# 2005 Farming Sourcebook

with a focus on Sustainable & Certified Production

**Regional Information and Resources on:** 

**Certification and Labeling** 

Soil Management

Seeds

Pest, Disease and Weed Management

Sales and Marketing

**Recycling, Renewable Energy and More** 







O R E G O N ECONOMIC & COMMUNITY DEVELOPMENT DEPARTMENT WASHINGTON STATE UNIVERSITY



## 2005 Farming Sourcebook

## Introduction



Welcome to the 2005 Farming Sourcebook for the Pacific Northwest. The goal of this publication is to compile extensive information on soil, pest control, seeds and certifications systems — related to regional sustainable agricultural practices for vegetable, fruit and grain production — all in one place.

We do not define the term "sustainable." instead, we present information

on a wide variety of practices, which farmers can learn about and incorporate on their farms. We also provide information on certification systems, such as Food Alliance and organic, for farmers who are interested in these options.

Whether or not farmers choose a certification stystem, this publication provides information on innovative farming practices that virtually any farmer can use in one way or another.

In the Pacific Northwest, there is currently a great deal of interest and rapid growth in sustainable and certified farming. These expanding markets create new opportunities for growers, producers, processors, certifiers, agricultural professionals and others. With new opportunities, however, come new challenges. We hope this publication provides information that will help you determine which, if any, of the tools and options are right for you and your farm.

We plan on publishing the Farming Sourcebook annually. In the future, we hope to include information on dairies, livestock, poultry and international trade. We would also like to include more information for the nursery industry. Please write, call, email, fax or use the enclosed feedback card to send us your comments and ideas for future editions of the Farming Sourcebook.

Finally, I want to thank the several dozen experts, throughout the region, who provided content and helped review this publication. Many of them are affiliated with the sponsors of this Sourcebook: Oregon Department of Agriculture, Washington State Department of Agriculture, Oregon State University Extension, Washington State University Extension and Center for Sustaining Agriculture and Natural Resources and Oregon Economic and Community Development Department. I also want to offer a special thanks to our Associate Editor, Celeste LeCompte, for her tireless efforts.

The Pacific Northwest continues to lead and expand the agricultural industry. Let's keep it that way!

Regards,

Katu Permine

Katie Pearmine Editor & Publisher katie@celilo.net

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#### CONTENTS

| Introduction                                       | 2  |
|--|----|
| List of Abbreviations / Contributors               | 3  |
| Chapter 1: Certification and Labeling              | 4  |
| Chapter 2: Soil Management                         | 10 |
| Chapter 3: Seeds                                   | 15 |
| Chapter 4: Pest, Disease and<br>Weed Management    | 18 |
| Chapter 5: Sales and Marketing                     | 22 |
| Chapter 6: Recycling, Renewable<br>Energy and More | 29 |

## List of Abbreviations

The following acronyms and abbreviations are used throughout the 2005 Farming Sourcebook.

| ATTRA  | Appropriate Technology Transfer for Rural Areas                   |
|--------|---|
| CCOF   | California Certified Organic Farmers                              |
| CSA    | Community Supported Agriculture                                   |
| CSANR  | Center for Sustaining Agriculture and Natural Resources           |
| CSREES | USDA Cooperative State Research, Education, and Extension Service |
| GAP    | Good Agricultural Practices                                       |
| GHP    | Good Handling Practices   |
| GMO    | Genetically Modified Organism                                     |
| IFOAM  | International Federation of Organic Agricultural Movements        |
| IPPC   | Integrated Plant Protection Center                                |
| LIVE   | Low Input Viticulture and Enology                                 |
| NOP    | National Organic Program  |
| NRCS   | Natural Resource Conservation Service                             |
| OACD   | Oregon Association of Conservation Districts                      |
| OCIA   | Organic Crop Improvement Association                              |
| ODA    | Oregon Department of Agriculture                                  |
| OFRF   | Organic Farming and Research Foundation                           |
| OMRI   | Organic Materials Review Institute                                |
| OSP    | Organic Seed Project  |
| OSU    | Oregon State University   |
| OTCO   | Oregon Tilth Certified Organic                                    |
| QAI    | Quality Assurance International                                   |
| CADE   |   |

- SARE Sustainable Agriculture Research and Education UI University of Idaho
- USDA United States Department of Agriculture
- **USFW** United States Department of Fish and Wildlife
- WACD Washington Association of Conservation Districts
- WRIPMC Western Region Integrated Pest Management Center
- WSCIA Washington State Crop Improvement Association
- **WSDA** Washington State Department of Agriculture
- WSU Washington State University

## Contributors

The publication of the 2005 Farming Sourcebook would not have been possible without a great deal of help. The following people generously contributed to the writing and/or reviewing of this publication:

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# Certification and Labeling



A scenic view of Mt. Hood with cherry orchards and windbreaks in the foreground outside of The Dalles, Oregon.

#### CHAPTER CONTENTS

| Auditing Organizations     |
|----------------------------|
| Accreditors                |
| Organic Certification      |
| Organic Certifiers         |
| Food Safety                |
| Certification Consultants  |
| More Information, Funding, |

and Technical Assistance

he recent interest in organic and sustainable agriculture has produced a boom in labeling and certification systems. Termed "eco-labels," these identifiers are intended to help consumers choose from products that meet a range of sustainability criteria. In deciding whether or not to use eco-labels, growers must carefully weigh the additional costs (e.g. certification expenses and production changes), against the benefits (e.g. an advertised commitment to stewardship and securing market position). Those who choose to certify should select programs that best meet their needs. Geographic origin is also often emphasized as an important factor in the sustainability of food systems. Particular emphasis is placed on cultivating local and regional food systems, citing advantages such as reduced energy costs for transportation, increased freshness and quality of products, and community accountability. Farmers markets often limit the distance that growers may travel to participate in the market, and many farming cooperatives and organizations across the Pacific Northwest have launched "buy local" campaigns that target consumers' food buying habits. These labels may define their area as Pacific Northwest, Oregon or Washington, a watershed or geographically defined region, or county.

mails a sit spending

## Auditing Organizations

|   |                              |  |                                     |    | AOreanic | due lestin | Managem | inersity Co | ershed | ontsocial            | of GMOS                   |
|---|------------------------------|--|-------------------------------------|----|----------|------------|---------|-------------|--------|----------------------|---------------------------|
|   | Certification Label          | Certifier  | Certifies                           | 15 |          | ે' ડ્વાં   | · 810   | 1/13        | - A    | )°/ \(\ <sup>2</sup> | c (4101                   |
| Shill I and Shill | Food Alliance                | Food Alliance<br>1829 NE Alberta St., Ste. 5, Portland, OR 97211<br>503-493-1066, www.foodalliance.org                                       | Producers<br>Processors             |    |          | ~          | ~       | ~           | ~      | ~                    | points<br>third-<br>party |
| or of date  | Identity Preserved           | <b>Oregon Department of Agriculture</b><br>Commodity Inspection Division<br>635 Capitol St. NE, Salem, OR 97301<br>503-986-4620, www.oda.gov | Producers                           |    |          |            |         |             |        | ~                    | bar<br>third-<br>party    |
|   | LIVE                         | Low Input Viticulture and Enology, Inc.<br>PO Box 102, Veneta, OR 97487<br>541-935-4333, www.liveinc.org                                     | Wineries<br>Vineyards               |    |          | ~          | ~       | ~           |        |                      | points<br>third-<br>party |
| NUMERIC STREET  | NutriClean<br>Residue-Free   | Scientific Certification Systems<br>939 Harrison St., Ste. 400, Oakland, CA 94612<br>510-832-1415, www.scscertified.com                      | Producers                           |    | ~        |            |         |             |        |                      | bar<br>third-<br>party    |
|   | Certified<br>Naturally Grown | <b>Certified Naturally Grown</b><br>205 Hugenot St., New Paltz, NY 12561<br>845-256-0686, www.naturallygrown.org                             | Producers                           | ~  | ~        | ~          | ~       |             |        | ~                    | bar                       |
|   | Demeter Biodynamic           | <b>Demeter, Inc.</b><br>25844 Butler Rd., Junction City, OR 97448<br>541-998-5691, www.demeter-usa.org                                       | Producers<br>Processors<br>Handlers | ~  |          | ~          | ~       | ~           |        | ~                    | bar<br>third-<br>party    |

#### **Certification Considerations**

When entering into any certification process, growers, processors, or handlers should be mindful of the following:

- Documentation Certification systems typically require growers to keep detailed records of their farm operations. Rigorous documentation requirements may ask growers to keep track of purchased inputs, input application information, composting process records, and harvest records. Certifiers and consultants often provide assistance. However, it is ultimately the grower's responsibility to keep accurate up-to-date records. ATTRA (www.attra.ncat.org) provides pages and pages of record-keeping resources on-line; keep in mind that a grower may only need one particular form for their own documentation needs.
- Land History Often lumped in as a documentation piece, land history is important for many certifications. Depending on the property and certification sought, a grower may be required to consult with previous owners and/or dig up old records and receipts related to the land management history of the parcel.
- Farming Practices Allowed and required faming practices vary widely among available certification systems. In most cases, however, growers will have to alter at least some of their current practices in keeping with certification requirements. Typical changes range from limiting or prohibiting pesticide use, to integrating erosion control techniques, to finding new sources of seeds or plant stock. Growers will need to work closely with certifiers and consultants to ensure that their practices meet stated requirements.

## Auditing Organizations Table Key

- USDA Organic Inputs: Organic certifiers must hold producers to the same standards as the USDA National Organic Program materials list. Other certifications may or may not require compliance.
- **Residue testing:** Some auditors require post-harvest testing for pesticide residues.
- ◆ Soil Management: Some auditors require growers to have plans or practices in place to improve soil quality, reduce erosion, or otherwise monitor soil health.
- **Biodiversity/Conservation:** Some auditors require growers to take into account local biodiversity or conservation issues in their field planning or land and resource use.
- Watershed: Some auditors require growers to ensure that their operation improves or does not disturb local watershed health.
- Labor/Social: Some auditors require participants to guarantee work conditions, living wages, fair prices, or other "social responsibility" practices.
- **GMOs:** Organic certifications prohibit the use of Genetically Modified Organisms (GMOs), yet other auditors may choose not to regulate their use.
- Evaluation: Some auditors set a minimum bar of standards which participants must meet in all categories, while others award points, creating a cumulative score for the certified participant with a required minimum value. Third-party certification organizations require independent auditors to verify appropriate practices are maintained.

| Ce    | ertification Label | Certifier  | Certifies                                     | Description  |
|-------|--------------------|--|---|--|
| SAFE  | Salmon-Safe        | <b>Salmon-Safe</b><br>805 SE 32nd Ave., Portland, OR 97214<br>503-232-3750, www.salmonsafe.org   | Land Mgmt. Practices<br>Vineyards (with LIVE) | Salmon-Safe partners with various auditors to certify land<br>management practices that prevent erosion and water<br>contamination and seek to improve riparian ecosystems<br>and salmon habitat.                        |
| USBA  | USDA Organic       | National Organic Program, USDA<br>1400 Independence Ave. SW, South Building, Room 4008<br>Washington, DC 20250<br>202-720-3252, www.ams.usda.gov/nop | Organic Certifiers                            | The USDA National Organic Program certifies auditors to<br>ensure a standard of quality for all products labeled for<br>sales as organic. See below for more information.  |
| IF@AM | IFOAM              | International Federation of Organic Agricultural Movements<br>Charles-de-Gaulle-Str. 5, 53113 Bonn – Germany<br>+49-(0)228-92650-10, www.ifoam.org   | Organic Certifiers                            | IFOAM is a voluntary international accreditation body<br>that provides international standards for organic<br>production and accredits auditing organizations around<br>the world, to promote their use and improvement. |

## Accreditors

## Organic Certification

Since October 2002, the USDA has defined and regulated use of the term "organic" through the National Organic Program. All products that use the term "organic" must meet the minimum requirements of the USDA Organic label. The NOP defines organic production systems as those which "respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity." (National Organic Program Rule §205.2)

To ensure accountability, the USDA accredits organic certification bodies that monitor and administer the certification process for growers, processors, distributors, handlers, and retailers. Although all accredited organic certifiers must meet these minimum standards, some choose to provide additional certification programs that may meet their own organizational standards and/or allow access to the international organic marketplace, which typically involves additional requirements for exported organic products. Those seeking certification may work with other certifiers around the country, but the most common regional certifiers are listed in the above table.



