

# Oregon Small Farm News

Oregon State University Small Farms Program



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### Cover Photo:

*Siskiyou Sustainable Cooperative  
members pack CSA (Community  
Supported Agriculture) boxes.*

*Photo by Shawn Schreiner, scottschreiner.com*

Layout by:  
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# Documenting the Success of Oregon Farm-Direct Sales

By: Larry Lev & Wes Bignell, Oregon State University

While the growth of the local food movement in Oregon is quite evident, documenting these accomplishments with hard numbers is difficult. For example, the number of farmers' markets in the state have grown from 38 in 1997 to more than 100 in 2009, but since few markets collect sales data, we can't put a dollar value on this growth. Increasingly, restaurants and schools buy their ingredients directly from Oregon farmers but these transactions are not tracked and summed.

The recent publication of the 2007 USDA Census of Agriculture <http://www.agcensus.usda.gov/Publications/2007/index.asp> provides a unique opportunity to quantify the progress of local sales in Oregon and to compare them to other states. The census is conducted every five years and so provides relatively "fresh" data. The census asked, *"During 2007, did you produce, raise, or grow any crops, livestock, poultry, or agricultural products that were sold directly to individual consumers for human consumption? Include sales from roadside stands, farmers markets, pick your own, door to door, etc. Exclude craft items and processed products such as jellies, sausages, and hams."* The value of these sales was \$56 million. Although the census specifically excludes some items of interest -- non-food sales such as flowers and starts, farm processed products such as jams or cheese, and semi-direct sales such as sales to restaurants,-- it is still the most solid data available.



It is useful to begin by examining the overall importance of farm-direct sales in Oregon. If farm-direct sales were a commodity, the \$56 million in farm-direct sales reported in the 2007 Census of Agriculture would place it just above blueberries and wine grapes as the 17<sup>th</sup> highest sales commodity in the state. The 2002 Census reported farm-direct sales of \$21 million so the sector grew by an inflation-adjusted 144% over this five year period. This far exceeded the 19% inflation-adjusted growth of overall agricultural sales for the state in that period.

### Farm-direct Sales Data: How Does Oregon Compare?

At the national level, farm direct sales were \$1.2 billion in 2007 up from \$800 million in 2002. Adjusting for inflation, national farm-direct sales rose by 30% during that period. As calculated above, the comparable figure for Oregon sales growth was 144%, or more than four times the national growth rate. Only one other state, Oklahoma, had a faster growth rate. That state has a much smaller farm-direct sector with sales that are less than 20% of Oregon's.

In 2007 Oregon ranked fifth in the country in total farm-direct sales behind only California, New York, Pennsylvania, and Michigan.

Another useful way of comparing farm-direct sales data is to consider the level of farm-direct sales per consumer. Here are some figures that demonstrate that

Oregon consumers were “ahead of the pack” when it came to farm-direct purchases:

- The 2007 national average for farm direct sales was \$4 per consumer.
- The West Coast states of California (\$4.48) and Washington (\$6.75) were both above the national average
- **Oregon farm-direct sales of \$15 per consumer were far above both the national average and the level of neighboring states.**
- Oregon was #2 nationally behind only Vermont in sales per consumer

The data on the number of farms that sell direct to consumers tell a similar story. With 6274 farms selling directly, Oregon, ranks sixth in the country behind the much more populous California, Texas, Pennsylvania, Ohio, and Michigan. In the number of farm-direct farms per consumer, Oregon ranks second behind only Vermont. **The Oregon figure of 1.68 farm-direct farms per 1000 consumers is nearly four times the national average**, twice the level in Washington and more than eight times the California level.

### **Which Farms Sell Direct?**

From the Census of Agriculture, we know that 76% of the Oregon farms that sell direct are smaller than 49 acres. Nearly 1500 Oregon farms larger than 49 acres also had direct sales. In fact, 203 farms larger than 500 acres had direct sales. Sorting farms by their total sales provides a similar picture as 63% of the

farms with direct sales have total agricultural sales of less than \$5000. Direct sales were not limited to farms with low sales as 337 Oregon farms with per-farm sales exceeding \$100,000 had some direct sales. These data demonstrate the diversity of farms that are participating in this sector.



Forty-two percent of direct sellers listed farming as their primary occupation and 58% listed farming as a secondary occupation. These figures are quite similar to the overall farm population in the state which was 46% with farming as a primary occupation and 54% with farming as a

secondary occupation.

### **Summary**

Overall the survey results demonstrate two things -- the expanding role of farm-direct within Oregon agriculture and the impressive regional and national performance of Oregon direct marketing farmers and consumers as compared to other states. This brief overview also illustrates the importance of collecting and analyzing data as a means of documenting accomplishments. *℘*

*Larry Lev is an Extension Economist at Oregon State University and Wes Bignell is a graduate student in Agricultural and Resource Economics at OSU*

# Exploring Land Lease Agreements

By: Melissa Fery

Land leasing is a common occurrence in agriculture production, for both livestock grazing and growing crops. Our extension office regularly gets questions regarding the current rental rate for farm ground. While the financial aspect of leasing land is important, there is more to consider than just the cash involved in the agreement.

Lease agreements can be as simple as a hand shake, but most often should include legal advice and a contract. Contracts are in the best interest of both parties and should be revised periodically to keep them current. A contract makes both, the landowner and the farm operator, give thought to the agreement and develop ways of communication and understanding. It also serves as a handy reference if details are forgotten or if a death occurs.

A few items that should be given consideration are who carries the insurance on property and/or the crop, and what improvements need to occur and who will have responsibility for them. Production issues such as how noxious weeds will be controlled, maintaining soil fertility, or types of chemicals used on the property and ensuring the best farming methods and conservation practices utilized on the land should be addressed. The contract is a negotiation tool for the lease and gives protection to both the landowner and farm operator.

Since many farmers or soon-to-be farmers depend on leased land as part or all of their business, it is in their best interest and success to maintain long-term, positive relationships with landowners. Landowners may be dependent on the rental for income, keeping their land in farm deferral for tax purposes or simply want their land to remain in agriculture production. Landowners are seeking stable, hassle free relations with their tenants and often want them to be respectful of the land and its history.



Photo by Melissa Fery

The farm operators can go a long way in maintaining a positive relationship with the landowner. Making an effort for a little “face time” during the growing season to visit with the owner or implementing some other form of communication is good idea. This gives an opportunity to ask the landowner about any concerns and avoid annoyances that can get out of control. In addition to keeping in contact with the landowner, try to provide education about current agriculture practices and maintain the property appearance. Also keep in mind the next generation, those that will one day inherit the land, and encourage them to value local agriculture.

