resistant to diseases found in a farm's soils.
- Managing soil health to improve health of crops and reduce pest pressure.

### **Preventative Crop Pest Control Measures may also include:**

- Crop rotation
- Insect or rodent traps
- Frog ponds, bird houses or bat houses
- Resistant varieties
- Timing of planting
- Release of beneficial insects
- Companion planting and trap crops
- Physical removal and physical barriers

### **Preventative Weed Control Measures may also include:**

- Mowing and cultivation
- Crop rotation
- Crop spacing
- Use of mulches
- Hand or flame weeding
- Cover cropping



## Preventative Disease Control Measures may also include:

- Crop rotation
- Resistant varieties
- Vector management to limit the transmission of disease pathogens
- Plant spacing
- Companion planting
- Nonsynthetic biological, botanical, or mineral inputs
- Compost or compost tea use
- Soil solarization
- Field sanitation (physical removal of plant debris)
- Timing of planting or cultivation
- Irrigation practices to reduce disease pressure

## How are preventative practices evaluated?

An organic producer outlines their management practices in an Organic System Plan. This plan which details all of their practices, including preventative, is updated at least once a year. During the inspection, the inspector will evaluate whether or not the practices outlined in the Organic System Plan have been implemented as described.

The inspector will look for signs of preventative practices observable at inspection, such as row spacing or beneficial habit; as well as review the records of practices that were implemented but are no longer observable. For this reason it is important to keep clear records of what preventative practices are implemented and when.

The records required should be adapted to meet the needs of the particular business and therefore vary based on the complexity and scale of the farm; however, management records as simple as a field note book or a wall calendar tracking daily activities may prove sufficient.

## Additional Resources

### Washington State Department of Agriculture Organic Program

Phone: 360-902-1805 | E-mail: [organic@agr.wa.gov](mailto:organic@agr.wa.gov) | Website: <http://agr.wa.gov/FoodAnimal/Organic/>

### NOP Guide for Organic Crop Producers

<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5101542>

### Cooperative Extension:

Preventative Practices in Organic Weed Management

<http://www.extension.org/pages/59489/preventative-practices-in-organic-weed-management#.VYBwfvIkq>

Fire Blight Control for Organic Orchards: Moving Beyond Antibiotics

<http://www.extension.org/pages/70541/fire-blight-control-for-organic-orchards:-moving-beyond-antibiotics#.VYBY2PIVhBc>

The Organic Center: Grower Lessons and Emerging Research for Developing an Integrated Non-Antibiotic Fire Blight Control Program in Organic Fruit

[https://www.organic-center.org/wp-content/uploads/2013/07/TOC\\_Report\\_Blight\\_2b.pdf](https://www.organic-center.org/wp-content/uploads/2013/07/TOC_Report_Blight_2b.pdf)

ATTRA Publications and Resources on Organic Farming and Pest Control

<https://attra.ncat.org/organic.html>

Midwest Organic & Sustainable Education Service: Managing Pests & Diseases in an Organic Apple Orchard

[http://mosesorganic.org/wp-content/uploads/Publications/Fact\\_Sheets/32ManagingPestsInOrchard.pdf](http://mosesorganic.org/wp-content/uploads/Publications/Fact_Sheets/32ManagingPestsInOrchard.pdf)



# Washington State Dept. of Agriculture Organic Food Program

## Certification Fact Sheet

### Natural Resources and Biological Diversity Conservation

#### Purpose

USDA organic regulations require producers to maintain or improve the physical, hydrological, and biological features of their operation, including soil, water, wetlands, woodlands, and wildlife. This fact sheet clarifies the requirements for WSDA certified operations to meet the standards as they relate to the biological diversity and natural resources of their operation.

#### Background

The conservation of natural resources and biological diversity is a primary tenet of organic production. In January 2016, the National Organic Program issued a Guidance (NOP 5020) on natural resources and biodiversity conservation to:

- ◆ Provide examples of compliant conservation practices.
- ◆ Clarify the roles and responsibilities of certified operations, certifiers, and inspectors.
- ◆ Allow for the use of third-party conservation plans to demonstrate compliance.

#### Role of certified organic operations:

- ◆ Describe or list activities in the Organic System Plan (OSP) to conserve biological diversity by maintaining or improving natural resources.
- ◆ Consider land that is adjacent to the certified land *if* the operation is in control of the land *and* the practices directly benefit the certified land.
- ◆ Maintain any records that would support a certifier's ability to verify compliance.