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- increases sales in a rapidly growing market
- builds brand identity and customer loyalty
  - is a leading third-party certification for environmentally friendly and socially responsible agricultural practices.

For more information on how you can become Food Alliance certified, please call (503) 493-1066 or visit us on the web.

www.foodalliance.org

|               | Certification Label      | Certifier  | Certifies  | Additional Certification Programs  |
|---------------|--------------------------|--|--|--|
| Faithfaite    | Aurora Certified Organic | Stellar Certification Services, Inc.<br>25844 Butler Rd., Junction City, OR 97448<br>541-998-5691, www.demeter-usa.org   | Producers  |  |
|               | CCOF Organic             | <b>California Certified Organic Farmers</b><br>1115 Mission St., Santa Cruz, CA 95060<br>831-423-2263, www.ccof.org  | Producers, Processors,<br>Handlers, Retailers        | • IFOAM  |
|               | NutriClean Organic       | Scientific Certification Systems<br>Park Plaza Building, 1939 Harrison St., Ste. 400,<br>Oakland, CA 94612<br>510-832-1415, www.scscertified.org                                 | Producers, Processors,<br>Handlers, Retailers        |  |
| CONTRACTOR OF | OCIA International       | Organic Crop Improvement Association<br>6400 Cornhusker Hwy, Ste. 125, Lincoln, NE 68507<br>402-477-2323, www.ocia.org   | Producers, Processors,<br>Handlers, Retailers        | <ul> <li>IFOAM</li> <li>Japanese Agricultural Standards</li> <li>Conseil des Appellations Agroalimentaires du Québec</li> <li>European Organic Standards (EU 2092/91)</li> </ul> |
| C A           | OTCO                     | <b>Oregon Tilth</b><br>470 Lancaster Dr. NE, Salem, Oregon, 97301<br>503-378-0690, www.tilth.org   | Producers, Processors,<br>Handlers, Retailers        | • Transitional<br>• Salmon Safe<br>• European Organic Standards (EU 2092/91)   |
|               | QAI                      | Quality Assurance International<br>9191 Towne Centre Dr., Ste. 510, San Diego, CA 92122<br>858-792-3531, www.qai-inc.com   | Land, Producers<br>Processors, Handlers<br>Retailers | <ul> <li>IFOAM</li> <li>Japanese Agricultural Standards</li> <li>Conseil des Appellations Agroalimentaires du Québec</li> </ul>  |
|               | WSDA Organic             | Washington State Department of Agriculture<br>Natural Resources Building, 2nd Floor<br>1111 Washington St. SE, Olympia, WA<br>360-902-1805, http://agr.wa.gov/foodanimal/organic | Producers, Processors,<br>Handlers, Retailers        | <ul> <li>European Organic Verification Program</li> <li>Japanese Organic Standards</li> <li>British Soil Association</li> </ul>  |

## Organic Certifiers

## Food Safety

Today's consumers are concerned about the safety and quality of their food. Both Oregon and Washington provide voluntary programs that ensure growing and handling practices that reduce the potential of contamination.

Good Agricultural Practices (GAP) and Good Handling Practices (GHP) certification program components include crop and specific food safety standards meant to reduce the risk of contamination by food-borne pathogens.

EurepGAP is the European standard for food safety and sustainable agriculture certification.

| Organization   | Certification   |
|--|---|
| <b>DDA</b><br>Commodity Inspection Division<br>635 Capitol St. NE, Salem, OR 97301<br>503-986-4620, www.oda.state.or.us/cid/gap.html | Good Agricultural Practices (GAP)<br>Good Handling Practices (GHP)<br>EurepGAP  |
| WSDA<br>Commodity Inspection Division<br>1111 Washington St., Olympia, WA 98504<br>360-902-1833, http://agr.wa.gov/Inspection        | Food Safety (Inspects and analyzes<br>food products; inspects food<br>processing, handling and storage<br>establishments and practices) |

#### The organic label lets customers know that your food is healthy. Get Salmon-Safe certified by Oregon Tilth and they'll also know it's local and helps protect native salmon.

Most organic farmers are as concerned about water quality as they are about healthy farms. That's why Salmon-Safe is partnering with Oregon Tilth to certify Northwest farms. One visit from a Tilth inspector can easily provide both certifications for an additional \$99. When discriminating customers see the Salmon-Safe label on your product, they can be assured that it's local and helps protect our Northwest salmon watersheds.

For more information, call Salmon-Safe at 503-232-3750 or Oregon Tilth at 503-378-0690. www.salmonsafe.org



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## Certification Consultants

When making the transition to certified farming, growers may find they need more assistance than certification organizations can provide. Growers should consider doing their own research, relying on information from organizations such as ATTRA or OMRI, or contacting one of the consultants listed below:

- **Agro-Ecology Northwest,** 1161 Lincoln St., Eugene, OR 97401, 541-342-1160, http://cascadiapermaculture.com. *Holistic farm management specializing in income-producing plants along waterways.*
- ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Spanish), www.attra.org. Affiliated with the National Center for Appropriate Technology, and funded by the USDA's Rural-Business Cooperative Service, ATTRA provides resources, education, and information to sustainable agriculturalists in the United States.
- Jim Fullmer, 39615 Luckiamute Rd., Philomath, OR 97370, 541-929-4376 jimfullmer@peak.org. *Consulting on Sustainable, Biodynamic, and Organic Farming Solutions. Practical Organic Certification Strategy for Farms and Processors.*
- Organic Agriculture Systems Consulting, 3460 McMillan St., Eugene, OR 97405, 541-343-6795, Lynncoody@compuserve.com. *Technical support services for organic farmers since 1982. Farm systems, planning, soil fertility, crop monitoring, organic pest controls, organic materials, and workshops.*
- **OMRI**, PO Box 11558, Eugene, OR 97440, 541-343-7600 www.omri.org. *Reviews sub*stances for use in organic production, processing, and handling in compliance with the National Organic Program Standards. Produces a list of brand name products for use in organic operations; OMRI Listed seals may be displayed by all products on this list for marketing purposes.

**Simple Organic Solutions (SOS)**, PO Box 1310, Jefferson, OR 97352, 541-917-8641 www.simpleorganicsolutions.com. *Solving your organic sourcing and certification needs. SOS knows the regulations, understands the industry, has the contacts, and appreciates your unique needs.* 

Sources: Oregon Tilth Certified Organic 2004 Directory, Tilth Producers Directory (2003-2004), Scott Exo

## More Information

- **Capital Press**, PO Box 2048 Salem, OR 97308, 800-882-6789, www.capitalpress.info. *Capital Press is an independent farm and ranch newspaper that serves California, Idaho, Oregon, Washington and other Western states.*
- Good Fruit Grower Magazine, 105 South 18th St., Yakima, WA 98901, 800-487-9946, www.goodfruit.com. Online and print directory of suppliers, services and industry organizations. Content includes: CA/Cold Storage; Equipment; Fertilizers/Nutrition; Grower Supplies/Services; Warehouse Packing; Harvest Equipment; Irrigation/Frost Control; Nursery Stock; Pest Management; Post-harvest Equipment.
- **Oregon Tilth Certified Organic Directory**, 470 Lancaster Dr. NE, Salem, OR 97301, 503-378-0690, www.tilth.org. *Online and print directory of Oregon Tilth certified growers, CSAs and U-picks and processors/handlers. Content includes: Frequently requested crops; Oregon Farmers Markets; Retail stores; Distributors; Restaurants; Seeds; Suppliers; Consultants; Laboratories; Conferences; Education Centers; Agricultural Organizations.*
- Tilth Producers (of WA) Directory, P.O. Box 85056, Seattle, WA 85056, 205-442-7620, www.tilthproducers.org. Online and print directory of Tilth Producers of Washington certified growers, CSAs and U-picks and processors/handlers. Content includes: Washington Farmers Markets; Retailers; Distributors; Restaurants; Seeds; Suppliers; Consultants; Conferences; Education Centers; Agricultural Organizations.



## Funding Sources

- ATTRA Building Better Rural Places, PO Box 3657, Fayetteville, AR 72702, 800-346-9140, www.attra.org/guide. A comprehensive listing of federal programs that provide funding opportunities to individuals, organizations, and institutions, both non-profit and for-profit, in sustainable agriculture, forestry, conservation, and community development.
- **OFRF**, PO Box 440, Santa Cruz, CA 95061, 831-426-6606, www.ofrf.org. A non-profit organization whose mission is to sponsor research related to organic farming practices, to disseminate research results to organic farmers and to growers interested in adopting organic production systems, and to educate the public and decision-makers about organic farming issues.
- **USDA CSREES**, 202-720-7441, www.csrees.usda.gov. A wide range of federal financial assistance programs emphasizing the development and implementation of innovative technologies and practices for meeting both scientific and social goals. Note: Not all CSREES programs are focused on sustainable agriculture.
- **SARE**, 4865 Old Main Rd., Logan, UT 84333, 435-797-2257, http://wsare.usu.edu. A competitive grants program that seeks "to expand knowledge and adoption of sustainable agriculture practices that are economically viable, environmentally sound and socially acceptable."

## Technical Assistance

| Organization | Program   | Contact  |
|--------------|---|--|
| ODA          | Agricultural Development<br>and Marketing Division            | Laura Barton, <i>International</i><br><i>Trade Manager/Farmers Market</i><br><i>Coordinator</i> , 503-872-6600,<br>Ibarton@oda.or.us.gov |
| OSU          | Department of Food<br>Science and Technology                  | Mark Daeschel, <i>Fruit and Vegetable Safety Specialist</i> , 541-737-6519   |
| WSDA         | Organic Food Program  | Miles McEvoy, <i>Program</i><br><i>Manager</i> , 360-902-1805,<br>mmcevoy@agr.wa.gov   |
| WSU          | Center for Sustaining<br>Agriculture and Natural<br>Resources | Christopher Feise, <i>Director</i> , 253-445-4626, feise@wsu.edu   |
| USDA         | National Organic Program                                      | Richard Matthews, <i>Program</i><br><i>Manager</i> , 202-720-3252,<br>richard.matthews@usda.gov  |



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## WASHINGTON STATE

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We measure success by the health of our farms, our food and our people. We have a long way to go, but we're proud of the groundwork we've begun.



# Soil Management



A no-till planter is used to plant a new crop of lentils into the residue of the previous wheat crop in Washington state.

#### CHAPTER CONTENTS

Assessing Soil Quality

Biological Soil Management Strategies

Nutrient Management

Technical Assistance

Special thanks to Alex Stone from Oregon State University Extension for her contributions to this chapter. he goal of soil management is to maintain or improve soil quality. The USDA NRCS defines soil quality as "the capacity of a specific kind of soil to function, within natural or managed ecosystem boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation." Improvements in soil quality will increase productivity, reduce soil erosion, make water and nutrient use more efficient, and promote water and air quality.

Photographer Tim McCabe

NRCS.

## Assessing Soil Quality

In order to practice soil management, farmers must first evaluate current soil quality. Scientists have identified a variety of indicators to assess soil quality and function. Sets of physical, chemical, and biological indicators are typically used by both scientists and farmers, as no single indicator or class of indicator adequately describes the quality of a soil. The USDA NRCS suggests the following minimum set of soil quality indicators:

#### Minimum Set of Indicators for Soil Quality Tests

| Indicator   | Relationship to soil health   |
|---|---|
| Soil Organic Matter (SOM)                                     | Soil fertility, structure, stability, nutrient retention, soil erosion, and available water |
| Physical  |   |
| Soil Structure  | Retention and transport of water and nutrients, habitat for microbes, and soil erosion      |
| Depth of Soil and Rooting                                     | Estimate of crop productivity potential, compaction, and plow pan                           |
| Infiltration and Bulk Density                                 | Water movement, porosity, and workability   |
| Water Holding Capacity  | Water storage and availability  |
| Chemical  | ·   |
| рН  | Biological and nutrient availability  |
| Electrical Conductivity                                       | Plant growth, microbial activity, and salt tolerance  |
| Extractable Nitrogen (N)<br>Phosphorous (P) and Potassium (K) | Plant available nutrients and potential for<br>Nitrogen (N) and Phosphorous (P) loss        |
| Biological  |   |
| Microbial Biomass Carbon (C) and N                            | Microbial catalytic potential and repository for C and N                                    |
| Potentially Mineralizable N                                   | Soil productivity and N supplying potential   |
| Soil Respiration  | Microbial activity  |
| SOURCE "Quidelines for Sail Quality Assessmen                 | t in Concernation Diagning " LICDA NDCC Sail Quality Institute                              |

SOURCE: "Guidelines for Soil Quality Assessment in Conservation Planning," USDA NRCS Soil Quality Institute (http://soils.usda.gov/sqi/soil\_quality/assessment/assess.html).

