



Oregon State University Extension Service

# Central Oregon Agriculture

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## What's Inside...

**CALENDAR** Back Page

### CEREALS

- Nematodes Affecting Wheat Yield in Central Oregon? 5
- Cereal Leaf Beetle Biocontrol Update 5
- Wheat Mkt. Meeting 6

### ENERGY

- SolWest Renewable Energy Fair 3
- Energy Assessments For Your Ag Business 3

### FORAGE

- What is Hay Worth 2
- Afternoon vs. Morning Cut Hay 4
- Clover/Bluegrass Pastures & Warm Weather 4
- Potential Live Weight Gain on Grass? 4
- Low Carb/Sugar Forage 6
- Pasture & Grazing Management 6
- N Fertilization for 2nd Cutting Hay 9
- Nitrogen Contained I in Forage 9

### GENERAL AG

- SWCD Small Grant 2
- Wine Grape Association of Central Oregon 5

### IRRIGATION

- Save Water Save Energy 5
- Reduce Irrigation Energy Costs 6
- Root Zone Depths 7
- Crop Water Use 7
- Daily Crop Water Use 8

### SMALL ACREAGE

- High Desert Garden Tour Ticket Locations 2
- CO Food Network 3

## 2010 High Desert Garden Tour

High Desert Garden Tour. View six beautiful gardens in Bend. The self-guided tour is presented by the OSU Extension Service and OSU Master Gardeners™. Call (541) 548-6088 for more information.

- Date:** Saturday, July 17<sup>th</sup>, 2010  
**Time:** 9:00 am – 4:00 pm  
**Location:** Bend  
**Cost:** \$10 each for ticket books; age 16 and under is free  
**Ticket Outlets:** See page 2, High Desert Garden Tour Ticket Book Locations

*Dana Martin*

## Oregon Country Trails – Time To Celebrate!

Join the fun as three Oregon Country Trails kick off in Central Oregon. The effort to promote agri-tourism in Central Oregon is nearly complete. Trail maps are complete, brochures are being printed, the online General Store is ready, and trail members are working with each other to coordinate events. Check out the website: [www.oregoncountrytrails.com](http://www.oregoncountrytrails.com) and plan to support our trails in Central Oregon.

### Good Earth Country Trail (Terrebonne)

- Trail Boss:** Cindy Grossmann  
**Trail Members:** Aspen Lakes Golf Course, Alder Creek Ranch, Long Hollow Ranch, Rainshadow Organics, Faith Hope and Charity Vineyard and Winery, Deep Canyon Preserve and Ranch, Crescent Moon Ranch, Deschutes River Vineyard/Double Eagle Ranch, Maragas Winery and Vineyard, Pump House Bar & Grill, Terrebonne Depot Food & Drink, Smith Rock Ranch (Central Oregon Pumpkin Co.), and DD Ranch.

**Kick-Off Event:** August 15; Held in coordination with Slow Food's August Bounty; includes wine tasting, tour of trail, gourmet dinner and auction, and evening concert.

### Crooked River Country Trail (Prineville)

- Trail Boss:** Jere Kosta  
**Trail Members:** Dancing Cow Farm, Kat's Aspects of Art, Hidden Falls/Breese Beef, Toni's BBQ, Stafford Inn, Tastee Treat, Prineville Farmer's Market, Prineville-Crook County Chamber of Commerce, Square Dot Saddlery, The Last Stand Farm, Windy Acres Dairy Farm, Timber Creek Farm, and Powell Butte Bison Ranch.

**Kick-Off Event:** To be announced.

### High Desert Country Trail (Tumalo-Bend-Redmond)

- Trail Boss:** Alan Rousseau  
**Trail Members:** Schoolhouse Produce, Tumalo Lavender, Diane's Riding Place, Bend Distillery, Tumalo Farms, Pine Mountain Buffalo Ranch, HolmesStead Ranch, and Art Imagination by Linda Lee Miller.