We all know that accidents happen. Mailboxes get smashed accidentally by trucks backing out of driveways; fencing can be wiped out by a farm implement operating a little too close. Operators who take responsibility and fix the damage quickly are valued by landowners.


Note that sometimes new situations arise that are outside of the scope of the current lease agreement. It is a smart idea to document the situation in writing, such as a letter summarizing the agreed upon action or decision.

All contracts or leases should include a termination date, so that both the landowner and operator have opportunity to review their needs. The condition of the field at the close of the lease agreement is another factor. Some local farmers agree to flail any remaining residue, while others replant the land to grass for permanent cover.

Land rental rates are driven by supply and demand,

location soil type and quality, irrigation water rights and equipment and adequate fencing amongst other factors. Recent average rental rates for irrigated crop land in the southern Willamette Valley were \$110 to 190 per acre per year. Longer term leases for blueberries and nursery crops and land for organic production were paying more. Non-irrigated land for grass seed and other field crops brings a lower cost per acre. Pasture rental rates are often figured by the animal size or weight, condition of the pasture, including forage quality and quantity and the labor and equipment offered by each party.

For more information about figuring pasture rental rates go to <http://smallfarms.oregonstate.edu/additional-livestock-resources> and review *Pasture Rental Rate* written by Shelby Filley, OSU Extension Service Regional Livestock and Forage Specialist.

A lease agreements should include details that are of importance to both the landowner and the farm operator. Giving through to the agreement up front and formalizing the partnership can benefit everyone involved. 

## USDA to Document Organic Growth

**For the first time, the USDA is conducting a Census of all known producers of organic crops, livestock and livestock products, as a follow-up to the 2007 Census of Agriculture. The purpose is to document for policymakers, consumers and producers, the importance that organic production plays in the overall food supply and how it is meeting the growing demand. NASS will be asking producers to respond to a survey during the May-June 2009 timeframe, with results being available in December 2009.**

**Information will be requested that includes the amount of acreage, production and value of sales of all types of organically produced products during 2008. Production expenditures and production practices associated with the growth of these commodities will help document to policymakers and the industry the relative viability and risk associated with organic production. USDA will look closely at these data to enhance programs and insurance products that may ease the burdens and encourage expansion of organic production. Of course, marketing strategies and practices utilized by this important industry will be studied and the results used to potentially provide additional marketing opportunities. For more information regarding this important activity, contact Gene Danekas, USDA-NASS at 573-876-0950.**

# Estimating Nitrogen from Cover Crops, Part 2

By: Nick Andrews

Cover crops are widely used to reduce soil erosion and increase soil organic matter. When legumes are included in the seed mixture, the cover crop can provide a lot of nitrogen (N) and reduce the need for fertilizer. The N content of cover crop stands varies widely (figure 1), and we don't currently have a reliable method for estimating the nitrogen value of the cover crops, especially when cover crop stands are a mixture of non-legumes and legumes. However, with funding from Western Region Sustainable Agriculture Research and Education (<http://wsare.usu.edu/>) and the USDA, we are making progress.



Figure 1. Top, a 20" tall cereal rye, common vetch and field pea stand providing an estimated 155 lbs total N and 50 lbs plant-available N. Bottom, a 26" tall oats and common stand providing an estimated 110 lbs total N and 10 lbs plant-available N.

In the spring 2007 issue of *Oregon Small Farm News* (page 6), I described three N-estimation methods that could be used on farms. In the recently completed WSARE-funded portion of our research (Estimating Nitrogen Contribution from Cover Crops on Organic Vegetable and Cane Berry Farms, FW 06-301) we compared five methods for estimating N from annual cover crops. As a result of the research, we recommend the bulked species method. It is relatively easy to use, and compares very well to the separated

species method, our standard laboratory method. The steps below walk you through the recommended bulk species method.

## Step 1.

Make a 2' x 2' sampling frame, we used aluminum.

## Step 2.

Carefully work the frame down to the base of the plants, making sure to only include the plants that are rooted within the frame.

Cut the plants at soil level. Select at least 6 representative areas to sample per acre. No more than 15 would be needed from a large field with one type of cover crop stand. The more samples taken, the more reliable the estimate will be. We found it much quicker to use a harvesting knife than shears. We collected the samples in paper bags, but large plastic bags are fine too, just make sure the plants don't wilt.

## Step 3.

Record the total area sampled (table 1, line 2), and weigh the fresh weight of your total sample (table 1, line 1).

## Step 4.

Quickly cut up the largest weeds or cover crop stems enough to enable thorough mixing of the cover crops. Mix well on a large table or clean floor, as this needs to be a uniform mix. Then take a representative sub-sample of 0.5-1.0 lb and record the fresh weight in table 1, line 3.

## Step 5.

Send the sample to a reliable



Figure 2. Placing the sampling frame (step 2).



Figure 3. Cutting the cover crop sample (step 2).

lab (see “A List of Analytical Labs Serving Oregon”: <http://smallfarms.oregonstate.edu/soil-testing>).

Ask the lab to dry the whole sample, weigh the dry sample and provide sample dry weight (table 1, line 6), total N (table 1, line 7) and total C.

#### Step 6.

Calculate the total nitrogen contribution of the cover crop using the worksheet below (table 1).

#### Plant-Available Nitrogen (PAN):

The major finding of this WSARE funded research was that total N estimates using the bulked species method compare well to the results from the analysis of separated species. This allows farmers to save the time of separating individual species. We hope this will make it more feasible to estimate N from cover crops. The other methods we tested were not as accurate, and were easier to use than the bulk species method. In this study we compared methods to estimate total N. However, nitrogen from grasses and forbs is less plant-available than nitrogen from legumes. If we are to gain confidence in cover crops as a source of nitrogen, we need a method to estimate plant-available nitrogen (PAN) from cover crops.

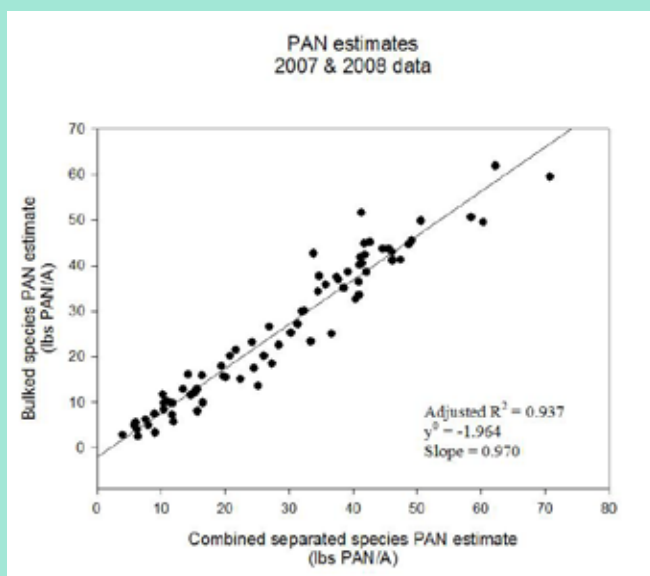


Figure 4. Comparison of plant-available N (PAN) estimates using the bulked species method described here and the separated species method.

