

OREGON STATE UNIVERSITY  
COOPERATIVE EXTENSION SERVICE

**Wallowa County Office**

668 NW First St  
Enterprise, OR 97828  
(541) 426-3143  
FAX (541) 426-0243  
TOLL FREE 1-888-844-3143



**Union County Office**

Agriculture Service Center  
10507 N McAlister RD  
La Grande, OR 97850  
(541) 963-1010  
FAX (541) 963-1036  
TOLL FREE 1-800-806-5274

## The Prompter/Rancher Review

*November—December 2003*

“A Newsletter to Baker, Wallowa and Union County Farmers”

John Williams  
Wallowa Co. Extension Agent  
[john.williams.1@oregonstate.edu](mailto:john.williams.1@oregonstate.edu)

Darrin L. Walenta  
Union Co. Extension Agent  
[darrin.walenta@oregonstate.edu](mailto:darrin.walenta@oregonstate.edu)

### CALENDAR OF EVENTS

*(\*\* Pesticide Applicator and/or CCA re-certification credit available.)*

#### December

- 8      \*\*CORE Private Pesticide Applicator video training. Baker County Extension Office.  
Contact: Jay Carr at 541-523-6418.
- 8-9    \*\*Oregon Seed Growers League Annual Meeting. Doubletree Jantzen Beach, Portland, OR.  
Agenda available at Union Co. Extension Office.
- 10     \*\*CORE Private Pesticide Applicator video training. Wallowa County Extension Office.
- 12     \*\*CORE Private Pesticide Applicator video training. Union County  
Extension Office. Contact: Darrin L. Walenta at 541-963-1010.

#### January

- 7-9    \*\*PNW Direct Seed Conference. Pendleton Convention Center, Pendleton, OR. Contact: NW  
Direct Seed Conference office at (509)547-5538, FAX 547-5563, or e-mail  
(heather@mcmgt.com). Colby Johnson will represent Union Co. as one of the guest speakers  
during the Northwest Grower Experiences with the Transition to Direct Seed Cropping Systems  
session. Overview at: <http://pnwsteep.wsu.edu/directseed/conf2k4/overview.htm>.
- 12-15 \*\*Integrated Pest Management Meetings at the Hilton-Portland.
- Jan 12-13 PNW Insect Mgmt Conference – contact David Bragg at [braggd@wsu.edu](mailto:braggd@wsu.edu)
  - Jan 12 Field Crops Disease Meeting – contact Tamla Blunt at [tamblunt@lamar.colostate.edu](mailto:tamblunt@lamar.colostate.edu)
  - Jan 13 Vegetable Disease Meeting – contact Cindy Ocamb at [ocambc@science.oregonstate.edu](mailto:ocambc@science.oregonstate.edu)
  - Jan 14 Turf and Ornamental Disease Meeting – contact Chris Olson at (360) 834-1089.
  - Jan 14-16 Western Orchard Pest Management Conference – contact Jay Pscheidt at [pscheidj@science.oregonstate.edu](mailto:pscheidj@science.oregonstate.edu)

## Pesticide License Fee Increases and Pesticide Use Reporting System Update:

The Oregon Department of Agriculture (ODA) recently adopted amendments to Oregon's Pesticide Law (OAR – Ch. 603, Division 057). One amendment increased various pesticide license fees to maintain its base pesticide regulatory program at current levels. The good news—the Private Pesticide Applicator fee did not increase. Why? The \$25 fee is already at the maximum allowed by state statute. Other license fees have not increased since 1982. The table below indicates the new fees effective 2004.

Pesticide License Type	New Fee	Major Categories*
Private Pesticide Applicator	\$25 (no change)	NA
Commercial Pesticide Operator	\$90	No Change
Commercial Pesticide Applicator	\$50	No Change
Com. Immediately Supervised Trainee	\$50	No Change
Com. Directly Supervised Trainee	\$50	No Change
Public Pesticide Applicator	\$50	\$7.50 <sup>1</sup> /\$12.50 <sup>2</sup>
Public Im. Supervised Trainee	\$50	\$7.50 <sup>1</sup> /\$12.50 <sup>2</sup>
Public Directly Supervised Trainee	\$50	\$7.50 <sup>1</sup> /\$12.50 <sup>2</sup>
Pesticide Dealer	\$75	NA
Pesticide Consultant	\$40	NA

<sup>1</sup> The fee to add a category at the time of initial licensing or renewal; <sup>2</sup> The fee to add a category after the license after the license has been issued.

