Sustaining the Pacific Northwest

Food, Farm, & Natural Resource Systems

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Research Brief: Market and Opportunities for Organic Feed Production in Eastern Washington

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Introduction: Demand and Supply of Organic Food

As the result of sustained growth in demand for organic foods of nearly 20% annually over the past 15 years, organic products comprised approximately 2.5 percent of all U.S. food sales in 2005 (OTA, 2006). Increased availability of organic foods is evidenced by consumers now purchasing the majority of their organic products in conventional supermarkets (Dimitri and Greene, 2002). With the recent entry of major chains, including Wal-Mart and Safeway, in the organic market, and new organic versions of many brand-name foods, the organic market appears to have reached a critical mass of consumers.

Organic price premiums for growers tend to be quite volatile, due to supply and demand fluctuations in this relatively small market (Oberholtzer et al., 2005). Annual average prices for organic produce were generally found to be about double the non-organic price for selected items, both fresh (USDA-ERS, 2003) and frozen (Glaser et al., 1998). Organic produce made up about 42 percent of total sales of organic foods in 2003 (Oberholtzer et al., 2005). In the rapidly growing market for organic poultry, organic price premiums averaged 400% for meat and 350% for eggs in the first half of 2006 (Oberholtzer et al., 2006). As the market matures, these premiums can be expected to decline, but sharp consumer demand for organic poultry and eggs in the near-term will likely support these high organic premiums.

Organic products command a premium relative to conventional products for two reasons. First, producing organic foods is typically more expensive, particularly when factoring in a three-year transition period (during which the grower cannot receive organic premiums). Organic production requires growers to use organic seed, organic fertilizer, and organic pesticides, among other restrictions. Inputs may be difficult to find and/or require considerable transportation costs, especially in the case of organic fertilizer. Labor costs can be higher. Longer rotations may be needed to control pests and diseases, which can reduce profits. Soils generally go through a multi-year biological adjustment that could alter fertility management. Lower or more variable yields can occur, for many reasons, particularly during the transition

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Center for Sustaining Agriculture & Natural Resources

WASHINGTON STATE UNIVERSITY EXTENSION

Small Farms Team

Sustaining the Pacific Northwest
Food, Farm, & Natural Resource Systems

This quarterly newsletter provides a discussion forum for people working towards community-based sustainable food, farm, and natural resource systems using interdisciplinary oriented research and practitioner knowledge.

This is a joint newsletter of the WSU *Center for Sustaining Agriculture & Natural Resources*, the *WSU Small Farms Team*, the *WSU Small Farms Program* and the *Water Quality Management Team*.

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period (Temple, 2000; Oberholtzer et al., 2005). New growers typically face a learning curve that often increases costs and lowers yields. In addition, growers selling more than $5,000 of organic products per year must be certified, thus entailing fees, paperwork, and time.

Supply and demand fluctuations are the second reason for price differentials. As more firms enter the organic market with certified farmland, premiums will decline, other things being equal, until theoretically, premiums simply represent cost differentials between the two types of production. Given the sustained 20% growth rate in the organic sector (compared to a two to three percent growth rate in conventional food market), organic growers are likely to continue to receive higher prices due to supply shortages in this sector. Price premiums for organic products seem to have risen over time (Bonti-Ankomah and Yiridoe, 2006). Between 1995 and 2000, for example, producer price premiums for organic corn rose by 154%, premiums for spring wheat rose by 91%, and premiums for oats rose by 103% (Bertramsen and Dobbs, 2001). In contrast, price premiums for organic apples and pears declined between 2001 and 2004 due to a rapid expansion of supply (Granatstein et al., 2006a). Organic premiums are volatile relative to regular commodity prices and vary considerably by commodity; relative supply and demand for each organic commodity will determine the magnitude of the price premium.

Organic Production in the Pacific Northwest

In response to this growth in demand, producers in the Pacific Northwest have greatly increased their output of organic products. In Washington State, there were approximately 46,000 acres of certified organic land (including 1,172 double-cropped and 5,188 undefined acres) in 2005 (Granatstein et al., 2006a). In 2006, total certified acreage increased to 64,320 acres, including 2,785 double-cropped acres and 7,226 undefined acres. Figure 1 illustrates the distribution of certified organic crop acreage in Washington.

The organic dairy industry represents one of the fastest growing segments of the organic marketplace. In 2005, Washington State boasted 14 certified organic dairies, with 2,378 milkers/dry cows, and approximately 1,237 replacement heifers. The number of certified organic dairies increased to 23 in 2006, with 8 in transition and 21 pending. These dairies need organic feed for over 13,000 cows (Table 1).

As of 2006, Washington State also had about 1,150 head of certified organic beef cows and 1,000 calves and yearlings, in addition to 131,000 certified laying hens and 1,420 meat chickens. For more detail, see the current report on the status of organic production in Washington on the WSU Organic Agriculture website.

Idaho is a leading producer of organic forage and grain in the Pacific Northwest (see Table 2) with 72,204 acres of certified organic forage

Table 1: Organic Dairy Industry (2006)

State	Herd Size	Milkers / Dry Cows					Replacement Heifers / Calves *
		Certified	Transition	Pending	Total *	As % of State Herd	
WA	241,000	2,970	1,134	5,112	9,216	3.8%	3,910
OR	121,000	10,494	210	2,790	13,494	11.1%	9,592
ID	455,000	4,700	N/A	N/A	N/A		N/A
Total	817,000	18,165					

* Includes certified, transition, and pending.

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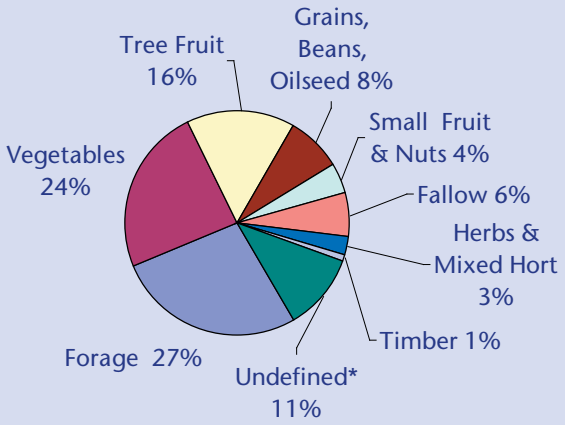
Figure 1: Distribution of Certified Organic Acreage by Crop in Washington



WSDA and Oregon Tilth data
*WSDA land not defined in Crop Categories

and 22,008 acres of certified organic grain (Granatstein et al., 2006b) in 2005. Certified organic acreage rose approximately 20% between 2004 and 2005, with an estimated total of 97,031 acres in 2005. In addition, certified organic livestock production included over 4,000 organic dairy cows and 3,300 organic beef cattle, as well as growing numbers of sheep, hogs, and poultry.

While 56% of the total dairy cows in the Pacific Northwest are in Idaho, it currently has just 26% of the certified organic dairy cows. Since Idaho is one of the largest producers of organic forage and grain, it has a relative advantage in this area. The Idaho Organic Feed Growers Association (IOFGA) is a group of 77 organic feed producers located in a region with high altitude, short growing seasons, and low productivity potential. They have a comparative advantage in this environment with relatively few pests and weeds, and minimal yield loss when switching to organic. Premiums for organic crops kept at least half of their 77 producers in business over the past ten years, according to the IOFGA president (Anderson, personal communication). In 2006, IOFGA shipped 50,000 tons of organic alfalfa to Texas and Colorado in addition to supplying the growing dairy industry in Idaho's Magic Valley.

As of 2006, Oregon leads the region with 42 certified organic dairies and over 10,000 certified organic milkers/dry cows (Table 1). Organic pasture and forage acres have risen significantly in response to the growing demand for organic feed. Both Washington and Oregon increased organic alfalfa acreage by 45% over the past two years (Table 2). Organic hay or silage and organic pasture acreage increased by large percentages, as would be expected in order to meet the grazing requirements for organic dairies. Three transition and five were pending in Oregon. Nationally, there has been a spike in new organic dairies in the past year, with an estimated 70% increase in the supply of organic milk. The spike is a result of strong demand and high milk prices, as well as a one-year grace period before stricter rules go into effect in June, 2008 requiring 100% organic feed (Shepherd, 2007). Currently, organic producers can feed up to 20% non-organic feed.