#### Third-Party Conservation Plans

Certified organic operations may refer to current conservation plans or contracts to meet the requirements of the regulation. If you have a third-party conservation plan, our office will ensure that your operation is current and in compliance with the third-party on an annual basis and that this plan comprehensively conserves biodiversity by maintaining or improving natural resource concerns.

#### National Organic Standards Citation

##### § 205.2 Terms Defined

*Natural resources of the operation.* The physical, hydrological, and biological features of a production operation, including soil, water, wetlands, woodlands, and wildlife.

*Organic production.* A production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.

##### § 205.200 General

The producer or handler of a production or handling operation intending to sell, label, or represent agricultural products as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))" must comply with the applicable provisions of this subpart. Production practices implemented in accordance with this subpart must maintain or improve the natural resources of the operation, including soil and water quality.



## Certification Requirements

The Organic System Plan (OSP) will prompt operations to:

- ◆ Acknowledge natural resource concerns on land where organic crops will be harvested
- ◆ Identify practices that are used to maintain or improve the natural resource concerns.
- ◆ Describe monitoring and recordkeeping strategies regarding the natural resource concerns.

## Organic System Plan Guidance

Resource concerns identified on the OSP are consistent with priority resource concerns on cropland in Washington state, which were determined by the Natural Resource Conservation Service (NRCS) in 2012. The questions asked in the OSP are consistent with screening questions used by the NRCS to determine site-specific resource concerns on cropland.

The OSP contains checkbox lists of practices used to maintain or improve natural resources for each resource concern. These practices are consistent with NRCS practice standards that would be prescribed to cropland in Washington State to manage site-specific resource concerns.

NRCS practice standards and related information are publicly available online at [efotg.sc.egov.usda.gov](http://efotg.sc.egov.usda.gov). The practice standards contain definitions and purposes, as well as conditions where the practice applies, specific design criteria, considerations, operations, and maintenance. WSDA Organic Program utilizes the definitions and purposes of the Practice Standards to foster consistency in communication.

Certified operations are not required to implement NRCS Practice Standards. It is the responsibility of certified operations to ensure that the implementation of practices is appropriate for site-specific conditions and designed in a way that suits the purpose of each practice.

## NRCS Practice Standards Defined

*Alley Cropping:* Trees or shrubs are planted in sets of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products

*Brush Management:* The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious

*Channel Bank Vegetation:* Establishing and maintaining vegetative cover on channel banks, berms, spoil, and associated areas

*Conservation Cover:* Establishing and maintaining permanent vegetative cover

*Contour Buffer Strips:* Narrow strips of permanent, herbaceous vegetative cover established around the hill slope, and alternated down the slope with wider cropped strips that are farmed on the contour

*Contour Farming:* Aligning ridges, furrows, and roughness formed by tillage, planting and other operations to alter velocity and/or direction of water flow to around the hillslope

*Cover Crop:* Crops including grasses, legumes, and forbs for seasonal cover and other conservation purposes

*Critical Area Planting:* Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices

*Cross Wind Ridges:* Ridges formed by tillage, planting or other operations and aligned perpendicular to prevailing wind direction during critical wind erosion periods

*Cross Wind Trap Strips:* Herbaceous cover established in one or more strips typically perpendicular to the most erosive wind events



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# Washington State Dept. of Agriculture Organic Food Program

## Certification Fact Sheet

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### Recordkeeping Requirements

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A major requirement of the USDA organic regulations is the maintenance of all records related to organic production and handling. These records must be adapted to your business, available during an inspection and must be easily understood. §205.103

An audit of your records will be conducted during an onsite inspection. Complete and accurate records that track the organic products from seed to harvest, or from receiving through final sale and shipping must be kept. If you produce or handle both organic and non-organic crops or products, records related to your non-organic production may be needed to verify organic crop and product compliance.

Use the following information to help you determine what types of records the inspector may need to look at during your inspection. *This list is only to be used as guidance, and is not a list of all required records.*

#### Organic Production (Farm) Records

##### Seeds and Transplants, Including Cover Crop and Pasture Seeds

- Seed invoices, seed packages, and labels.
- Organic certificates for seeds and transplants.
- Attempts to obtain organic seeds or perennial transplants before sourcing nonorganic (search logs, catalogs, seed supplier letters).
- Verification of untreated seeds, and/or disclosure of ingredients in seed coating.
- Verification seeds are not genetically modified (for crops also available in a GMO form).