**Kick-Off Event:** To be announced

*Dana Martin*

**"Central Oregon Agriculture"** is a bi-monthly newsletter produced by the Central Oregon Extension offices and the Central Oregon Agricultural Research Center. The intent of this newsletter is to extend agricultural research-based information to solve problems, develop leadership and manage resources wisely. Please direct comments and changes to the mailing list to your local County office. Pam Wiederholt - Ag Newsletter Coordinator, Crook County, (541) 447-6228

**Extension offices listed below (all area codes are 541)**

**Central Oregon County Extension Offices:**

**Crook County** Extension Service - Phone 447-6228, 498 SE Lynn Blvd., Prineville, OR 97754

**Deschutes County** Extension Service - Phone 548-6088, 3893 SW Airport Way, Redmond, OR 97756

**Jefferson County** Extension Service - Phone 475-3808, 34 SE D St., Madras, OR 97741

**Warm Springs** Indian Reservation - Phone 553-3238, 1110 Wasco St., PO Box 430, Warm Springs, OR 97761

**Central Oregon Agricultural Research Center:**

Madras Site - Phone 475-7107, 850 Dogwood Lane, 97741

Powell Butte Site - Phone 447-5138, 8215 SW Hwy. 126, 97753

**Extension Service & Experiment Station Web Sites:**

Crook County: <http://extension.oregonstate.edu/crook>

Deschutes County: <http://extension.oregonstate.edu/deschutes>

Jefferson County: <http://extension.oregonstate.edu/jefferson>

Central Oregon Agricultural Research Center:

<http://oregonstate.edu/dept/coarclindex.php>

**Central Oregon Agricultural Extension Service Staff:**

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Myleen Bohle - Forage, Hay, Pasture and Cereals, 447-6228

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Dana Martin - Small Acreage, 548-6088

Barbi Riggs - Livestock and Water Quality, 447-6228

Bo Ming Wu - Plant Pathology, 475-7107

The above individuals represent 7.75 full time equivalents devoted to extending agricultural information to producers. Many of the individuals, in addition to agriculture, have assignments in research, 4H/youth, administration and community resource education.

Often it is appropriate to mention brand names of some commercial products; however, they are used only for the purpose of information. Extension does not guarantee or warrant the standard of the product, nor does it imply approval of the product to the exclusion of others.

Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Oregon State University Extension Service offers educational programs, activities, and materials without discrimination based on age, color, disability, gender identity or expression, marital status, national origin, race, religion, sex, sexual identity or expression, marital status, national origin, race, religion, sex, sexual orientation, or veteran's status. Oregon State University Extension Service is an Equal Opportunity Employer.

OSU Extension programs will provide reasonable accommodation to persons with physical or mental disabilities. Contact Pam Wiederholt at (541) 447-6228 to request reasonable accommodation.

## High Desert Garden Tour Continued

### Ticket Book Locations

#### Bend:

Eastside Gardens, 61780 27th St - 541.383.3722

Round Butte Seed, 63353 Nels Anderson Rd - 541.385.7001

Strictly Organic Coffee Co., 6 SW Bond St - 541.330.6061

Strictly Organic Coffee Co., 450 SW Powerhouse Dr., Old Mill District - 541.647.1402

The Shoe Inn, 2550 NE Hwy 20 (the Forum Center next to Barnes & Noble) - 541.385.7405

#### Redmond:

Dave Kimmel Nursery, 4805 SW Tomahawk Ave (off Hwy 97 between Bend & Redmond) - 541.923.3213

OSU/Deschutes County Extension Service, 3893 SW Airport Way (on the Deschutes County Fairgrounds) - 541.548.6088

(Note: *Tickets will not be available at this address the following dates: July 12-16.*)

*Dana Martin*

## Attention All Landowners: Deschutes County SWCD 2009/2010 Small Grant Program is Here!

Funding for The Small Grant Program is generated through Oregon lottery dollars and is a voluntary program that works with your framework and objectives to enhance and preserve natural resources on your property. Some of the goals for maximizing resource potential include: soil stabilization (reducing erosion in uplands and riparian), native bunchgrass and perennial grass recovery and enrichment, weed control, in-stream and riparian enhancements, irrigation efficiency, improve wildlife habitat, increase water quality and improve water quality.

