

Oregon Small Farm News

Oregon State University Small Farms Program

In This Issue:

Small Farms Conference a Big Success	2
Alternative Meat Marketing Strategies: Small Farms Conference Session	3
Farm Profile: Walker Farms	4
Oregon Country Trails are Blazing Opportunities for Rural Entrepreneurs	7
Irrigation Management Basics	8
OSU Cover Crop Calculator to be Launched in Early April	12
Love's Labors Lost: Small Ruminant Abortion Storms	13
Living on a Few Acres: A Success	17
Oregon Farmers, Ranchers Unite to Shape the Future of Agriculture	18
Calendar	20

OSU Extension Service Small Farms Staff

Garry Stephenson, Editor
Small Farms Program
Coordinator
Corvallis, OR 97330

Sam Angima
Lincoln County
29 SE 2nd Street
Newport, OR 97365
541-574-6534

Nick Andrews
Clackamas, Multnomah, &
Washington Counties
15210 NE Miley Road
Aurora, OR 97002
503-678-1264

Melissa Fery
Benton, Linn, & Lane Counties
1849 NW 9th Street
Corvallis, OR 97330
541-766-6750

Dana Martin
Deschutes, Crook, & Jefferson
Counties
3893 SW Airport Way
Redmond, OR 97756

Melissa Matthewson
Jackson, Josephine, & Douglas
Counties
569 Hanley Road
Central Point, OR 97502

Maud Powell
Jackson, Josephine, & Douglas
Counties
569 Hanley Road
Central Point, OR 97502

Chrissy Lucas, Layout & Design
Small Farms Program Assistant
1849 NW 9th Street
Corvallis, OR 97330
1-800-365-0201

Cover Photo:

"Walker Farms of Silteez:
Veggies"

*Photo provided by Randy and Sarah
Walker*

Oregon State University Extension Service offers educational programs, activities, and materials without discrimination based on race, color, religion, sex, sexual orientation, national origin, age, marital status, disability, and disabled veteran or Vietnam-era veteran status. Oregon State University Extension Service is an Equal Opportunity Employer.

Small Farms Conference a Big Success

The 2010 OSU Small Farms Conference was a big success, and broke another attendance record: 610 people attended, compared to around 480 people last year. The conference was held on February 27, 2010 in Corvallis, Oregon. Organic peach grower Mas Masumoto, Fresno, CA, was the keynote speaker. Oregon Department of Agriculture Director Katy Coba delivered the capnote address.



This year's conference included three concurrent tracks of six sessions each. The mandatory face-to-face training for the WIC voucher program was included in the conference offerings. Production topics included cover crops, grain, poultry feed, and farm internships. Marketing topics included meat marketing, new tools for direct marketing, farmers' markets business operations, and agritourism as a value-added enterprise. Policy topics included farmers' market – public health partnerships, farmers as writers, and funding on-farm energy improvements.

Forty-one percent of participants indicated that this was their first OSU Small Farms conference. Eighty percent plus indicated that they had attended at least one other OSU Extension event in the prior 12 months. Growers made up 62% of the participants.

Sponsorships and grants enabled us to set an affordable registration fee; registration fees largely cover catering costs. Sponsors included the Oregon Department of Human Services-WIC Program, Oregon Department of Agriculture, Chambers Eisgruber Fund for Sustainable Agriculture, the Farm Service Agency, and USDA-Western SARE.

Next year's conference is scheduled for Saturday, 26 February, 2011. 🌿

Alternative Meat Marketing Strategies: *A Small Farms Conference Session Summary*

By: Lauren Gwin

As if breed selection, forage management, grazing strategies, and humane animal handling weren't complex enough, livestock producers aiming to sell into niche markets also have to learn about the other side of the farm-gate. How does your high-quality meat get to your customer's plate?

Marketing strategies – including supply chain challenges processing and distribution – were the subject of our Small Farms Conference panel, “Alternative Meat Marketing Strategies.” Three Oregon livestock producers with years of experience selling their meats into niche markets shared their stories, strategies, and lessons learned.

John Neumeister, of Cattail Creek Lamb in Junction City (www.cattailcreeklamb.com), started moving away from commodity markets in the 1980s. A niche marketing pioneer, his timing was perfect: his first restaurant customer not only found him but was quite a pioneer herself: Alice Waters of the famed Chez Panisse in Berkeley, CA. Over the decades, John has added many high-end restaurants and wineries to his customer list, as well as retailers, including First Alternative Co-op in Corvallis. He has also partnered with another lamb producer so he could shift entirely to marketing and supply chain management, a full time job.

Bette McKibben, of McK Ranch in Dallas (www.mckranch.com), sells her grass-fed beef to restaurants, retail stores, and, beginning this year, through a CSA-style buying club. After years of selling at farmers' markets – nearly exhausting herself in the process – Bette finally felt her market presence and customer base were strong enough to let her shift gears. This year, she will do only one farmers' market, in Dallas, and will focus her direct sales through the CSA, partnering with a produce farm.

Cory Carman, of Carman Ranch in Wallowa (www.carmanranch.com), sells most of her grass-fed beef to individuals on an “on the hoof” basis, as sides and quarters, but also by the cut at farmers' markets, to high-end Portland restaurants, and most recently to Bon Appetit, a leader in bringing sustainable food to “institutional” food service settings like colleges and corporate campuses. While her profit margins may vary by market channel, the mix of customer types allows her to sell the whole animal, from tenderloin to chuck roast.

All three emphasized the critical importance of establishing a good working relationship with a meat processor, even putting on an apron and hairnet to work with them as they get used to your product. John spent 6 months working side by side with his processor, with excellent results. Cory, like other Eastern Oregon producers, has found processing to be a real challenge and currently works with two small facilities. This may change if she expands production.

Those are just a few highlights: our 90 minute session could have lasted a full day. Next year, we hope to offer more sessions on alternative meats, including production techniques, the risks and opportunities of different niche market channels, how to put together and maintain a functional supply chain, and a hands-on workshop on carcass breakdown and utilization. *B*



Meat that has been cut, wrapped, and ready for market.

Farm Profile: Walker Farms

By: Sarah & Randy Walker

Sarah and Randy Walker have not been farmers for very long. Four and a half years ago they purchased a farm on the flat fertile plain next to the Siletz River. Since then, they have not looked back. Sarah grew up in the inner-city of South St. Louis, and came to the farm under protest. Randy grew up in a family oyster-growing operation, where working on the oyster beds was a way of life as long as he can remember. It was his dream to be a self-sufficient small acreage farmer, much the same way his grandfather farmed in Canby, Oregon, shortly after the last century.

Sarah's reluctance and Randy's dream turned very quickly into a huge undertaking. Somewhere along the way a passion for the rural lifestyle took root. The Walkers in some ways are very typical of small farmers today. Randy works for OSU Hatfield Marine Science Center in Newport, and is 61. His salary has helped support the farm until it got going. Sarah worked full time at a Newport lumber company, but recently has been laid off from work.