## Soil Quality Testing

There is a great deal of information about quantifying soil chemical and physical indicators (such as pH, nutrient content, or bulk density) and relating those measurements to soil function. In general, less is known about how to relate soil biological indicators (such as the presence of specific microbial species) to specific soil functions. At this time, it may be more useful for farmers to assess soil properties by focusing on indicators resulting from biological activity, such as aggregation, infiltration, or general microbial activity.

Testing kits and guides are available for both quantitative and qualitative soil quality assessments. The following are some of the most commonly used kits in Oregon and Washington.

## Soil Testing Kits and Guides

- Guidelines for Soil Quality Assessment in Conservation Planning, NRCS Soil Quality Institute, PO Box 2890, Washington, DC 20013, 888-526-3227, http://soils.usda.gov/ sqi/files/AssessNoCover.pdf. *This document suggests guidelines for assessing soil quality in the conservation planning process. People with extensive knowledge of soil quality as well as those who are new to soil quality will find the guide useful.* Free
- Willamette Valley Soil Quality Card and Guide, OSU Extension Service, 422 Kerr Administration, Corvallis, OR 97331, 800-561-6719, http://eesc.orst.edu/agcomwebfile/edmat/EM8711.pdf, http://eesc.orst.edu/ agcomwebfile/edmat/EM8710.pdf. A qualitative tool for growers to assess soil structure, compaction, workability, soil biology, plant vigor, root growth, and water availability. Designed for regular use to identify change in soil quality. \$3.00 (guide), \$3.00 (booklet of 25 water-repellent cards), Free (card download)

NRCS Soil Quality Test Kit, NRCS Soil Quality Institute, P.O. Box 2890, Washington, DC 20013, 888-526-3227, http://soils.usda.gov/sqi/soil\_quality/assessment/kit2.html. This booklet containing procedures for 12 on-farm soil tests, an interpretive section for each test, data recording sheets, and instructions on building the test kit. Free

- Murray FFA Soil Test Kits, Murray Future Farmers of America Chapter, PO Box 187, Murray, IA, 50174, 641-447-2517, www.geocities.com/murray\_ffa. A commercial test kit based on the NRCS Soil Quality Test Kit instructions. Includes tools to measure respiration, water infiltration, electrical conductivity, pH, aggregate stability, slaking, nitrates, water quality, and soil texture. Available in standard and deluxe versions. \$265.00 (standard), \$375.00 (deluxe)
- **Professional Soil Quality Test Kit**, Gempler's (Item # RGM250), PO Box 44993, Madison, WI 53744, 800-382-8473, www.gemplers.com. *A commercial test kit based on the NRCS Soil Quality Test Kit instructions. Includes tools to measure respiration, water infiltration, electrical conductivity, pH, aggregate stability, slaking, nitrates, water quality, and soil texture. \$550.00*

## Biological Soil Management Strategies

A variety of soil management strategies can help improve soil health. After a close evaluation of current soil quality and needs, farmers can work toward the improvement of the various indicators through several soil management strategies. Soil organic matter management, cover cropping, reduced tillage, and nutrient management are a few soil management strategies summarized below.

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PO Box 1295 Cottage Grove, OR 97424 E-mail: sales@composttea.com Phone: (541)767-2747 Toll free: (800)779-1709 www.composttea.com

#### Soil Organic Matter Management

Maintaining or enhancing soil organic matter (SOM) levels typically improves soil quality and function. Most soils contain 1-6% organic matter. Some of this organic matter is living organisms, some is slightly decomposed "active" organic matter and most is very decomposed "passive" organic matter all of which perform different functions in soil. Passive SOM contributes to moisture and nutrient retention, aggregation, and deactivation of chemicals. Active SOM supports nitrogen mineralization, aggregation, and disease suppression. Although less well understood, living organisms in soil contribute to overall soil health, in part by improving respiration and increasing competition with soil pathogens. Cover cropping, organic amendment and reduced tillage all may increase active and total organic matter levels.

#### Soil and Soil Organic Matter Publications

- **Soil Organic Matter**, NRCS Soil Quality Institute, PO Box 2890, Washington, DC 20013, 888-526-3227, http://soils.usda.gov/sqi/files/sq\_fou\_1.pdf. *Provides a basic reference on what soil organic matter is and how agricultural practices impact it.*
- Building Soils for Better Crops, SARE Publications, University of Vermont, 210 Hills Building, Burlington, VT 05405, 802-656-0484, www.sare.org/publications/soils.htm. Basic information on soils, soil organic matter and management steps toward building and maintaining healthy soils. Includes other information on available resources.
- Sustainable Soil Management, ATTRA, National Sustainable Agriculture Information Service, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Español), www.attra.org/attra-pub/PDF/soilmgmt.pdf. *Basic information on soils, soil organic matter, and management steps toward building and maintaining healthy soils. Includes other information on available resources.*
- Soil Biology Primer, Soil and Water Conservation Society, 945 SW Ankeny Road, Ankeny, IA 50021, 800-843-7645 http://soils.usda.gov/sqi/soil\_quality/soil\_biology/soil\_biology\_primer.html. Provides an overview of basic soil biology, which introduces the reader to the living component of soil and how that component contributes to agricultural productivity and to air and water quality. Previously produced by the USDA NRCS.
- Pacific Northwest Soil Survey Region, NRCS, 101 SW Main, Suite 1600, Portland, OR 97204-3221, 503-414-3003, www.or.nrcs.usda.gov/pnw\_soil/index.html. Soil surveys describe soils and their potential uses and map soils in the region. This information can be helpful in making decisions about the management of soils for optimum crop production, in planning land uses for urban and suburban areas.

#### **Organic Amendments**

Organic amendments, such as manures, composts, plant residues, or other organic wastes can increase total and active soil organic matter content as

well as soil nutrients. Organic amendments differ widely in their nutrient composition and availability and other attributes. Some materials, like yard waste composts or separated dairy solids, have relatively low nutrient content but high organic matter contents. Growers can access a range of information about which amendments are right for their particular needs, regulations regarding their use, and suggestions for brand-name products through local departments of agriculture, national non-profits, and other resources. A few resources for growers in Oregon and Washington are listed below.

#### **Organic Amendments Resources**

- **Compost Education and Resources for Western Agriculture**, SARE, Agricultural Science Building Room 305, 4865 Old Main Hill Road, Logan, Utah 84322, 435-797-2257, www.aste.usu.edu/compost. *A USDA-funded initiative that provides information about opportunities, practices, innovations, successes, and trends in agricultural composting.*
- The Compost Connection, WSU Center for Sustaining Agriculture and Natural Resources, 7612 Pioneer Way, Puyallup, WA 98371, 253-445-4626, http://csanr.wsu.edu/Compost/index.htm. WSU provides research and resources on compost-related issues, as well as information about teaching facilities, newsletters, research, educational opportunities, and compost sources.
- Benefits and Costs of Using Organic Waste Streams in Small-Scale Agriculture, WSU Department of Crop and Soil Sciences, PO Box 646420, Johnson Hall 201, Pullman, WA 99164, 253-445-4512, www.puyallup.wsu.edu/soilmgmt/SustainAg.htm. *This program works with farmers to develop management in systems that utilize local inputs to pro-duce crops in environmentally sustainable ways.*
- Farm Scale Composting Resource List, ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Spanish), www.attra.org/attrapub/PDF/farmcompost.pdf. *This publication provides information about farm-scale composting, including additional resources, publications, organizations, web resources, and more.*
- **Fertilizing with Manure**, WSU Extension Bulletins Office, PO Box 645912, Pullman, WA 99164, 800-723-1763, http://cru.cahe.wsu.edu/CEPublications/pnw0533/pnw0533.pdf. *This publication assists the small to mid-sized crop producer (organic and conventional) in more efficiently managing nutrients from solid animal manures. It also describes how to determine the appropriate manure application rate based on the type of manure and crops, and how to apply the manure.*
- Manures for Organic Crop Production, ATTRA, National Sustainable Agriculture Information Service, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Español), www.attra.org/attra-pub/PDF/manures.pdf. *This publication addresses the problems and challenges of using both raw and composted livestock manures and guano and discusses some of the solutions.*



Improving Garden Soils With Organic Matter, OSU Extension and Experiment Station Communications, 422 Kerr Administration Building, Corvallis, OR 97331, 800-561-6719, http://eesc.orst.edu/agcomwebfile/edmat/EC1561.pdf. *This publication provides information about boosting plant performance by increasing organic matter content in the soil, and provides specific suggestions for soil amendments.* 

Alternative Soil Amendments: Sources of Organic Fertilizers and Amendments, ATTRA, P.O. Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Español), www.attra.org/attra-pub/PDF/altsoil.pdf, http://attra.ncat.org/attrapub/orgfert.html. *The first publication covers soil amendments that are not standard agricultural fertilizers, such as plant and animal by-products, rock powders, seaweed, inoculants, and conditioners. The second publication is a companion guide that lists sources for purchasing organic fertilizers and amendments by state and by category.* 

Materials Lists and Material Registration, WSDA, PO Box 42560, Olympia, WA, 98504, 360-902-1805, http://agr.wa.gov/FoodAnimal/Organic/MaterialsLists.htm. *The WSDA provides listings of inputs allowed under the NOP Rules, as well as a Brand Name Materials List.* 

**OMRI Brand Name Products Lists (BNPL)**, OMRI, Box 11558, Eugene, OR 97440, 541-343-7600, http://omri.org/OMRI\_brand\_name\_list.html. *OMRI's recommendations regarding the acceptability of brand name products for organic production, processing, and handling. Products included have been reviewed against standards developed by OMRI for assessing compliance with the USDA NOP Rule. Participation in the OMRI program is voluntary. Therefore, the BNPL is not a comprehensive listing.* 

#### **Cover Cropping**

Cover crops are crops grown between cash crops primarily to prevent soil erosion, improve aggregation, suppress weeds, retain nutrients, and increase active and total soil organic material. In some cases, cover crops can fix nitro-

#### Washington State Department of Agriculture Organic Food Program



Offering organic certification services to the USDA's National Organic Program, EEC 2092/91, and JAS Standards.



#### MISSION STATEMENT

The WSDA Organic Food Program protects consumers and supports the organic food industry by ensuring the integrity of organic food products. The program certifies organic producers and handlers to US National Organic Standards and enforces organic standards in Washington State. The program supports the development of export markets by providing certification to foreign organic standards.

PO Box 42560 1111 Washington Street Olympia, WA 98502-2560 (360) 902-1805 http://agr.wa.gov/FoodAnimal/Organic/default.htm

Accredited to: USDA National Organic Program, ISO Guide 6.5, Conseil des Appellations Agroalimentaires du Quebec, IFOAM (pending). gen, provide habitat for beneficial insects, and suppress plant diseases. Cover crop selection must be tailored to the particular climate and cropping system as well as grower objectives. Cover crop species are often grown in mixtures, as mixtures perform more reliably over time. In addition, each species contributes differently to the overall function of the mix. A wealth of information is available about using and selecting cover crops for growers' specific needs.

#### **Cover Cropping Publications**

Cover Crop Resource Page, SARE Publications, 210 Hills Building, University of Vermont, Burlington, VT 05405, 802-656-0484,

www.sarep.ucdavis.edu/ccrop/index.htm. *This online database of over 5,000 items gleaned from more than 600 separate sources, includes journal articles, conference proceedings, standard textbooks, unpublished data, and personal communications from researchers and farmers. The information in the database concerns the management and effects of more than 32 species of plants usable as cover crops.* 

Managing Cover Crops Profitably, SARE Publications, 210 Hills Building, University of Vermont, Burlington, VT 05405, 802-656-0484, www.sare.org/publications/covercrops/covercrops.pdf. This publication explores how and why cover crops work and provides all the information needed to build cover crops into any farming operation. A comprehensive guide on the use of cover crops to sustain cropping systems and build soil.