We used the N-mineralization model in the OSU Organic Fertilizer Calculator (<http://smallfarms.oregonstate.edu/organic-fertilizer-calculator>) to test whether the bulked species method is capable of estimating cover crop PAN reliably. This model was developed for fertilizers, but it attributes different

Line	Estimate	Information source	Units & accuracy	Example	Your values
1	Area sampled	Calculation [size of quadrat (ft²) x no. of quadrats sampled]	ft²	32 ft²	
2	Acreage conversion	Calculation [43,560 ft² / line 1]	Factor	1361.25	
3	Fresh weight of field sample	Measured weight from step 3 in text	x.xx lb	17.6 lbs	
4	Fresh weight per acre	Calculation [line 2 x line 3]	x lb	23,958	
5	Fresh weight of sub-sample	Measured weight from step 4 in text	x.xx lb	0.68 lbs	
6	Dry weight of sub-sample	Measured weight from lab	x.xxx lb	0.093 lbs	
7	Total % N	Value from lab	Percent	2.91	
8	% dry weight of sub-sample	Calculation [line 6 / line 5]	Factor	0.1368	
9	Total dry weight per acre	Calculation [line 4 x line 8]	x lb	3277 lbs	
10	Total N per acre	Calculation [line 7 / 100 x line 9]	x lb	95 lbs	
11	Estimated % plant-available N (PAN)	University research	Percent	?	
12	Estimated PAN per acre	Calculation [line 10 x line 11]	x lb	?	

Table 1. Worksheet for calculating total N and plant-available N (PAN) from cover crops.

PAN values to grasses and legumes based on their N content. The comparison of the PAN estimates generated by the bulked species method and the separated species method is shown in figure 4. The line drawn between the data points shows a very strong correlation between the two methods. Therefore, we can conclude that the bulked species method described here is sufficiently accurate to give useful PAN estimates. However, the mineralization model in the Organic Fertilizer Calculator has not been validated for cover crops. Our study proved the concept, that the bulked species method can estimate PAN, but we don't recommend using the Organic Fertilizer Calculator for cover crops.

With funding from the USDA, Dan Sullivan, John Luna and I are now conducting the research needed to estimate N mineralization from cover crops. Initial results are promising, and we expect to complete this phase of our research this year. We plan to post a Cover Crop Calculator online at the OSU Small Farms website in time for the 2010 season. Stay tuned for the rest of the story. *℘*

*[Part one of this article appeared in the Fall 2008 issue, Vol 3. No. 4 or the Oregon Small Farm News]*

# Siskiyou Sustainable Cooperative: A Model for Cooperative Farming & Marketing

By: Melissa Matthewson

The Siskiyou Sustainable Cooperative is an agricultural cooperative in southern Oregon's Rogue Valley marketing organic vegetables through a Community Supported Agriculture program. Ten diverse, small organic farms participate in the cooperative in which each farm specializes in various vegetable crops for the CSA program. The CSA program has 140 members and reaches families throughout the Rogue Valley including Medford, Ashland, Grants Pass and Applegate.



The farmers of the Siskiyou Sustainable Cooperative.  
Photo provided by Maud Powell

The Siskiyou Sustainable Cooperative began in 2003 and transitioned out of a group that started in 1997 called the Applegate Agrarians. Community members in the Applegate Valley started Applegate Agrarians in response to the need for local agricultural economic development. The group wanted to provide local farmers with marketing opportunities including value added possibilities as well assist local farmers earn a living wage. The group worked on a number of initiatives, but stopped functioning because of competing priorities and a lack of focused project implementation. After a few years, the group received a grant from the Oregon Department of Agriculture to write a business plan and form an agricultural cooperative. The cooperative incorporated in 2003.

The cooperative took on a few marketing projects at first including a community supported agriculture program, a farm stand and two local farmers' markets. The farm stand turned out to be unsuccessful for a variety of reasons including lack of sufficient traffic

to support sales as well as complications with produce tracking and distribution. The CSA was the highest priority for vegetables, so in turn the supply was minimal for the local farmers' markets. As the cooperative worked to find its niche, it went into slight debt for a few years until the group addressed some tough questions. The CSA was the most profitable for

the group so they regrouped and began to focus on this particular endeavor. In 2005, Maud & Tom Powell of Wolf Gulch Farm took over coordination of the CSA program. Maud Powell said, "If you look at the business plan of the cooperative, it was far-reaching, ambitious and comprehensive." The business plan included things like establishing health insurance, farm-to-school programs, a credit union, land trusts, an alternative fuels department, and a shared use processing facility. It was clear very early on that working on this level with so many projects was not going to work. That is when Tom & Maud stepped into take over the coordination and reinvent the CSA program for the cooperative.

During the first few years, there were many challenges to making the CSA work including working out the distribution and pack of the CSA boxes. There was also not enough supply from growers at the time to meet the production goals needed for CSA shares. Now going into the 2009 season, through the organization of Tom & Maud, and the increase in new organic vegetable growers in southern Oregon, the Siskiyou Sustainable Cooperative has grown to ten member farms supporting 140 members through a very coordinated and detailed pack-out and delivery to the Rogue Valley.

The cooperative has a board of directors with

representatives from each member farm. Each farm has one vote. There are monthly meetings and an annual meeting and decisions are made through consensus minus one. The board of directors also elects grower officers to manage the cooperative.

Maud handles most of the marketing and outreach to members. There is a growing demand for memberships although she says this year is “unpredictable.” Her marketing strategy in the past has been helping to establish “an excellent CSA that sells itself.” Powell mentions that word-of-mouth and reputation are very important. One of the most effective ways for marketing the cooperative CSA is to post brochures all around the community. She also attends many events as the coordinator for the CSA program and generates new memberships that way.