In general, the Pacific Northwest is a feedstock deficient area and typically purchases the majority of its livestock feed from the Midwest and Canada. In 2003, Washington State imported $328.6 million of the $386.8 million worth of grain it consumed, according to the Social Accounting Matrix (SAM) for the state of Washington. The need for organic grain is particularly great, given the expansion of the organic animal industry and the small acreage amounts devoted to organic production. Grain Millers, Inc. of Eugene, OR, processes about 260,000 bushels of organic soft white wheat annually, but they are turning away new customers due to lack of supply (Schubert, personal communication). They are currently trying to recruit Canadian growers in order to obtain more organic grain.

A recent mail survey of Washington wheat growers asked producers why they do not grow organic grain (Jones et al., 2007). Only three of the 553 respondents reported they had certified organic acreage. Respondents cited inadequate weed control methods as the most common reason for not using organic methods. Additional responses are summarized below:

- Inadequate weed control methods – 69%
- Cannot get equivalent yields – 59%
- Organic pest/disease control methods are inadequate – 59%
- Not worth the time – 43%
- Inadequate transportation, access to organic buyers – 36%
- Too difficult to get enough nitrogen – 36%
- Need more info on organic methods – 33%

(Source: Jones et al., 2007)

Research trials conducted by Washington State University at the Boyd Organic Farm examined the agronomic and economic feasibility of the three-year

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Table 2: Change in Oganic Acreages From 2005 to 2006.

State	Organic alfalfa			Organic hay/silage*			Organic pasture		
	2005 (ac)	2006 (ac)	% Change	2005 (ac)	2006 (ac)	% Change	2005 (ac)	2006 (ac)	% Change
WA	1,140	1,655	45%	3,353	5,049	51%	3,756	10,651	184%
OR	5,970	8,656	45%	10,789	13,556	26%	11,839	18,039	52%
ID	44,115	N/A	N/A	9,706	N/A	N/A	18,384	N/A	N/A
Total	51,225	10,311		17,856	15,884		33,979	28,690	

* Oregon hay/silage category includes 5,992 acres of non-specified forage in 2005 and 2,721 acres of non-specified forage in 2006.

transition period required to certify organic acreage (Snyder et al., 2007). In these trials conducted near Pullman, Washington, weed control problems presented a challenge, particularly in spring grain production. Maintaining the soil fertility necessary to support grain crops required expensive organic fertilizer, green manure crops, and forage/green manure crops. Only the forage system broke even financially by the fourth year, due to moderate income during the transition phase and the highest spring wheat yields in the first organic year. The forage system included alfalfa overseeded with annual green manure crops. The alfalfa crop added some crop revenue during the transition period while also improving soil fertility. All other systems lost money for the four-year period. As this organic research project continues, we hope to investigate the potential of integrated organic livestock and grain production to improve transition profitability.

Current premiums for organic grains and forages offer some financial incentives for producers, but the three-year transition period remains a significant economic barrier. Premiums for organic grains are expected to remain strong, given the current demand situation. Grain Millers, Inc. offers about $9 per bushel for most grains (Schubert, 2006). However, transportation can be expensive since organic grains are currently transported by truck, rather than barge or rail, due to separation and volume issues. A Cargill representative in northwest Washington quoted organic prices approximately double the non-organic grain price, about $100 to $200 per ton more than the non-organic grain. In Idaho, organic barley premiums have remained steady at $50 per ton for the last two years, according to the president of the Idaho Organic Feed Growers Association. Organic alfalfa typically commands a 30% to 50% premium, depending on quality. While encouraging, these incentives may be insufficient to cover the costs and risks of the transition period when costs are amortized over a reasonable recovery period. Areas with relative advantages for organic production may be outside the typical high producing grain areas of this region.

Conclusion

Eastern Washington farmers, both dryland and irrigated, are in a position to benefit from the current and projected demand for organic field crops. The need for forages by the expanding organic dairy sector provides the opportunity to design soil-building rotations that help overcome weed and nitrogen challenges while generating income. Dryland growers can explore perennial forage options and pulse crops that might be sold as livestock protein supplements (e.g., dry peas, feed lupines). Planning for transition of Conservation Reserve Program acres to organic production is an option that could reduce economic risk. Integration of livestock into organic grain operations would also help justify forages and provide manure for fertility. While organic production may be hard to achieve and justify economically in the dryland annual cropping zone, it may fit well in some of the lower rainfall areas where lower yields and N requirements are a better match for organic systems. Irrigated growers could explore soybean production for the dairy sector and adapt well-developed corn-soybean-forage systems from the Midwest. Continued research, such as the Boyd Farm trial and the direct seed organic study in Pullman, will help address production constraints in the high production zone while minimizing the environmental impacts that a tillage intensive organic system might have on this highly erodible landscape. The project is currently exploring funding options to continue this project.

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WSU Small Farms Program Sponsors Series of Tractor Repair Workshops

Clayton Burrows, WSU CSANR

Farmers in areas of Western Washington suffered from severe flooding in November 2006 and then endured severe wind storms in December. Even though January brought with it bitter cold temperatures and unusual amounts of snowfall to the region, many farmers were thankful the month also brought tractor mechanics Grant Gibbs and David Eadie.

Contracted by the WSU Small Farms Program to teach a series of tractor repair workshops for farmers in the King, Pierce, and Snohomish County areas (and specifically for those affected the most in the Snoqualmie Valley), Gibbs and Eadie spent the coldest days of the year teaching farmers how to successfully repair equipment damaged by floods. Whether draining water from gas lines, locating electrical problems, or actually taking apart engines, Gibbs and Eadie performed an invaluable hands-on educational service to the farmers.

In addition to carrying away precious topsoil and destroying valuable flower crops, such as tulips, peonies, and dahlias, the flooding also damaged mechanical equipment. While most farmers were aware of the impending flood and quickly moved equipment and livestock to higher ground, many Hmong farmers, who are rarely fluent in English and generally do not access mainstream media, had no idea flooding was imminent. When the flood waters receded, the Hmong farmers had no doubt their many tractors and rototillers required repair.

Dozens of Hmong farmers gathered at ten farms throughout the area to learn first-hand how to fix their damaged equipment. The workshops took place over nine days, and were facilitated by Bee Cha, Hmong Farmer Coordinator for the WSU Small Farms Program. Each day, the traveling workshop would visit new farms, meeting up with farmers and checking damaged equipment. Overall, the team assessed and worked on nearly 30 pieces of equipment and in the process, taught the Hmong farmers how to perform future repairs themselves.

According to Cha, of the 78 Hmong farmers surveyed in King, Pierce and Snohomish counties, 47 reported flood damage. The average damage report totaled about $25,000 per farm, although some had over $75,000 in losses. Altogether, damage estimates totaled over $1 million, according to Cha.

Most Hmong farmers raise flowers as the main cash crop, accounting for

about 75% of their total profits. Since bulbs and tubers must sometimes be planted up to six months prior to harvest, it will be impossible for many flower farmers to recover losses for the next season. Additionally, since most Hmong farmers lease land, very few of them carry comprehensive flood insurance. Several local counties were designated as disaster areas at the federal level, potentially freeing up FEMA funds for flood relief. However, while the flooding on the Hmong farms damaged soil, crops, livestock, and equipment, but not structures or homes, this federal aid was not readily available.

Based on the initial success, additional tractor workshops were provided in March in King County. Workshops were sponsored by WSU Small Farms Program, King County, and the USDA Risk Management Education Program. For more information or to learn more about how you can help farmers affected by flooding this season, contact Bee Cha.

2006 Specialty Carrot Cultivar Evaluation - Othello, WA

Tim Waters, WSU Extension
Franklin and Benton Counties

Washington State grows approximately 10,000 acres of commercial carrots each year and is the country's leading producer of processed carrots, growing 36% of the nations supply, or approximately 122,000 tons in 2005 (USDA NASS, 2005). The industry is comprised of both commercial fresh

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and processing market producers, as well as some small scale operations. A small percentage of the acreage in production grows specialty carrots. Specialty carrots include varieties bred to exhibit pigments or nutraceutical properties not typically associated with standard commercial cultivars. According to the USDA, the average American consumes five pounds of carrots annually. While the majority of those carrots consumed are the standard orange pigmented cultivars, consumption could increase if consumers were aware of the potential health benefits associated with specialty carrots. This presents an underdeveloped niche market.