Mustard Green Manures in Eastern Washington, WSU Cooperative Extension, Grant-Adams, PO Box 37, Ephrata WA 98823, 509-754-2011 ext. 413, http://grantadams.wsu.edu/agriculture/covercrops/green\_manures/ index.htm. *Mustard green manures are being used in irrigated regions of Eastern Washington to improve soil quality, control wind erosion, and manage soil-borne pests. WSU Grant-Adams Extension has been conducting on-farm research since 1999.* 



- **Overview of Cover Crops**, ATTRA, National Sustainable Agriculture Information Service, P.O. Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Español), www.attra.org/attra-pub/covercrop.html. *This website summarizes the principal uses and benefits of cover crops and green manures. Brief descriptions and examples are provided for winter cover crops, summer green manures, living mulches, catch crops, and some forage crops.*
- Using Cover Crops in Oregon, OSU Extension and Experiment Station Communications, 422 Kerr Administration Building, Corvallis, OR 97331, 800-561-6719, http://eesc.orst.edu/agcomwebfile/EdMat/pubresults.lasso?sortnum=0124. A guide to using cover crops in Oregon, with information about thirteen specific cover crops and categories of cover crop. Available in collected format for \$5.50, or as free downloads of individual chapters.

#### **Conservation Tillage**

Tillage destroys soil organic matter and disrupts soil aggregates. Adopting reduced tillage practices can help build soil organic matter and reduce soil erosion. Reducing tillage may be as simple as reducing the number of field operations before planting, or using a spader instead of a rototiller. Reducing tillage may also be quite complex, as in the case of adopting high biomass cover crop no-till methods. Reduced tillage may have an effect on many aspects of the cropping system, including soil temperature, workability, water relations, nutrient availability and disease incidence.

#### **Conservation Tillage Publications**

- Pursuing Conservation Tillage Systems for Organic Crop Production, ATTRA, National Sustainable Agriculture Information Service, P.O. Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Español), www.attra.org/attrapub/PDF/omconservtill.pdf. A brief look at conservation tillage for organic cropping systems. A number of the most promising strategies and technologies are described, and abstracts of recent research are provided.
- Using Strip Tillage in Vegetable Production Systems in Western Oregon, OSU Extension and Experiment Station Communications, 422 Kerr Administration Building, Corvallis, OR 97331, 800-561-6719, http://eesc.orst.edu/agcomwebfile/edmat/ EM8824.pdf. A brief discussion of strip tillage in Oregon. Focuses on current research, potential advantages and disadvantages, and other management practices with which strip tillage may be combined.
- Pacific Northwest Solutions to Environmental and Economic Problems, WSU, Columbia Basin Agricultural Research Center, PO Box 370, Pendleton, OR 97801, 541-278-4396, http://pnwsteep.wsu.edu. An innovative interdisciplinary research/education program focusing on developing profitable cropping systems technologies for controlling cropland soil erosion and protecting environmental quality.

## Nutrient Management

Plants require seventeen elements for growth, many of which are supplied in adequate amounts by the mineral portion of the soil. However, most soils have some deficiencies and regular crop production depletes many of these resources faster than natural processes can replace them. In the Pacific Northwest, the most common nutrient deficiencies are nitrogen, phosphorus, and potassium. Supplemental addition of calcium, magnesium, sulfur, boron, and zinc are also, if less frequently, needed to support optimum crop production. The key to sustainable nutrient management is to meet plant nutrient needs without creating excesses that can harm plants or the environment. Organic amendments such as manures or composts supply nitrogen and most of the other plant essential nutrients, but these amendments do not usually provide an ideal balance of nutrients. Because the cycling of

nitrogen and phosphorous is affected by many management practices, careful monitoring of these and other soil nutrient levels is an important part of soil management. Routine soil tests are also recommended to determine soil pH and the concentration of soluble salts in soil.

#### Nutrient Management Program Resources

Alternative Soil Testing Laboratories, ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Spanish), www.attra.org/attra-pub/soil-lab.html. *This resource list provides a range of soil testing labs and supplies that support the special analytical needs of farmers using organic or sustainable production methods.* 

- Integrated Soil Nutrient and Pest Management (iSNAP) Water Quality Education, 541-737-2683, http://cropandsoil.oregonstate.edu/nm/index.htm. *iSNAP is a joint endeavor of the Oregon, Washington, and Idaho state universities promoting water quality through soil nutrient and pest management practices education and assistance. Information about workshops, publications, contacts, and events.*
- **OSU Department of Crop and Soil Science,** OSU, Ag & Life Sciences Building 3017, Corvallis, OR 97331, 541-737-5712 http://eesc.orst.edu/agcomwebfile/edmat/html/ EM/EM8677/EM8677.html. *OSU provides a listing of analytical laboratories providing soil testing in Oregon. They also provide caveats for those choosing a lab, information about soil testing, and descriptions of services provided by each lab.*
- **Soil Test Interpretation Guide**, OSU Extension Service, 422 Kerr Administration, Corvallis, OR 97331, 800-561-6719, http://eesc.orst.edu/agcomwebfile/edmat/ EC1478.pdf. *Soil testing can be used to diagnose deficiencies and excesses of many of the plant-essential nutrients. This publication gives interpretive information for routine agricultural soil tests performed by commercial agricultural testing laboratories.*

## Technical Assistance

| Organization                                      | Program                             | Contact  |
|---|-------------------------------------|--|
| USDA NRCS   | WA NRCS                             | Shelly Lassiter, <i>Soil Conservationist</i> , 509-323-2992, shelly.lassiter@wa.usda.gov |
|   | OR NRCS                             | Chad McGrath, <i>State Soil Scientist</i> , 503-414-3003, chad.mcgrath@or.usda.gov       |
| OSU Extension Service                             | Horticulture                        | Alex Stone, <i>Soil Scientist,</i> 541-737-5461, stonea@science.oregonstate.edu          |
|   | Crop and<br>Soil Science            | Dan Sullivan, <i>Soil Scientist</i> , 541-737-5715,<br>dan.sullivan@oregonstate.edu      |
| WSDA  | Organic<br>Certification<br>Program | Miles McEvoy, <i>Program Manager,</i><br>360-902-1805, mmcevoy@agr.wa.gov                |
| WSU Extension Service                             | Crop and Soil<br>Science            | Craig Cogger, <i>Soil Specialist,</i><br>253-445-4512, cogger@wsu.edu                    |
|   | Sustainable<br>Agriculture          | David Granatstein, <i>Sustainable agriculture,</i><br>509-663-8181, granats@wsu.edu      |
| National Association of<br>Conservation Districts | OACD                                | 503-391-9927, www.oacd.org   |
|   | WACD                                | 360-757-1094, www.wacd.org   |

# Seeds



Cosmos grown for seed at the Organic Education Center. Orange cosmos are heat and drought tolerant and attractive to both butterflies and bees.

#### CHAPTER CONTENTS

Common Seed Terms

Oregon Tilth's Organic Seed Project

National Organic Program – Seed, Seedlings and Stock

> Seed Inspection and Certification Programs

Non-GMO and Organic Seed Suppliers

More Information, Funding, and Technical Assistance Today's producers face the challenge of procuring seed varieties that produce disease-free, high-yielding crops that are suited to particular regions. For organic producers, plant genetics play an essential role in meeting these needs, as pest and disease management options are more limited.

When examining seed purchasing options, producers should understand the distinction between seed distributors and seed breeders or producers. Most catalog distributors that market to farmers do not produce all, and may not produce any, of their seed offerings. Rather, they rely on usually larger seed producers outside of their region or country.

Some producers save their own seed, and the Seed Savers Exchange (see More Information section) offers valuable resources to help the do so.

## Common Seed Terms

- **Cross-pollination** When pollen is exchanged between different flowers from different plants.
- Cultivar A plant variety evolving in cultivation rather than in the wild.
- Heirloom An open- or cross-pollinated variety passed down through

generations, that has cultural significance to certain groups. Within a crop, heirloom varieties are an important part of the genetic heritage.

- Hybrid A cross between any two plants. In the seed trade, the FI hybrid (or first filial generation) usually refers to a variety generated from a cross between two individual lines. Seed from FI hybrids cannot be saved to replant, as subsequent generations will be highly variable.
- Inbred A line that has been self-pollinated for several generations. If crossed with another hybrid line, progeny are genetically similar.
- Non-GMO An organism whose genetic material has not been altered across species lines or intra-specifically through gene engineering.
- Open-pollination A group of genetically similar individuals that are often out-crossed, but may show a mixture of self- and cross-pollination. Unlike hybrids, open-pollinated plants grow true to type each year (i.e. offspring are identical to parents).
- Organic With respect to seeds, the term organic refers to seed crops that have been grown according to the accepted standards of organic farming.
- ◆ Self-pollination A plant has the same father and mother (usually pollen is transferred without an external pollinator to the pistil of the same flower or between flowers on the same plant).
- **Untreated** Not treated with preservatives, fungicides or other chemicals that ensure high germination and establishment rates.
- Variety A plant that has evolved in the wild from a species or subspecies and which is sufficiently distinct to be given its own varietal name (after the abbreviation var.).

## Oregon Tilth's Organic Seed Project

Oregon Tilth's Organic Seed Project (OSP), founded in 1998, works to conserve biodiversity and increase bioregional food security by protecting and enhancing plant genetic resources through research, education and participation in regeneration and variety development.

Participants learn about plant characterizations, plant breeding, seed regeneration and marketing. Discoveries and innovations have and continue to be shared through seed exchanges, publications, a website, workshops and annual meetings. In 2003, working in collaboration with Cornell University, the OSP produced the "Organic Plant Conservation Handbook," which offers instruction on all aspects of seed production and plant evaluation. Source: Heather Smith, Oregon Seed Project Program Coordinator



## National Organic Program – Seed, Seedlings and Stock

A shift is occurring in the seed trade with the implementation of the USDA NOP Rule requiring producers to use organic seed and planting stock. Many conventional seed production companies are beginning to produce organic varieties, including both hybrid and open-pollinated seeds, and several companies are focusing on breeding varieties that are adapted to organic systems.

Section 205.204a of the USDA NOP Rule, states that a producer must use organically-grown seeds, seedlings and planting stock. However, it allows the following exceptions:

- (I) Nonorganically produced, untreated seeds and planting stock may be used to produce an organic crop when an equivalent organically produced variety is not commercially available (see below), except, that, organically produced seed must be used for the production of edible sprouts;
- (2) Nonorganically produced seeds and planting stock that have been treated with a substance included on the National List of synthetic substances allowed for use in organic crop production may be used to produce an organic crop when an equivalent organically produced or untreated variety is not commercially available;
- (3) Nonorganically produced annual seedlings may be used to produce an organic crop when a temporary variance has been granted in accordance with section 205.290(a)(2) (generally a provision for natural disasters or severe crop loss);
- (4) Nonorganically produced planting stock to be used to produce a perennial crop may be sold, labeled, or represented as organically produced only after the planting stock has been maintained under a system of organic management for a period of no less than one year;
- **(5)** Seeds, annual seedlings, and planting stock treated with prohibited substances may be used to produce an organic crop when the application of the materials is a requirement of Federal or State phytosanitary regulations.

NOTE: "Commercial Availability" depends on appropriate "form, quality or quantity" as determined by the certifying agent. "Equivalent" variety is defined on the USDA NOP website (www.ams.usda.gov/nop/Q&A.html).

## Seed Inspection and Certification Programs

Oregon and Washington offer voluntary, third-party inspections and certifications for seeds. Inspections examine the seed for pests, disease, noxious weed content, and other pertinent factors to satisfy the requirements for export. Third-party seed certification provides seed buyers with evidence of seed and varietal purity and offers seed growers access to both domestic and international markets, including the organic market.

#### Voluntary Programs

#### **ODA**, **Seed Licensing Program**, **Seed Service Sampling**, Jim Cramer, Program Administrator, Commodity Inspection Division, 635 Capitol St. NE, Salem, OR. 97301, 503-986-4620, www.oda.state.or.us. *This program regulates the sale and labeling of agricultural and vegetable seed sold or transported within Oregon and provides for sampling and testing of seed being sold to insure compliance with Oregon law. Staff of the Seed Service Sampling program collect official seed samples, which are delivered to the department's Plant Division or the OSU laboratory.*

**OSU Oregon Seed Certification Service, Department of Crop and Soil**, Ron Cook, Seed Certification Specialist, OSU, Room 031, Corvallis, OR 97331, 541-737-4513, www.oscs.orst.edu. *Provided for the maintenance and increase of quality seed and propagating material, it insures varietal purity and seed quality. Laboratories examine the seed for pests, disease, noxious weed content, and other factors, as requested, to satisfy the requirements for export.* 

- WSDA Seed Inspection and Certification Program, Fawad Shah, Program Manager, 21 N 1st Ave., Ste. 203, Yakima, WA 98902, 509-225-2630, http://agr.wa.gov. This program inspects seed fields for insects/disease; inspects and tests seed for purity/germination; issues phytosanitary export certificates; licenses seed dealers; issues labeling permits; and certifies all non-cereal crops in Washington state.
- WSCIA, Keith Pfeifer, Manager, 414 S 46th Ave., Yakima, WA 98908, 509-966-2234, www.wscia.com. The only WSDA delegated official seed certifying agency, WSCIA provides certification for chickpea, field pea, lentil, soybean, sorghum, and small grains.