The Walker's feel strongly that sustainability has a social value and that the key to healthy living is a strong and healthy community. They are very busy members of the community. They are both volunteer firefighters and EMS First Responders at the Siletz Valley Rural Fire Department, where Sarah is also the Secretary/Treasurer of the Siletz Volunteer Firefighters Association. Randy is president of the Lincoln County Small Farmers Association (AKA Newport Farmers Market) and also sits on the board of Buy Local Lincoln County, a not-for-profit organization that has the purpose of promoting local spending for businesses in Lincoln County. They both actively support Bright Horizons Therapeutic Riding Center, and volunteer for the Siletz Valley Food Share Pantry. Their farm, Walker Farms of Siletz, was selected to be the 2009 Conservation Farm of the Year by the Lincoln County Soil and Water District.

Farming in circles

The Walkers view of farming is reminiscent of a hoop

spinning fast.

The idea is the spinning hoop repels as many inputs as possible coming in and the centrifugal force will send outputs to the community as healthy options that have minimal impact on the environment and provide people with wholesome food.

When the farm was purchased, the main source of income was an indoor arena and stables for the horses. The horse barn had only one customer when the Walkers purchased the farm. Currently all stalls are full - being on waiting list for almost a year is not uncommon. A few years ago, the Walkers partnered with Bright Horizons Therapeutic Riding Center to provide an opportunity for disabled and challenged people to have an opportunity to learn to ride horses and work on life skills. The center has been very successful and is an asset to the community.

Additionally, Bright Horizons provides Walker Farms with another benefit - horse manure. Walker Farms composts the manure and carbon from the bedding and excess hay and turns it into rich compost to help build the soil on the farm. In the summer, manure is spread on the fields to provide the building blocks of life for the vegetation that supports the sheep and other ruminants.

This manure has not always been a friend of the farm - when they first purchased the farm there was a huge pile of manure behind the barn that was a point source of excess nutrients going into the soil and groundwater. Sarah and Randy partnered with NRCS to build facilities to change manure from a source of pollution





to a benefit to the soil and keep the waters of the Siletz River from being fouled by runoff from the farm.

A signature crop of the farm is pasture raised chicken. The chicken is raised in the fields in portable pens. The pens are moved every night so as to not concentrate manure in one spot. As with all circles, there is a pattern to the way animals live on the farm. The Walkers use pasture rotation to ensure that fields are not run down too far by the ever-grazing sheep. They are moved from small field to small field, helping to maintain the balance of ecosystem on the farm.

A good portion of the income from the farm comes from pasture raised lambs. Most of the lamb produced by Walker Farms is sold through direct sales of USDA butchered meat, either at the Newport Farmers Market, on farm sales, or through their new CSA. Last year, Randy and Sarah partnered with McK Ranch to supply a wide variety of meats and eggs to customers in western Oregon. This partnership is looking to be a growing part of the farm. Hogs and chicken eggs are also a source of income on the farm.

In the last two years, two small 18' x 30', and one large 30' x 96' high tunnel have been added. Fresh fruits, berries and vegetables are raised in the tunnels without pesticides. In addition to using compost, the Walkers mix their own blend of slow release fertilizer that is made from all natural products. It is the hope that this portion of the farm will continue to grow as Randy nears retirement.

Conservation is cornerstone of the farm. High-efficiency low-energy lighting is used throughout the farm. The Walkers are hoping to put in a water catchment system this year to supply water to crops in late August, September and October, traditionally the driest months of the year for this location.

Adorning the roof of the horse barn is 13.42 KW of photovoltaic panels that provide a good portion of the electrical power needed for the farm. In addition, wherever possible, solar fence chargers are installed to energize the seven-wire New Zealand style fencing that surrounds and divides most of the farm. The small homebuilt trailer that is used for sales at farmers market is also solar powered. The trailer, which looks like something right out of the movie "Grapes of Wrath," is a high tech unit. It has solar panels that harvest energy from the sun and store it in a battery. An inverter powers the computer, card reader and printer used for point of sale retail business. Direct 12-volt electricity is used to power two 12-volt DC compact fluorescent bulbs to provide lighting within the trailer. The Walkers readily admit the energy payback is likely the duration of the next ice age, but the point is to show customers that solar power will work in coastal Lincoln County.

The use of point of sale software and hardware connected to the rest of the world by wireless broadband has allowed the Walkers to increase their sales by offering customers the option of using a credit card when purchasing. Another perk of this system is the integration of point of sale software to the accounting software. This assists with management of inventory and provides an in the moment look at account balances. This has relieved Sarah from many hours of tedious bookkeeping and allowed her to balance with the touch of a few keys. While this may seem a bit removed from small



farming it is a huge tool for the Walkers and allows them to spend more time farming and less time in the office.

The Walkers found some challenges with materials and supplies as they currently have to buy many of these items in the valley, an hour away. The Walkers do see a bright future for Lincoln County agriculture as some folks are beginning to think about farming in Lincoln County. At one time the county had vegetable, fruit and berry processing plants, but for the most part, these facilities went away in the 1950's and 60's.

Knowing that processing has been successful in Lincoln county, Sarah and Randy are betting that value-added processing can be profitable again and are finishing up a facility that will meet these needs. The vision is to add value to fruits and vegetables grown on the farm and sell them as products that are commanding a higher price.

Farm education is a key component of what the farm does. Every spring, grade-school children come to the farm and tour the facility. Most years this includes a lap around the horse arena guided by volunteers from Bright horizons. The kids enjoy seeing the brooders, the laying hens and the chickens in the pasture.

Hopefully, this gives students a broad view of where their food comes from and how a farm actually provides the food bought in the grocery store. The tour has been a huge hit in the past, and generally the teachers try to tie the farm visit into the school's curriculum. This year signs have been added to the solar electric system geared at the second grade level, in hopes that the farm can instill a bit of interest in sustainability.

Walker Farms of Siletz is interested in being as transparent as possible and encourages folks to come out and take a look. The Walkers are happy to share any part of the farm that anyone would want to see, from petting the lambs, visiting the pigs, seeing how they manage the irrigation in the high tunnels, or witnessing the chicken production from brooder to butchering. *B*

RESOURCES FOR ALTERNATIVE MEAT MARKETING

Marketing Beef for Small-Scale Producers

http://www.extension.org/mediawiki/files/0/00/Marketing_Beef_for_Small-Scale_Producers.pdf

If you are a small-scale producer, marketing less than 100 beef a year, one of the best ways to market your beef for the least amount of time and money is to direct market in halves, quarters, and bundles. This document explains how to resolve common problems with selling this way and is also relevant to marketing pork, lamb, or other meats directly.

Beef and Pork Whole Animal Buying Guide

http://www.extension.org/pages/Local_Meat_Buying_Guide

This consumer-oriented guide explains buying pork and beef as whole animals (or portions thereof) directly from local producers. Common retail pork and beef cuts are explained with color photos by primal. This guide brings all the necessary pieces together in one easy-to-use resource. Free PDF available online; hardcopy available in color and B&W.