##### Input Material Records

- Application records for all materials used. Including: fertilizers, manure, potting soil, compost, soil amendments, foliar micronutrient sprays, grafting materials, pesticides, acidifiers, spreader/stickers, post harvest applications or treatments.
- Invoices or receipts for all input purchases including custom applicator work.
- Full disclosure of all ingredients, including manufacturing processes, for non-WSDA or OMRI listed inputs. Input material storage records are also helpful.
- Records related to inputs used on non-organic land.

##### Production Records

- Farm activity log and/or records documenting activities such as cultivating, weeding, flaming, planting dates.
- Standard operating procedures and staff instructions or training records.
- Invoices for services (mowing, spreading manure, seeding, planting).
- Farm consultant recommendations.
- Soil, tissue, and fruit analysis reports.
- Compost production records.

##### Harvest Records

- Yield records (number of bins, pounds, tons, cartons, CSA shares, etc.).
- Shipping, warehouse or processor delivery receipts, delivery summaries.
- Custom harvest: records or information on harvester and equipment cleaning.
- Buffer harvest records and buffer and border management records.



## Income Records

- Direct market: CSA share reports, sales receipts, daily farmer's market sales reports or bank deposits.
- Wholesaler markets: Warehouse and processor income summaries, pool closings; sales invoices., receipts.

## Livestock Operations

- Organic certificates and invoices for all feed, including pasture, grain, hay or silage.
- Records detailing access to pasture, supplemental feeding, and reasons for confinement.
- Grain invoices with weights .
- Somatic cell counts for the last 6 months.
- Animal medical treatment records (including vaccinations).
- Animal sale or purchase records if applicable.

## New Sites

- Material application records for at least 36 months prior to harvest (12 or 24 months prior for transitional).
- Cropping history or land use for at least 36 months, including a Previous Land Use Declaration.
- Organic Certificate if land was previously certified.
- Land lease agreements or contracts.
- Maps of current site and/or past land use (aerial images).
- Records and maps from other agricultural agencies (NRCS, Farm Service, etc).

## Organic Handling or Processing Records

### Receiving Records and Ingredient or Product Compliance Records

- Current organic certificate for suppliers of organic products or ingredients.
- Ingredient labels and compliance affidavits from ingredient manufactures.
- Field or bin tickets.
- Clean truck/equipment affidavits or cleaning logs.
- Invoices, purchase orders, bill of ladings, scale tickets.
- Contracts.
- Certificates of analyses or Product Specification Sheets.

### Storage and Production Records

- Standard operating procedures and staff instructions or training records.
- Equipment clean-out logs, purge records.
- Product specification sheets and ingredient inspection forms.
- Full ingredient disclosure and verification of no GMOs for minor nonorganic ingredients or processing aids.
- Attempts to obtain organic forms before sourcing nonorganic minor ingredients or processing aids.
- Pest management records (preventative practices as well as application records).
- Batch recipes and product formulations.
- QC reports and product testing records (pesticide residue, gmo contamination, etc.).
- Ingredient usage reports and production logs.
- Packaging reports and waste or shrinkage logs.
- Inventory reports for ingredients and finished products.

### Shipping and Income Records

- Pallet/tote tickets and scale tickets.
- Certificates of analyses.
- Purchase orders and invoices.
- Shipping logs and bills of lading.
- Export records and transaction certificates.
- Sales summaries, income reports.

### Questions?

**Contact Us—We are here to Assist!**

Washington State Dept. of Agriculture  
Organic Food Program  
PO Box 42560; 1111 Washington St SE  
Olympia, WA 98504-2560  
(360) 902-1805, [organic@agr.wa.gov](mailto:organic@agr.wa.gov)  
<http://agr.wa.gov/foodanimal/organic>



## Technical and Financial Assistance for Organic Producers



Organic producers use cultural, biological, and mechanical practices to maintain and improve on-farm resources, promote ecological balance, and conserve biodiversity. Such practices are environmentally beneficial for agricultural lands and certification can help producers access new customers and markets. However, implementing an organic system takes both time and effort. Producers may need to adopt new approaches to common agricultural challenges, such as managing pests and encouraging soil health, and must ensure their organic products do not come in contact with prohibited substances or are not commingled with non-organic products.

Several USDA agencies and external non-profit organizations provide technical assistance, educational resources, and financial assistance to support organic producers. This factsheet provides an overview of many of these programs, as well as links to additional information.