Tom Powell, the other half of the Powell family, works with the cooperative of growers to coordinate production for each season. Tom sits down each winter and figures out how many times a member gets a certain type of vegetable per season and then translates that to the growers’ production. For instance, members will receive beets 4 times throughout the season meaning that the growers need to plant enough beets to cover 560 bunches of beets. Each crop has one or more growers assigned to it. In addition, many of the growers can specialize in crops they grow well. The cooperative takes advantage of the many microclimates in the Rogue Valley—growers who are located at a higher elevation are able to produce greens throughout the season, while others may have excellent southern exposure perfect for summer crop



Intern farmer Jennifer McCoy packs head lettuce into CSA boxes.  
Photo by Shawn Schreiner, shawnschreiner.com

production. In reality, the selection of crops for the season is surprisingly democratic and based on how well a grower has produced a crop in past growing seasons.

Each week during the CSA season, Tom calls around to each grower to find out what they have available for that week’s box. From there, he designs the shares and puts in orders with growers the evening before harvest. Once a week, growers meet at a central location to pack the 140 CSA boxes and Tom then delivers to ten different drop points around the Rogue Valley. Besides organic vegetables, the CSA also offers meat products, goat cheese chevre, honey, flowers, eggs and bread from local farms, ranches and bakeries.

Maud thinks that one of the major strengths of the cooperative is the fact that there is more than one grower on each crop. She says, “There is built in risk management in case there is a crop failure on one farm, another farm can come through with a crop. Members will receive at least some of each crop.” Other benefits to this model are that the growers do not have to engage in marketing the products or administering the CSA program. Farmers in the cooperative do take a price cut getting paid at 75%

*“I love the group! There are so many collaborations and the cooperative atmosphere deepens relationships between growers.”*

of retail price in exchange for not having to market their produce. Maud says, “I love the group! There are so many collaborations and the cooperative atmosphere deepens relationships between growers.” To build on the

collaborative relationship, the Siskiyou Coop manages cooperative seed harvesting and cleaning equipment for the Applegate Valley’s large number of organic seed growers. Siskiyou Coop treasurer Don Tipping of Seven Seeds Farm says, “We were inspired by the Mondragon cooperative from the Basque region of Spain, which is the world’s largest and most successful coop. Independent producers face many challenges and our hope is that as we work together more we are able to reach a better economy of scale. For instance, it is likely that we will initiate a group health insurance policy this season and many growers already pool


resources to achieve bulk discounts for farm related inputs. The newly initiated CSA member advisory board will help us broaden the reach of our rural cooperative goals to include our suburban supporters.”

One drawback to being a member grower of the coop is that the growers do lose their farm identity when they sell into the cooperative distribution program. Growers also lose the direct relationship with consumers, although the cooperative is trying to change that this year. Each farm will be hosting a farm day this season allowing CSA members to meet each of the growers and establish a connection with where their food is grown.



Future farmer Grace Powell loads CSA boxes into the cooperative's refrigerated trailer.  
Photo by Schawn Schreiner, shawnschreiner.com

Each CSA member receives a recipe page with the weekly box and Maud and Tom run a blog and website for the cooperative that allows growers to post information as well as allows Maud to write updates on how the CSA is going. Members of the Siskiyou Sustainable Cooperative are mostly located in the Applegate Valley and include Wolf Gulch Farm, Barking Moon Farm, L&R Family Farm, Full Bloom Farm, Wandering Fields Farm, Seven Seeds Farm, Dancing Bear Farm, Jema Farm and White Oak Farm. Many of the growers are also marketing outside of the cooperative through farmers' markets, restaurants and wholesale. A majority of them are also organic seed growers. Siskiyou Coop President Josh Cohen of Barking Moon Farm says, “What makes the Siskiyou Coop appealing to a grower like myself is that I am able to have all my crops sold before the growing season. Since it is basically contract growing, I have assurance going into the growing season how many of my crops are going to sell into that venue.”

Maud Powell also gives this advice to other growers interested in starting an agricultural cooperative. She says, “Quality is really important. All of the farmers have to be invested in having a high quality product. Come up with list of protocols or standards that you want to meet. Getting quality standards in a group that is also fostering collaboration is a challenge, but possible.” For more information about the cooperative, check out the cooperative's website at [www.siskiyoucoop.com](http://www.siskiyoucoop.com). 

## Resources

### New Video Series Offers Advice for New Farmers

Cornell University is launching an innovative, online video series that will help agricultural entrepreneurs successfully launch new farms. The video series, titled, “Voices of Experience,” covers essential topics such as financing farm start-up, marketing, profitability, and goal setting, to name just a few. The ‘voices of experience’ in the series are actual farmers who have successfully started their own farm business.

Voices of Experience online videos are available at the Beginning Farmer Project Web site: [www.nybeginningfarmers.org](http://www.nybeginningfarmers.org)

### Website for Renewable Energy Movement

The *Renewable Energy* site offers an array of resources on environmentally friendly energy sources and conservation. The site is located at <http://www.extension.purdue.edu/renewable-energy/>. Web site visitors can learn about installing wind turbines and solar panels, ethanol production and cutting energy costs, among other topics.

Developed by Purdue University, the site has pages devoted to wind and solar energy, biofuels, and corn ethanol co-products, as well as on-farm energy efficiency systems. There also are tools and spreadsheets that are used for analysis of various renewable energy systems, and links to other Web sites. *[Indiana Ag Connection]*

# For Livestock, April is the Cruellest Month

By: Dr. Susan Kerr, WSU-Klickitat County Extension Director

Well, not exactly, but that is how the poem<sup>1</sup> goes... Actually, February and March tend to be the cruellest months for livestock. This article will help livestock owners appreciate why this is true and how they can mitigate late winter's impact on livestock health.

## Green Does Not Always Mean GO

Livestock producers eagerly await spring pasture greenup so they can turn animals out and stop feeding hay. However, it takes several weeks after initial pasture greenup before fresh forage contains adequate concentrations of essential nutrients to meet animals' requirements. Early forage growth is called "washy," meaning it has high water content.<sup>2</sup> Livestock forced to subsist exclusively on low-nutrient washy pasture become "washy," too, and produce copious amounts of diarrhea. The moral of the story: keep feeding hay until pastures come on sufficiently, i.e. 6" to 8" in height. Supplemental hay and/or grain may be needed to meet the nutritional demands of grazing livestock in some situations. Before spring turn-out, horse owners should educate themselves about the danger of laminitis ("founder"), which can be caused by grazing.

## The Pull Test

Turning livestock out to graze too early in the spring is not good for pasture health, either. Animals should not be allowed to graze until pasture forage passes the "pull test." This involves grasping a forage plant and pulling; if a human can uproot plants by pulling, livestock can do so by grazing.<sup>3</sup> Although there are multitudes of managerial errors that can *reduce* pasture performance, completely uprooting pasture plants *eliminates* production. Soil runoff, noxious weed invasion and water quality degradation ensue, along with increased input costs and other negative impacts on profitability.