Funding is limited, so if you're interested, please contact Spring Olson/Conservation Technician at (541) 647-9604 or email: [springalaska@hotmail.com](mailto:springalaska@hotmail.com).

*Spring Alaska Olson, DWCD Conservation Technician/  
Deschutes County*

### What is Hay Worth?

Wondering what the price of hay is whether you are buying or selling? Especially if you are raising and selling hay, you may want to get in on the weekly call from USDA Market News Service, Moses Lake, WA. The C.O. hay market report can be accessed at [http://www.ams.usda.gov/mnreports/ml\\_gr313.txt](http://www.ams.usda.gov/mnreports/ml_gr313.txt).

Someone from the office will call (or you can call) and inquire if you have sold hay, number of tons, for what price, what the quality is, etc. This information is then compiled weekly and reported on the Internet or is published in the Capital Press. The idea is if both seller and buyer know the market, then a true, free and fair market exists for all concerned. It also works if you want to buy hay and you are wondering where the market is. Contact phone number is (509) 765-3611.

*Myleen Bohle*

## Central Oregon Food Network

The Central Oregon Food Network website has officially launched, providing local farmers and ranchers an opportunity to connect, share resources and discuss pertinent issues. The website found at <http://centraloregonfoodnetwork.com/> provides a producer's directory which features nearly 40 farms and ranches in Central Oregon. A list of 10 local restaurants and retailers are also listed due to their support of local food production and consumption.

The website includes a "current features" section that highlights timely articles to help keep producers informed. Gigi Meyers of Windflower Farm shares her experience of dealing with herbicide carryover in her compost. Links to research-based articles are included with her article to help people become better informed. Feature articles are continually updated to keep the section fresh. Sherre Gillaspie, a Certified Nutritional Therapist Practitioner and Wellness Coach, is currently featured with her article on health and cultured vegetables. Chef Dave Hatfield of Café 3456 shares his experiences of helping Central Oregon restaurants to become sustainable.

Through "network now" people can post announcements or make a plea for something they need. Kim Kambak of The Last Stand Farm makes the most of this tool by posting this request: "Mother got my last tomato starts. Does anyone have extras? At this point, any red, fruity thing will be acceptable," writes Kim. Another posting advertises excess soil that needs a new home.

The website offers a discussion forum where farmers and ranchers can submit questions and share their knowledge about growing techniques and other subjects such as alternative fuel, working with worms, and growing exotic grains. A section on "Grants and Funding Opportunities" will also assist producers. Recipes, and events calendar and photographs showcasing Central Oregon farms are also on the site.

The website was developed by Sarahlee Lawrence of Rainshadow Organics in Terrebonne. Sarahlee received a \$15,000 Western Sustainable Agriculture Research and Education (SARE) Farmer/Rancher Research & Education grant. SARE is a USDA competitive grants program that supports agricultural systems that are economically viable, environmentally sound and socially responsible. OSU Extension Service and Central Oregon Intergovernmental Council assisted on this grant.

A public website launch celebration was recently held where Central Oregon farmers and ranchers gathered to show their support and enthusiasm for the website. Sarahlee is pleased with the results and anxious for people to make the most of it.

"I hope the website really works in connecting our local farmers and ranchers," she says noting that the Central Oregon Food Network website can be used for collaboration on buying seeds, marketing produce and much more. "If we all use it, I think it will help everyone be more successful."

### YOUR CHANCE TO WIN!

Each time you post something to the Central Oregon Food

Network website, <http://centraloregonfoodnetwork.com> your name will be entered to win some great prizes.