## More Information

- ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140, http://attra.ncat.org. ATTRA lists suppliers of certified organic grain seed, certified organic vegetable and medicinal plant seed, and open-pollinated, untreated seed. It also provides suggestions for minimizing contamination of organic seed produced on-farm.
- Native Seed/SEARCH, 526 N 4th Ave., Tucson, AZ 85705, 520-622-5561, www.nativeseeds.org. Seeks to preserve crop seeds that connect Native American cultures to their lands in cultures of the American Southwestern and northwest Mexico.
- **OMRI**, PO Box 11558, Eugene OR 97440, 541-343-7600, www.omri.org. *OMRI publishes and regularly updates an online list of sources of organic seed and provides a professional, independent, and transparent review of materials.*
- Seed Savers Exchange, 3076 N Winne Rd., Decorah, IA 52101, 563-382-5990, www.seedsavers.org. A non-profit whose members save and distribute heirloom varieties of vegetables, fruits, nuts and grains. Offers "Seed to Seed" and other publications.

## Funding Sources

- **OFRF**, PO Box 440, Santa Cruz, CA 95061, 831-426-6606, www.ofrf.org. *OFRF funds on-farm research, and dissemination of results. Also offer technical support to farmers, students and researchers interested in developing on-farm organic research projects.*
- **SARE**, 4865 Old Main Hill Rd., Logan, UT 84322, 435-797-2257, http://wsare.usu.edu. SARE expands knowledge about sustainable agriculture practices, which provides both a research and education base for the future economic viability of U.S. Agriculture.

## Technical Assistance

| Organization          | Program                          | Contact  |
|-----------------------|----------------------------------|--|
| Organic Seed Alliance |                                  | Matthew Dillon, <i>Executive Director</i> , 360-385-7192, matthew@seedalliance.org |
| Oregon Tilth          | Organic Seed<br>Project          | Heather Smith, <i>Program Coordinator,</i> 503-378-0690, heather@tilth.org         |
| OSU                   | Department of<br>Horticulture    | Jim Meyers, <i>Professor</i> , 541-737-3083, meyersja@science.oregonstate.edu      |
| WSU                   | Cooperative<br>Extension Service | Carol Miles, <i>Agricultural Systems Specialist</i> , 360-576-6030, milesc@wsu.edu |

## Non-GMO Seed Suppliers

| Organization  | Distribution; Offerings  |
|---|--|
| Abundant Life Seed  | Retail, Wholesale;<br>Open pollipated and beirloom souds                 |
| 541-767-9606, www.abundantlifeseeds.com                               | open-poinnated and nemoon seeds.   |
| Bailey Seed   | Retail, Wholesale;   |
| 800-407-7713, www.baileyseed.com                                      | Carly uniteated seeds.   |
| Christine Farms<br>38165 Richardson Gan Rd, Scio, OR 97374            | Retail, Wholesale;<br>Open-pollinated trefoil (forage                    |
| 503-394-2631,www.bigtrefoil.com                                       | legume/cover crop/green manure).   |
| Filaree Farm  | Retail, Wholesale;   |
| 509-422-6940, www.filareefarm.com                                     | Hardneck and softneck garlic.  |
| Fungi Perfecti  | Retail, Wholesale;   |
| 800-780-9126, www.fungi.com   | mushroom varieties.  |
| Garden City Seeds / Irish Eyes  | Retail, Wholesale;   |
| 209-964-7000, www.irish-eyes.com                                      | the far North.   |
| Horizon Herb  | Retail, Wholesale;   |
| PO Box 69, Williams, OR 97544<br>541-846-6704, www.horizonherbs.com   | Collections from America, China and India. Seeds organic or wildcrafted. |
| Nichols Garden Nursery  | Retail, Wholesale;   |
| 800-422-3985, www.nicholsgardennursery.com                            | and flower seeds.  |
| Peace Seeds   | Wholesale;   |
| 2385 SE Thompson St., Corvailis, OR 97333<br>541-752-0421             | vegetable seed.  |
| Southern Oregon Organics  | Wholesale;   |
| 541-846-7173  | vegetable, flower and herb seeds.  |
| Territorial Seed Company  | Retail;  |
| 541-942-9547, www.territorial-seed.com                                | vegetable seeds.   |
| Thunderfoot/Earthworks - SOW Organic Seeds                            | Retail, Wholesale;   |
| 888-709-7333, www.organicseed.com                                     | varieties.   |
| Victory Seed Co.  | Retail;  |
| 200 Box 192, Molalla, OR 970038<br>503-829-3126, www.victoryseeds.com | Vegetable, flower and herb varieties.                                    |
| Weaver Seed of Oregon   | Wholesale;   |
| 541-524-5702, wseeds@aoi.com  | common fetch and oats.   |
| Wild Garden Seed  | Retail, Wholesale;   |
| 503-929-4068, www.wildgardenseed.com                                  | vegetables, herbs and flowers.   |

SOURCES: ATTRA, Oregon Tilth Certified Organic 2004 Directory, Tilth Producers Directory (2003-2004), Organic Consumers Association



An example of intercropping for pest management on Persephone Farm, Lebanon, OR.

#### CHAPTER CONTENTS

Biointensive Integrated Pest Management

Getting Started with IPM

Rules and Regulations under Certification Systems

IPM Research Bodies and Resources

More Information, Funding, and Technical Assistance

Special thanks to Paul Jepson from Oregon State University for his contributions to this chapter. The most effective suppression of insect pests, disease and weeds (pests) is achieved when producers integrate a variety of tactics that prevent, avoid or mitigate crop losses. These tactics limit the need to use suppressive measures, including pesticides. The term Integrated Pest Management (IPM) is used to define this approach, which is based on an understanding of the ecology of the pest organism and the relative contributions that cultural, biological and chemical approaches make to pest suppression.

## Biointensive Integrated Pest Management Systems

Widely practiced in the Pacific Northwest, Biointensive IPM defines a dynamic approach to IPM that considers the farm as part of an agroecosystem, with particular characteristics that need to be understood and managed to minimize pest damage. This approach is information-intensive and relies upon diagnosis and observation combined with a commitment to longerterm, ecologically-based solutions to pest problems. Farms that practice biointensive IPM tend to take a similar approach of enhancing both planned and unplanned diversity in such a way that the farm is rendered less

## Getting Started with IPM

Growers can use the following diagnostic steps to manage pest problems:

- Diagnose your problems
- Confirm the identity of pests, diseases and weeds in crops using state diagnosticians, county-based extension agents, on-line Pacific Northwest Pest Management Handbooks, and printed materials.
- Map your farm over the seasons, including crop and non-crop areas and the cultural, biological and chemical pest control practices that you use.
- Are Economic Injury Levels (EIL's) for pests known that might help determine the level of damage from pest outbreaks and the best time for sprays, if needed?
- Determine management options
- Compile resources from printed and on-line materials (e.g. extension bulletins, BIRC and ATTRA publications).
- Find a local expert (e.g. county extension agent).
- Talk to producers with similar crops/problems and consider forming a grower group to develop IPM practices.
- Can the pest problem be prevented by changing rotation, variety, cultural methods or through habitat modifications?
- If suppressive tactics are required (e.g. sprays), which are the least hazardous (e.g. OMRI-listed or reduced-risk pesticides)?

susceptible to pest outbreaks. This approach differs in details, according to the crops grown, climate, soil and surrounding landscape.

Biointensive IPM is one of the most complex and sophisticated aspects of agricultural production, and it pays to both consult multiple sources of information and communicate with other growers who share common problems and approaches. For an excellent general introduction and guide to Biointensive IPM, see "Biointensive Integrated Pest Management" by Rex Dufour, available on line from ATTRA (www.attra.org/pest.html).

#### **Biointensive IPM International Resources**

- **IPMnet News**, The Consortium for International Crop Protection, c/o Integrated Plant Protection Center, OSU, 2040 Cordley Hall, Corvallis, OR 97331, 541-737-5673, www.ipmnet.org/news.html. *A globally-distributed IPM newsletter*.
- **IPM World Textbook**, 107 Green Hall,1530 N Cleveland Ave., St. Paul, MN 55108, 612-624-7418, http://ipmworld.umn.edu/textbook.htm. *Ambitious on-line textbook about IPM based at the University of Minnesota*.
- Organic Perspectives Newsletter, USDA Foreign Agricultural Service, 8233 Old Courthouse Rd., Ste. 200, Vienna, VA 22182, 202-720-7115, www.fas.usda.gov/agx/ organics/organics.html. Organic agriculture news from around the world and many other resource links with relevance to IPM.
- **Organic e-prints**, Danish Research Centre for Organic Farming, PO Box 50, Foulum, DK-8830 Tjele, Denmark, +45 8999 1679, http://orgprints.org. *Open access international archive for published research in organic agriculture, including IPM.*
- **CABI Organic Research**, CABI Publishing North America, 44 Brattle St., 4th Floor, Cambridge, MA 02138, www.organic-research.com. *Subscription-only database of literature on organic agriculture with free listings of events and other materials.*

- Select options that best fit your system
- Which might be the most cost effective?
- Are decision-aids available (e.g., weather and degree-days information, relevant IPM programs)?
- Which methods best fit within your calendar of activities?
- Might other problems be encouraged by some approaches?
- How might approaches be integrated to achieve more sustainable pest suppression?
- Are methods compatible with certification system?
- Consider experiments to evaluate options
- Do you need to select from among several possible approaches?
- Are grants or local researchers available to help support comparisons?
- Might adoption of these practices qualify me for Farm Bill support programs?
- Design a simple, practical experiment.
- Monitor the results to help your approach evolve
- Note the timing and severity of outbreaks on simple maps of your farm.
- Can you enhance natural controls or cultural practices in locations where severity is higher?
- Develop a whole farm perspective, using resources like the USDA SARE, "Whole Farm Approach to Managing Pests."

## Rules and Regulations under Certification Systems

The Certification and Labeling chapter provides essential information and resources on organizations that should be consulted about the specific requirements of the different certification schemes that are available in the Pacific Northwest. The requirements for compliance with these schemes vary and are subject to change. Alternatively, growers may wish to pursue biointensive IPM practices without having a specific certification system in mind. IPM adoption, particularly biointensive IPM, combined with effective nutrient management; provides a pathway to greater economic and ecological sustainability. The resources listed below should help growers identify areas where practical alternatives exist to current practices that they might wish to improve or change.

**OMRI**, PO Box 11558, Eugene, OR 97440, 541-343-7600, www.omri.org. *Reviews materials for compliance with NOP standards and produces lists of approved products*.

IR-4 Program, Rutgers University, 681 US Hwy 1 South, North Brunswick, NJ 08902, 732-932-9575, http://ir4.rutgers.edu/biopesticides.html. Program ensures that specialty crops receive registrations for modern, often reduced risk pesticides, including biopesticides, listed by commodity.

U.S. EPA Biopesticides Division, Region 10, 1200 Sixth Ave., Seattle, WA 98101, 800-424-4372, www.epa.gov/pesticides/biopesticides. Web site includes excellent biopesticide active ingredient fact sheets.

List of Suppliers of Biological Control Organisms in North America, California Department of Pesticide Regulation, PO Box 4015, Sacramento, CA 95812, 916-324-4100, www.cdpr.ca.gov/docs/ipminov/bensuppl.htm. *A 34-page booklet which can be printed from CDPR web site.* 

## IPM Research Bodies and Resources

The western United States is well served with university-based research, education and outreach resources, including county and regional extension offices and research centers. Many publications are available free of charge or at low cost, and internet-based resources are increasingly rich and comprehensive. Below is information about a number of these resources.