Wet soils can be damaged and compacted by livestock activity, especially heavy animals such as horses and cattle. Ruts caused by hoof imprints can make pastures rough, uneven and dangerous when the soil dries. Compacted soils are less productive because plant

roots have difficulty expanding for nutrients and water does not permeate non-compacted soils well.<sup>3</sup>

## Heads Down, Stomachs Empty?

Good managers take time to observe livestock behavior. Observation helps identify problems with individual animals as well as whole-herd issues. For example, if all animals always have their heads down

grazing and are never observed lying down, ruminating, sunning themselves or playing, they are probably hungry and constantly eating what little forage is available as soon as it appears. As you can imagine, this is not good for pasture health, either—hungry grazing animals re-graze what little re-growth occurs immediately, thereby reducing plant root development, vigor and longevity. Close grazing of early spring pasture growth also makes ingestion of parasite eggs and larvae more likely.

## Death from Starvation

Ironically and tragically, animals can starve to death even with a full stomach. If they have not received adequate quality and quantity of nutrition throughout the winter, livestock will gradually deplete their fat stores of energy. By late winter, these stores are gone and the body must now degrade its own muscles to meet critical energy demands. If proper nutrition is not provided in time, this process is fatal.

Tremendous loss of body weight and condition can go unnoticed due to heavy winter coats/fleeces or poor monitoring by managers. *Body condition scores must be*

*"Body condition scores must be monitored regularly throughout the winter to prevent the unwanted surprise of late winter starvation deaths."*

monitored regularly throughout the winter to prevent the unwanted surprise of late winter starvation deaths.

## Body Condition Scoring

Body Condition Scoring (BCS) is a hands-on, objective way to assess and monitor an individual animal's fleshiness and fat stores. Muscle and fat covering of certain body landmarks are palpated and animals are assigned a score using either a five- or nine-point scale. In essence, scores equate to degrees of "thin," "moderate" or "fat."

Several good BCS resources are listed at the conclusion of this article. Others can be found by conducting an Internet search using the terms "body condition scoring" and the species of interest (horse, goat, sheep, cattle, etc.). BCS can be used to group animals for feeding, monitor the progress of conditioning in individual animals, assess nutritional programs and determine the impact of parasites, weather, disease and other parameters on livestock condition.

It takes about six weeks to move up or down one condition score. Noticing a BCS of 2 in a beef heifer in March means it will take three months to get her into the minimum condition she should be in time for breeding. It would have been preferable to realize she was slipping from a 5 to a 4.5 in December, increase the

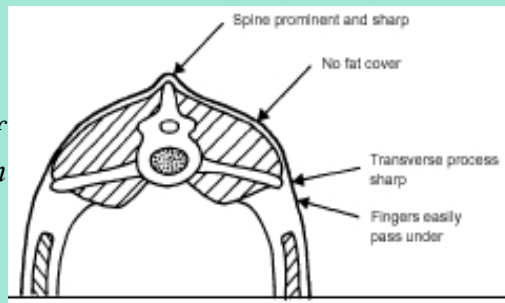


Figure 1. Body Condition Score 1, emaciated.  
Graphics from "Body Condition Scoring of Sheep," EC 1433, Oregon State University Extension by J. Thompson and H. Meyer, 1994. Used with permission.

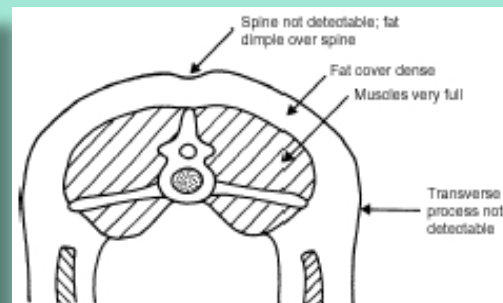
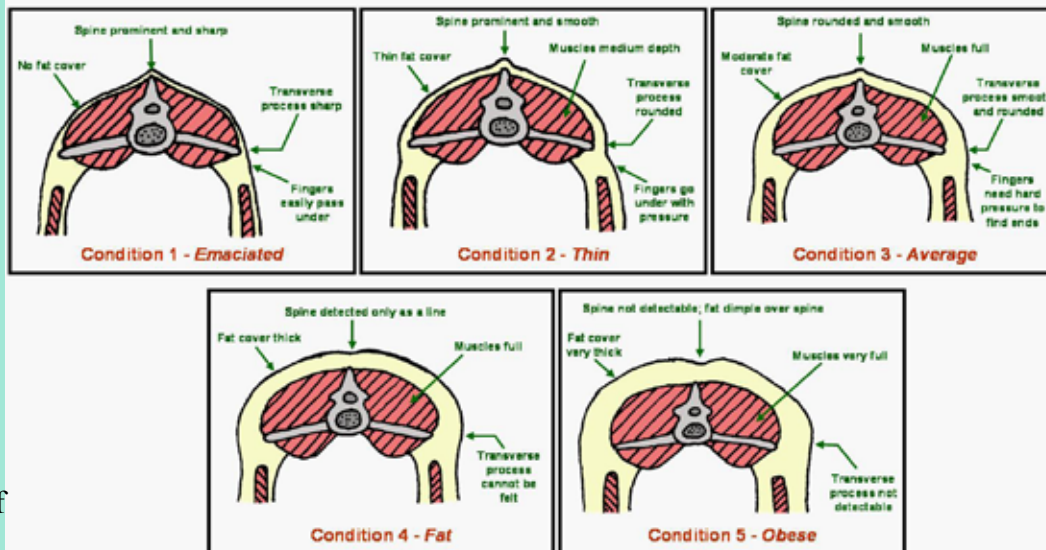


Figure 2. Body Condition Score 5, obese  
Graphics from "Body Condition Scoring of Sheep," EC 1433, Oregon State University Extension by J. Thompson and H. Meyer, 1994. Used with permission.

## Body Condition Scores – Sheep/Goats



Adapted from "Body Condition Scoring of Sheep" by J.M. Thompson and H. Meyer (Oregon State University)

UK UNIVERSITY OF KENTUCKY  
College of Agriculture  
Department of Animal Sciences



energy content of her ration and score her 5 in January, February, March and right up to breeding time.

## Identify the Cause

What can you do if it is late winter and your animal is in poor body condition? First, ask yourself these questions to determine why body condition is low:

- Is there an underlying health issue such as bad teeth, parasitism, cancer, etc.?
- Lice are a very common

problem in late winter. A lice infestation can cause loss of livestock body condition through the lice's parasitic actions and the host's response—time and energy spent scratching instead of eating. A veterinarian may need to determine the cause of poor body condition.