Go to "network now" and post a message, share a recipe or start a lively discussion and your chances of winning will be great. A drawing will be held on August 15, 2010.

*Dana Martin*

## SolWest Renewable Energy Fair - July 23-25

The full SolWest Renewable Energy Fair program has been posted on the web at <http://www.solwest.org/fair.htm>. This year's keynote speaker is Dave Wann, an author, filmmaker, and speaker about the creation of a joyfully moderate way of life that uses fewer resources and yields greater satisfaction. His most recent book, Simple Prosperity: Finding Real Wealth in a Sustainable Lifestyle, is a sequel to the best-selling book he coauthored, Affluenza: The All-Consuming Epidemic.

This year's SolWest also has 53 workshops, 36 exhibitors, in-depth workshops on natural building and solar hot water; as well as many ways to observe and get hands-on experience with renewable energy and sustainable living technologies.

There is no better opportunity in the Northwest for learning and networking with other renewable energy enthusiasts. Come to SolWest, and return home with new goals, attitudes, and friends!

Check out our online program, and let me know if I can answer any questions. If you haven't contacted us in two years, and you wish to receive a printed fair program in the mail, please send a request with your current mailing address. For more information contact Jennifer Barker at (541) 575-3633 or [info@solwest.org](mailto:info@solwest.org).

*Jennifer Baker*

## Energy Assessments for your Agricultural Business

The OSU Energy Efficiency Center is pleased to offer Rural Energy Assessments to Oregon farms and rural businesses through the USDA's Rural Energy for America Program (REAP). These audits are intended to identify cost-effective opportunities to save energy, outline facility energy use patterns and provide information on programs, such as USDA's REAP, that can help pay for project implementation. USDA covers two-thirds of the assessment cost, leaving a cost of only \$370 for the end user.

During the last 20 years, with support from the US Department of Energy, the OSU Energy Efficiency Center has identified over \$18 million and 5.8 Million MMBTU in energy savings opportunities for industrial facilities. We are now applying that wealth of experience toward helping rural businesses such as seed farms, nurseries and dairies save energy and reduce their bottom line. Contact us and/or pass on the word to see what we can do for your business.

*Nathan Keeley/Ag Operations Manager/OSU Energy Efficiency Center/344 Batcheller Hall/Corvallis, OR 97330*

[ruralenergyaudits@enr.orst.edu](mailto:ruralenergyaudits@enr.orst.edu)

*PH - (541) 737-3004 or FAX - (541) 737-5035*

## Afternoon vs. Morning Cut Hay

What “minor” management trick is there that can change the quality of hay, to make it better, or “to make it better by making it worse”? We can increase the digestibility and palatability, and the protein content, of grass or legume hay by harvesting or cutting later in the day. The closer we can cut or swath hay around 8:00 pm or so, the higher the quality and palatability of hay. So if we can start swathing hay between 3:00 or 4:00 pm until maybe an hour before dusk or so, we can increase digestibility, as well as palatability! It has been proven time and time again by a majority of animals fed morning-cut vs. afternoon-cut hay. The animals prefer afternoon-cut hay compared to morning-cut hay. So this would make the hay worth more, for the both the seller and buyer, if you want higher quality hay to increase meat or milk production.

Now, if we want to make hay better, “by making it worse...” We would manage our hay harvest just the opposite. In this case, we are trying to conserve hay that is lower in digestibility (lower in non-structural carbohydrates and sugars) and palatability. So we would want to cut or swath as early in the morning as possible and then stop cutting hay before noon. The problem with this management method is that the dew can stop us from starting harvest, sometimes until late morning or even until after noon. But by cutting in the morning, this will produce the lower-carb / lower-sugar hay than normal, that some of the horse hay buyers are looking for. If you swath with dew on the foliage, then you will have to tedd the hay more often to dry it down, or do you?