National Center for Appropriate Technology/ ATTRA

<http://attra.ncat.org>

NCAT/ATTRA – an essential resource for anyone in sustainable agriculture – has an excellent series of detailed publications on many aspects of alternative marketing options for livestock products, including: Beef Marketing Alternatives: <http://attra.ncat.org/attra-pub/beefmark.html>
Pork Marketing Alternatives: <http://attra.ncat.org/attra-pub/altpork.html>

Niche Markets: Assessment and Strategy Development for Agriculture

<http://ag.arizona.edu/arec/wemc/nichemarkets.html>

This series of articles, while not specific to meat & poultry products, offers valuable guidance on developing niche markets for agricultural products. National/multi-state databases focused on sustainable foods

Oregon Country Trails are Blazing Opportunities for Rural Entrepreneurs

By:Melissa Fery

If you are looking for ways to expand your rural business and bring new costumers to the countryside, the Oregon Country Trails system is an agri-tourism option you may want to explore. Oregon Country Trails (OCT) are self-guided driving adventures that offer visitors a chance to get out of their car, find something to do, something to see and something to buy.

“Where the suits meet the boots!”


Danuta Pfeiffer and her husband, Robin own and operate Pfeiffer Winery in Lane County. Together with a few of her neighbors, Danuta identified a way to encourage rural revitalization by creating a trail or a loop that would bring more foot traffic to their businesses, expanding economic viability. As a result, in 2006, a 40 mile trail, including wineries, alpaca farms, golf course, art gallery, a wild mustang ranch, fruit farms and orchards blazed The Long Tom Country Trail. Since then, the Alsea Valley Country Trail, Fern Ridge Country Trail, River Road Country Trail, and the Alpine Country Trail have formed. The trail system is expanding again, as farms and other rural entrepreneurs in Linn County are planning to form at least four new trails, with a fifth new trail, The McKenzie Valley Country Trail in Lane County, all this Spring. While the trails are gaining popularity at a local level, many of the patrons following a trail, stopping and shopping, are from out of state and those

visiting from foreign countries. These tourists are looking for unique opportunities to experience Oregon.

Trail-in-a-Box

For neighbors interested in starting a trail in their area, it's a fairly simple process. The first step is to identify at least 10 other interested businesses, including agriculture producers, entertainment farms, or other country retailers, like those that can provide lodging, educational and recreational opportunities, and food. The length of the trail should be such that visitors can complete it in a day with leisurely stops along the way. The second task is choosing a location for a planning meeting and then contacting OCT, who will attend the meeting, present the trails concept, and answer questions.

For an annual membership fee of \$100 per business, Oregon Country Trails will assist in designing the route, provide brochures and maps and market the trail. Members also have access to the OCT website and the option of a personal shopping cart on the website to sell products.

Oregon Country Trails is the only branded, agri-tourism system in Oregon and has been awarded the Pacific Rim Organization of the Year for agri-tourism. For more information about getting trails started or to check out existing trails, go to the OCT website at www.oregoncountrytrails.com 



Irrigation Management Basics

By: Chip Bubl, OSU Extension Service, Columbia County

Small fruit, vegetable and nursery crops generally require irrigation to produce the quality the market demands and the yield the producer needs. Irrigation technology has changed dramatically over the last thirty years. Drip or trickle irrigation has been widely adopted by large and small-scale farmers. But many growers prefer the ease and flexibility of sprinkler irrigation. Independent of which system or mix of systems a grower uses, irrigation management can be challenging.



An example of drip irrigation on lettuce.

An irrigation program must match the changing demands of the crop with the water supplied. For direct seeded vegetables, the planting bed is often irrigated prior to seeding to create a soil moisture reserve. This may not be necessary in the first spring plantings but is crucial in establishing later plantings.

After seeding, the beds are kept moist to encourage rapid germination. As seedlings emerge and become established, time between irrigations increases and the amount applied each time also increases as the root and the leaf systems develop. Much the same process is followed with transplants except that the initial requirement for a constantly moist top inch of soil is not as crucial.

As the canopy develops, water demand tracks both the increase in leaf area of the crop and the demand put on that crop by weather. Water moves out of the plant “capture zone” in several ways. First, a significant percentage of soil moisture is lost by downward movement through the soil. Second, there is a modest loss of soil moisture through upward movement of water to the soil surface. Once at the surface, it evaporates. Finally, plants move a tremendous amount of water through their leaves. This is called transpiration. Water is taken up through the root system

and exits the plants through small leaf openings called stomata, found mostly on the undersides of leaves. As the leaf area of the plant increases, so does the moisture lost through the crop canopy. Hot and/or windy days accelerate moisture loss from leaves.

The transpiration flow cycles mineral nutrients from the soil into the plant, cools the leaf

surface as water evaporates, and serves as the medium for most biochemical processes in the plant.

Water also acts as a key structural element for the herbaceous parts of plants. When plants are under extreme water stress, they wilt. Confronted with milder stress, the stomata shut down to conserve moisture. When that happens, no carbon dioxide enters the leaves and photosynthesis grinds to a halt. As a result, fewer sugars are produced and root and shoot growth slows. This can become a vicious cycle when moisture in the existing root zone becomes limiting. As crops move into their critical productive stages (e.g. onions bulbing, squash fruit forming, broccoli heading and the like) the impact of moisture shortfalls is profound and economically costly.

So, with the knowledge that adequate moisture is the key to good crop production, how do you define the irrigation intervals for your crops and allocate the water among competing crops or plantings? What are some of the factors that come into play?

Root development: Crops have characteristic effective rooting patterns and depths. But these characteristics can be modified by soil type, irrigation water distribution (especially with drip systems), organic matter, compaction, and plow pans. For vegetables, 70% of the soil moisture will come from the upper 50% of the effective rooting depth. This is where

the largest fraction of active roots are found. Most vegetables have an effective rooting depth of 12-20 inches.

Soil infiltration rate and water holding capacity:

Dust off your soil survey because it contains some great information on water movement and retention specific to your property. Tables describe how fast water moves through your various soil types in inches (or fractions of inches) per hour at different depths. It will then give the available water capacity (AWC) as inches of water per inch of soil depth. The available water capacity is the difference between the total amounts of water the soil can hold just short of saturation down to the lower limit of the permanent wilting point (PWP). When the permanent wilting point is reached, the plant can no longer access the residual moisture as it becomes tightly bound to soil particles. Sandy soils show high infiltration rates but generally not much storage capacity. So you can irrigate the profile quickly but it doesn't last.

Maximum allowable depletion (MAD): This is the amount of AWC that can be depleted without hurting crop yield or quality. It is monitored in the effective rooting zone. For most crops, MAD is between 40-60% of the available water capacity. If your soil dries below that point for any period of time, the crop is at risk.

There are sophisticated soil-moisture measuring devices like tensiometers that are used by large

commercial operations.



Soil samples taken with a soil probe are helpful in determining soil moisture and assessing water availability.
Photo from <http://www.waterright-soilprobe.com>

The simplest method to assess water availability in the root zone is to use a soil probe to remove cores of soil in the crop row. *Simple Irrigation Scheduling: Using the "Look and Feel" Method* (EM 8716) is an excellent guide to assessing the texture and feel of

the core and getting a rough idea of the degree of soil moisture present.