### USDA Technical Assistance and Resources

**USDA Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) Organic Initiative**—NRCS' EQIP Organic Initiative provides technical and financial assistance to producers who plan and implement conservation practices that support environmental sustainability. Certified or transitioning organic producers are eligible to receive up to \$20,000 per fiscal year to use toward activities such as developing a conservation plan, improving soil quality, minimizing erosion, developing supportive livestock practices, improving irrigation efficiency, and enhancing cropping rotations. For more information on the EQIP Organic Initiative, please visit NRCS' EQIP Organic Initiative page at <http://1.usa.gov/1TQrJhC>.

**USDA NRCS Agricultural Management Assistance (AMA) Program**—USDA NRCS' AMA program provides technical and financial assistance to help producers incorporate conservation practices into their farming operations through activities such as water management, water quality improvement, and erosion control. The AMA program is available to organic, transitioning,

and conventional producers in 16 states: CT, DE, HI, ME, MD, MA, NV, NH, NJ, NY, PA, RI, UT, VT, WV, and WY. For more information on the AMA Program, please visit <http://1.usa.gov/1Qrlo0i>.

**General USDA NRCS Technical Assistance**—In addition to the two programs listed above, USDA NRCS provides free, general technical assistance to all agricultural producers, including certified organic and transitioning farmers. This includes direct technical assistance from NRCS conservationists, monthly webinars, and informational materials on organic practices. Organic and transitioning farmers are also eligible for all NRCS financial assistance programs. For more information on NRCS assistance programs, please visit <http://1.usa.gov/1Mphclb>. NRCS resources on organic agriculture are available at <http://1.usa.gov/1Dvg9yV>.

**USDA National Agricultural Library (NAL) Alternative Farming Systems Information Center (AFSIC)**—NAL's AFSIC houses resources on sustainable and alternative agricultural systems, crops, and livestock including information on organic agriculture. Librarians are available to help producers locate materials on all aspects of organic farming, including in the "Organic Roots" digital collection, an archive of historical USDA documents published before the common use of synthetic fertilizers and chemicals. For more information on AFSIC organic resources, please visit <http://afsic.nal.usda.gov/organic-production>.

**USDA Economic Research Service (ERS)**—USDA's principal social science research agency, ERS tracks and reports on economic trends in agriculture, food, the environment, and rural development. As part of this service, ERS publishes specific information on the organic market including organic price premiums, consumer demand for organic food, the adoption of organic farming systems, and other economic characteristics of organic agriculture. To review ERS data and reports on organic agriculture, please visit <http://1.usa.gov/1jfmGz>.

*Continued on next page*

**USDA Agricultural Marketing Service (AMS) Market News—** AMS' Market News includes reports on prices, volume, quality, and condition of agricultural products including organic products, providing critical market intelligence to producers. Users may access market information through a number of compiled reports including those tailored for organic agriculture, or may run custom reports through the Market News Portal. To access the Market News site, please visit <https://www.marketnews.usda.gov>.

**Sustainable Agriculture Research and Education (SARE)—** Administered by the USDA National Institute of Food and Agriculture (NIFA), the SARE program promotes research and education that advances agricultural innovation to promote profitability; stewardship of the land, air, and water; and quality of life for farmers, ranchers and their communities. SARE's learning center contains books, videos, and online courses on a variety of organic topics. SARE's primary function is to provide grants for research and education projects conducted by farmers, researchers, extension personnel and other qualified individuals and organizations. For more information on SARE educational resources and grants, please visit <http://www.sare.org/>.

**Start2Farm—**A joint program of the USDA NAL and American Farm Bureau Federation, Start2Farm is an online portal that helps connect beginning farmers to educational resources and assistance programs. The portal includes links to training, financing, technical assistance, and networking opportunities from federal and state agencies, educational institutions, and non-governmental organizations. To access the portal, visit: <https://www.usda.gov/newfarmer>.

**Know Your Farmer, Know Your Food (KYF2)—**This program brings together resources and information from across USDA that promote and support local and regional food systems. The KYF2 website includes a list of USDA grant, loan, and support programs that can help farmers and others access local and regional food systems, as well as links to valuable tools and resources offered by USDA and their federal partners. To access the KYF2 site, visit <http://1.usa.gov/1U9XP87>.

## External Technical Assistance and Resources

**eOrganic—**A USDA-sponsored organic agriculture community of practice that provides research-based articles, webinars, and videos on a wide range of organic topics. The site also includes an "Ask an Expert" feature that allows producers to submit specific questions related to organic agriculture to a community of experts. To explore the resources available on eOrganic, please visit <http://eorganic.info/>.