Carrots can exhibit orange, white, red, purple, or yellow pigment and these pigments possess different human health benefits. Carrots originated in Afghanistan around 900 AD and were purple and yellow in color. It is believed housewives in the Netherlands selected the orange pigment during the 1700's (Simon, 2004). Since white carrots exhibit no pigment, they only serve as a good source of fiber and aid digestion. Orange carrots exhibit alpha and beta carotene which are said to help improve eyesight and strengthen the immune system. Purple carrots with an orange core exhibit alpha and beta carotene as well as anthocyanin. Anthocyanin helps reduce the risk of strokes and heart disease, in addition to eliminating harmful free radicals from the body. Red carrots contain beta carotene and lycopene. Lycopene has been shown to reduce the risk of cancer. Yellow carrots contain lutein which is known to reduce the risk of macular degeneration. The pigments in carrots are bio-available, or readily absorbed through the human digestive system.

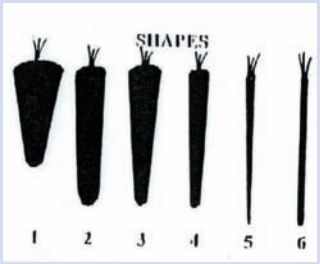
In addition to the health benefits, specialty carrots can also be used to add alternative colors in salads, frozen vegetable mixes, or juices. Individuals unfamiliar with specialty carrots often ask what they taste like. While taste is a rather subjective term, these carrots taste like carrots. After all, not all orange carrots taste the same and as one might expect, the colored varieties do taste a little different.

The 2006 Specialty Carrot Cultivar Evaluation was conducted in a commercial field located southeast of Othello, Washington on Highway 17. The trial planted in a commercial field of Red Core Chantenay processing carrots and was managed by Klaustermeyer Farms. The carrots were planted on April 19, 2006, and evaluated on August 31, 2006, 134 days after planting. Dr. Phil Simon, USDA-ARS in Madison, Wisconsin, provided seeds from his breeding program and from commercial sources. Table 1 shows the judging criteria for root and foliage scores while Table 2 lists evaluation results from participants at the carrot field day held on August 31st. Table 2 lists averages obtained from summarizing the results from all of those who participated in the survey.

Observing the cultivars under standard growing conditions in the Columbia Basin allows industry members the opportunity to consider the use of the specialty cultivars. They can observe how well the cultivars display attributes that make the carrots valuable in their operation. The evaluation also shows how well the cultivars handle common pest pressures. The field day allowed industry members to interact with carrot researchers and share their interest and concerns. This interaction assures that researchers are addressing issues pertinent to the carrot industry in the Pacific Northwest. If you are interested in participating in the 2007 Specialty Carrot Cultivar Evaluation and Field Day, contact Tim Waters and list the subject as *Carrot Field Day*.

Table 1: Judging Criteria

Judging Criteria	1	2	3	4	5
Length	< 6"	6-8"	8-10"	10-12"	> 12"
Tops	Weak		Good		Strong
Texture	Poor		Good		
Flavor	Poor		Average		Sweet
Surface	Rough		Average		Smooth
Overall	Poor		Good		



Additionally, disease ratings were made by Dr. Lindsey DuToit, Plant Pathologist, WSU Mount Vernon, on the same day as the root and foliage scores were compiled. For all diseases rated, a scale of 0 to 5 was used where 0 is healthy and 5 is severe. The results of the disease ratings are detailed in Table 2. Disease ratings provided useful information for both researchers and producers on how the cultivars will respond to disease pressure in the Columbia Basin.

The 2006 Specialty Carrot Cultivar Evaluation and field day provided an excellent venue for carrot industry members to discuss the specialty cultivars on display. Researchers, growers, processors, and other interested parties from Washington, Oregon, California, Wisconsin, and Canada were in attendance.

As far as which cultivars performed the best, beauty is in the eye of the beholder. Or it depends on the desired end use of the carrot. All cultivars should have strong tops and good texture and flavor qualities. A smoother surface is always desirable while length and shape depend on the end use. Dicer carrots are more desirable in the 1 and 2 shape criteria, while bunching carrots should be a 3 or 4 shape, and cut and peel should probably be in the 5 or 6 shape category (Table 1).

Some of the cultivars in the trial are available through commercial sources while others are still being evaluated by Dr. Simon's breeding program. Dr. Simon, USDA-ARS in Madison, WI, developed a list of carrot seed sources in the United States. (This list of seed

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sources is designed to help readers find seed. No endorsement is intended of any businesses listed in this publication, nor is criticism of unnamed businesses implied.)

Table 2: Trial Evaluation and Disease Ratings

Trial	Pedigree	Source	Color	Evaluation Ratings							Disease Ratings		
				Shape	Length	Tops	Texture	Flavor	Surface	Overall	Bacterial Blight	Cercospera Leaf spot	Powdery Mildew
WA 601	SRC P119	Nunhems	Purple	2.00	2.64	2.55	2.67	2.75	2.56	2.43	0	3.5	2.5
WA 602	7262 × Turkish	218–7	Purple	2.80	2.91	2.91	2.67	3.50	3.20	3.43	1	4.5	1
WA 603	KXPC-402	Integra	Purple	2.78	1.80	2.50	2.33	2.50	2.50	2.00	0	4.5	0
WA 604	7262 × Turkish	218–6	Purple	2.78	2.80	3.20	3.00	2.50	3.38	3.00	3	5	3.5
WA 605	71 0603	Seminis	Purple	3.00	3.10	2.80	3.00	4.00	3.63	3.00	1	4	2
WA 606	7262 × Turkish	218–1	Purple	2.22	2.80	3.00	2.00	3.00	3.00	2.57	**	**	**
WA 607	SRC P163	Nunhems	Purple	2.33	2.25	2.00	2.67	2.50	2.67	2.00	1	5	2
WA 608	SRC P160	Nunhems	Purple	2.78	3.50	3.67	3.25	3.25	3.33	3.29	**	**	**
WA 609	PI 432903	001–4	Red	1.33	1.80	2.50	1.25	2.00	1.10	1.71	2	4	2
WA 610	(LWG-S x PI2645432)x (PI264543 x 2566)	410-1	Red	2.56	2.30	2.90	1.50	2.50	2.22	2.29	**	**	**
WA 611	(LWG-S x PI2645432)x (PI264543 x 2566) cg P	539-1	Red	2.25	2.00	2.78	2.50	2.50	2.25	1.83	**	**	**
WA 612	[(2566 × 6253) × Red] × PI432903	303–2	Red	2.17	1.86	1.57	2.00	3.50	2.29	1.67	**	**	**
WA 613	432906PRC × 319858JP	70528M	Red	1.50	1.89	2.11	1.80	1.67	1.29	1.33	1	5	0
WA 614	(5280 × 6366) × Red	411–2	Red	1.50	1.56	2.33	1.75	2.00	1.50	1.50	3	2	0
WA 615	432906PRC × 319858JP	209–1	Red	2.00	2.50	2.63	2.00	2.00	2.00	1.67	2	2	0
WA 616	Forage carrot-Jaune Obtuse de Doubs	102–3	Yellow	2.50	3.25	3.88	3.50	2.50	3.63	3.17	3.5	1	3
WA 617	Yellowstone	Bejo	Yellow	2.50	2.88	4.00	3.33	3.50	4.00	3.60	2	1	2
WA 618	W.Belgian × JOD	211–1	Yellow	2.00	2.75	3.50	3.00	2.50	3.50	2.83	2	3	3
WA 619	71 0005	Seminis	Yellow	1.56	1.70	2.80	3.60	3.00	3.38	2.71	4	1	3
WA 620	Lobbericher	102–2	Yellow	2.25	2.78	3.44	2.67	3.00	3.00	3.00	3	3.5	4.5
WA 621	Mello Yello F1	Bejo	Yellow	3.00	3.29	3.29	3.50	2.00	3.14	3.00	5	1	0
WA 622	W.Belgian × JOD	310–1	Yellow	2.40	2.83	2.83	3.67	4.00	2.80	2.80	5	1	3
WA 623	WAR × JOD	702-5	Yellow	2.14	2.63	3.13	2.00	3.00	3.00	2.60	4	1	2
WA 624	WAR × JOD	211–4	Yellow	2.75	2.78	3.78	3.25	4.00	3.43	3.33	4.5	1	4.5
WA 625	WAR × JOD	603-5	Yellow	2.86	3.50	3.25	2.67	3.00	3.14	3.20	3	3	3
WA 626	Rainbow F1	Bejo	Mix	3.71	3.88	3.75	3.33	3.50	3.71	4.00	2	3.5	2
WA 627	Crème de Lite	Nunhems	Cream	2.75	3.22	3.67	3.00	3.33	3.38	3.33	2	4	3
WA 628	WWortel × BCVTHT	105–2	White	2.57	3.38	3.25	3.33	3.50	3.43	3.20	4	1	0
WA 629	BCVTHT × WWortel	105–1	White	2.71	4.71	3.86	4.00	4.00	3.83	3.50	0	3.5	0

** No plants with tops left

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Acknowledgements: Klaustermeyer Farms for hosting the trial, Rob Maxwell Seminis Seeds, Phil Simon USDA Madison, WS, Lindsey DuToit, WSU Mount Vernon, for disease ratings, and to all those who participated in the 2006 Carrot Field Day.