- Is there a social or behavioral issue such as an aggressive animal taking food away from timid animals? Re-grouping, isolating or even culling certain animals may be necessary.
- Is there enough feeder space and can animals of all sizes access food in the feeder? Lack of sufficient feeder space is a very common reason for weight loss or poor performance in timid or small individuals.
- Is there enough quantity and quality of food? A feed

analysis will determine if feed quality is sufficient for animals' needs. Your Extension educator can help determine if animals have a balanced diet and are receiving enough food. Extension personnel can also advise you regarding feeding methods that result in less wasted feed.

- Have environmental conditions been particularly stressful? Chronically cold and wet conditions drain calories away from animals. Provide opportunities for them to get dry and out of mud and wind. Cold snaps can increase maintenance energy requirements three-fold, so give livestock more energy during cold spells to prevent loss of condition.



Providing a place for livestock to escape the elements is beneficial  
Photo from Stock Exchange

Address underlying health issues, too. If sore feet prevent an animal from moving and eating enough food, correct the foot problem. If a horse's teeth have uneven wear, have corrective dentistry performed on the horse. If an animal is infested with lice, use an

approved and effective de-lousing product on all animals of that species; follow label directions and re-treat if indicated. A quantitative fecal examination will help determine the level of internal parasite load so managers can make treatment decisions.

### Conclusion

Although it is not intuitively obvious, late winter/early spring is when most cases of livestock starvation occur. Routine monitoring of body condition scores, understanding of animals' nutritional requirements, attention to environmental factors, assessment of health issues and respect for pasture conditions will help prevent management-related causes of ill thrift. 🌀

<sup>1</sup> "The Waste Land" by T. S. Eliot.

<sup>2</sup> "Sheep Production and Management," 100B-15, by C.P. Mathis and T. Ross, [http://aces.nmsu.edu/pubs/\\_b/100B15.html](http://aces.nmsu.edu/pubs/_b/100B15.html).

<sup>3</sup> "Pasture and Hayland Renovation for Western Washington and Oregon," EB1870, by S.C. Fransen and M. Chaney. <http://cru.cahe.wsu.edu/cepublications/eb1870/eb1870.pdf>.

### Ensure Energy In > Energy Out

After determining why body condition is low, focus on reducing energy loss by addressing its cause; it is also essential to increase nutritional energy to improve body condition. Here's an example: an elderly but otherwise-healthy horse is in poor body condition due to worn teeth and cold weather. A concerned caretaker could carefully increase the calories in the horse's diet through a variety of means and/or reduce calorie loss by providing shelter and or a blanket. The animal should be required to do little work and its body condition re-assessed often

Various approaches can be taken to increase the energy content of a ration. If the animal has not been receiving an energy concentrate such as grain, a high-energy feed could be added to the diet. If the animal has been receiving an energy concentrate, the amount fed could simply be increased. If the animal is already consuming the maximum amount of dry matter daily, an energy-dense portion of the diet will have to replace some of the less energy-dense portion of the diet. All changes should be made gradually to avoid digestive disruptions.

### Resources

[www.extension.org/pages/Highlight:\\_How\\_to\\_Body\\_Condition\\_Score\\_Horses](http://www.extension.org/pages/Highlight:_How_to_Body_Condition_Score_Horses) (Horses)  
<http://osuextra.okstate.edu/pdfs/F-3283web.pdf> (Beef)  
<http://extension.oregonstate.edu/catalog/html/ec/ec1433/> (Sheep)  
[www.youtube.com/watch?v=a2ppHAUbLYY](http://www.youtube.com/watch?v=a2ppHAUbLYY) (Goats)  
[www.youtube.com/watch?v=OjbekWP1rHs&feature=related](http://www.youtube.com/watch?v=OjbekWP1rHs&feature=related) (Beef)

# Pasture Utilization - The Critical Factor

By: Sam Angima

In the past decade, there has been rising interest in reducing livestock supplementation/hay and increasing grazing and use of stock-piled winter forages. While this can be very successful depending on your location, there is a very important component that applies to all grazing types and that is pasture or forage utilization. Forage utilization looks at how efficient your animals utilize available forage over a period of time and how this may translate to average daily gain. Forage utilization and intensively managed rotational grazing go hand in hand. Remember that animals will intensively graze by nature, and only you can intensively manage them. So management is what you have to intensify, not just grazing.



Cows on continuous grazing have lower forage utilization rates

*Photo provided by Sam Angima*

Let us take an example of cows. When they take a bite of growing forage, the bite size and biting rate is governed by forage quality and quantity available. Each time they are turned into a new pasture, they rapidly graze the best forage leaving poor quality forage behind. Through defecation and urination, the remaining forage quickly loses quality and utilization rapidly declines. In fresh pastures, intake rate is high, and the cows get 'full' quickly, therefore minimizing time spent grazing. Remember that grazing uses energy, therefore the conserved energy is used for growth or other metabolic functions that make livestock production profitable. That is why we need to rotate the animals to allow for re-growth of pasture.

To have a good rotation, you need to choose a proper stocking rate. If three cows are waiting for every blade of grass as it comes up, the "solar panel" (leaves) will never develop. On the other hand, if grazing pressure is too light and the plants grow up and are left ungrazed, dead material accumulates and the solar panel loses efficiency. As with most things in life, balance is the key. Several things govern how this sequence should happen.

We know that forage quality decreases as plants grow

older because they become stemmy with nutrients tied up in non-digestible forms (such as lignin). In the rumen, the fibrous fractions of forage are less digestible and require more time for digestion than the non-fibrous fractions; therefore forage intake and total energy intake generally decline as forages mature. Because the rumen is filled to capacity with most forage diets, any factor that speeds the passage of the diet through the rumen will allow the animal to consume more feed. The intake of highly digestible materials can be as much as 3 times higher for very high quality forage than for poor quality forage.

Now, a good manager needs to balance pasture quality with pasture growth. Usually, the best time to graze is immediately following the most rapid growth but before flowering and seeding. If enough vegetative matter is left after grazing (4-5 inch stubble), pasture growth is least affected. At this stage, sufficient carbohydrate reserves have been built up to allow for rapid re-growth. On the other hand, if grazing occurs before this stage when the forage has not had time to rebuild its carbohydrate reserves, yield will be low, the next re-growth may be slow and reduced, and winter survival may be decreased. The frequency and pace of re-growth is higher in spring

and early summer seasons.