**National Center for Appropriate Technology (NCAT) Appropriate Technology Transfer for Rural Areas (ATTRA) Program—**NCAT's ATTRA program provides farmers and educators with information about sustainable agriculture via an extensive web site, hundreds of publications, and their own "Ask an Ag Expert" feature (toll-free-phone, web, or text). To explore the ATTRA site, please visit <https://attra.ncat.org>.

## USDA Financial Assistance Programs

In addition to the previously described technical assistance programs, some of which also provide financial support, USDA has several programs that offer purely financial assistance to organic producers. A list of these programs with links to additional information include:

- **USDA Organic Certification Cost Share Programs—** administered by the NOP, AMA, and State departments of agriculture, these programs reimburse eligible operations for up to 75 percent of organic certification costs each fiscal year—<http://bit.ly/OrganicCostShareInfo>.
- **USDA NRCS Conservation Stewardship Program—** offers producers financial assistance of up to \$200,000 per fiscal year to address resource concerns in a comprehensive manner by undertaking or continuing conservation activities including many critical components of organic production, such as crop rotation and integrated pest management—<http://1.usa.gov/19Q9Ff2>.
- **USDA FSA Transition Incentives Program—** provides incentives for retired or retiring owners and operators to transition land enrolled in FSA's Conservation Reserve Program to a beginning farmer or rancher or a socially disadvantaged farmer or rancher for production using sustainable methods—<http://1.usa.gov/1HSsFup>.

## Additional Information

For additional information on organic production and relevant assistance programs:

- See the *Organic Resource Guide* and *Is Organic an Option for Me?* Brochure available at <http://www.ams.usda.gov/organicinfo>.
- Find other fact sheets regarding organic regulations, certification, practices and more at [www.ams.usda.gov](http://www.ams.usda.gov)
- Find a local USDA service center and speak to someone about available assistance by visiting <http://offices.usda.gov>.
- Visit [www.USDA.gov/organic](http://www.USDA.gov/organic) and <http://www.ams.usda.gov/nop>.
- Become an Organic Insider and receive NOP email updates Sign up at <http://bit.ly/NOPOrganicInsider>
- Call the National Organic Program at (202) 720-3252



Organic Integrity from Farm to Table  
Consumers Trust the Organic Label

# ADDITIONAL ONLINE RESOURCES...

## Organic Certification Process

WSDA Organic Program: Interested in Organic Certification?

A webpage dedicated to resources for new applicants beginning the certification process. Available at:

<https://agr.wa.gov/FoodAnimal/Organic/NewOrg.aspx>

WSDA Organic Program's Organic Certification Fee Calculator. Estimate certification costs, determine the forms needed for certification, and evaluate other requirements and licenses needed for your business. Available at:

<https://agr.wa.gov/foodanimal/organic/orgcertfeecalc.aspx>

National Organic Program Website: <https://www.ams.usda.gov/about-ams/programs-offices/national-organic-program>

National Organic Program Guide to Organic Certification:

<https://www.ams.usda.gov/publications/content/guide-organic-certification>

Interactive video on the certification steps: "The Road to Organic Certification"

<https://www.ams.usda.gov/reports/road-organic-certification>

National Organic Program Factsheet: Making the Transition to Organic Production and Handling:

<https://agr.wa.gov/FoodAnimal/Organic/NewOrg.aspx>

NCAT-ATTRA: Hoja de Datos: Transición al Manejo Orgánico de Huertos Frutales:

<https://www.ams.usda.gov/sites/default/files/media/FINAL%20Transicion%20al%20Manejo%20Organico%20de%20Huertos%20Frutales.pdf>

## Organic Crop Production and Practices

WSU Tree Fruit – Organic Production webpage. This page has information on organic production practices for orchard establishment, pest control, and weed management to name a few. Available at:

<http://treefruit.wsu.edu/orchard-management/organic-production/>

Natural Resources Conservation Service (NRCS) Organic Resources. An NRCS page dedicated to resources for organic producers including webinars, conservation planning guides, and an organic farming handbook. Available at:

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/organic/>

Webinar: Considerations for Transitioning Perennial Production to Organic presented by David Granatstein (WSU). Available at:

<http://www.conservationwebinars.net/webinars/considerations-for-transitioning-perennial-production-to-organic>

Biodiversity Conservation: An Organic Farmer's and Certifier's Guide by Wild Farm Alliance. Available at:

<http://www.wildfarmalliance.org/biodiversity>

WSDA Organic Input Materials List. The WSDA Organic Program maintains a list of products that have been reviewed and determined to be compliant under USDA organic regulations. <https://agr.wa.gov/FoodAnimal/Organic/MaterialsLists.aspx>

Organic Material Review Institute (OMRI). An organization that maintains a list of compliant inputs. <https://www.omri.org/>

Apples: Organic Production Guide from ATTRA-National Sustainable Agriculture Information Service. Available at:

<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=4>

Tree Fruits: Organic Production Overview from ATTRA-National Sustainable Agriculture Information Service. Available at:

<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=2>

## Organic Statistics and Marketing

WSU Organic Statistics and Tree Fruit Resources. Statistics and publications regarding organic agriculture and tree fruit production in Washington State. <http://tfrec.cahnrs.wsu.edu/organicag/organic-statistics/>

Organic Trade Association. A membership-based business association for organic agriculture and products in North America, with the mission to promote and protect the organic label. <https://www.ota.com/>



# Food Systems

WASHINGTON STATE UNIVERSITY

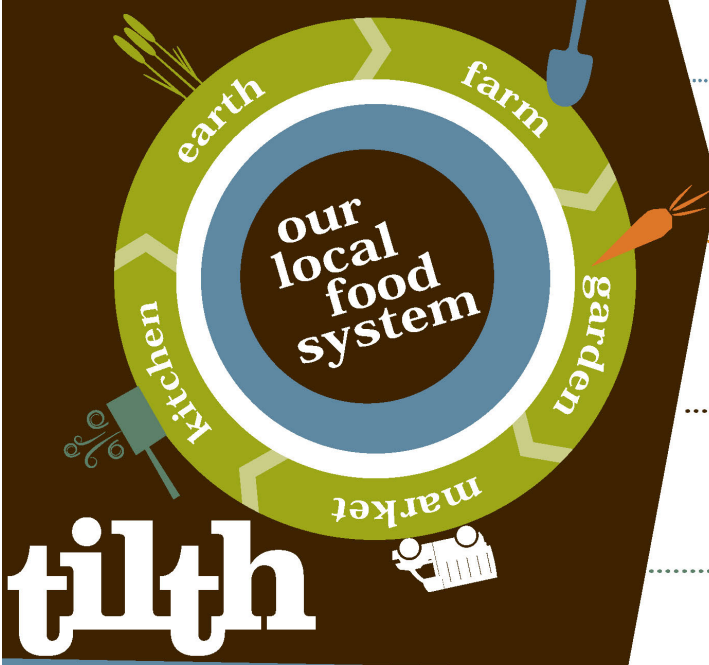


Supporting thriving Washington farms, ecosystems, and food economies to provide communities with equitable access to sustainably produced and healthy foods.



Our food systems work is guided by an interdisciplinary team of WSU Faculty, Staff, and critical non-WSU partners. Team members collaborate on initiatives that promote research, implement change, and provide unparalleled educational opportunities for communities, graduates and undergraduates. All of this work is supported through the Center for Sustaining Agriculture and Natural Resources (CSANR) which convenes extension, research, and academics. Find us at [foodsystems.wsu.edu](http://foodsystems.wsu.edu)

working together to build an equitable and sustainable local food future for all



## earth

A healthy environment is the foundation for growing healthy food. We enable community members to build healthy soil, restore the environment, manage pests naturally, protect water quality and teach others.

soil and water stewardship training | Garden Hotline Master Composter / Soil Builder training | restoration projects

## farm

All farmers need support to thrive. We provide Washington's farming community with peer-to-peer education, connect them with the land they need and support their business enterprises.

farmer-to-farmer education | farm business incubator FarmLink | Tilth Conference | Tilth Producers Quarterly

## garden

People who know how to grow food have better health, a stronger connection to the land and more resilience. We teach people of all ages and incomes to grow food.

adult classes | school tours | mobile classroom children's camps | community learning gardens teacher workshops | Tilth Alliance Youth Garden Works

## market

Farmers need secure markets, and everyone has a right to food that is good for them and for the environment. We help consumers find local products and get produce into their hands through farmers' markets, community supported agriculture (CSA) and subsidized access for low-income families.

Farm Guide | CSA | Good Food Bags

## kitchen

People who know how to cook and understand nutrition are empowered to eat well every day. We share cooking skills, nutrition knowledge and food traditions through classes, events and youth programs.

community dinners | youth cooking clubs | senior meals