When hay is drying down from around 78-82% moisture when initially cut and until the hay reaches about 48% moisture – the plants are still transpiring and you are losing dry matter yield and feed value. If you are after high quality feed, than you want to dry that hay down as rapidly as possible – cut as wide of windrows as possible, condition it, and tedd it to increase the speed of drying time, before baling... If you are after lesser quality hay, then cut the hay into narrow windrows, do not condition, and do not tedd the hay, allow it to take longer to dry, before baling.

So, if I was a serious buyer of hay, I would ask whether it was afternoon-cut or morning-cut hay and if I was the seller, I would want to be able to tell my hay buyer the answer.

*Mylon Bohle*

## Clover / Bluegrass Pastures & Warm Weather

With warm summer weather here, producers with Kentucky bluegrass and White clover pastures will want to start paying closer attention to grazing heights. We are now into much warmer weather than what cool season grasses like for growing conditions; but we are also now just into the type of warm weather that legumes (such as White clover), like growing in, and will stay that way into August.

Cool season grasses like Kentucky bluegrass, especially (and to a lesser extent, orchardgrass, tall fescues, the bromes, etc.) are now at a disadvantage growing in this warmer weather (they do best with temperatures in the mid 60s to mid-high 70's degrees

F), and Legumes (like White clover, alfalfa, red clover, etc.) have an advantage when in a mix. Alfalfa grows best at 86 degrees F. This is just based on species adaptation.

Then if we introduce short grazing heights into the mix, how does that play out? If we can keep grazing heights up to 3-4 inches, Kentucky bluegrass will grow better and compete better with White clover. As we lower that grazing height, White clover has many tiny leaves close to the soil surface (plus it likes hot weather and grows rapidly) and can keep regenerating itself. Kentucky bluegrass on the other hand, as you reduce grazing height, has less leaf material in which to photosynthesize (plus it does Not like hot weather and wants to go dormant, and not grow)... Suddenly you have a pasture that looks like an all White clover and no grass pasture, if you are allowing your animals to close-graze your pastures (down to one-two inches or less). So if you want more Kentucky bluegrass (or any other grass species) growing in your mixed pasture, keep the grazing height up.

If you are unhappy with all of that clover in your pasture, you can always spray it out with a herbicide; but you give up a resource, that if managed better, provides excellent feed quality and fixes nitrogen to feed itself and partially it's surrounding grass plants. Once an excellent grass/legume pasture is functioning properly, by managing it properly, little, if any, nitrogen fertilizer, may be needed.

*Mylon Bohle*

## Potential Live Weight Gain on Grass?

Have you ever wondered what the potential for live weight gain on irrigated grass pastures might be?

Here are the results of one study that was done in the PNW (at Prosser, WA), from 1978-1981 comparing orchardgrass and perennial ryegrass, 3-acre pastures, using Management-intensive Grazing. Light-weight steers were grazed over the 4 seasons and the animals were put in or removed as needed to avoid under, or over-grazing.

Orchardgrass supported an average of 3.66 steers/acre, while perennial ryegrass supported 3.00 steers per acre. Average daily gains, for orchardgrass was 1.92 lb/ac and 2.26 lb/ac for perennial ryegrass. Average annual steer gains in lb/ac, was 1,106 lb from orchardgrass and 1,129 lb from perennial ryegrass. ‘Grimalda’ Perennial ryegrass sustained winter damage between the first and second years of the study, while ‘Latar’ orchardgrass was not damaged at all. Steers grazing orchardgrass had to eat 17% more forage in order to obtain the same amount of net energy as the steers that consumed the Perennial ryegrass.