In addition, ODA also adopted a new amendment to the **Pesticide Use Reporting System** state law, which, now states that no enforcement action will be taken for failure to report pesticide use in 2002, 2003, or any year in which the department lacks a fully effective means for pesticide users to report. *The PURS web page is unavailable.* Insufficient funding and spending authority were provided to operate the system during the 2003-2005 biennium. While statutes still require reporting, the department will not take enforcement action for failure to comply. *No means exists for the department to collect pesticide use reports.*

## NEWS AND INFORMATION

### ODA to Review Outdated Local Control Area Orders (CAO)

Several local pest control area orders (many are currently established across Oregon) are undergoing preliminary review by ODA. The objective is to determine if these orders are outdated and need to be abandoned. Among those selected for review were several local control area orders for onion and garlic white rot disease.

The *Allium* Control Area Order for Union County was established in the spring of 1999 and is currently under preliminary review. The primary purpose for this CAO was to prevent the introduction and spread of white rot throughout Union County, thereby, providing protection to future production of *Allium* spp. for both seed and fresh markets. This order applies to both commercial producers and retail outlets where all *Allium* spp. vegetative tissues sold through retail outlets or for commercial production must be certified by a state or federal regulatory agency to have been produced under a state or federally supervised program specifically designed to detect and prevent infection by the white rot fungus.



At this point in time, keeping the CAO intact will preserve Union County for future *Allium* production and, therefore, the basis of my recent recommendation to ODA. ODA will conduct a formal public hearing, probably in Salem, during December or January to address all the local control area orders to be abandoned. At this time the Union County *Allium* white rot CAO *is not* listed for abandonment. However, ODA will be seeking input from us before the end of the year to review the effectiveness of the CAO. It appears that revision may be

necessary to further strengthen the *Allium* Disease Control Area Order for Union County.

Central Oregon producers have an active control area order and typically have meetings to discuss white rot management during the winter months. Fred Crowe, OSU Extension Plant Pathologist – Madras, has extended an invitation to Union Co. growers to participate in these meetings. At your earliest convenience, please contact Darrin at the Union Co. Extension Office with your thoughts on this matter and if you are interested in participating in future white rot meetings (either locally or in Central OR).

## **OSU Winter Wheat Variety Trials Planted this Fall!**

Budget shortfalls in 2002 lead to the abandonment of the OSU Statewide Cereal Variety Testing Program. Faced with continued budget constraints and major reductions in Extension funding in 2003, the Statewide Testing program was not re-instated in 2003.

However, the good news from Dr. Jim Peterson is that the OSU Wheat Breeding and Genetics Program is currently coordinating a wheat variety testing program known as the Oregon Winter Elite Yield Trial (OWEYT). Released varieties and variety candidates that are near-release will be included in the trials and incorporated into the OSU Wheat Breeding nurseries. The goal is to increase efficiency and reduce overall operating costs of the testing program while continuing to generate critical data needed for our growers and for variety release decisions.

Test sites and management practices for the OWEYT will differ from past statewide trials and more trials will be grown off-station. Sites will include Corvallis, Moro, Pendleton, Moro, Condon, Arlington, Hermiston, Lexington, Madras, LaGrande, and Ontario. The La Grande site is located on the John Cuthbert Farm ¼ to ½ mile south of Standley Lane, on Sandridge Road. A more limited spring variety-testing program (OSEYT) will be initiated in 2004 in trials grown at Corvallis, Pendleton, and Klamath Falls.

Information generated from these trials will be summarized, distributed via email, and posted on the web at <http://cropandsoil.oregonstate.edu/wheat>. Seed generated from the trials may be used for quality evaluation through the OSU Wheat Quality Improvement Program and the USDA-ARS Wheat Quality Lab.