One of the cornerstones of successful grazing system is having rest periods that are long enough to allow for rapid forage re-growth. Rest periods allow plants to grow more leaves and more leaves provide more energy for root growth and carbohydrate storage and plant vigor. Rest periods should be of appropriate length to create an efficient “solar panel” but shorter enough to prevent the plants from becoming decadent. We always have to compromise between yield and quality that takes place with every pasture growth cycle because as pastures grow during rest periods, yield increases, but quality declines. The optimum balance depends on type of livestock and physiological stage of production. This is why it is impossible to say that a rest period should always be so many days or that a pasture should always be so many inches tall before grazing begins. We can control how often stock come back to that pasture and how frequently it is grazed. In some environments that may be once or twice a year while in other environments it may be five to ten times a year. Knowing how to balance yield and quality for livestock requirements is a critical skill in management intensive grazing.

How do you allocate pastures to the number of animals you have? An average mature cow weighs 1000 lbs and consumes on average 3% (30 lbs dry matter) of its body weight per day. If there are 1000 lbs/acre of dry matter available for grazing in one year, then you will have 33 ‘cow days’ grazing this acre-pasture in that year. This 33 cow days can only be achieved profitably if pasture utilization is high like in rotational grazing systems. A study carried out in the mid-west found that if cows are rotated every 3 days, 7 days, or 14 days that corresponded to 70%, 50%, and 40% utilization rates respectively. If you



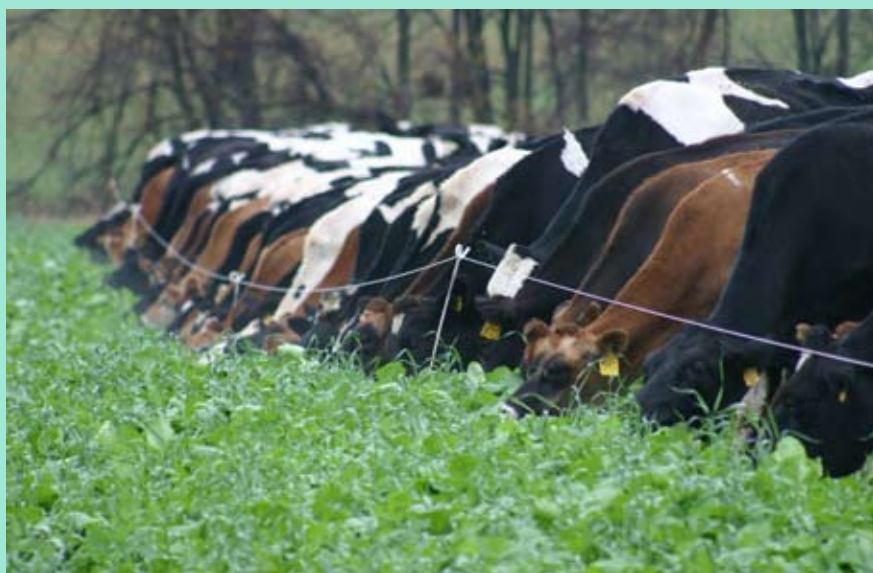
Forage growth is rapid when you graze half and leave half.  
Photo provided by Sam Angima

use these percentages for the 33 cow days above, you can see that you lose quite a lot of days where your animals will be under-performing and you are not profitable.

On fertilization, it is estimated that you can reduce recommended spring nitrogen rates by 20% for the same yield goal on intensively managed pastures. When forages are intensively managed, it is

important to fertilize only when increased forage production is needed depending on your stocking rate. Growers should think carefully about whether the excess spring production is necessary unless the excess production is going to be harvested as hay.

How many paddocks are needed to provide adequate rest for a pasture? It has been shown that four paddocks can provide 75% rest opportunity while eight paddocks provide 87% rest. Therefore we can conclude that to keep pastures more vigorous, most of the rest benefit of rotational grazing is achieved with just four to eight paddocks. In summary then - take half and leave half. This is a safe guideline that can help you determine the length of the grazing period to ensure greater forage utilization. *ℳ*



Paddocks can be any size that allows you to manage the stocking rate.

Photo provided by Sam Angima

# A New Expo for the Small Farm Community

The *Country Lifestyle Experience* offers clinics, workshops, demonstrations, lectures and a large trade show, where people can learn about the latest technology, tools, small farm activities and machinery, animal management, energy savings methods and alternatives, feeds, hobbies, and much more.

Several OSU Extension agents and partners will be teaching classes as part of the *Country Lifestyle Experience of the Northwest* will be held April 10 and 11, at the Linn County Fair & Expo Center in Albany.

## On Friday, April 10<sup>th</sup>

### **Weed Management**

12:30 to 1:30 p.m.

Linda McMahan, OSU Extension Service

### **Get the Most from Your Organic Garden**

2:00 to 3:00 p.m.

Matt Borg & Cyndee Ross, Matt-Cyn Farms

### **Plants Poisonous to Livestock**

2:30 to 3:30 p.m.

Melissa Fery, OSU Extension Small Farms

### **Wells and Septic Systems**

3:30 to 4:30 p.m.

Chrissy Lucas, OSU Extension Small Farms

### **Pastured Poultry**

4:00 to 5:00 p.m.

Jim Hermes, OSU Extension Poultry Specialist

### **Caring for Honey Bees in NW Oregon**

3:30 to 4:30 p.m.

Lynn Royce, Mitebee Farms

Attendees at the expo can enjoy a friendly competition, while testing their farm skills in the *Country Living Olympics*. Competitors can vie for prizes, in events that replicate daily farm chores.

**Hours for the *Country Lifestyle Experience* are: Friday from 12noon to 7pm; and Saturday from 10am to 6pm. No pets are allowed. Tickets for the expo will be sold at the gate; cash only. Tickets are \$8 for adults, \$5 for children ages 6 to 12 years; children 5 and under get in free. Three dollar discount coupons will be available in advance in issues of Capital Press and can be picked up at Coastal Farm & Ranch, SilverLite (South Commercial Auto Sales), Albany, Linn Benton Tractor Co in Albany.**

The *Country Lifestyle Experience* is owned and managed by Equine Promotions, Inc, and is the official expo of the Country Living Association.

## On Saturday, April 11<sup>th</sup>:

### **Raising Chicks**

10:30 to 11:30 a.m.

Jim Hermes, OSU Extension Poultry Specialist

### **Caring for Honey Bees in NW Oregon**

11a.m. to 12 p.m.

Lynn Royce, Mitebee Farms

### **Horses 101**

12:00 to 1:00 p.m.

Robin Galloway, OSU Extension 4-H

### **Wells and Septic Systems**

12:00 to 1:00 p.m.

Chrissy Lucas, OSU Extension Small Farms

### **Get the Most from Your Organic Garden**

12:30 to 1:30 p.m.

Matt Borg & Cyndee Ross, Matt-Cyn Farms

### **Plants Poisonous to Livestock**

1:30 to 2:30 p.m.