*(edited from Heinemann, W. and Hanks, E.. 1982. Irrigated Orchardgrass and Perennial Ryegrass Pastures Grazed by Light Weight Steers. WSU Research Bulletin XB 0926.)*

*Mylon Bohle*

## Wine Grape Association of Central Oregon

The Wine Grape Association of Central Oregon (WGACO or WACO) is holding their next monthly workshop on August 19<sup>th</sup> from 6:00 pm to 8:00 pm at Ranch at the Canyons at Terrebonne. Contact Kerry Damon 541-771-7817 to RSVP (or if you need directions). Mark the date on your calendar whether you are interested in wine or table grapes whether you have 5 or 5,000 grapes. Everyone is welcome!

The workshop will focus on “Leaf and Fruit Thinning at Veraison” along with the “ODA Insect Monitoring and Trapping Program” (ODA to be confirmed). ODA has a trapping program to monitor for possible future insect threats to the industry that grape growers in central Oregon need to be kept abreast of.

*Mylon Bohle*

## Nematodes Affecting Wheat Yield in Central Oregon?

Most nematodes are microscopic roundworms that either contribute to or detract from agriculture. Out of the 20,000 identified nematode species, 2,000 are known to be plant parasites. They cause an estimated \$8 billion worth of damage to all crops in the U.S. each year.

Cereal-Cyst, Root-lesion, Root-Knot, Stunt, Pin, Dagger, and Root-gall nematodes have been found in small grain crops in eastern Oregon and Washington over the years. Cyst and lesion nematodes are responsible for most of the damage or yield reduction in cereals.

All of these nematodes decrease the function of the root to absorb moisture and nutrients through reduction of the root depth and root branching. Yield reduction is difficult to prove, because studies are needed to show effect of nematicides, soil fumigation, and resistant and susceptible varieties. It is difficult because yield responses are influenced by multiple interacting climate, plant and soil factors.

Cereal-cyst nematodes can be eliminated by one year of rotating to a non cereal or grass. Back to back wheat or grasses would encourage their reproduction. Root-lesion nematodes (*Pratylenchus neglectus* and *thornei*) have a very broad host crop range. Crop rotation can only reduce root-lesion numbers by summer fallow or by planting field pea, flax, safflower, or triticale.

In a few controlled experiments in eastern Oregon, looking at zero nematodes to increasing numbers of nematodes, Stephens wheat yield was reduced from 105 to 55 bu/acre, by Cereal-cyst nematode; Zak spring wheat yield was reduced from 85 to 65 bu/acre by root-lesion (*P. thornei*) nematodes; and Zak spring wheat yield was reduced from 48 to 40 bu/acre by root-lesion (*P. neglectus*) nematodes.

Excellent irrigation and fertility management under irrigated conditions can go a long way to lessening the damage to wheat. In irrigated crops, the 900 root lesion nematodes per pound of soil for an economic threshold is likely greater. Some fields sampled in eastern Oregon had populations as high as 16,000 nematodes per pound of soil. 40-45 percent of the fields surveyed in eastern Oregon have populations higher than the 900

per pound threshold.

There is progress being made on quantifying the resistance and susceptibility of spring and winter wheat, and barley varieties to different nematodes. Barley varieties seem to be much more tolerant. Dick Smiley at the CBARC, Pendleton, Oregon, is leading this project.

Knowledge of the nematode history of a particular field and the decision to plant what cereal, and or variety, into that field, will hopefully be made with greater knowledge in the future, as we learn more about the effects of certain nematodes on cereal production, and provide better future variety recommendations under such conditions.