An Organic Pesticide is Still a Pesticide

Catherine Daniels, WSU
Pesticide Coordinator

As organic agriculture expands, it is becoming more common for pesticides to be approved under the USDA National Organic Program (NOP) standards for use in organic systems. It may not always be well understood what the legal label requirements are for these organic pesticides. In this article I will briefly review some of the regulations that apply to pesticides in general and organic pesticides in specific, and the licenses required for those who apply or advise others to apply them.

Definition of a Pesticide

The word "pesticide" is legally defined for us in two ways. One is by FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) and the other is by RCW 15.58 (Revised Code of Washington). The wording is different between the two, however, the basic definition is similar: a pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Though often misunderstood to refer only to insecticides, the term "pesticide" actually applies to insecticides, herbicides, fungicides, rodenticides, nematicides, and various other "-cides" used to control pests. Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Washington law adds "any spray adjuvant" to the definition. The US Environmental Protection Agency (EPA) is charged with regulating pesticides at the national level, and the Washington State Department of Agriculture (WSDA) is charged with regulating pesticides in Washington State.

Pesticide Registration

To protect the public from harm, additional laws require registration of any material that makes pesticidal claims. Depending upon the material, registration can either take place at the federal or state level. Minimum risk pesticides, also called 25B pesticides, have no federal registration requirement. However, Washington State requires all pesticides sold here, including 25B's, be registered in the state. The list of approved pesticides that can be used in certified organic production systems is determined under the USDA NOP. The NOP allows non-synthetic substances (except tobacco, strychnine, and sodium fluoaluminate) to be used as pesticides as well as a selected list of synthetic substances (e.g. sulfur, copper hydroxide, insecticidal soaps, pheromones). The NOP allows "minimal risk inert ingredients" to be used in pesticide formulations along with approved active ingredients. EPA refers to these as the 4A and 4B lists, respectively. In Washington, the WSDA Organic Food Program interprets NOP rules and has an "Approved Organic Materials List" substances allowed for producers certified under their organic program.

An NOP-approved organic pesticide is still a pesticide. That makes organic pesticides subject to all other laws that regulate conventional pesticides. This includes initial registration (or exemption from), manufacturing, sales, shipping, storage, consulting on, use, and disposal. If you are dealing with pesticides in your normal course of work, it is important to know what laws and regulations you are subject to. Accident or inspection situations are always a poor time to come to the attention of any regulatory agency.

At this point you may be wondering what all the fuss is about over materials so benign they can be used in organic production systems. I'll leave the debate over that to others; my function is to bring you up to speed on the legal aspects of pesticide regulation. As long as the laws are written as they are, you may be in legal jeopardy if you do not follow them.

Although it is not necessary to have a pesticide license in order to apply an organic pesticide in Washington State, if you advise others about their use, you do need either an applicator's license or a consultant's license. "Advise" means you tell someone else about the benefits, risk, use patterns, etc. of a pesticide (remember the definition of a pesticide given above). It does not mean you necessarily list "consultant" as your occupation. There is no legal difference between talking to others informally over a cup of coffee or formally in a presentation-style meeting. If you have an applicator's license you may advise others about pesticide use (act as a consultant) without having a consultant's license.

Many people are surprised to hear they have been advising others for quite awhile without knowing it or having the proper license. The exception to the license rule is if you provide information on products that are home and garden-only. The term "home and garden-only" does not mean the home garden directions on a pesticide label that lists both commercial and home uses, it means products that have nothing but home uses on the label.

The implication for our Master Gardener community, who do not have pesticide licenses and sign a contract stating they will stick to home and garden-only recommendations, is they have a very narrow list of registered products and active ingredients from which to make recommendations.

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WSU personnel who recommend pesticides, such as Extension agents and specialists, must have a public consultant or public operator license. A person with either of those licenses has access to a longer list of products that can be recommended. WSU personnel who do not have a public operator or consultant's license may only recommend home-only products. For this reason, you may get different answers regarding pest management products depending on whom you talk with.

One of the rules that all WSU personnel and volunteers have in common is that everyone is bound by internal policy to only recommend materials that have a state registration or exemption from a registration. If WSU personnel are testing a substance for its pesticidal properties (meaning does it negatively affect some pest), then it must either be registered in the state as a pesticide (for the use being tested) or used under an Experimental Use Permit granted by either USEPA or WSDA. Where this intersects the grower community is our field testing programs.

WSU research and extension personnel test a variety of substances every year for the purpose of gathering data on pest management options. Quite often these test plots are Field Day sites where growers can view the results and hear about existing products or potential products in the registration pipeline. Results are often discussed at winter growers' meetings as well. WSU personnel are obliged to strongly remind growers that, if unregistered compounds were used in test plots, everyone needs to wait until materials are registered before using them in production situations.

Our research and extension personnel serving the organic community have a long set of hurdles to jump before they can deliver an organic pesticide to growers. The pesticide registration process can be fairly daunting and takes resources and manufacturer interest to succeed, then NOP standards must also be met. In some cases a creative approach addresses the problem with better results. Mustard meal illustrates such a creative approach. At present, it would be allowed under NOP standards and in test plots it has good efficacy against certain pests. However, because it is a substance that has pesticidal properties it is legally considered a pesticide. It is not an exempt material and it would need a federal registration, but as yet does not have one so there is no state registration either. That brings us smack up against the issue of illegal pesticide recommendation and use. As things stand, we can not recommend it and growers can not use it. The creative approach taken by our research and extension personnel is to recommend that instead of using mustard meal, organic growers plant green mustards, which are plants and thus not considered pesticides. Data on green mustard cover crops indicates they can be effective, and they are allowable under NOP standards. The issue of pesticides, organic or not, is completely avoided with this creative approach.

I hope when you have gone to Extension and asked for help on a pest problem, you received enough information to solve that problem. For those who may feel we are too conservative and need to speculate more, please remember we are bound by the same rules as everyone else when it comes to pesticides, organic or conventional. First, in order for us to recommend one, we have to have a license. Second, legally, we must stick to the label language unless we have data that shows we can recommend a lower amount than listed on the label or a less frequent use interval. Third, we have an internal policy that does not allow recommendations for home remedies or other unregistered materials. Lastly, if the pest is not on the label we must have data that indicates the product will work on a different pest than those listed.

For More Information

USDA National Organic Program (NOP) publishes a list of NOP approved products.

WSDA Organic Food Program. The WSDA Organic Food Program certifies many producers in Washington State. For more information about allowable organic pesticides under the WSDA program, see their Organic Materials List.

Organic Materials Review Institute (OMRI). OMRI publishes a review of products for organic systems.

Pesticide Licenses. Information on pesticide license types and training courses can be found at the WSU Pesticide Safety

Washington State Pest Management Resource Service
Professional Applicator Training

and Education Program web site. The value of a license is not only being able to purchase and use restricted-use pesticides, but also taking the safety and regulations training and the continuing education classes in state-of-the-art IPM practices.

Washington State Pest Management Resources Service. See the Washington State Pest Management Resources Service web site for more information on pesticides or email Catherine Daniels.

Switchgrass Production in Washington – Biofuel Feedstocks in Washington Part II

Hal Collins & Rick Boydston, USDA-ARS Vegetable and Forage Crops Research Unit, Steve Fransen & An Hang, WSU Irrigated Agricultural Research & Extension Center, Prosser, WA

(Editor's note: This article is the second part of the two-part series on Biofuel Feedstocks in Washington initiated in the September 2006 issue of Sustaining the Pacific Northwest.)