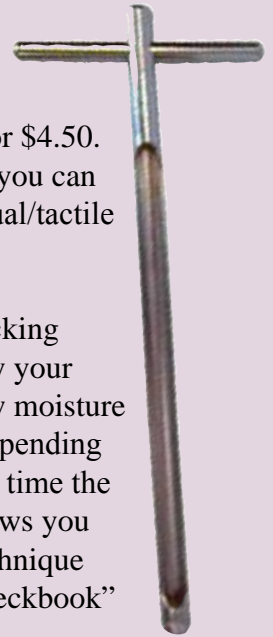
It can be ordered from Oregon State University Extension Publications for \$4.50. There are also plasticized cards that you can take to the field to help you do a visual/tactile assessment.

The soil probe is also useful for checking the distribution of water delivered by your irrigation system. Drip systems show moisture spread and infiltration differences depending on soil characteristics, flow rate, and time the system runs. The soil probe also allows you to check the accuracy of the next technique for water management: water or "checkbook" budgeting.

Water budgeting starts with an estimate of the available water capacity in the crop's root zone (AWC/in x effective root zone). Then irrigate to have a full "checkbook" if the AWC isn't already fully loaded. You manage your checkbook by following the crop and weather removal of moisture paired with additions either through rain or irrigation. It isn't a difficult technique once you get used to it.

Weather stations located throughout the Pacific Northwest provide data from which the evapotranspiration (ET) demand can be calculated on a daily basis for crops grown in each area. The ET calculation combines the water lost from surface evaporation (largely temperature and wind driven) and water lost through the crop canopy (temperature, wind and leaf area driven) less any rainfall. It is often referred to as the crop water use and is measured in inches per day. The Oregon data can be found on the Agrimet web site hosted by the Bureau of Reclamation at http://www.usbr.gov/pn/agrimet/or_charts.html

Look at the list of crop abbreviations on the Agrimet home page to make sense of the data. There are several assumptions embedded in these calculations. First, there is an assumed normal planting time and crop development cycle. Second, many crops (for example tomatoes and peppers) are not listed at all. However, it is often possible to pick listed "surrogate" crops to base your decisions on. Finally, the water loss projections



assume good weed control. If that is not the case, you would need to add a fudge factor to take into account the water weeds remove. Typical mid-summer moisture losses once a crop canopy is near full are between .25 and .35 inches per day. Extremely hot weather can push this to .40+ in./day. Crop profiles and supporting information are found in the outstanding *Western Oregon Irrigation Guides EM 8713*, which should be required reading for crop managers.

Most crops are irrigated when available water capacity (AWC) reaches 50%. Onions can only lose 30% of

<u>Sauvie Silt Loam</u>		
Depth	Infiltration rate (in/hr)	AWC
0-15"	0.2-0.6"/hr	.19-.21in/in
15-39"	.2-.6	.19-.21
39-60"	2.0-6.0	.15-.17

<u>Burlington Fine Silt Loam</u>		
Depth	Infiltration rate	AWC
0-12"	2.0-6.0"/hr	.13-.15in/in
12-60"	6.0-20"/hr	.09-.10in/in

the AWC. Beyond that, they don't size normally. The following example shows two soils on different parts of the same farm.

The Burlington fine silt loam has an available water capacity of 2.22 inches in the 18 inch effective rooting zone for onions. The Sauvie silt loam, by contrast, has a 3.60 inch AWC. Since onions fail to size properly if the AWC goes lower than 70% (down 30%), irrigation needs to be applied for the Burlington soil when moisture removed equals .67 inches while the Sauvie soil has a little larger buffer of 1.08 inches.

See the Onions example. Looking at the Burlington soil with a full AWC of 2.22 inches, how often would you have to irrigate? Comparing the MAD of .67 inches with the average rate of depletion in the root zone of .30 inches/day (this was a hot period), you would have to water about every 2.2 days. For the Sauvie soil with a MAD of 1.08 inches, the timing would be about every 3.5 days.

Is it possible to assume greater effective rooting depth for the onions? If so, you could store more water in the soil below 18 inches

and you would have a larger AWC and thus might be able to spread out the irrigation a little longer. In addition, building organic matter in a field can improve the water holding and can also stretch out the intervals between irrigations. Other crops effectively reach below 18 inches thus leading to longer watering intervals.

The final piece of this puzzle is sorting out how long to irrigate. Each irrigation system has its own performance characteristics that need to be understood. The key criteria are:

- How much water is delivered per minute?
- Over what area?
- How uniformly?

Drip/trickle irrigation systems generally deliver a more uniform pattern since they are relatively unaffected by wind. However, soil characteristics can profoundly affect the width and depth of the delivered water pattern in drip systems, so routine checking with a soil probe will help manage the timing of the irrigation.

A sprinkler irrigation system with 7/64 nozzles

Example: Onions

Soil: Burlington FSL	Sauvie SL
MAD: 30% of AWC	MAD: 30%
Rooting depth: 18 inches	Rooting depth: 18"
AWC: 0-12" = .14in/in = 1.68 inches	AWC: 0-18" = .20in/in
12-18" = .09in/in = .54"	= 18 x .20 = 3.60"
=2.22"	
AWC x MAD: 2.22 x .30 = .67"	AWC x MAD = 3.60 x .3 = 1.08"

Agrimet evapotranspiration data (what moisture the crop/weather is removing in inches):

Et:	Aurora	Forest Grove
7/14:	.26	.24
15:	.28	.30
16:	.30	.30
17:	.29	.31
18:	.33	.38
19:	.32	.34
20:	.34	.37
21:	.31	.30
22:	.30	.31
23:	.22	.26



with a placement of 40' x 40' and set to deliver 2.68 gallons/minute (50 psi) will deliver .16 inches/hour in the covered area. Taking into account a 15-30% loss due to sprinkler inefficiencies (evaporation, wind drift, etc.) and the need to replace .67 inches from the Burlington soil leads to an irrigation set of 5 hours. The infiltration rate of this soil and the output of the systems are not limiting.


The same exercise repeated for the Sauvie soil requires 7-8 hours to get to the 1.08 MAD but would not have to be repeated as often. The infiltration rate of .2-.6 inches/hour for this soil is also not limiting with this irrigation set-up.

Distribution inefficiencies are less on non-windy days and also vary by the type of system. Solid set systems are the most inefficient in that their position doesn't move so the distribution issues there at the beginning remain through the growing season. Offset hand move systems are the best sprinkler set-up.

Drip systems can be calibrated in the same manner using the delivery constants at a given water pressure (psi). Pay special attention to the drip pattern in your soil and crop row placement.

Mixed vegetable farms have the most complex irrigation challenges. The diversity of crop production, market, and harvest cycles can drive the irrigation manager crazy.

- Can a given crop be overhead watered at night without provoking disease?
- What is the cost of pumping?
- How do you sort between competing crops that need water (crop stage, ultimate value, possible deeper root system in one, etc.)?
- If irrigation systems overlap crops, are you shorting one crop and over-saturating a new seed or transplant bed?
- What do you do if a crop needs water but a new order has come in that requires the crop to be partially harvested the next day and that isn't possible if it has just been irrigated (on some soils).
- Is it possible to design a cropping system/cycle that is impossible to water adequately in a very hot event? Yes, it is. How do you handle those choices?