*(The information in this article was partially edited from R. Smiley. May, 2005. “Plant-parasitic Nematodes Affecting Wheat Yield in the Pacific Northwest”. OSU Extension Service publication EM 8887.)*

*Mylon Bohle*

## Cereal Leaf Beetle Biocontrol Project Update

There are three main fields in Prineville that ODA has been releasing parasitized CLB larvae (with the *T. Julis* wasp) into: Prineville field 1: 5% infested, 18% parasitized, field 2: 4% infested, 13% parasitized, and field 3: 3% infested, 6% parasitized. There was only one field that a release was about to be made in Jefferson county, but the field was sprayed (15-30% infested), so no new releases have been made in the county, unfortunately. In Deschutes County with limited acreage at Lower Bridge, parasitism rate was found to be around 40%, with a low CLB larvae count (in 2007 the fields had a 70% parasitism rate and it would appear to have kept the CLB in check). In western Oregon, Sauvie Island CLB larvae are 80-100% parasitized and the Banks area has about a 20% parasitism rate in the spring wheat fields, while the winter wheat fields are 40-50% parasitized. There probably will be no more releases this year, but the fields will be monitored for parasitism rate.

*Mylon Bohle, Gary Brown and Crystal Frakech*

## Save Water Save Energy Grant Help

The Wy’East Resource Conservation & Development has teamed up with Bonneville Power Administration and local utilities to work with the Ag sector to capture energy efficiency saving. Central Electric Coop., Midstate Electric Coop., and Wasco Electric Coop., are some of the local Electrical Utilities. This program, sponsored by BPA is “Save Water Save Energy”.

BPA and Northwest public utilities recognize that energy efficiency is the premier low-cost source of new energy, and will work together to bring energy savings to the agriculture Industry.

Through BPA-sponsored incentives, local public electric utilities offer services and financial reimbursements to farmers for eligible energy efficiency measures including: Scientific Irrigation Scheduling, Pump Motor, Irrigation System Upgrades, Variable Frequency Drives, Lighting Upgrades, and Wineries.

For more information contact Robert Wallace with Wy’East RCD, (541) 815-5503 or email: [WyEastRobert@gmail.com](mailto:WyEastRobert@gmail.com).

*Robert Wallace/Wy’East RCD*

## Low Carb/Sugar Forage

It has been a challenging spring for forage producers, especially those growing grass for pasture. One needs to be careful and not overgraze the pasture up front, or for that matter, ever... For those who are grazing horses on pasture, I find it interesting as I drive around central Oregon and see all of the overgrazed pastures and I marvel at the lengths that some horse owners are going to in order to produce, manipulate, modify, sell and/or buy low-carb or low-sugar hay to feed their animals. Why?

We manage horse diets in the late Fall to early spring with hay (low-carb hay for those prone to metabolic syndrome, diabetes, laminitis), but then in the Spring, Summer and Fall, many horse owners allow their horses to graze their pastures "tight" (less than an inch in height). If you are grazing your pasture tight, then you are allowing those animals to increase their intake of higher carb/sugar forage. How? The closer the animal grazes to the soil and into the crown of the plant, the higher the levels of non-structural carbohydrates and sugars the animals will consume; because that is where those nutrients are stored in the plant in higher concentrations. Not good for the animal, and certainly not optimal management for the plant!

Horse owners (and other livestock owners) also spend a lot of money on parasite programs, but then they again allow their animals to graze tight. The tighter a producer allows their animals to graze, there is an increased chance of the animal picking up parasites.

There are many, very good reasons for keeping your grazing height up on your pasture, for both the health of the animal and the health of the plant.

*Mylene Bohle*

## Reduce Irrigation Energy Costs

Want to reduce your irrigation energy costs? Get cash back incentives for irrigation systems upgrades! Energy prices continue to rise; but a farm can reduce electricity costs for pumping by 35% with a variable frequency drive pumps alone. Improvements like converting to drip irrigation or a linear / pivot systems can save water and energy.

To make improvements easy and affordable, the Energy Trust of Oregon offers cash-back and custom incentives. There are numerous ways, large and small, to improve linear and pivot systems, and wheel and hand-line systems. The project must be approved before purchasing to receive an Energy Trust incentive. Check with your electrical company provider to see if you are eligible to participate, or contact Energy Trust of Oregon at (503) 928-3154, or go to [www.energytrust.org/pe/agriculture.html](http://www.energytrust.org/pe/agriculture.html).