Since 2003, the Integrated Cropping Systems group (ICSG) at Prosser, Washington, consisting of WSU and USDA-ARS personnel, has been evaluating production aspects of a number of irrigated biofuel crops that can be planted in rotation with high value vegetables: oilseeds for biodiesel (safflower, soybeans, mustard, canola/rapeseed) and high biomass producing crops for ethanol production (wheat,

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corn, and switchgrass). These trials are unique in that they are the first comprehensive biofuel trials within Washington State and they provide essential and timely information on biofuel crop production potentials as the nascent bioenergy industry develops. In our previous article (Biofuel Feedstocks in Washington), we discussed oilseed crops for biodiesel production and in this article we will discuss switchgrass, a high biomass producing crop with potential for ethanol production.

Switchgrass

Ethanol Feedstocks: Switchgrass

About 90% of the domestic ethanol feedstock supply is derived from corn grain (Zea mays L.). Corn was selected as an ethanol feedstock crop due to: 1) its high starch content which can be rapidly distilled to alcohol; 2) its high distillation efficiencies compared to other feedstocks; 3) the predominance of corn-based ethanol production in the mid-West where corn is widely grown; and 4) the location of most refineries in the Gulf Coastal States which are closer to current ethanol distillation centers. The total dependence of the ethanol market on corn poses inherent problems regarding sustainability. Firstly, corn requires high inputs of fertilizers, herbicides, and insecticides to ensure high yields. Secondly, as an annual crop grown under rain-fed conditions, corn has yield potentials varying significantly from "bin busters to empty bins", making it risky to grow due to the uncertainty of shifts in rainfall as a result of global climate change. Lastly, annual cropping causes soil erosion, a major problem in the arid west.

Switchgrass (Panicum virgatum) is a long-lived perennial, warm-season grass species with deep penetrating roots. The ISCG are investigating its adaptability for use in the Pacific Northwest (PNW) as pasture and hay grass and as a biomass crop for ethanol production. During the past five years we have established eight field research studies at Prosser and Paterson, WA to evaluate varieties and production management under irrigation. While not native to the region, switchgrass has been successfully produced as a seed crop in the Pacific Northwest for more than 20 years.

Long-term adaptability and economic potential of switchgrass as an ethanol feedstock grown in the PNW are largely unknown. We now know switchgrass is well adapted to the warmer and irrigated regions or if it is a viable alternative to corn. Benefits of switchgrass production include: a perennial growth habit eliminates the need for annual tillage and thereby reduces soil loss from erosion; lower fertilizer requirements and fewer pest issues result in decreased fertilizer and pesticide use; the potential to produce a harvestable biomass under low moisture conditions since plants become dormant under moisture stress, unlike corn which would senesce and produce little harvestable yield; and a demonstrated production and adaptation potential demonstrated in research trials in the lower Columbia Basin region since 2001.

Switchgrass varieties are designated as either upland or lowland types. Upland types are more naturally adapted to upland growing areas which tend to have drier soil conditions. Lowland types are more often found in floodplain areas. Lowland types are normally taller and coarser than upland types, they have a more bunchgrass growth habit, and they tend to grow more rapidly. Although the ISCG are evaluating a number of switchgrass varieties in our studies, this article principally reports on three: Kanlow (2n=36) is a lowland type while Cave-in-Rock (2n=72) and Shawnee (2n=72) are upland types.

Switchgrass Growth Characteristics

Switchgrass seed is small with about 325,000 seeds per pound. Seed is "naked", making it easy to drill. In the irrigated regions of the PNW, switchgrass should be planted by late May to mid-June. Seed should be planted into a clean and firm seedbed with a drill using covering chains or packing wheels to ensure good soil-seed contact for rapid germination. We have successfully established stands with seeding rates from seven to 12 pounds pure live seed per acre with a drill on six-inch centers. Reference the seed tag for the percentage of seed germination as it can vary widely for each variety and seed source. A new planting starts as a bunchgrass, but with proper management, its short rhizome growth will develop into a sod over time. It has a panicle seedhead with spikelets forming at the ends of long branches. The basic chromosome number is nine and most varieties are either tetraploids (4n) or octoploids (8n). Varieties are cross pollinated and largely self-incompatible.

Controlling weeds in switchgrass is critical in the year of establishment, as switchgrass is slow to germinate and competes poorly with weeds. Few herbicides are labeled for switchgrass establishment and then only in certain states and special situations, such as on Conservation Reserve Program (CRP) ground. No herbicides are currently labeled in the state of Washington for switchgrass planted for biofuel production. Repeated mowing at 6-8 inch height can be used to help reduce the impact of weeds on switchgrass in the year of establishment. Planting in late May or early June when soil temperatures are warmer promotes faster germination and growth of switchgrass seedlings and may increase switchgrass competition with some weeds.

The ISCG have tested and identified pre-emergence applied herbicides that control most annual weeds with very little injury to switchgrass. Annual grass weeds often escape pre-

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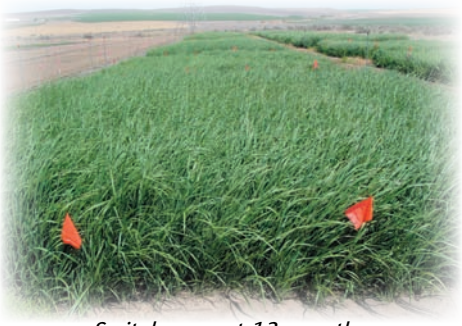
emergence herbicide treatments and ISCG tests have identified several post-emergence applied herbicides for annual grass control in switchgrass. Obtaining herbicide registrations for use in switchgrass grown for biofuel is a critical need. *(Editor's Note: For more specifics, Rick Boydston invites you to contact him at 509-786-9267.)*

Switchgrass requires between three and five years to develop mature plants and maximum yields, but a planting can be harvested the year after planting. For biofuel production, harvest twice per growing season. Harvest first in early to mid-July, when crops are 4-6 feet tall, and second at the end of the season in late September or early October. July growth and regrowth is rapid if soil moisture and adequate stubble height are maintained. A 5-6 inch stubble at harvest will cause regrowth within 5-7 days, but may take as long as 10



Switchgrass at 13 months.

days. Growth during August slows compared to July, possibly due to reduced photoperiod.

By September, growth is much slower than in August, as temperatures cool rapidly and days shorten. The second harvest should be made in late September to early October, again leaving suitable stubble for winter survival. Long-term survival is not likely to be an issue as long as adequate stubble is maintained and good agronomic practices are followed. As yet, there has been no winterkill with any switchgrass varieties, probably due to good irrigation management and a cutting regime allowing the plants to enter deep dormancy of the plant in late October to early November. In December 2003, record low temperatures occurred (-19^{0}F) when the first switchgrass planting was in the juvenile stage. All the varieties survived without winterkill problems.

In our studies in the Lower Yakima Valley and Columbia Basin, switchgrass broke dormancy from early to mid-April but had less than six inches of growth by May 1. Early growth depends upon irrigation and temperature. Growth of early maturing varieties will be 20 inches or more by late May. With increasing June summer temperatures, growth increases significantly. The earliest maturing switchgrass variety we have grown is Dacotah, which heads by mid-June and is fully headed by July 1, several weeks before other varieties.

In 2005 the ISCG planted Alamo, a very late maturing lowland cultivar, and to date, stands are still very weak. This variety planting had an open canopy that allowed greater weed invasion than any other variety in our studies. Kanlow, a lowland variety and late cultivar, has performed very well at both locations. Dacotah, an upland cultivar, is the earliest maturing and may be too early for biofuel production in the lower Columbia Basin region. It may be best adapted to a higher elevation and a shorter growing season. If precipitation is adequate, this deeply rooted variety will likely thrive. Other varieties evaluated include Cave-In-Rock, Trailblazer, Blackwell, Nebraska 28, Sunburst, Forestburg and Shawnee.

Switchgrass harvested July, 2006.