## **Laws, Regulations, Court Cases:**

### **Irrigation Ditch Spraying**

*(Continued update in the Headwaters, Inc. v. Talent Irrigation District court case relating to the use of aquatic pesticides in irrigation ditches.)*

In *Headwaters, Inc. v. Talent Irrigation District*, the U.S. Court of Appeals for the Ninth Circuit held that an applicator of herbicides was required to obtain an National Pollutant Discharge Elimination System permit (NPDES) for the direct application of an aquatic herbicide to water, including maintenance of irrigation ditches. There has been continued litigation and uncertainty following the Talent decision including one, which was brought against the town of Amherst for not having obtained an NPDES permit for its application of pesticides to wetlands as part of a mosquito control program. In September 2002, the Second Circuit remanded the Altman case for further consideration and issued a Summary Order that stated, "Until the EPA articulates a clear interpretation of current law among other things, whether properly used pesticides released into or over waters of the United States can trigger the requirement for an NPDES permit [or a state-issued permit in the case before the court] the question of whether properly used pesticides can become pollutants that violate the Clean Water Act (CWA) will remain open.

The Environmental Protection Agency (EPA) issued this interpretation of the

Clean Water Act this past July as interim rules. EPA will solicit comment on this interim statement through the Federal Register prior to determining a final agency position. Until that position is made final, however, the application of pesticides in compliance with relevant Federal Insecticide, Fungicide, Rodenticide Act (FIFRA) requirements is not subject to NPDES permitting requirements.

This memorandum addresses two sets of circumstances for which EPA believes that the application of a pesticide to waters of the United States is consistent with all relevant requirements of FIFRA and does not constitute the discharge of a pollutant that requires an NPDES permit "under the Clean Water Act: 1) The application of pesticides directly to waters of the United States in order to control pests including insects or aquatic weeds; 2) The application of pesticides to control pests that are present over waters of the United States that results in a portion of the pesticides being deposited to waters of the United States."

EPA will continue to review the variety of circumstances in which questions have been raised about whether applications of pesticides to waters of the U.S. are regulated under the CWA. As EPA determines the appropriate response to these circumstances, they will develop additional guidance.

## **Comprehensive Management Plan for the Hells Canyon NRA**

The United States Forest Service released the Comprehensive Management Plan for the Hells Canyon National Recreation Area in Northeast Oregon and Western Idaho in August of 2003. This document, intended to set direction for the next ten years, was appealed by several entities during the appeal period and ongoing discussions are continuing between the various parties at this time. You can read the CMP document at:

[http://www.fs.fed.us/hellscanyon/about\\_us/planning/cmp/index.shtml](http://www.fs.fed.us/hellscanyon/about_us/planning/cmp/index.shtml)

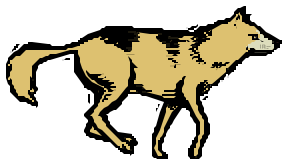
## **Logging Should be Required to Obtain Federal Storm Water Pollution Permits**

U.S. District Judge Marilyn Hall Patel said the U.S. Environmental Protection Agency has misconstrued the 1972 federal Clean Water Act by exempting logging companies from going through the permitting process for storm water runoff.

The Tuesday ruling was based on a lawsuit brought by the Environmental Protection Information Center and other groups against the EPA and a Pacific Lumber Co. logging operation in California's Humboldt County. The groups charged that Pacific Lumber was violating the Clean Water Act in the same manner as a factory that dumps pollutants into a river without a permit.

This ruling, which seems to take the position that culverts, ditches and other kinds of conveyances on forest lands, are point sources like pipes out of a factory is another chapter in the continuing debate on what is point sources of pollution (regulated under the clean water act) and what is non-point sources of pollution.

## **Wolf Reclassification**



A group of 17 environmental organizations have appealed the decision by the United States Fish and Wildlife Service (USFWS) to down list the wolf from Endangered to Threatened. On April 1, 2003 the USFWS published a final rule that: Eliminated protection for the gray wolf in some states; retained limited protection in some states; down lists the gray wolf from endangered to threatened in some other areas where there are either no viable wolf populations or individual wolves or breeding pairs (including Oregon). In addition to this rule the USFWS filed intent to de-list the gray wolf in some areas including Oregon.

The plaintiffs are attempting to stop this down listing/delisting process until wolves are established in a much broader area and until greater regulatory protection is developed.

# NEWS AND OTHER INFORMATION

## Cereal Leaf Beetle (CLB) Continues to Wreak Havoc in NE Oregon!

Small grain producers in NE Oregon continue the battle against the cereal leaf beetle as its range and infestation level increases throughout the region/state. As spread continues so increases the cost of control and the potential for grain yield loss. The CLB population was quite high in 2003 resulting in a dramatic increase in acreage treated for CLB in Union and Wallowa Co. over previous years (see table below). CLB activity and feeding injury was observed in commercial grass seed fields in 2003.