Melissa Fery, OSU Extension Small Farms

### **What Can I Do With My Small Farm?**

#### **Exploring Farm Enterprise Options**

1:30 to 2:30 p.m.

Garry Stephenson, OSU Extension Small Farms

### **Pasture and Grazing Management**

3:30 to 4:30 p.m.

Melissa Fery, OSU Extension Small Farms

### **Horse Safety**

2:30 to 3:30 p.m.

Robin Galloway and Curt Pate



## iFarm Database Links Farmers and Land

Oregon's non-profit organization, Friends of Family Farmers is developing a land and resource connection service with an online database that will help grow the next generation of family farmers. The iFarm service links farmers without land to farmers with land. Agriculture will experience a high number of retirements as baby boomer farmers age. Without a plan to get new farmers onto the land, with access to education, financing and markets, Oregon could lose a significant amount of land that is currently being farmed. Family farming is fundamental to the integrity of our land base, our rural communities and the richness of our culture.

**Visit iFarm at:**  
<http://www.friendsoffamilyfarmers.org/ifarm/index.php?action=searchpage/>

# Get SmART in Central Oregon


by: Dana Martin

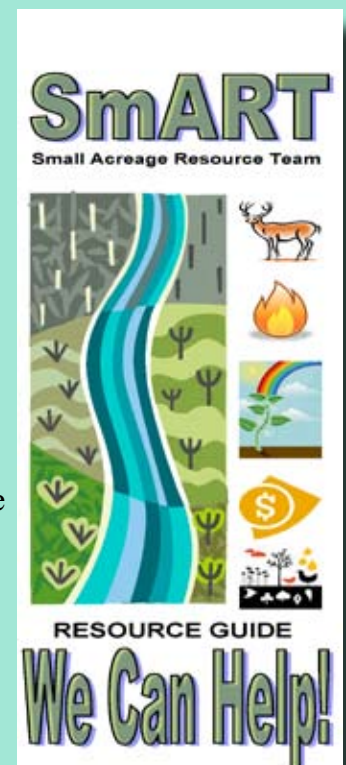
**D**o you know where to go for information regarding agricultural loans? How do you learn about controlling noxious weeds on your property? Who do you contact to find answers about livestock nutrition and crops? For those confused by the lists of acronyms connected with government agencies and organizations, the Small Acreage Resource Team (SmART) is here to help.

SmART efforts began more than a year ago when representatives from various groups came together to streamline the process of "locating services" for small land owners. The mission of SmART became "Collaborative Education and Outreach to Small Acreage Land Stewards in Central Oregon".

There are approximately 17 SmART partners, representing the Oregon State University Extension Service, Soil and Water Conservation Districts, Watershed Councils, Farm Service Agency, Natural Resource Conservation Service, Oregon Department of Agriculture, Oregon Department of Forestry, U.S. Fish and Wildlife, irrigation districts and more.

As a result of this collaboration, a SmART booth has been created and SmART brochures, as well as other agency information, are available at various trade shows and community gatherings. The brochure includes descriptions of various partners, including their acronyms. Contact information is also provided in different categories such as Alternative Energy, Loans, Water, Enforcement, Niche Marketing, Pest Control and Weeds, Livestock, Forest Management, Water, County Planning Departments, Cost Share and Grants, and Crops, Gardening, Native Plants, Pasture and Hay.

The response has been very positive according to Ellen Hammond, water quality specialist with the Oregon Department of Agriculture. "Landowners and partners are raving about SmART," says Ellen, who helped coordinate the efforts. "People like having all the information in one place. One landowner said he was going to put the brochure on his refrigerator." To view the SmART brochure, visit "Farms and Acreage" found at OSU Extension Service site in Deschutes County: <http://extension.oregonstate.edu/deschutes/> 



# Calendar

## March

### **31-Growing Farms: Successful Whole Farm Management - Southern Willamette Valley**

8-week workshop series to provide beginning farmers with the tools and knowledge to manage the crop production and financial risks of farming. For more information contact Melissa Fery at 541-766-6750. **\$175 per person or \$300 a couple.**

## April

### **6 - Milk Quality and the Shelf Life of Dairy Products**

Reviews the causes of quality defects and reduced shelf-life in pasteurized milk and other dairy products. For registration information: [http://oregonstate.edu/dept/foodsci/extservices/milk\\_quality\\_regform.htm](http://oregonstate.edu/dept/foodsci/extservices/milk_quality_regform.htm). Salem Conference Center - Santiam 2 & 3. 200 Commercial St SE, Salem, OR. Debby Yacas at 541-737-6483 or [deborah.yacas@oregonstate.edu](mailto:deborah.yacas@oregonstate.edu) **\$195 if registered by March 23, 2009; \$225 if registered after March 23, 2009.**

### **8 - Growing Farms: Successful Whole Farm Management - Central Oregon**

8-week course to provide beginning farmers with the tools and knowledge to manage both the biological and financial risks of farming. Deschutes County Extension Office, Bend, OR. Dana Martin (541) 548-6088. ext 208 **\$175 per person or \$300 a couple.**

### **22-Food Labeling Workshop**

Workshop teaches the fundamentals for labeling FDA-regulated foods. Topics include: General statutory authorities Rules governing all required label elements Special labeling provisions Information about food label claims For registration information: [http://oregonstate.edu/dept/foodsci/extservices/food\\_labeling\\_regform.htm](http://oregonstate.edu/dept/foodsci/extservices/food_labeling_regform.htm). Salbasgeon Suites, McKenzie Center Conference Room, 1730 NW 9th Street, Corvallis, OR. Debby Yacas at 541-737-6483 or [deborah.yacas@oregonstate.edu](mailto:deborah.yacas@oregonstate.edu) **\$250 if registered by April 8, 2009; \$285 if registered after April 8, 2009.**

## May

### **5 - OSU annual Ag Day**

A community event to promote agriculture and represent how it impacts everyone and not just those involved with agriculture. There will be booths from all CAS clubs, food, entertainment, and more! OSU Campus, Memorial Union Quad, SW Jefferson Way & SW 26th St, Corvallis, OR. Sabrina Beske & Cynthia Taylor at [beskes@onid.orst.edu](mailto:beskes@onid.orst.edu) & [taylorcy@onid.orst.edu](mailto:taylorcy@onid.orst.edu). **Free**



Want to add your event to our calendar then please submit your information at <http://calendar.oregonstate.edu/advanced/list/extension-smallfarms/> "Click the Submit an event button." Events have to be approved and will not immediately post. If you have questions please email [Chrissy.Lucas@oregonstate.edu](mailto:Chrissy.Lucas@oregonstate.edu) or call 541-766-3556