Table 1 provides yield results for selected varieties in the second year of production at Paterson. Mean yield of the three varieties after two seasons ranged from seven to 10 tons of dry matter per acre for two cuttings. Of these three varieties, Kanlow is the most promising for production in the South Basin. Conservative estimates of ethanol yield ranged from 568-776 gallons per acre with an estimate of 25,000 - 35,000 acres needed to support a 20 million gallon ethanol facility. Wheat straw and corn stover residues would need to be collected from over 70,000 acres to support a 20 M gallon facility, assuming 60% of the residues where harvested. Determination of ethanol production through laboratory analysis is needed to verify these estimates. A comparison of yields of Kanlow and Cave In Rock in several states show the yield potential of switchgrass production in Washington is on par with states where it is native (Table 2).

Table 1: Biomass Variety Trials Yield Data (Paterson, WA)

		Biomass Yield (tons/acre)	Ethanol Yield** (gallons/acre)	Acres Necessary to Supply 20 M gal Facility	% of Planted Crop Acreage
Crop	Wheat Straw	5.3	219 +	91, 324	61.7
	Corn (grain)	6.3	580	34, 480	46.4
	Corn (stover)	5.8	278 +	71, 940	93
	Corn (G+S)	12.1	858	23, 310	34.5
Switchgrass Variety	Cave'n Rock	5.9	472	42, 375	24.4 ++
	Shawnee	6.8	544	36, 765	21.1 ++
	Kanlow	8.4	672	29, 760	17.1 ++

** Ethanol recovery from wheat straw and corn stover is estimated at 69 gallons/ton, from corn starch is 92 gallons/ton and switchgrass biomass is 80 gallons/ton.
+ Assumes 60% removal of residues.
++ Acreage based on percentage of current forage and hay cropland.

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Table 2: US Swithgrass Yields

State/ Region	Switchgrass Variety Yields + (tons/ac)	
	Kanlow	Cave In rock
Texas	4.5	2.4
Upper South	5.5	4.2
Alabama	8.3	4.2
Iowa	5.8	--
Nebraska	9.2	7.3
Washington	8.4	5.9

+ Values presented are the sum of two cuttings.

Summary

We lack the production history for switchgrass compared to other areas of the US where this grass is native. However, in our studies we have identified two important results: 1) results from the initial planting in 2002 show that yields continue to increase each year as stands thicken and the crop is managed for biofuel, and 2) second year production yields were similar to those reported in the mid-west with six-year old stands. Switchgrass requires between three and five years to develop mature plants and our oldest plantings are just now reaching that age. The high yields recorded on juvenile stands suggest mature stand yields could be even greater. Continued evaluation of switchgrass will determine the extent to which it may prove to be a viable alternative to the use of corn or crop residues (like wheat straw) for ethanol production. At this time, it appears that switchgrass is a viable crop in the warmer regions of the PNW if natural rainfall is adequate or irrigation water is applied. Likely, switchgrass will not be raised in the Willamette Valley due to 1) cool summer temperatures, and 2) lack of summer irrigation. Therefore, the primary locations for production will be Eastern Washington and Oregon with their longer growing seasons, hot-dry weather, and access to irrigation.

Events

2008 Organic Seed Growers Conference

This event will be held February 14-15, 2008, at the Salem Convention Center in Salem, Oregon. Co-hosted by the Organic Seed Alliance, Washington State University, and Oregon State University, the Organic Seed Growers Conference comprises the largest meeting of seed professionals engaged in organic seed production, research, and plant breeding in the United States. This event brings together producers, university Extension and researchers, seed industry professionals, and food industry participants from across the country.

In preparation for the 2008 Conference, the conference committee seeks input from diverse public and private stakeholders in developing an agenda. The organizers welcome ideas for topics and suggestions for speakers. Please email your input to Micaela Colley and include the following information: name and contact information (for follow-up questions), suggested topics, suggested speakers, and any additional input regarding conference format and agenda.

Call for Proposals. Input and proposals for presentations and posters must be submitted by June 1, 2007. Applicants for presentations and posters will be notified by August 1, 2007. To submit a proposal for a presentation or poster, please contact Micaela Colley with the following information: contact information, name and title of speaker or author, title of presentation or poster, topic of presentation or poster, target audience, and a brief description (300 words or less). All presenters are required to submit papers for publishing in the conference proceedings. Please inquire if you need assistance in developing presentations, posters, or papers.

Workshop - Integrated Plant Protection Center

The Integrated Plant Protection Center of OSU will host a Participatory Research Workshop May 1st, 2007, 9:00 - 5:00 at the Peavy Arboretum Lodge at Oregon State University in Corvallis, Oregon. All PNW researchers, farmers, non-profit and agency personnel who would like to improve the quality of agricultural research by increasing their skills in participatory research are welcome and encouraged to participate in this hands-on workshop. There will be a small fee and lunch will be provided. Contact Gwendolyn Ellen at 541-737-6272 for information.

Announcements

International Exchange for Agricultural Research

Lori Anderson, Exchange Visitor Program Manager

Matthieu Reigne, 22, grew up on his family's 750-acre farm in the southwest of France. He worked in the corn, wheat, and sunflower fields from a young age and was particularly enchanted with the farm's 32 acres of plum and hazelnut orchards. After graduating from high school, he went on to receive technical degrees in both agriculture and horticulture. He spent the following two years applying his knowledge and skills within the family-owned business.

With this background and experience, Matthieu applied to the Experience International (EI) J-1 visa training program. He wanted to learn as much as he could about hazelnut breeding and production in the U.S. Experience International matched him with OSU horticultural researcher Dr. Shawn Mehlenbacher who directs a hazelnut breeding program focused on creating disease-resistant varieties of hazelnut trees, especially those resistant to Eastern Filbert Blight (EFB). Although the disease has not yet spread to Western Europe, Matthieu knew he could enrich his understanding of hazelnut production while assisting Dr. Mehlenbacher with his research.

Experience International, a non-profit agricultural exchange organization specializing in J-1 visa training programs, arranged a six-month work-training internship for Reign as his official J-1 sponsor. Experience

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International specializes in matching skilled agricultural, forestry, and natural resource professionals from abroad with host businesses and research programs in the U.S. From organic farms to specialty cheesemaking to vineyards to genetic tree research, EI sponsors cross-cultural exchanges for professionals looking for a rewarding and productive experience.

Trainee Matthieu Reigne (left) and co-worker erect a pollination cage around a hazelnut tree .

This provided Matthieu the opportunity to deepen his knowledge of hazelnut production, as well as to hone his English skills and experience the American lifestyle. Dr. Mehlenbacher gained a new research assistant as well as an opportunity to spend time hiking and sharing the beautiful Pacific Northwest with an eager-to-learn young agricultural professional.

Typical of EI trainees, Matthieu worked hard during his training program. Hand-harvesting hazelnuts, weighing nuts and shells to calculate percent kernel, harvesting "layers" (suckers) for propagation, and constructing cages for pollination studies, were among the research activities he performed. He also helped at a hazelnut orchard and packing plant where he assisted a local grower during harvest, driving the sweeper in the machine-harvest operation, and moving boxes from orchard to cleaning station. At the packing plant, he facilitated the bleaching, drying, grading, sorting, and packing processes, operating machinery and climbing into towers when necessary to flatten the piled nuts.

Matthieu's training mirrored others facilitated by Experience International. He arrived in the US with a technical degree and two years of experience. He was matched with a host that could benefit from his assistance, while serving as a mentor for a younger professional. He came with a sincere interest in learning, working, and sharing, and gained a practical experience he will remember forever. Most trainees sincerely appreciate their experience in the U.S. In the words of Matthieu Reign, "I spent four beautiful months with very nice people. I'm very happy that I had the opportunity to visit this country..... my hosts and their families welcomed me in their homes, and helped me understand everything.....again, I thank you very much."

Experience International makes such exchanges possible through a unique type of visa established by the Mutual Educational and Cultural Exchange Act of 1961. The "J" visa was established to enable nonimmigrant foreign nationals to enter the United States for participation in educational and cultural activities. To implement this program, the US Department of State (DOS) designates a limited number of organizations to sponsor J-1 trainees to the US for practical training and work experience in specified fields. The DOS has designated EI to sponsor qualified trainees for up to 18 months in fields related to Agriculture, Forestry, Fisheries, and Natural Resources.

Experience International began its J-1 program in 1988. Applicants are first screened by a home-country representative and then by EI staff to determine if they qualify for the program. Hosts are given a choice of applicants and the opportunity to interview them before acceptance. EI provides ongoing support throughout the placement, including handling all matters related to the J-1 visa and compliance with J-1 regulations: program monitoring, EI staff site visits, medical insurance verification, assistance obtaining coverage, assistance with program emergencies, providing information for tax compliance, an organized summer retreat to the Oregon Coast, and a two-day arrival orientation in Seattle for incoming trainees.