Planning around crop irrigation requirements over the growing year, knowledge of your various soils, a handy soil probe, and thoughtful investments in irrigation infrastructure will support all your other efforts and lead to great crops and a productive year. 

For More Information on Irrigation

Western Oregon Irrigation Guides

(EM 8713): A preview is available at <http://extension.oregonstate.edu/catalog/pdf/em/em8713.pdf>. Cost from Publications at Oregon State University is \$5.50. The individual crop charts are available for free at http://bee.oregonstate.edu/Faculty/selker/wo_irrigation_guide.htm

Drip Irrigation Guide for Onion Growers in the Treasure Valley (EM 8901): <http://extension.oregonstate.edu/catalog/pdf/em/em8901.pdf>

Irrigation Scheduling Using Water Use Tables: <http://www.cals.uidaho.edu/edComm/pdf/CIS/CIS1039.pdf>. An excellent publication.

Simple Irrigation Scheduling: Using the "Look and Feel" Method (EM 8716): <http://extension.oregonstate.edu/catalog/pdf/em/em8716.pdf> This publication, when purchased from OSU, has some great plasticized cards that you can take to the field (in both English and Spanish) to assess the moisture in a shovel or probe plug of soil.

The PNW Pocket Irrigators Guide (NCAT): Available from some NRCE offices. Very useful. Also available in two 2MB downloads: http://www.ncat.org/pdf/PNW_Equip_Mgt.pdf and http://www.ncat.org/pdf/PNW_Water_Mgt.pdf

Principles and Practices of Irrigation Management for Vegetables (Florida but still useful): <http://edis.ifas.ufl.edu/pdf/CV/CV10700.pdf>

Water Management in Drip Irrigated Vegetable Production: http://vric.ucdavis.edu/pdf/drip%20irrigation_watermanagement.pdf

Soil Surveys on-line: <http://smallfarms.oregonstate.edu/soil-survey>

OSU Cover Crop Calculator to be Launched in Early April

By: Nick Andrews

This free online tool is an expanded version of the Excel-based Organic Fertilizer Calculator. It will help you estimate plant-available nitrogen (PAN) contributions from cover crops, organic fertilizers and compost. We recommend using the Calculator to help determine the most cost-effective and well balanced nutrient management programs for your farm.

The Calculator will be available on the OSU Small Farms website (<http://smallfarms.oregonstate.edu>) in early April. Detailed instructions on the site will describe how to take cover crop samples from your fields and explain the simple lab tests needed. To use the Calculator you will also need your fertilizer labels and prices, an estimate of percent dry matter in your fertilizers, and your fertilizer recommendation. There will be a records sheet in the instructions that you can use to make sure you collect the right information. The Quick Guides (figures 1 and 2) will also be online. They briefly describe the steps taken to sample and analyze cover crops and to use the five worksheets in the Calculator.

Organic amendments contain organic nitrogen. This organic nitrogen must be mineralized into inorganic forms (nitrate or ammonium) in order to be available for plant uptake. The mineralization process is difficult to predict, making it more complicated to determine accurate rates for organic fertilizers and to estimate cover crop plant-available nitrogen (PAN)

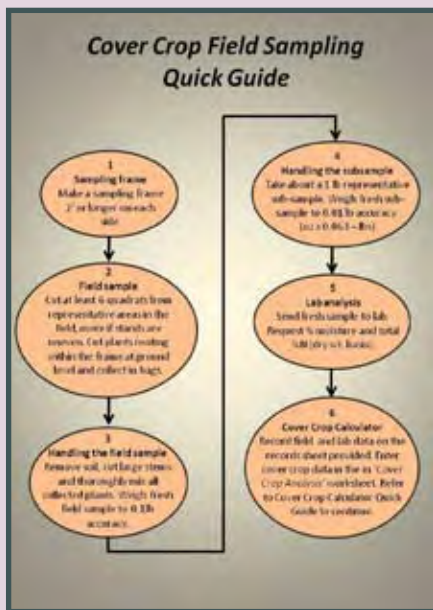


Figure 1. Quick Guide to sampling cover crops

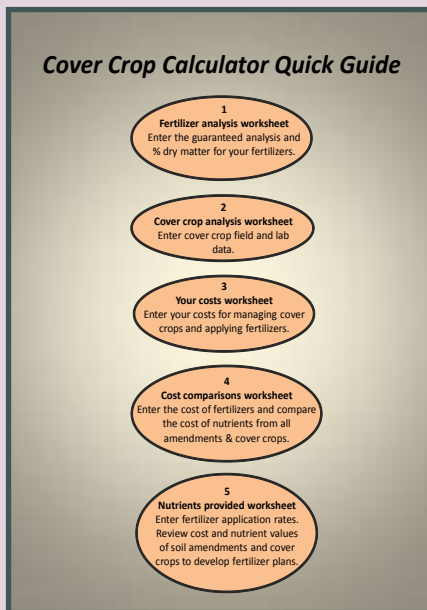



Figure 2. Quick Guide to using the Cover Crop Calculator

contributions. In Oregon we have validated three computer models that predict nitrogen release from 1) cover crops, 2) organic fertilizers and 3) compost. These models are integrated into the Calculator and provide an estimate of the timing and amount of plant-available nitrogen released.

The revised Calculator also includes an improved economic component that estimates the cost of managing cover crops and applying fertilizers. Costs include seed, irrigation, labor, fuel and equipment depreciation. All of these costs can be customized to estimate the real cost of managing cover crops and applying fertilizers on your farm. It also allows improved cost comparisons between cover crops and various fertilizers to help you find the most cost effective nutrient management program.

When you download the Calculator from the website there will be a short registration form and survey. This helps us learn how best to improve the Calculator and understand whether the Calculator is useful. Please complete the form, but remain anonymous if you prefer. The simple math problem at the end of the form protects you from spam. 

The Cover Crop Calculator was developed by Nick Andrews, Dan Sullivan, Kristin Pool and Jim Julian from Oregon State University Extension. Contact Nick at nick.andrews@oregonstate.edu or (503) 678-1264 x149 for more information.

Love's Labors Lost: Small Ruminant Abortion Storms

By: Susan Kerr, WSU Klickitat County Extension Director

Infectious, nutritional, toxic, environmental, genetic... there are many potential causes of fetal loss in livestock species. This article will focus on the most common causes of miscarriages in sheep and goats.

Background

Excellent records will facilitate recognition and diagnosis of abortions. Losses of 1 to 5% annually can be normal in a given herd; careful record keeping and analysis will indicate a problem is at hand while there still may be time to intervene. Genetic defects, stress, weather flukes and nutritional mishaps will always conspire to make a few animals miscarry, but several management and infectious causes can result in huge abortion wrecks.

Early Embryonic Death vs. Abortion vs. Stillbirth

Abortions early in gestation are termed "early embryonic death" (EED) and manifest themselves as irregular or repeated heat cycles; no conceptus or discharge is usually noted from the dam, who resorbs the embryo and fluids. If the fetus dies in mid or late gestation, sometimes the fluids are resorbed and a mummy results. The dead mummy can be "born" along with live siblings at the normal labor time or it can be retained as a singleton in the uterus indefinitely as long as no infection ensues; such an animal will appear to be in a non-advancing pregnancy and may not come into heat again unless treated to expel the mummy. Most mid and late pregnancy fetal deaths partially decompose and are expelled from the dam before the date of fetal viability; the placenta is often retained in these cases, which can lead to uterine infections. Stillbirths are deliveries of dead feti that are old enough to have survived had something untoward not happened to prevent them from taking their first breath. Stillbirths can be caused by near-term situations such as ketosis, milk fever, selenium deficiency and dystocia or several infectious causes.