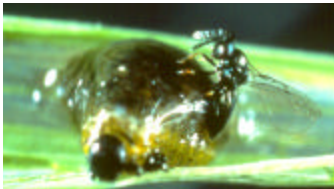
The cost of CLB insecticides ranged from \$3 to \$10/acre (approximately) depending on the insecticide applied. See page 201 of the 2003 PNW Insect Management Handbook for recommendations. Custom application was about \$5/acre. If you consider insecticide alone, growers in Union County spent somewhere between \$67,512 and \$225,040 for control of the CLB last year. Expenses associated with CLB management were not a factor in small grain production budgets just a few years ago, however, today it is considered more of a reality.

<b>NE Oregon Acreage Estimates for Cereal Leaf Beetle Control</b>				
<b>County</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Union	100	4,080	14,206	22,504
Baker	0	400	3,000	1,000
Wallowa	0	0	70	1,841
<b>Total</b>	<b>100</b>	<b>4,480</b>	<b>17,276</b>	<b>25,345</b>

## CLB Bio-Control Program News

Oregon has nineteen counties infested with CLB. A bio-control program was started in 1999 by ODA and USDA-APHIS after CLB was first detected in Oregon. Parasitoid wasps were brought in from eastern states where introduced wasp populations now exist naturally and keep CLB populations in check.

In 2002, OSU cooperated with both agencies to initiate field insectaries for the purpose of raising the parasitic wasps in Oregon. An insectary for *Tetrastichus julis* (larval parasitoid) was set up at the Union Experiment Station and went through two cropping cycles before funding was re-directed to Malheur County. The purpose for doing so was to facilitate a longer growing season for rearing of *T. julis* wasps. In 2003, we recovered *T. julis* from the Union insectary field. Therefore, the field will be managed during 2004 to allow the CLB and parasitoid wasps to prosper (by not applying insecticides) and continued monitoring for natural increase of the parasitic wasp.



Currently, two insectaries are now established in Washington Co. (egg parasitoid) and one insectary in Malheur Co. (larval parasitoid) with additional volunteer insectaries being started by OSU Extension and local area growers in Benton and Jefferson Co. The good news is that parasitic wasps have been recovered from a few sites in either insectary or grower fields in Washington, Malheur, and Union Co. but we don't know if the wasps are over-wintering successfully. The success of this program will become apparent over time as the insectaries begin producing adequate supplies of parasitic wasps for re-distribution and by leaving un-sprayed buffer areas within CLB infested fields.

## Cold Snap Hits!

The recent cold snap has caught the region by surprise and is causing some concern for producers due to visible damage observed in some winter cereal crops. Although it is too early to determine the extent of the damage, it is appropriate to review freeze damage in cereals. The following information was adapted, in part, from the article “Freeze Injury in Cereals Revisited” written in 2000 by Dr. Russ Karow, OSU Crop & Soil Dept.

Weather conditions during the month of October were relatively mild and dry, followed by extremely low temps at the end of October. Such weather conditions set the stage for potential cold injury to winter cereals as plants were not thoroughly hardened off. However, several factors influence the extent of cold injury and include: 1) the physiological condition of the plants when the cold snap occurs; 2) genetic differences in cultivar hardiness (Table 1); and 3) snow cover and soil moisture conditions during the cold period. Injury in cereals progresses from older to younger tissues. The crown and growing points are most hardy. Sugars and other water-soluble materials are in highest concentration in these tissues and act as antifreeze. Often, all above ground leaf tissue will be dead, but tiller and main stem growing points will survive and re-grow.

<b>Winter Hardiness<sup>1</sup> Ratings of Selected Winter Grains</b>					
<b>Soft White - Common</b>		<b>Soft White - Club</b>		<b>Barley</b>	
<b>Variety</b>	<b>Winter Hardiness</b>	<b>Variety</b>	<b>Winter Hardiness</b>	<b>Variety</b>	<b>Winter Hardiness</b>
Brundage 96	6	Bruehl	6	Hesk	Mod
Finch	4	Chukar	5	Kamiak	High
Foote	2	Coda	4	Kold	Mod
Hill 81	5	Edwin	7	Strider	Mod
Lambert	4	Hiller	6	Hoody	Mod
MacVicar	4	Hyak	6		
Madsen	5	Moro	5		
ORCF-101	3	Rely	4		
Rod	4	Rohde	3		
Stephens	3	Temple	4		
Tubbs	4				
Weatherford	3				

<sup>1</sup> Based on Washington State University test data. Scale of 1 to 10 (1 = poor, 10 = excellent).