Trainee Matthieu Reigne harvesting layers (root suckers) for hazelnut propagation.

EI works with many countries, including Denmark, Holland, France, Switzerland, Italy, United Kingdom, Germany, Finland, Ecuador, Chile, Peru, Honduras, Costa Rica, and more. Many of the recent applications received by EI have been requests for work in organic or sustainable agriculture. There is truly a global interest in sustainable practices and a desire to exchange information across international borders. If you seek an experienced research assistant and want to share your knowledge with a young, motivated professional from abroad, please contact Lori Anderson, J-1 Exchange Visitor Program Manager at 360-966-3876 in Everson, Washington.

Candidates Available for Spring 2007. The following candidates seek a position in the U.S. for up to 18 months. A full resume and placement request is available.

Maria Daniela Peralvo Lupera from Ecuador, earned a Bachelor's in Agricultural Engineering from ESPE University (Ecuador). She worked as a research assistant in 2006 at ESPE University on the "Validation of biopesticides for the biological control of moniliasis in high flavor cocoas."

Maria hopes to learn new technologies in organic or sustainable agriculture through practical, hands-on field

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experience. She would like to work with cultivation, fertilization, pest management, harvesting, packing, storing, and marketing of organic produce. Maria wants to take her experience and work with Ecuadorian farmers to promote sustainable farming and demonstrate the benefits of protecting natural resources.

Carlos Martin Echeverria Avellan also from Ecuador, earned an Agronomical Engineering degree from Polytechnic Superior School in Chimborazo, Ecuador. Carlos worked as a research assistant in 2005-2006 with INIAP providing technical support in production of certified potato seed. He also worked weekends developing his own organic farm which included growing vegetables, agroforestry, and building an education program for school children and tourists.

Carlos wishes to learn organic farming and sustainable horticulture with the intent to establish his own organic farm and environmental education program.

Below-Market Loans for Beginning Farmer/Ranchers in Washington

The Washington State Housing Finance Commission, in partnership with Northwest Farm Credit Services, offers low-interest loans to beginning farmers and ranchers. The loans may be used to purchase land and improvements (up to $250,000), purchase of new, depreciable equipment (up to $125,000), and used depreciable equipment (up to $62,500). Borrowers must directly manage and work the farm/ranch, but off-farm income is okay. Contact Tia Peycheff at 206-287-4416 or 800-767-4663 (within Washington).

WASHINGTON STATE HOUSING FINANCE COMMISSION
Opening doors to a better life

SARE On-Line Continuing Education

SARE now offers a National Continuing Education Program in Sustainable Agriculture, an online course for Extension and other agricultural professionals. The first course, Sustainable Agriculture: Basic Principles and Concept Overview, provides a detailed introduction to sustainable agriculture and what it means for farmers, ranchers and communities. Perhaps most important, it explains how sustainable concepts and principles relate to the roles of educators as they try to improve farming and ranching systems. The course is presented in an interactive, Web-based format and includes a variety of activities, real-life examples and links to other sites offering information, resources, and assistance to help you in your work. The course is self-paced so participants can complete it on their own schedules.

Tidbits

Land EKG™ Training

Lynne Carpenter-Boggs, BIOAg Coordinator

On August 30 - September 1, 2006, 23 people learned how to use Land EKG™, an ecological monitoring system created by Charley Orchard of Bozeman, Montana, for range managers. Sponsored by the WSU BIOAg program, the Washington Cattlemen's Association, and the Washington Sustainable Food and Farming Network, Charley taught the Land EKG™ for his 60th time at this Ellensburg training.

Land EKG™ monitoring uses score-sheets to characterize the landscape, identify biological inhabitants and activities, and rate ecological functioning in water, nutrient, and energy cycling. In completing the scoring, observers must get down on hands and knees, peer under bushes, stand back to scan the landscape, listen, interpret, and thoroughly familiarize themselves with a place. By rating characteristics and functions of the site, options and opportunities for changes in management emerge.

While most of the attendees were central Washington range cattlemen, there were also botanists and biologists from the Washington Department of Fish and Wildlife. These two groups increasingly recognize and use livestock as tools of ecosystem management. Better ecosystem functioning allows greater productivity of plants, cattle, and wildlife, while often increasing profits. Bringing training agency and individual land managers together builds a common language and personal familiarity that promotes mutually beneficial management decisions. These decisions will affect approximately

1.15 million acres in Washington controlled by participants.

Event sponsors hope to see more people trained in the Land EKG™ system and plan to conduct more trainings, organize refresher courses, and provide access to the necessary tools. This type of training exemplifies the power of the BIOAg program to strengthen sustainable agriculture and communities by promoting good livestock management using animals in balance with their environment to: enhance rancher profit, maintain and often improve the natural resource base for their industry, and provide off-site benefits such as clean water, reduced fire danger, and high populations of healthy wildlife. BIOAg program activities work to not only provide this type of multiple-benefit research-backed knowledge and practices, but also to improve communications and remove socio-political barriers to sustainable agriculture and communities.

Organic Milk Supply to Spike in 2007

The Associated Press reports that the supply of organic milk is expected to spike in 2007 due to a federal

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rule change. Farmers completing the transition to organic milk production prior to June 2007 are able to feed 80 percent organic feed and 20 percent conventional feed in the year before they become certified organic. Those that started the transition process after June 2006 have to use 100 percent organic feed in the final transition year, increasing their transition costs. Many farmers jumped into organic transition before June 2006 to take advantage of the "80/20 rule". There is an expected 70 percent increase in organic milk as the newly certified farms come on line.

Food Security & Land Use Planning

The latest Community Food Security newsletter focuses on the connections between food security and land use planning.

Fungi as Biofertilizers

ATTRA. Rutgers University has received funding for a research project that could help revolutionize agriculture, reports Huliq.com. The project will study the use of fungi as "biofertilizers" that could reduce the farming phosphate and nitrogen fertilizers heavily used in agriculture. Farmers frequently over-apply more fertilizer nutrients, which can lead to polluted groundwater. According to Heike Bücking, the project's leader, mycorrhizal fungi are more efficient in the uptake of specific nutrients, and more resistant to soil-borne pathogens. By promoting mycorrhizal fungi through reduced fertilizer input, farmers could make more efficient use of the nitrogen stores in the soils. The three-year project is funded through a grant of more than $419,000 from the National Science Foundation.

New Protocol Will Help Standardize Manure Digester Evaluations

ATTRA. The U.S. Environmental Protection Agency (EPA) issued a new protocol to help standardize the process used to evaluate the performance of anaerobic digestion systems. The new EPA protocol describes proper data collection to assess the performance of anaerobic digesters and establishes a uniform method of evaluating a project's operational reliability and economic viability. Meant for use by livestock producers, state agencies, project developers, and other involved parties, the protocol is intended to provide reliable, standardized information to system developers, the investment community, and farmers and ranchers. The protocol was developed jointly by the EPA's AgSTAR program, the Association of State Energy Research and Technology Transfer Institutions, and the USDA.

Report Shows Benefits of Pasture-raised Chicken and Pork

ATTRA. The Union of Concerned Scientists recently released a report showing how pasture-raised pork, chicken, and egg production can avoid the problems conventional production poses for water and air quality and animal and public health. The report also explains the definitions, standards, and label claims for pasture-raised foods that consumers encounter at grocery stores. The report, Greener Eggs and Ham: The Benefits of Pasture-Raised Swine, Poultry, and Egg Production, provides an overview of alternative pork and chicken production systems and is a complementary report to UCS's Greener Pastures, which describes the benefits of grass-fed beef and dairy cattle.

Resources

Livestock Mortality Disposal

A new website provides information and resources about on-farm mortality composting. On-farm composting can be an environmentally and economically sound alternative to conventional methods of carcass disposal. A full grown cow can be fully composted in 2 to 4 months with minimal cost, labor, and equipment.

The On-Farm Mortality Composting Research and Education Project is sponsored by the BIOAg program at Washington State University, the Washington State Department of Ecology, and the Washington State Department of Agriculture. Through research and education, the project promotes on-farm composting as a viable method of disposal for agricultural livestock mortalities over 300 pounds. For more information, contact Caitlin Price at 206-920-3732.