#### Pacific Northwest States

**PNW Plant Disease, Weed, and Insect Management Handbooks**, OSU, 422 Kerr Administration, Corvallis, OR 97331, 800-561-6719, http://plant-disease.ippc.orst.edu; http://pnwpest.org/pnw/weeds; http://pnwpest.org/pnw/insects. *Print and online versions of pest management options manuals in OR, WA and ID. On-line versions include thousands of photographs and links to useful resources. Up–to-date chemical information, including products approved for use in organic agriculture.* 

**Treasure Valley Pest Alert Network**, Web only, www.tvpestalert.net/index.php3. *OSU, UI joint pest alert system, using e-mail and web-based alerts for producers in the Treasure Valley region.* 

Weather and Degree-Days for IPM Decision Making, OSU, Cordley Hall 2040, Corvallis, OR 97331, 541-737-5523, www.pnwpest.org/wea. OSU IPPC service with development models for over 40 pests, diseases and weeds, and general degree-day models, for PNW states linked to weather data and maps.

#### Oregon

- **IPPC**, OSU, Cordley Hall 2040, Corvallis, OR 97331, 541-737-9082, http://ippc.orst.edu, Coordinates IPM programs in Oregon; Weed and Insect Management Handbooks; online weather and degree models; e-mail news service; IPM Newsletter; Farmscaping for Beneficials Program; Farm Safety Program; and Pesticide Safety Program.
- **Oregon Invests! Database**, 126 Strand Agriculture Hall, Corvallis, OR 97331, 541-737-5656, http://oregoninvests.css.orst.edu. *Use this unique database to find a researcher or project that is relevant to your needs in Oregon.*
- **OSU Plant Clinic Diagnosis**, Cordley Hall, Corvallis OR, 97331, 541-737-3472, www.bcc.orst.edu/bpp/Plant\_Clinic/index.htm. *Identification of plant disease nematode and arthropod pests, fee-based for disease diagnosis. Many samples submitted via county extension offices. Submission forms for diagnosis available on web site.*
- **OSU Extension Publications**, Publication Orders, Extension and Experiment Station Communications, OSU, 422 Kerr Administration, Corvallis, OR, 97331, 800-561-6719, http://eesc.oregonstate.edu/agcomwebfile/edmat/default .html. *Access to all extension publications, including IPM in multiple commodities.*



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#### Washington

- IPM Program, 24106 N. Bunn Rd, Prosser, WA 99350, 509-786-9287, http://ipm.wsu.edu. *Coordination of IPM programs in Washington, web site providing comprehensive access to IPM programs in numerous commodities.*
- **CSANR**, 7612 Pioneer Way, Puyallup, WA 98371, 253- 445-4626, http://csanr.wsu.edu/AboutCSANR. *Develops approaches to agriculture that are eco-nomically viable, environmentally sound, and socially acceptable. Facilitates interdisciplinary linkages among growers, industry, environmental groups and agencies.*
- Washington Public Agriculture Weather System, WSU, IAREC, 24106 N. Bunn Road, Prosser, WA 99350, 509-786-9212, http://index.prosser.wsu.edu. An agricultural weather information and decision support tool for agriculture including IPM.
- Plant Pathology Diagnosis, WSU Puyallup, 7612 Pioneer Way East, Puyallup, WA 98371, 253-445-4582, www.puyallup.wsu.edu/plantclinic/index.html. *Fee-based diagnostic service for insects, diseases and noxious weeds. Instructions available on web site.*
- WSU Extension Publications, WSU Extension Bulletin Office, WUS, PO Box 645912, Pullman, WA, 99164, 509-335-2857, http://pubs.wsu.edu/cgi-bin/pubs/index.html. Access to all extension publications, including IPM in multiple commodities.

## More Information

- ATTRA Pest Management Division, ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Spanish), www.attra.org/pest.html. Over 30 publications about IPM available on line, including landscape management for biological control, and IPM approaches.
- **BIRC**, PO Box 7414, Berkeley, CA 94707, 510-524-2567, www.birc.org. *A very large number of IPM publications available.*
- Alternative Farming Systems Information Center, National Agriculture Library, 10301 Baltimore Ave., Room 132, Beltsville, MD 20705, 301-504-6559, www.nal.usda.gov/afsic/ofp. *Excellent information resources listings and agricultural research publications from before the development and use of synthetic pesticides.*
- **On-Farm Research Guide**, OFRF, PO Box 440, Santa Cruz, CA 95061, 831-426-6606, www.ofrf.org/research/On-farm.Research.Guide.pdf. *Printable booklet on on-farm research methods. Access to summaries of OFRF-sponsored research in organic IPM.*
- **Oregon Tith, Inc.**, 470 Lancaster Dr. NE, Salem, OR, 97301, 503-378-0690, www.tilth.org. *A non-profit research and education organization that supports and promotes biologically sound and socially equitable agriculture.*
- Whole Farm Approach to Managing Pests, USDA Sustainable Agriculture Research and Education Program, Sustainable Agriculture Publications, 210 Hills Building, University of Vermont, Burlington, VT 05405, 802-656-0484, www.sare.org/publications/farmpest/farmpest.pdf. *Twenty-page book on whole-farm pest management.*



Guide to Natural Enemies of North America, Cornell University, Web only,

- www.nysaes.cornell.edu/ent/biocontrol. Online text book and guide to biological control organisms including parasitoids, predators, pathogens of crop pests and weed biological control agents.
- Biological-Integrated Pest Control and Insect Identification, University of California Riverside. Web only, http://faculty.ucr.edu/~legneref/bc.htm. *Informative and detailed databases and guides to concepts and practices of biological control and to the agents themselves.*
- The IPM Institute of North America, Inc., 1914 Rowley Ave., Madison, WI 53726, 608-232-1528, www.ipminstitute.org/about.htm. A non-profit organization fostering recognition of IPM practices in the marketplace.
- Acres USA, PO Box 91299, Austin, TX 78709, 800-355-5313, www.acresusa.com. One of America's oldest and largest magazine covering ecological agriculture. Acres USA also sponsors national conferences and publishes books.

## Funding Sources

- NRCS, OR: 101 SW Main St., Ste. 1300, Portland, OR 97204, 503-414-3200;
  WA: 316 W Boone Ave., Ste. 450, Spokane, WA 99201, 509-323-2900; http://soils.usda.gov/sqi/soil\_quality/land\_management/organic2.html, www.wcc.nrcs.usda.gov/pestmgt. Organic and sustainable growers are eligible for a number of farm assistance programs, detailed on the web site.
- **USDA WRIPMC**, Web only, 530-754-8378, www.wripmc.org/Research/index.html. Administers regional IPM grants, Pest Management Alternative Program grants, and WRIPMC grants. Direct links with producers and produce organizations encouraged.
- **USDA CSREES**, 1400 Independence Ave. SW, Stop 2201, Washington, DC 20250, 202-205-0241, http://csrees.usda.gov. *Numerous grant programs support research and outreach in IPM through university-based research. Many encourage cooperation with producers and producer groups, including grants for organic agriculture.*
- **OFRF**, PO Box 440, Santa Cruz, CA 95061, 831-426-6606, www.ofrf.org. *OFRF is a lead-ing exponent of on-farm research in organic agriculture.*
- **SARE**, Agricultural Science Building, Room 322, 4865 Old Main Hill Road, Logan, UT 84322, 435-797-2257, http://wsare.usu.edu. *WSARE supports research and outreach projects in sustainable agriculture that can include pest management in a farming system context. WSARE funds Farmer Rancher grants that support producers directly.*
- National Foundation for IPM Education Inc., 111 Congress Ave., 4th Floor, Austin, Texas 78701, 512-391-4998, www.ipm-education.org. Awards funds to growers groups and others from EPA's Pesticide Environmental Stewardship Program (PESP).

## Technical Assistance

| Organization | Program                               | Contact  |  |
|--------------|---------------------------------------|--|--|
| UC Davis     | Statewide IPM Program                 | Peter Goodell, <i>IPM Extension Director</i> , 559-646-6515, ipmpbg@uckac.edu                                    |  |
| OSU          | Integrated Plant Protection<br>Center | Paul Jepson, <i>Director and IPM Coordinato</i><br>541-737-9082,<br>jepsonp@science.oregonstate.edu              |  |
|              | Plant Clinic                          | Melodie Putnam, <i>Diagnostic Plant</i><br><i>Pathologist</i> , 541-737-3472,<br>putnamm@science.oregonstate.edu |  |
| WSU          | Integrated Pest<br>Management Program | Doug Walsh, <i>Coordinator</i> ,<br>509-786-9287, dwalsh@tricity.wsu.edu   |  |
|              | Plant Clinic                          | Jenny Glass, <i>Diagnostic Plant Pathologist</i> , 253-445-4582, glass@puyallup.wsu.edu                          |  |

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# Sales and Marketing



Wheel line sprinkler irrigation in Wallowa, Oregon.

#### CONTENTS CHAPTER

Value-Added Sales and Marketing Options

Co-Processing

**Regional Distributors** 

Marketing Reading List

More Information, Funding, and Technical Assistance

## Value-Added Sales and Marketing Options

Choosing appropriate marketing strategies requires balancing production demands with the amount of time, interaction with customers, and risk that growers are willing to accept. Whether focusing on organic produce or local food systems, farmers have a variety of options.

With most value-added sales and marketing strategies, farmers can expect to receive higher prices for their products by eliminating steps in the distribution chain or by reaching higher-end consumer markets. Finding a new market that best suits farmers' capabilities can have marked benefits. However, farmers should also expect to face new challenges, such as increased off-farm labor and the additional costs of product promotion and delivery.

Balancing these considerations is an important part of participating in value-added marketing. The table opposite details some of the specific considerations for a few of the most common marketing options.

## Local and Regional Marketing Options

| Option  | Description   | Potential Benefits, Requirements and Costs  |
|---|---|---|
| Agri-tourism  | Farm-stands, U-pick, farm tours, overnight stays, bed-and-breakfast, schools, and retreat facilities are a few of the experiences grouped under this term. As much about experiencing farm-life as about acquiring produce, agri-tourism draws urban residents to rural places.   | <ul> <li>Farm aesthetic value and location</li> <li>Farm characteristics (family owned, century farms status, diversified, etc.)</li> <li>Amenities for farm guests</li> <li>Relevant taxes</li> <li>Relevant zoning permits</li> <li>Insurance coverage</li> </ul>   |
| <b>Community Supported</b><br><b>Agriculture</b> (CSA) or<br>subscription farming | Any variety of arrangements in which the grower agrees to deliver a certain quantity of produce to the consumer on a regular (usually weekly) basis throughout the season for a set price paid up-front at the beginning of the season. Consumers "share the risk with the grower." CSAs may have on-farm work or other cooperative agreements for members. | <ul> <li>Small-farm-accessible market</li> <li>Meet demands of share size and number of shareholders</li> <li>Broad product variety to attract and retain customers</li> <li>Member involvement activities</li> <li>Some for-profit or consumer-operated CSAs may share in the producer's sales</li> <li>Publicity expenses</li> </ul>  |
| Farmers Markets   | Local gatherings of local growers, usually on a weekly basis. Some<br>markets include non-food vendors, while others are exclusively fresh<br>and prepared foods. Contact your local and state farmers market<br>organizations to find a market that fits your needs and interest.  | <ul> <li>Ability to cultivate customer loyalty</li> <li>Allows for variability of quantity on regular basis</li> <li>Opportunities to make connections with restaurants, retailers or CSA members</li> <li>High level of consumer feedback</li> <li>Increased transportation and labor costs</li> <li>Booth or space rental fees</li> <li>Some markets collect percentage of growers sales</li> <li>Costs of creating attractive display</li> </ul> |
| Restaurants   | Increasing numbers of restaurants and chefs are choosing to use<br>locally sourced ingredients in their menus. Connecting with a<br>restaurant's chef or buyer may be an option for growers with high<br>quality or specialty produce.  | <ul> <li>Increased farm recognition and consumer demand</li> <li>Restaurant characteristics and needs (size, niche, etc.)</li> <li>Need to provide reliable supply for prolonged period of time</li> <li>Preparing or processing product</li> <li>Cost of promotional activities</li> </ul>   |
| Grocery Stores  | Increasing numbers of grocery stores are marketing locally grown and<br>organic produce. Talk with the produce merchandiser at the grocery<br>store or chain you wish to work with to learn how the store's produce is<br>sourced.  | <ul> <li>Increased farm recognition and consumer demand</li> <li>Grocer needs and available markets</li> <li>Costs of cleaning, cooling, storing, etc.</li> </ul>   |
| Institutions  | Schools, government offices, campuses, and other organizations with<br>large food service needs are choosing fresher, local suppliers for their<br>cafeterias. Local producers connect to institutions directly, through<br>buy-local campaigns, and through distributors or cooperatives.  | <ul> <li>Increased consumer demand for local produce</li> <li>Institutional needs</li> <li>Institutional schedule and growing season (e.g. schools)</li> <li>Additional processing costs (freezing, storing, etc.)</li> <li>Insurance coverage</li> </ul>   |

## Co-processing

Some growers may wish to explore the opportunities offered by value-added processing of their harvest. Value-added processing may range from drying, canning, freezing, or preserving to preparing recipes that utilize home-grown ingredients. For individuals just getting started, processing can be a daunting task: purchasing supplies and equipment, having home kitchens certified for commercial processing (which isn't allowed in Washington State), finding or establishing a commercial kitchen to use, and experimenting with commercial scale production can be costly in terms of both time and money. One solution may be to seek out a co-processor. Co-processors – also known as co-packers — may be food processors operating below capacity. Here are some tips for finding a co-processor:

- Identify your production needs and talk to your state's department of agriculture to find out who is already producing similar products in your area.
- If you are seeking to market an organic product, the processing facility will need to be certified organic.