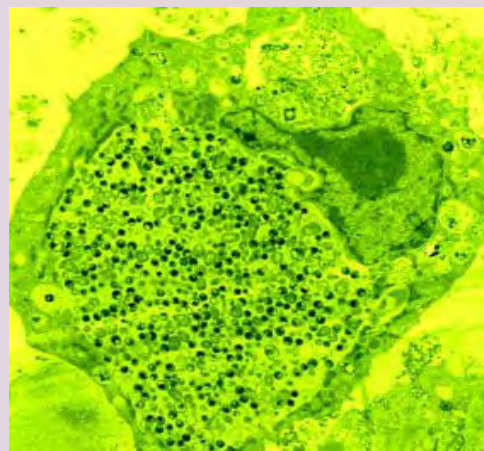
Infectious Causes of Abortions

There are many potential causes of abortions in

small ruminants, but infectious diseases are the main culprits. Many of these diseases are transmissible to humans (particularly pregnant women), so precautions should be taken when handling animals, especially those that are giving birth and/or appear ill. Wear protective clothing and gloves and dispose of contaminated materials and bedding carefully; wash hands thoroughly. Do not consume unpasteurized dairy products.

Enzootic Abortion

Enzootic abortion is caused by a pathogen called *Chlamydophila abortus*. This bacteria causes weak lambs, stillbirths and high rates of late-term abortions, especially in first-time dams.



Chlamydophila abortus.
Photo by David Longbottom, www.sanger.ac.uk.

Lambs that live may appear healthy or they may show signs of pneumonia. Adult dams do not show any signs of illness before aborting. The organism is spread through contact with aborted tissues, fluids and dead feti as well as the feces and respiratory discharges of infected carriers. Most infected animals mount an immune response to the organism and only abort once, but remain carriers and periodically shed the organism. Infected rams can spread the disease venereally.

Prevent enzootic abortion by keeping a closed herd/flock or purchasing only maiden females; administering specific antibiotics before kidding/lambing based on veterinary recommendations; isolating aborting dams; removing aborted tissues and disinfecting areas where abortions have occurred; and vaccinating pregnant dams before kidding/lambing annually.

For goats, the above is applicable with the following additions: abortions are generally late term but can occur at any point during gestation; abortions may occur along with pneumonia, conjunctivitis, retained placentas and arthritis; goats that abort are probably immune for life but their ability to shed the organism is unknown; and there is no vaccine approved for use in goats.



range from 5 to 50% of pregnancies. This disease can affect any stage of pregnancy, so reproductive problems include EED, mummification, abortions, stillbirths and weak lambs. Some dams may demonstrate signs of nervous system involvement and die.

Vibrio

Vibriotic abortion is caused by *Campylobacter fetus* or *Campylobacter jejuni*, organisms that live in intestinal tract. The disease is much more common in sheep than goats. Small ruminant vibrio is spread by ingestion of the organism and often introduced to a farm through purchase of an infected carrier animal. The disease is also spread through contact with aborted fluids and tissues and contaminated fomites--things such as boots, birds and equipment that move the organism from place to place. Abortions occur in the last one to two months of pregnancy and rates can range from 20 to 90% in a herd/flock during an outbreak. In addition to abortions, stillborn and weak lambs can occur. Although dams usually do not show signs of illness with vibrio, they can get diarrhea or become ill and/or die from complications secondary to miscarriages (e.g. uterine infections). After aborting, most dams are clear of the disease and have lifelong immunity. However, some remain carriers and spread the organism in their manure, contaminating the premises.

Medication can be effective during an abortion storm and a pre-breeding vaccine is available for prevention. Contact your veterinarian for more information.

Toxoplasma Abortion

Toxoplasma gondii, a parasitic disease of cats, can cause abortion in sheep and goats that ingest feed or water contaminated with infected cat feces. Losses

No vaccine is available to prevent this disease, but some of the coccidia prevention feed additives have shown some preventative effects when used at extra-label dosages; check with your veterinarian for more details. Prevention should also include keeping feed and water free from cat feces. Cats can be trained to use a litter box in a barn; this designated waste site should be cleaned and maintained regularly to encourage use. Kittens are more likely to shed the causative organism in their feces so their presence in the environment of pregnant sheep and goats should be controlled. Ewes and does will develop immunity if they are exposed to the disease so if exposure is inevitable, arrange to have it occur before animals are bred.

Salmonella Abortion

Several species of *Salmonella* can cause abortion if ingested by a pregnant doe or ewe, especially if a large number of organisms are ingested and the dam is ill or stressed. Abortions tend to be late in gestation and rates can be up to 70% of pregnancies. Affected dams are often ill with a fever and diarrhea and may die from complications such as blood poisoning.

Coxiella burnetii Abortion

Coxiella burnetii causes Q Fever in humans and can be transmitted through non-pasteurized milk. It can cause late-term abortions, stillbirths and weak lambs and kids. It is much more common in goats than sheep.

Leptospirosis

Several species of the bacteria *Leptosira* can cause abortion in goats; sheep are more resistant to this disease. Some affected goats can show jaundice, dark urine, anemia and have a fever; others will appear unaffected. Abortions can occur any time during gestation.

Brucellosis

Brucella melitensis and *B. abortus* can cause abortions in sheep and goats; *B. ovis* can cause stillbirths, late-term abortions and weak lambs. Infected dams may be lame and have mastitis; they are affected for life and shed the organism in their milk. This disease has important human health implications and is another reason not to ingest unpasteurized dairy products.

Listeriosis

Disease caused by *Listeria monocytogenes* is more common in goats than sheep and can cause abortions; those in ewes tend to be in late pregnancy. Signs of illness are usually not seen in does before they abort. There is no vaccine for prevention but specific antibiotics can be given during a herd outbreak to prevent new abortions.

Border Disease

Border disease in sheep is caused by a virus similar to the bovine viral diarrhea virus. It can cause EED, abortions at any stage, weak lambs and lambs born with defects such as muscle tremors, hairy coats and small size. No vaccine is approved for use in sheep.

Other Infectious Causes

The Cache Valley virus can cause abortions, stillbirths, infertility and birth defects in the nervous and musculoskeletal systems of lambs. The Bluetongue virus can also cause abortion and birth defects in sheep. *Neospora caninum* is a parasite of dogs that can cause abortions in sheep.

Nutritional Causes

Significant deficiencies of any essential nutrient (water, protein, energy, vitamins and minerals) could result in poor fetal health. For example, White Muscle Disease is common in many areas of the country. It is caused by low selenium levels in soils and feeds grown in those soils. Lambs and kids born to selenium-deficient

dams may be stillborn, small or weak. Pregnant dams can be given supplemental injections of Vitamin E/ Selenium and neonates can be given the injections at birth and as needed thereafter, followed by a dietary mineral supplement. See your veterinarian for more information.