The “hardening phase” refers to a plant making preparations, as temperature declines, for winter by producing plant compounds that resist frost damage, lowering of the moisture content within the crown, and restricting plant physiological functions. Cereals are most susceptible when plants go from a period of warm temperatures (40+F) and actively growth to cold temperatures (<10 F). Without this process, even the most winter hardy cultivars can sustain injury. If hardening occurs, winter hardy cereals can survive temperatures below 0F for short periods of time without snow cover.

Duration of sub-lethal temperatures also contributes to winter hardiness. I reviewed hourly max/min air temperatures for the *Grande Ronde Valley* (measurements made at the Agri-Met weather station near Imbler) for the period *October 30 through November 6* and was able to determine that the GRV experienced a total (approx.) of 25 hours with temperatures at or below 25 F, 9 hours with temperatures at or below 10 F, and no temperatures below 5 F during this period. Canadian research has shown that at 5 F the ability of plants to survive declines after 12 hours exposure. At 0 F survival rates drop after only one hour.

Growers are encouraged to check plant viability using one or both of the following testing methods:

**Dissection Test:**

- When your field thaws out enough to dig plants, walk through the field and randomly dig up 100 plants.
- Wash off the plants in a warm location (the kitchen sink will work but make sure to get permission first!!).
- Using a safety razor, cut through the plant crown lengthwise (from top to bottom of the crown) and down the middle.
- Examine the plant tissue
  - Healthy plants will have solid, white to yellow crown tissue
  - Damaged plants will have a brown, water-soaked appearing crown

**Paper Towel or “Rag Doll” Test:**

- Collect a representative sample of whole plants from the field (good and poor areas). Try to minimize damage to the crown as you dig the plants out.
- Carefully wash the plants (remember, get permission before using the kitchen sink!). Remove most of the soil. Clip off dead tissue. Take care not to damage the crown or tillers.
- Moisten several pieces of paper towel and lay the plants on the towel with green tissue, if any, over the top edge of the towel. Roll the towel into a cylinder and place the bottom end of the “rag doll” in a container partially filled with water or place the “rag doll” into a plastic. The idea is to not allow the roots to dry out or to drown the roots.
- Place the plants in the refrigerator or other cool place overnight to acclimatize them to warmer indoor temperatures, then move to a warm location (60-65 F). If the plants are alive, new growth should appear on the mainstem or tillers within several days.
- Run this test for at least two weeks. Plants that show an initial growth spurt could die after 7-10 days as dead crowns could have enough food reserves to allow some new tissue growth. At the end of this test, it might be a good idea to dissect the crowns for further evaluation.

If plants have survived, growers must decide whether the remaining stand is adequate to meet yield expectations. Paper gymnastics could be used to estimate maximum yield potential. Russ Karow offered the following exercise for ballpark estimates:

- Two surviving plants per linear foot of 10 inch row would equate to 2.4 plants per sq ft (2 plts/0.833sq ft) or 104,586 plants per acre (43,560 x 2.4).
- If each surviving plant produces four heads and each head produces an average of 48 seeds and each seed weighs 45 mg (@10,000 seeds per pound) then yield would be 2,008 lb/a or 33.5 bu/a.

The bottom line is to try to assess the level of damage and then, if necessary, consider the options of re-seeding or over-seeding from an economic standpoint. Each situation is likely to be unique and each solution will carry a different economic burden and risk. There will be no easy answers.

**If plants have survived, growers must decide whether the remaining stand is adequate to meet yield expectations.**

**Need Credit for  
CORE Private  
Pesticide Applicator  
Training?**

Private pesticide applicators in Union, Baker, and Wallowa Counties who need CORE re-certification credit will have an opportunity to obtain such credit at the following video training sessions:

- **December 8, 2003 - Baker County Extension Service** office at 2610 Grove Street, Baker City. 10:00 a.m. to 2:00 p.m. Call 523-6418 to register. Bring your own lunch!
- **December 10, 2003 - Wallowa County Extension Service** office (Extension Office Conference Room) at 668 NW 1<sup>st</sup>, Enterprise. 10:00 a.m. to 2:00 p.m. Bring your own lunch!
- **December 12, 2003 - Union County Extension Service** office (Ag Service Center Conference Room) at 10507 North McAlister Road, Island City. 10:00 a.m. to 2:00 p.m. Call 963-1010 to register. Bring your lunch!