- Talk to multiple processors with the right technical capabilities to ensure that you receive good service at an appropriate cost.
- Expect to negotiate the terms of your contract with the co-processor: What is the minimum order amount? How much lead time will the processor need? Can they handle the inventory or will you be responsible for storage? Most will ask you to sign a two-way non-disclosure agreement, protecting your recipe and their process.
- Remember that making stove-top recipes is not the same as a commercial process. You should expect changes to your recipe, either in terms of ingredients, cooking times and temperatures, or methods.

SOURCE: Aaron Johnson, Food Innovation Center; Food Processing Using a Co-Packer, Linda Blan-Blyford and Rodney Holcomb, Oklahoma State Extension Service (www.agmrc.org/markets/info/foodcopacker.pdf).

## Working With Regional Distributors

Many of the market options described above require growers to devote significant time and energy to off-farm activities. Distributors purchase raw

## Regional Distributors Specializing in Local and Organic Produce

| Distributor Contact Information   | Specialty Line or Focus  | Requirements   | Growers in WA, OR  |
|---|--|--|--|
| <b>Charlie's Produce</b><br>Diane Dempster<br>Farmers Own Manager<br>206-625-1412 | Charlie's buys high-quality, locally-grown organic<br>produce. Additionally, the <i>Farmer's Own Brand</i> features<br>locally-sourced organic produce for local and national<br>distribution. | Any volume. Growers may work either exclusively or non-<br>exclusively with Charlie's in long-term or occasional<br>relationships. Farmer's Own growers contract for specific<br>product.  | 10-15<br>(Farmer's Own Brand)<br>>100<br>(Charlie's Produce) |
| <b>CF Fresh</b><br>Joe Gabriel<br>Production Manager<br>541-687-9535              | Distributes exclusively high quality organic apples, pears, potatoes, onions and some stone fruits.  | Any volume. Growers work exclusively with CF Fresh to market their products.   | 30-40  |
| Organically Grown Company<br>David Lively<br>Marketing Director<br>541-689-5320   | OGC works only with local experienced growers with<br>certified organic produce. OGC's Ladybug Brand labels<br>identify products from the Pacific Northwest at point of<br>sale.               | Any volume. Growers may work either exclusively or non-<br>exclusively with OGC in long-term, occasional, or contract<br>growing relationships.  | 30-40  |
| Sheridan Fruit Company<br>Tom Barwick<br>503-236-2113                             | SFC sources organic products for their Portland,<br>OR-based retail location. Conventional and organic<br>products sourced for restaurants as well.  | 10-20 cases preferred. Growers work directly with Sheridan<br>on a non-exclusive basis, or may work with packers who<br>partner with Sheridan. Actively seeking growers wanting to<br>promote fresh produce at retail location on summer weekends. | 20-75  |

farm products for distribution to a variety of food service entities, such as food manufacturers, processors, suppliers, restaurants, and grocery stores. Connecting with a distributor may take the burden of processing and marketing from the grower in exchange for reduced product prices.

Growers should consider carefully what their needs are before working with a distributor. Although selling through a distributor traditionally discon-



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nected the farm from its customers, many produce brokers now are working to maintain these links and showcase farms by producing web and print materials. For some growers, working with a distributor that shares these values may be as important as more technical considerations, such as the distributor's delivery system, volume requirements, and contract type. Growers interested in retaining farm visibility and identity should talk with distribu-



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#### Toll-free: 800-346-9140 or 800-411-3222(Spanish)

Hundreds of publications and thousands of links to valuable resources are available at the ATTRA Web site: www.attra.ncat.org.

ATTRA is a project of the National Center for Appropriate Technology



tors about their marketing strategies. Within Oregon and Washington there are several distributors that offer an organic or locally sourced line of products. However, most of these distributors work with a secondary distributor or broker to handle these lines. Historically, there were several distributors specializing in local and organic produce. However, increasing consolidation in the food industries has whittled the numbers down to a few companies.

## Marketing Reading List

Farming Alternatives: A Guide to Evaluating the Feasibility of New Farm-Based Enterprises. Cornell Cooperative Extension Service. 607-255-7654.

- Sell What You Sow: The Growers Guide to Successful Produce Marketing. Gibson, Eric. www.nwpub.net/swys.html
- *The Green Book: Handbook of Regulations for Direct Farm Marketing.* http://agr.wa.gov/Marketing/SmallFarm/default.htm

*Legal Guide for Direct Farm Marketing.* Hamilton, Neil. www.statefoodpolicy.org/legal\_guide.htm

*Alternative Enterprises and Agritourism Resource Manual.* Maetzold, James. jim.maetzold@usda.gov, 202-720-0132.

Farm to Cafeteria Connection: Marketing Opportunities for Small Farms in Washington State. Sanger, Kelli and Leslie Zenz. http://agr.wa.gov/Marketing/ SmallFarm/102-FarmtoCafeteriaConnections-Web.pdf

Reap New Profits. Sustainable Agriculture Network. www.sare.org

Western Profiles of Innovative Agricultural Marketing: Examples from Direct Marketing and Agri-Tourism Enterprises. Western Extension Marketing Committee. http://cals.arizona.edu/arec/wemc/westernprofiles.html

## More Information

#### General

- ATTRA, PO Box 3657, Fayetteville, AR 72702, 800-346-9140 (English) 800-411-3222 (Spanish), http://attra.ncat.org/ marketing.html. A listing of marketing publications published by ATTRA and others. How-to guides, directories, and other resources.
- **USDA Marketing Services Branch**, 1400 Independence Ave. SW, Washington DC, 20250, 202-720-8317, www.ams.usda.gov/tmd/MSB. *Information and resources on a variety of marketing strategies for growers and others. Information on direct marketing, market profiles, and publications.*
- Agricultural Marketing Resource Center, 1111 NSRIC, Iowa State University, Ames, IA 50011, 866-277-5567, www.agmrc.org. A resource for crop-specific marketing information, including market trends, statistics, and available direct markets.
- Sustainable Agriculture Network Direct Marketing Resource Guide, Web Only, http://wsare.usu.edu/marketing/search.cfm. Online database of educational resources for farm direct marketing hosted by UC Davis.
- WSDA Small Farm and Direct Marketing Program, PO Box 42560, Olympia, WA 98504, 360-902-2057, http://agr.wa.gov/Marketing/SmallFarm/default.htm. A valuable direct marketing resource for Washington State. Includes technical and financial support resources, as well as the Green Book, a guide to the regulations that apply to farmdirect marketing in Washington State.
- Municipal Research and Services Center of Washington, 2601 Fourth Ave., Ste. 800, Seattle, WA 98121, 206-625-1300, http://mrsc-web.mrsc.org/Subjects/Planning/economic.aspx. A range of resources designed to support farms as businesses, touching on topics of economic planning, direct marketing, agricultural tourism, and statistics about agriculture in Washington State.

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- **ODA Commodity Commissions**, 1207 NW Naito Parkway, Suite 104, Portland, OR 97209, 503-872-6600, www.oda.state.or.us/admd/commodity.html. *ODA oversees the administration of Oregon's 28 grower-supported commodity commissions, which aid in marketing and market research for specific commodities.*
- WSDA Commodity Commissions, PO Box 42560, Olympia, WA 98504, 360-902-2043, http://agr.wa.gov/Marketing/Commodity

Commissions/CommodityCommissionList.htm. Washington State has 24 commodity commissions established by state statutes engaged primarily in marketing and/or research related to a specific commodity.

#### **Educational Opportunities**

- **Center for Latino Farmers**, PO Box 9492, Yakima, WA 98909, 509-453-3157. *Offers workshops and one-on-one training about computers for farm management, business development, marketing training, and risk management.*
- **Food Innovation Center,** 1207 NW Naito Pkwy, Portland, OR 97209, 503-872-6680, http://fic.oregonstate.edu. *Offers Northwest Food Business 101, a four-hour workshop, as well as individualized coaching on a range of topics. Contact the Center for more information about offerings.*
- **OSU Small Farms Program**, 1849 NW 9th St., Corvallis, OR 97330, 541-766-6750, http://smallfarms.oregonstate.edu. *Offers conferences and workshops of interest to small farmers*.
- **Portland Chapter of the Chefs Collaborative, Ecotrust Food & Farms**, 721 NW Ninth Ave., Portland, OR 97209, 503-467-0763, www.ecotrust.org/foodfarms. *Sponsors the Farmer-Chef Connection, an annual meet-and-greet for farmers, chefs and retailers.*

Small Farms Team, CSANR, WSU, 7612 Pioneer Way E., Puyallup, WA 98606, 253-445-4597, http://csanr.wsu.edu/EducationOpps. Offers "Cultivating Success" courses in sustainable farming, agricultural entrepreneurship, and business planning; Farmers Market training workshops for managers, vendors, and board members; E-mail list announcing resources for growers; Events calendar and Newsletter; County Harvest Celebrations/Farm Tours.

#### Farmers Markets

- **Oregon Farmers Market Association**, PO Box 215, Portland, OR 97207, 503-233-8425, www.oregonfarmersmarkets.org. *A listing of farmers markets, resources, and other information for growers and consumers in Oregon.*
- Washington Farmers Market Association, PO Box 30727, Seattle, WA 98113, 206-706-5198, www.wafarmersmarkets.com. A listing of farmers markets, resources, and other information for growers and consumers in Washington.

## Community Supported Agriculture (CSA) and Subscription Farming

- **The Robyn Van En CSA Center**, Wilson College, Fulton Center for Sustainable Living. 1015 Philadelphia Ave., Chambersburg PA 17201, 717-264-4141 ext. 3352, www.csacenter.org. *A comprehensive resource for those beginning or operating a CSA. Includes technical assistance, community support, publications, and more.*
- National Agricultural Library: CSA Resources, 10301 Baltimore Ave., Room 132, Beltsville, MD 20705, 301-504-6559 or 301-504-5724, www.nal.usda.gov/afsic/csa/ csafarmer.htm. A comprehensive online directory of all things CSA. Publications, organizations, internet sources, audio-visual materials, and more.



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#### Selling Direct to Institutions

National Farm to School Program, PO Box 363, Davis, CA 95617, 323-341-5095, www.farmtoschool.org. A national resource for establishing farm-to-school programs, including case studies, surveys, evaluation tools, funding opportunities, and a listing of other available resources.