Pregnancy toxemia can occur in the last six weeks of pregnancy in goats and sheep carrying more than one fetus. If not fed properly, the dam can go into negative energy balance as the growing fetus demand more nutrition from their mother, whose rumen has less and less room to hold food. The process of mobilizing the dam's fat stores releases toxic ketone bodies, which can make the dam anorexic and kill the fetus. Prevention is focused on increasing energy in the dam's ration as she progresses through pregnancy.

Milk fever is not very common in sheep and goats, but if left untreated can result in abortions, stillbirths or weak neonates. Signs in near-term dams include recumbency, weakness, hypothermia, depression and muscle tremors, all due to abnormally low blood calcium. Treatment involves administering calcium by mouth, under the skin or intravenously with extreme caution. Prevention involves careful attention to pregnant animals' mineral status; work with your veterinarian or Extension educator to develop the proper ration for all stages of production in your flock/herd.

Other Causes

Miscellaneous other causes of abortion in small ruminants can include plant toxins or other poisons, mycotoxins from moldy feed, nitrates, high fevers, heat stress, fighting, rough handling and some medications.



Photo by Dominic Morel

Genetic causes are probably common but difficult to identify.

Diagnostic Investigations

Although a definitive diagnosis is made in less than 50% of abortions, a diagnostic workup is always warranted when abortion rates rise above those typical for a farm. Working closely with your veterinarian and diagnostic laboratory will give the best chance of a definitive diagnosis. Your veterinarian and the lab will need to know the history of your herd/flock and the disease outbreak, vaccinations given, recent additions to the herd, signs of illness and so on. The fresher the tissues submitted to the lab, the greater the likelihood an infectious disease will be identified if it is present. Your veterinarian will advise you on what tissues to submit or will collect and submit him/herself. Keep samples chilled, not frozen, until they can be sent to the lab. Use plastic gloves and protective eyewear when handling any aborted tissues. Blood from the affected dam(s) can be submitted for viral isolation and other tests; antibody levels in serum taken at the time of the miscarriage and a few weeks later can be compared for evidence of an active disease process.

In the event of an abortion outbreak, identify animals that have aborted and isolate them from the rest of the herd/flock. Bury or burn aborted materials not submitted to the diagnostic lab; also remove all bedding from the abortion area, lime it and leave vacant for as long as possible. Ask your veterinarian about feeding medications to the flock/herd while awaiting results from the laboratory. Keep personal safety in mind, always wearing protective clothing and washing thoroughly after handling animals or equipment.

Pre-breeding vaccines for Chlamydia and Vibrio are essential after either of these diseases has been diagnosed on a farm. Other prevention measures include not feeding animals directly on the ground or not allowing them to drink stagnant water; preventing feed contamination; employing strict sanitation measures; keeping a closed herd/flock or only purchasing from known clean sources, then keeping these animals separate until after giving birth; minimizing stress to animals by providing adequate nutrition, feeder space and room; keeping bred

doelings and ewe lambs separate from mature does and sheep; and not mixing bedding between birthing pens and other animal holding pens.

Conclusion

Abortion storms can turn the most enjoyable part of the livestock production cycle into a nightmare. Recognizing the problem quickly, involving your veterinarian immediately, pursuing diagnostic testing and implementing treatment and sanitation steps can stop some storms in their tracks, minimizing their potentially devastating impact on your farm. Once again, most of the infectious diseases mentioned above are also human health concerns, so precautions should be taken to prevent transmission to humans, especially pregnant women. *B*

For More Information

<http://pubs.ext.vt.edu/404/404-288/404-288.html>

www.sheepandgoat.com/articles/abortion.html

www.sheepandgoat.com/articles/Abortion_metabolic.pdf

http://aces.nmsu.edu/pubs/_b/b-215.html

www.merckvetmanual.com

Alternative Pollinators: Native Bees Publication Available from ATTRA

This publication provides information and resources on how to plan for, protect and create habitat for native bees in agricultural settings. Creating and preserving native bee habitat is a good risk management strategy for farmers of specialty crops such as almonds, apples, blackberries, blueberries, cherries, cranberries, pears, plums, squash, tomatoes and watermelons. Oil and biofuel crops requiring bee pollination include canola and sunflower. Even meat and dairy industries are dependent on bee pollination for the production of forage seed such as alfalfa and clover. In many cases, these native pollinators are, on a bee-for-bee basis, more efficient than honey bees.

The printable PDF version of the entire document is available at:

[http://
attra.ncat.
org/attra-
pub/PDF/
nativebee.pdf](http://attra.ncat.org/attra-pub/PDF/nativebee.pdf)



Living on a Few Acres: A Success

By: Dana Martin

Spring arrived in Central Oregon in glorious fashion on March 20. Blue skies and 70 degree weather provided a great contrast to snow covered mountains popping in the horizon. It was a perfect day for farming -- or for many, a wonderful opportunity to attend the annual Living on a Few Acres (LOAFA) Conference in Redmond, Oregon.

More than 130 people spent their day inside learning from experts and practitioners about poultry, pasture and irrigation management, marketing farm products, livestock first aid, wildlife habitat, horse feed, hay quality and selecting berry cultivars appropriate for Central Oregon. Participants in the tractor driving and maintenance, repair and safety classes were fortunate to soak up some sun in the process.

Since these warm early-spring days can be misleading to those who grow crops in Central Oregon, Jim Fields of Fields Farm, shared information about tunnels, greenhouses and other structures necessary to extend the growing season in this region.

Sean and Jerre Dodson of Dancing Cow Farm shared their expertise of selling farm products through direct markets as well as planning for financial success. Sean stressed the importance of setting goals and keeping good records in a successful farm business so expenses are perfectly clear.

In developing strategies for success, Sean said some basic rules apply. "Small farms need to have a 'this is what it is worth' instead of a 'how much will you give me?' attitude," he said. "The more value added the product, the more profit the farmer sees. Cut out the middle man." As a final word of advice Sean added that farmers need to give the consumers what they want, not necessarily what the farmer wants to produce."

As the featured speaker for LOAFA, Sean provided inspiration with his presentation, "Now is the Time" extolling the benefits of local small farms. Sean and Jerre own and operate a small diversified farm east

of Prineville where they raise Heritage grass fed and finished beef, lamb, poultry and pastured eggs. They also grow market garden and sell their produce through a small CSA and farmers' markets.

Other speakers for the day included OSU Extension faculty: Jim Hermes, poultry specialist; Bernadine Strik, berry crops research leader; Dr. Dawn Sherwood, equine specialist; and Mylen Bohle, area agronomist. Other guest instructors included Jeff Amaral, wildlife biologist with USDA Animal and Plant Health Inspection Service. Jeff talked about managing rodents, deer and other mammals through various management strategies. Larry Pecenka, habitat biologist with the Oregon Department of Fish and Wildlife, shared hints on how to accommodate wildlife on your property.