Participants will receive four (4) CORE re-certification credits. General re-certification credits (4) will be awarded to individuals who have not previously participated in this video training event more than once during their 5-year re-certification period. This training may be used as "other". Licensed private applicators may view the video presentation once for CORE credit (4 hours) and once for general re-certification credit (4 hours).

Agriculture, Family and Community Development, 4-H Youth, Forestry, and Extension Sea Grant programs. Oregon State University, United States Department of Agriculture, and Wallowa County cooperating. The Extension Service offers its programs and materials equally to all people.

**OSU EXTENSION SERVICE  
WALLOWA COUNTY OFFICE  
668 NW 1<sup>st</sup> Street  
Enterprise, OR 97828**

**Bulk Rate  
US POSTAGE  
PAID  
PERMIT # 8  
Enterprise, OR 97828 .**

**RETURN SERVICE REQUESTED**

**PROMPTER/RANCHER REVIEW**

# RESOURCES

## NEW PUBLICATIONS

(Available through any OSU Extension Office, via the Internet at <http://eesc.oregonstate.edu>, or as indicated below.)

- **PNW's Least Wanted List: Invasive Weed Identification and Management (EC 1563)**, \$5 per copy.
- **2003 Eastern Oregon Grass Seed and Dryland Crops Weed Research Annual Report**: To reduce expenses, printed copies will only be mailed out to those who request them. If you would like a printed copy, please call the Columbia Basin Ag Research Center at 541-278-4186.
- **2002 Oregon County and State Ag Estimates (SR 790)** Available on-line at Oregon Ag Information Network web site: <http://ludwig.orec.orst.edu/econinfo> .
- **2003 Directory of Certified Seed Potato Growers**: Available on-line at the OSU Seed Certification web site <http://www.ores.orst.edu/potato/index.html> .
- **Managing Small Acreage Horse Farms (EC1558)**: Cost is \$4 per copy.
- **The Organic Farmer's Guide to Oregon State University (EM 8835)**: <http://eesc.oregonstate.edu>  
Cost is \$1.50 per copy.
- **Managing Diseases and Insects in Home Orchards (EC 631)**: Excellent resource for small orchardist which covers pest management throughout the growing season for several fruit and nut species. Cost is \$1 per copy.
- **What Can I Do With My Small Farm (EC 1529)**: Cost is \$1.50 per copy.
- **OSU Calving School Handbook**: On-line at <http://oregonstate.edu/dept/animal-sciences/cschhand/pdf>
- **OSU Sheep Management Calendar**: On-line at <http://oregonstate.edu/dept/animal-sciences/shpmgmt.htm>
- **OSU Beef Production for Small Farms**: On-line at <http://eesc.orst.edu/agcomwebfile/edmat/EC1514.pdf>
- **2004 Oregon Cattlemen's Association Integrated Resource Management Book (Little Red Book)**: available at Extension Offices for \$3.50. Limited supply.

## WEB SITES OF INTEREST

Got Weeds? Need information on weed management research being conducted in Eastern Oregon? If so, Dan Ball, OSU-CBARC Professor of Weed Science, has a valuable web site at <http://oregonstate.edu/dept/weeds/> containing information and results from his many research projects, annual reports, weed identification, access to the PNW Weed Control Handbook, and many other topics. Many articles are available in PDF format for downloading and printing at your desktop computer. A new feature now allows the site to be searched for all past reports via keyword search.

Mid-Columbia Region Small Farms and Acreage – A joint effort between Washington State University and Oregon State University Extension faculty in the Mid-Columbia Region provides on-line access to information pertaining to horticultural/ crop/ livestock production, workshops, seminars, resources, small farm newsletters, etc. Visit the site at <http://extension.oregonstate.edu/wasco/smallfarms/listinings.html>.

USDA Organic Standards – If you're looking for information on organic production, start at <http://www.ams.usda.gov/nop/indexIE.htm>. The site serves as a clearinghouse for federal organic standards, consumer information, certifying procedures, etc.