## Funding Resources

**USDA Office of Rural Development, Value-Added Producer Grants. OR**:101 SW Main St., Ste. 1410, Portland, OR 97204, 503-414-3300; **WA**: 1835 Blacklake Boulevard SW, Ste.B, Olympia, WA 98512, 360-704-7715; http://www.rurdev.usda.gov. *A competitive grant available to independent producers, farmer and rancher cooperatives, agricultural producer groups, and majority-controlled producer-based business ventures for planning or implementation of marketing value-added agricultural products or farm-based renewable energy.* 

**SARE, Farmer Rancher Grants and Agricultural Professional Plus Producer Grants.** 4865 Old Main Rd., Logan, UT 84322, 435-797-2257, http://wsare.usu.edu/sub-pages/callfp.htm. *Two competitive grants programs designed to provide funding to farmers and ranchers for projects within sustainable agriculture with the assistance of an agriculture professional as a technical advisor. Particularly of interest for sales and marketing projects.* 

## Technical Assistance

| Organization | Program   | Contact  |  |
|--------------|---|--|--|
| ODA, OSU     | Food Innovation Center  | Laura Barton, <i>International Trade</i><br><i>Manager &amp; Farmers Market</i><br><i>Coordinator</i> , 503-872-6600,<br>Ibarton@oda.or.us.gov |  |
|              |   | Jerry Gardner, <i>Business</i><br><i>Development Manager</i> ,<br>503-872-6608,<br>jgardner@oda.or.us.gov                                      |  |
| OSU          | Small Farms Program   | Larry Lev, <i>Marketing</i><br><i>Economist</i> , 541-737-1417,<br>larry.lev@oregonstate.edu   |  |
|              |   | Garry Stephenson, <i>Program</i><br><i>Coordinator</i> , 541-766-6750,<br>garry.stephenson@oregonstate.edu                                     |  |
| WSU          | Small Farms Program   | Marcy Ostrom, <i>Small Farms</i><br><i>Program Director</i> , 253-445-4514,<br>mrostrom@wsu.edu  |  |
|              | Center for Sustaining<br>Agriculture and Natural<br>Resources (CSANR) | Chris Feise, <i>Director,</i><br>253-445-4526, feise@wsu.edu   |  |





## **OREGON'S RECIPE FOR SUCCESS**

- · Productive land base
- · Sustainable water supply
- · World-class research and technologies
- Cutting-edge certification programs
- Diverse farm-to-market
   transportation system
- Value-added strategies
- Diversity of markets
- · Public/private partnerships
- Strong community support for agriculture



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# Recycling, Renewable Energy & More



Wind farm near Condon, OR.

#### CHAPTER CONTENTS

Waste Management and Recycling

Renewable Energy

Conservation Organizations

Biodiesel

Federal Conservation Incentive Programs

Funding for Agriculture Professionals

# Waste Management and Recycling

Agricultural waste can often be difficult to dispose of: heavy-duty, dirty, and large volume plastics not accepted by residential and commercial recyclers; scrap metal and wood; organic and biological wastes; a range of mechanical parts and implements. Solid waste management organizations have begun to recognize the needs of agricultural and industrial producers, from agricultural plastics recycling to materials exchange, and the number of available resources is growing rapidly.

## Reuse and Recycling Databases for Oregon and Washington

**Oregon Department of Environmental Quality (DEQ)**, 811 SW Sixth Ave., Portland, OR 97204, 503-229-5913, www.deq.state.or.us/wmc/solwaste/rsw.htm. *The Solid Waste Program of the DEQ has excellent resources for reducing, reusing, and recycling waste. Regional DEQ offices can often answer specific (and even unusual) reuse and recycling questions.* 

irtesy Renewable Northwest Projeci

| Agricultural | Plastics | Recyclers |
|--------------|----------|-----------|
| 0            |          | 5         |

| Company Info  | Items Recycled   | States   | Collection Type                       | Cost             |
|---|--|----------|---------------------------------------|------------------|
| Agri-Plas, Inc.<br>5015 Waconda Rd. NE, Brooks, OR 97303<br>503-390-2381, www.agri-plas.com                         | Most types of plastic materials, including: bailing twine, plastic,<br>sheeting/films, ground cover, nursery pots/trays, drip irrigation<br>t-tape, field tiles, triple-rinsed pesticide containers, 55/35<br>gallon drums and barrels/buckets | CA OR WA | U-Haul<br>Pick-up<br>(w/in 100 miles) | Free<br>\$1/mile |
| Northwest Ag Plastics<br>350 Hoff Road, Moxee, WA 98936<br>509-457-3850, http://www.nwagplastics.com                | Most plastic containers  | WA OR ID | Pick-up                               | Free             |
| Oregon Agricultural Chemicals and Fertilizers Association<br>1270 Chemeketa St. NE, Salem, OR 97301<br>503-370-7024 | Most plastic containers  | OR       | Pick up<br>U-Haul                     | Free<br>Free     |

Washington State Department of Ecology, P.O. Box 47600, Olympia, WA 98504, 800-732-9253 or 360-407-6125, www.ecy.wa.gov/programs/swfa. The Solid Waste and Financial Assistance program of the Department of Ecology maintains a database of recycling opportunities available in Washington State, accessible through the internet or by calling 1-800-RECYCLE.

## Renewable Energy

Farmers in windy areas, like the Columbia River Gorge, Eastern Oregon and Central Washington, are finding that wind turbines and other renewable energy options can coexist well with farms. Wind turbine developers also pay farmers to lease land for placement of the turbines, providing a regular source of additional income for farmers.

## Sources of Information on Wind Energy in Oregon and Washington

- **Oregon Department of Energy**, 625 Marion St. NE, Salem, OR 97301, 503-378-4040, www.energy.state.or.us/renew/wind/windhome.htm. *Information about how wind power works, how it can be produced in small systems, and resources for participating. Links to non-profit, non-governmental, and governmental resources.*
- **Energy Policy Division**, Washington State Office of Trade and Economic Development, PO Box 43173, Olympia, WA 98504, 360-956-2096, www.energy.cted.wa.gov. *Washington State's regulatory body on energy policy issues. Lists links and limited sources of wind energy information.*

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Northwest Sustainable Energy for Economic Development, TrueWind Solutions, LLC, 251 Fuller Road Albany, NY 12203. 518-437-8661, www.windpowermaps.org. *Maps of wind energy potential recommended by the United States Department of Energy. Maps are organized by region and state. Available for download, as well as purchase.* 

## Conservation Organizations

**ODA Natural Resource Division**, 635 Capitol St. NE, Salem, OR 97301, 503-986-4550, www.oda.state.or.us. *This division handles Oregon's issues concerning water quality and land use and offers support to the 45 Soil and Water Conservation Districts.* 

**OACD**, 3867 Wolverine St. NE, Suite 16, Salem, OR 97305, 503-391-9927, www.oacd.org. This association is a statewide membership based organization, serving Oregon's Soil and Water Conservation Districts. OACD promotes conservation and wise use of natural resources and educates on: soil and water conservation, flood prevention, proper

## Biodiesel

Many diesel consumers have heard of biodiesel, but think that it is too difficult, too expensive, or too hard to find to make it worth switching. However, using biodiesel does not necessarily — or even usually — require any additional work or technology for the average consumer.

- Biodiesel can be blended with petroleum-based diesel in any mixture. Blends with less than 20% biodiesel (B20 and below) can be used in any diesel vehicle without any alterations to the vehicle.
- Cold flow concerns are a limitation of using pure biodiesel (B100) and blends above B20, if temperatures drop below 30°F.
- Biodiesel has a higher solvency than petroleum-based diesel and may cause clogs in fuel filters when first used in a vehicle, as it flushes the system.
- Vehicles manufactured before 1995 have fuel lines made of nitrile (natural) rubber, which degrades more quickly with biodiesel than regular diesel. Higher-grade rubber such as Viton<sup>®</sup> is used in vehicles manufactured after 1995 and is not vulnerable to this problem.
- More information and a complete listing of bulk biodiesel retailers can be found at the National Biodiesel Board website (www.biodiesel.org) and through the Puget Sound Clean Cities Campaign (www.pugetsoundcleancities.org).

Source: Tomas Endicott, SeQuential Biofuels, Inc.

## Federal Conservation Incentive Programs

| Name and Organization  | Program   | Incentive   |
|--|---|---|
| <b>USFW</b><br>4401 N. Fairfax Dr., Arlington,VA 22203<br>703-358-2201, http://partners.fws.gov                      | Partners for Fish and Wildlife: Help private landowners voluntarily restore wetlands or other fish and wildlife habitats on their land.   | Grant of 50% total costs with landowner cost-sharing remainder.   |
| <b>USDA NRCS</b><br>101 SW Main St., Ste. 1300, Portland, OR 97204   | Environmental Quality Incentives Program: Conserve soil, water, and related natural resources.  | Grant $\leq$ 75% total cost with landowner cost-sharing remainder.  |
| 503-414-3206, www.nrcs.usda.gov<br>316 W. Boone Ave., Ste. 450, Spokane, WA 99201<br>509-323-2900, www.nrcs.usda.gov | Grasslands Reserve Program: Restore and protect plant<br>and animal biodiversity on grasslands and shrub lands<br>while maintaining the areas as grazing lands.   | Easements (10-30 years) provide up to 75% of annual grazing value.  |
|  | Wetlands Reserve Program: Restore and protect wetlands on private property.   | Grant for permanent easement of 100% or 75% for restoration agreement with landowner or other partners cost-sharing remainder.                          |
|  | Wildlife Habitat Incentive Program: Establish and improve fish and wildlife habitat on private lands.   | Grant of $\leq$ 75% total cost with landowner or other partner cost-sharing remainder.  |
|  | Conservation Reserve Program: Improve the nation's natural resources by placing highly erodible and other environmentally sensitive pasture or cropland into conservation practices that reduce soil erosion, improve water quality and enhance wildlife habitat. | Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices. |
|  | Conservation Innovation Grants: Stimulate development and adoption of innovative conservation approaches and technologies.  | Provides up to 50% of total cost of project; applicant must identify non-Federal matching funds.  |
|  | Conservation Security Program: Promote highest standards of conservation and environmental management; address soil and water quality issues.   | Contracts range from 5-10 years and from \$20,000 to \$45,000 per year depending on type of project.  |
| <b>USDA Farm Service Agency</b><br>1400 Independence Ave. SW, Washington, DC 20250<br>202-720-7809, www.fsa.usda.gov | Conservation Reserve Enhancement Program: Help<br>agricultural producers protect environmentally sensitive land,<br>decrease erosion, and restore wildlife habitat.   | Will pay up to 50% of the cost of installing conservation practices; nominal maintenance fees; and possible bonus payments based on priorities          |

SOURCE: Audrey Hatch, Oregon Department of Fish & Wildlife

land use planning, orderly economic development, recreation development, fish and wildlife enhancement and other benefits.

Oregon Watershed Enhancement Board, 775 Summer St. NE, Ste. 360, Salem, OR 97305, 503-986-0178, www.oweb.state.or.us. This organization promotes and implements programs to restore, maintain and enhance watersheds in Oregon.

**WACD**, 16564 Bradley Rd., Bow, WA 98232, 360-757-1094, www.wacd.org. *This is a voluntary non-governmental association with the mission of advancing the purposes of Washington's conservation districts and their constituents by providing leadership, information, and representation.* 

**WSDA Natural Resource Policy**, 1111 Washington St. SE, Olympia, WA 98504, 360-902-1818, www.agr.wa.gov. *This division provides leadership and support in developing and implementing natural resources policies that affect agricultural stakeholders*.

## Funding for Agriculture Professionals

USDA Cooperative Service Research, Education, and Extension Service, Diana Jenkins, 1400 Independence Ave. SW, Stop 2201, Washington, DC 20250, 202-401-6996, www.csrees.usda.gov/fo/fundview.cfm?fonum=1200. Enhancing the Prosperity of Small Farms and Rural Agricultural Communities is a competitive grants program intended to fund research into the economic, social, environmental and biological components important to the prosperity of small farms and rural agricultural communities.

**OSU SARE**, PO Box 756, Albany, OR 97321, 541-967-9169, http://cropandsoil.oregonstate.edu/admin/rfp/2003-sare\_travel.htm. *Professional development travel grants for cooperative extension agents, NRCS and other agriculture professionals, who wish to attend conference, workshops, training, etc on agricultural sustainability.* 

**WSU Center for Sustaining Agriculture and Natural Resources**, 7612 Pioneer Way,Puyallup, WA 98371, 253-445-4626, http://csanr.wsu.edu/SARE/#mini. *The Professional Development Mini-Grant Program is designed to help Extension, Natural Resources Conservation Service, and other agricultural professionals increase their ability to respond to the needs of farmers, ranchers, and the public regarding sustainable agriculture concepts and systems. Funds are also available for a farm stay so that faculty and staff may participate in farm operations, observe effects of farming practices, and learn more about on-farm activities and marketing strategies.* 

# SOLUTIONS

for Agricultural Post Consumer Plastic Recycling





"Market Development Recycler of the Year - 2000" Association of Oregon Recyclers

"Most Innovative Product Award - 2000" SEDCOR - Oregon

**"Better Business Award - 2002**" Oregon Environmental Council

Sustainable Industries Journal 3941 SE Hawthorne Blvd. Portland, OR 97214 ADDRESS SERVICE REQUESTED We are exhausting our children's future . . . *please recycle* 

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#### We try to process any agricultural plastic waste. Please call!

Plant: 5015 Waconda Rd NE Brooks, OR 97303

Mailing address: 948 McNary Estates Dr Keizer, OR 97303

503-390-2381 • Fax: 503-390-5454 Mobile: 503-931-2740 or WIN WIN

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