Meat Goat Guide

A USDA Sheep and Goat Industry Improvement Grant funded development of the Meat Goat Selection, Carcass Evaluation and Fabrication Guide. Hard copy manuals are now available upon request to Kenneth McMillin at the address below or through the LSU AgCenter web site.

Goat Dairy Library

ATTRA. The Goat Dairy Library web site provides information on setting up, licensing, and operating a commercial goat dairy. Included are

short summaries of relevant topics, including citations and links to other information. The site also contains materials for educators, 4-H and FFA leaders, forms for record keeping, plans for building equipment, and a complete reference section. The site provides education and support to commercial goat milk producers, promotes agricultural practices that preserve the environment and maximize goat health, and provides a link between the goat research community and commercial goat milk producers.

Web Site Helps Dairy Producers Manage Nitrogen

ATTRA. Nitrogen Management on Dairy Farms includes tutorials, interactive diagrams to aid in the review of information, and review quizzes. The site demonstrates how to sample and test manure, soil, and crops for nitrogen. Users also learn how to interpret test results and calculate the amount of plant-available nitrogen

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present in a manure sample. The site was developed by scientists with the Agricultural Research Service (ARS), Cornell University, and the University of Vermont, funded by a U.S. Department of Agriculture (USDA) Fund for Rural America grant.

The Agricultural Marketing Resource Center

The Agricultural Marketing Resource Center is a national, electronic resource for producers interested in value-added agriculture.

Western Sustainable Agriculture Working Group

See the latest on-line newsletter with Farm Bill updates, news on GMO's, and more.

Vegetation Management Using Sheep & Goats

ATTRA. A new handbook that focuses on using sheep and goats to manage vegetation and enhance landscapes was recently completed in a collaborative effort by researchers, educators, and producers from across the United States. Targeted Grazing: A Natural Approach to Vegetation Management and Landscape Enhancement covers topics such as using targeted grazing to control invasive species of weeds and using sheep and goats to create fire breaks. It also includes grazing prescriptions that can be used to target specific plant species and examples of how sheep and goats are being used

to manage vegetation.

Marketing Local Food Handbook Available

The Minnesota Institute for Sustainable Agriculture (MISA) recently released a handbook, "Marketing Local Food," designed to help Minnesota farmers explore the options for marketing local foods. The handbook discusses various marketing systems and also includes farmer profiles and further resources. To order, email MISA or call 800-909-6472.

Commercial Insurance for Sustainable Agriculture

The Midlands Management Corporation sells insurance specifically for sustainable agricultural operations in 12 states, including Washington and Oregon in the Western US.

American Farmland Trust

Visit AFT's site and subscribe to their e-newsletter, find the latest on farm policy, or check out resources.

Mapping Green Infrastructure Projects

A Chicago area non-profit, Center for Neighborhood Technology (CNT), offers tools for implementing, assessing, and mapping green infrastructure projects. CNT provides a Green Infrastructure toolkit, a set of practices that use the absorbent quality of native plants and soils to capture raindrops where they fall. At CNT's Natural Connections website, visitors will find green infrastructure data compiled by CNT from throughout the Chicago region.

Environmental Commons– Creating Healthy Regional Food Systems

Environmental Commons developed a series of factsheets on the importance of local control in supporting healthy regional food systems.

Local food is quickly gaining recognition as a key to sustainability, strong economies and community health. However, the structures that either support or discourage local food systems receive much less attention. Local food systems simply won't be viable unless communities have a greater ability to influence food-related policies that relate to local health, safety, and the environment.

The fact sheets are a clear and concise educational tool to raise awareness and inspire action for strong local food systems. The fact sheet *Shaping our Local Food Systems* outlines the importance of local jurisdiction over many aspects of food and agriculture and illustrates why food should be controlled locally. *Local Food Systems: Challenges and Threats* describes the forces that shape food systems in the interests of a few large corporations at the expense of the public interest, and *Local Food Systems: Getting Involved* charts the course for building food systems that truly support local communities. Finally, *The Place of Food in Our Lives* reflects on the consequences of understanding our food primarily as a commodity versus as an integral part of family and community life.

Manure to Money: Advancements in Anaerobic Digestion

View this videostream on how WSU is leading the way in making digestion economically feasible by extracting other value-added products from the waste that can provide a financial return to farmers while improving the environment. The program, arising out of CSANR's Climate Friendly Farming project, looks at the state's only commercial digester in Whatcom County and at newer, small digester technology being tested in Pullman.

UC Launches Viticulture Website

ATTRA. A wealth of information about grape growing is now available to the wine and grape community through the University of California's new Integrated Viticulture Online website. The website is designed to increase accessibility to the work of university researchers, including faculty and Cooperative Extension specialists and farm advisors. Content is continuously added and updated. The heart of the site is the "viticultural information" section, which provides information on a variety of subjects ranging from grapevine breeding to worker health and safety. Photos and links to valuable publications, people and online resources are included. The website also includes instructional video modules featuring presentations from recent workshops and seminars, and a calendar of viticultural seminars and events.

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Agriculture & Climate Change

ATTRA. How can managers of agricultural operations reduce their greenhouse gas emissions? What opportunities exist under the Conservation Title of the 2007 Farm Bill to enhance climate change mitigation opportunities from the U.S. agricultural sector? A new report from the World Resources Institute analyzes these questions and makes four policy recommendations linking farm energy, conservation, and climate change.

Handbook of Forage and Rangeland Insects

Handbook of Forage and Rangeland Insects is a comprehensive text that examines agricultural pest management from all angles: magnifying practical field strategies for growers, updating growers on the latest protection techniques, and preventing needless crop loss as a result of outdated pest control procedures. This book will help individuals (producers, land managers, consultants, extension personnel, researches, teachers, and students) identify arthropods and to outline methods for the management of both beneficial and harmful species. The cost is $59.

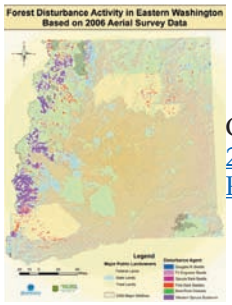
Certified Organic Farmland Found in Every State

ATTRA. According to a recent report issued by USDA's Economic Research Service (ERS), all 50 states have certified organic farmland, including 2.3 million acres of cropland and 1.7 million acres of rangeland and pasture-to organic production systems. The data is presented in 13 tables showing the change in U.S. organic acreage and livestock numbers from 1992 to 2005.

Resources – Forestry

FAO Releases Forests Assessment Report

AFTA. The United Nations Food and Agriculture Organization (FAO) has released its 2005 Global Forest Resource Assessment (FRA) report. The report, "Progress toward Sustainable Forest Management," covers countries around the world, including the US and Canada, and examines elements of sustainable forest management. The extent of forest resources, biological diversity, forest health and vitality, productive functions of forest resources, protective functions of forest resources, and socio-economic functions are all issues addressed in the report.



Washington State Forest Health

Check out the new 2006 Forest Health Report.

2007 Agroforestry Conference

The intent of the conference is to stimulate the development and the adoption of sustainable rural land management practices centered on the integration of trees into the landscape. Riparian buffers with trees, windbreaks and shelterbelts, silvopastoral systems, intercropping systems and forest farming systems will be the main practices discussed during the conference.

OSU Ecampus Course on Non-timber Forest Product Culture & Management

This course, ANTH 480 Topics in Applied Anthropology, brings anthropology and forestry together to look at the fascinating and complex world of non-timber forest product (e.g., mushrooms, floral greens, medicinal plants, seeds) harvesting and the implications for sustainable forest management. Around the world, thousands of species are regularly gathered by millions of people for subsistence, income, and recreation, or as part of spiritual, educational or scientific endeavors. In this course we will explore the cultural, ecological, political, and economic dimensions of harvesting. Geographically, the course will have an emphasis on the United States and use case studies from the Pacific Northwest, but will also bring in international linkages and perspectives. Examples of topics that will be covered include gathering historically, ethnobotany and local knowledge, Indian reserved rights, household economy, rural and urban connections, immigration and labor issues, political ecology, management needs and strategies, and market-oriented forest conservation. The course will include group exercises and fieldwork activities that participants will do in their local area, as well as lectures, reading, and short answer essay exams. Check out OSU Ecampus courses for tuition and fees. For questions about the course, email Dr. Eric Jones.

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