Participants in the class offered by OSU Extension livestock agent Barbi Riggs and Dr. Jacob Crawford of Powell Butte Veterinary Service, learned how to monitor vital signs and practiced bandaging techniques on goats and a pony. OSU Extension crops agent Rich Affeldt worked with Reed Grote and Colin Ohgren of Deschutes Valley Equipment to teach simple maintenance and repairs that will keep equipment operating smoothly. Safety was also emphasized. "My job was to instill fear," said Rich, emphasizing that tragic farm accidents can be avoided if basic safety rules are followed. Tony and Kim Sarao of Superior Tractor and Equipment provided tractors for the tractor driving and obstacle course session.

Sixteen classes were offered at this year's conference and participants could attend four in addition to gleaning information from trade show exhibitors. LOAFA has been a tradition in Central Oregon for nearly two decades. It continues to gain popularity as people seek information on how to be better stewards of their land and successfully raise livestock and grow crops in a challenging environment. *B*

Oregon Farmers, Ranchers Unite to Shape the Future of Agriculture

Family Farmers and Ranchers From across Oregon stand behind the Agricultural Reclamation Act

By: Megan Fehrman, Friends of Family Farmers

On the last Sunday of February, over 70 farmers and ranchers came together for the first Annual Farmer and Rancher Delegation, hosted by the nonprofit Friends of Family Farmers. These participants, representing a wide array of towns, cities and agricultural sectors, gathered together to lend their voices to the Agricultural Reclamation Act or “ARA” for Oregon. The Agricultural Reclamation Act is a roadmap for future food and agricultural policy that prioritizes family-scale farms and ranches, food security and rural economic viability.

The delegation was a culmination of a year and a half long effort to band farmers and ranchers together. Over the past months, hundreds of agrarians have participated in 17 community meetings throughout the state. During these meetings, folks identified common challenges and obstacles that make it difficult to raise and produce food in their regions. They also elected delegates to represent them in drafting the Agricultural Reclamation Act in Corvallis last month, demonstrating the collective strength of Oregon’s independent family farmers and ranchers and connecting communities across our vast and diverse state.

Donna Smith, of Your Backyard Farmer, represented the Portland Metro Area and says that the opportunity to be a delegate left her very excited. She explained that

the delegation discussions had been “so passionate and so fresh.” “A string runs straight through us,” she said, remembering the inclusiveness she felt, “connecting us all – a room full of passionate farmers.”

The delegates discussed and deliberated a number of key issue areas where they hope to bring about change. A few of the topics discussed were lack of access to meat slaughter and processing, the fact that the current farming population is rapidly aging, and the lack of support and cooperation from the Oregon Department of Agriculture. Within each issue area discussed, the Delegates voted on three action items that can be taken to keep agriculture vibrant and economically feasible in our state.

A major theme of the community meetings and the delegation is that the status quo is not working for all Oregon farmers and ranchers. Without immediate change, we risk losing a good deal of those who base their livelihood on the farm and contribute to the economic and cultural existence of our rural communities. Without a plan of action, the face of Oregon farming, as we know it, is set to drastically change over the next ten years.

The existing rules and regulations pertaining to food and agriculture in Oregon are set up to be “one-size”



fits all, meaning that family-scale farms and ranches are subject to many of the exact same regulations that are required of industrial style farms. For example, it would be silly to require a bicyclist to have a commercial drivers license to share the road with an 18-wheeler. Yet when it comes to agriculture, regardless of whether it's meat, cheese or vegetables, regulatory roadblocks interfere with the relationships between producers and consumers and make it difficult to get locally-produced food from our farms and ranches to the people who want it.

The Agricultural Reclamation Act strives to address these issues and ensure that public officials hear and understand the needs of farmers who are practicing a type of agriculture that respects the land, their workers and animals, sustains rural communities and contributes to the state's economy. A final version of the ARA, drafted by the farmers and ranchers who attended the delegation, will be approved and made public in May. From there, the group will take their recommendations to the Board of Agriculture and will be looking for broad-based support from the food and agricultural community.

The work in Oregon is the first of its kind, and provides a unique perspective to the growing national food movement that is focused on vitality, health and cultural connectivity. The Agricultural Reclamation Act has been supported by the McKenzie River Gathering and Farm Aid, with hopes that it can be replicated in other parts of the country where farmers are facing some of the same challenges.

"Farmers have always been the most creative and innovative problem-solvers. In fact, our farmers have the potential to help us solve many of our most pressing issues today," said Farm Aid executive director Carolyn Mugar. "Farm Aid is proud to be part of the work that is happening in Oregon--farmers coming together to make policy not just for farmers, but for everyone in Oregon, and to serve as a model for the rest of the country."

Friends of Family Farmers is a statewide nonprofit organization building a strong and united voice for Oregon's independent family farmers, food advocates, and concerned citizens who are working to foster an approach to agriculture that respects the land, treats animals humanely, sustains local communities, and provides a viable livelihood for family farmers. It is our belief that every person- urban and agrarian, farmer and eater- has the ability to make choices that can help regenerate our food system.

More information about Friends of Family Farmers and the ARA can be found at: www.friendsoffamilyfarmers.org. To get involved, please call Megan Fehrman, 503.622.0161 or email megan@friendsoffamilyfarmers.org. ☞

COMPARING ENERGY USE IN CONVENTIONAL AND ORGANIC CROPPING SYSTEMS

Both conventional and organic agriculture depend on fossil fuel and solar energy. The amount of energy used on farms varies depending on the size and geographic location of the farm, as well as the types of products and processes used on the farm. It has been estimated that since 1992, direct energy expenses from fuel and electricity averaged around 7 percent of the average U.S. farm's total operating costs. Incorporating indirect expenses from such things as fertilizers and pesticides increases this average to 15 percent of total operating costs.

The printable PDF version of the entire document is available at: <http://attra.ncat.org/attra-pub/PDF/croppingsystems.pdf>



Calendar

April

9 to 10 - Is Starting an Agricultural Business Right For You?

Training for potential farmers or those already farming to gauge their potential in running a profitable small farm. Oregon Coast Community College, 3788 SE High School Drive Lincoln City, OR 97367. 10 am to 5 pm. For more information: Sam Angima, 541-574 6537 or sam.angima@oregonstate.edu. \$50

13 - Enterprise Budgets Sheets for Livestock and Forage Production
Livestock Breakfast Educational Meeting. Pioneer Villa Restaurant, Halsey, OR. 6:30 AM - 8:00 AM
Free

16 to 17 - Metro and the Gorge Water School
Topics include watershed processes, The Clean Water Act, groundwater, wetland identification, intro to rain gardens, community engagement and more. Mt. Hood Community College, Gresham, OR. For more information contact Megan Kleibacker and Megan.Kleibacker@oregonstate.edu.

24 - Clackamas Early Detection & Reporting System (CEDARS) training

Here is your chance to learn how to identify new invasive species and use the Oregon Public Broadcasting hosted reporting system. Help us spot these new invaders before they have a chance to take over. Mt. Scott Fire Station, 9339 SE Causey Ave, Happy Valley, OR. 12:00 PM. For more information call 503-655-3144

The most up to date list of all our events can be found on our website
<http://smallfarms.oregonstate.edu>

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 contact Chrissy Lucas at Chrissy.Lucas@oregonstate.edu or 541-766-3556