*Mylene Bohle*

## Pasture and Grazing Management in the Northwest

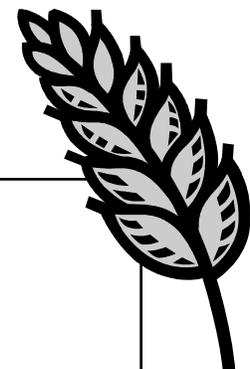
*Pasture and Grazing Management in the Northwest* is a Pacific Northwest Extension Publication PNW 614. There are 17 chapters and a glossary, written by 36 authors from Cooperative Extension, USDA Agricultural Research Service and Natural Resources Conservation Service, a livestock producer, and a private consultant. Authors are located in the states of Washington, Oregon, Idaho, Montana, Utah, and West Virginia. The 208 page document is published by the University of Idaho Extension and is the first comprehensive management guide for pastures and grazing in the Northwest.

### Book Chapters

- Introduction
- Pasture resources, goals, and planning
- Soil fertility and nutrient management for pastures
- Pasture renovation, planting, and establishment
- Growth, development, and defoliation responses of pasture plants
- Principles of pasture irrigation
- Weed management
- Insect, mite, and related pests of PNW pastures
- Disease and nematode management
- Nutritional needs of grazing animals
- Pasture plant composition and forage nutritional value
- Health considerations for grazing animals
- Foraging behavior and grazing management
- Grazing systems and methods
- Grazing cell design and installation
- Estimating forage production, monitoring, and evaluating the grazing system
- Economics and risk management in grazing systems

To direct-order a copy for \$18 plus postage (\$4.75) contact the University of Idaho at (208) 885-7982 or go to the website: <http://www.cals.uidaho.edu/edComm/detail.asp?IDnum=1587>. The OSU Crook County Extension office is looking into ordering a box of books and might be able to sell them out of the office for about \$18-\$20/copy(?) with no postage. Call us if you would like to order one locally (541) 447-6228).

*Mylene Bohle*



### **Wheat Marketing Meeting**

The Oregon Wheat League will resume their monthly Wheat Marketing Meeting in September or October. Please look for announcement in upcoming Central Oregon Agriculture Newsletter.

### Root Zone Depths

The following table presents the effective rooting depth and allowable depletion (%) of soil water for some of the crops grown in central Oregon. The root zone can be limited by soil depth, hard pans, etc. The crops depend upon 90% of their water needs within these listed root depths. The allowable depletion (%) is the amount of total available moisture that these crops can withdraw from the total soil water holding capacity without suffering yield loss (or in other words are growing optimally at all times).

Root Zone Depths for selected crops grown in central Oregon.

Crop	Root Zone (ft)	Allowable Depletion (%)
Alfalfa	4.0	60
Beans	2.5	50
Chickpeas	4.0	60 (?)
Corn	3.0	50
Grapes	3.0	65
Mint	1.0	40
Orchard	6.0	50-65
Potatoes	2.0	30-40
Pasture	2.0	60
Small Grains	3.0	50

Information edited from various BPA publications.

*Mylene Bohle*

### Crop Water Use Program

The following table summarizes the crop water use or evapo-transpiration (ET) to date (July 7, 2010) for some of the irrigated crops grown in Central Oregon. For much more detailed information, one can log on to the Agrimet weather site at: <http://www.usbr.gov/pn/agrimet/>. There is general information about the program, weather data, crop water use information, graphs, maps, news, relevant links, and other information. You can follow the crop water use for these sites and other locations. The green up date or emergence date, canopy closing date, daily water use (ET), 7 day predicted use, and 14 day predicted use, are just some of the information you will find. Start-up dates may be different for each site for each crop. Start-up dates for some of the crops still need to be designated and added as the crop emerge or green up, and some may be changed.

Table. Accumulation summary of Crop Water Use or evapotranspiration (ET) to date (July 7, 2010) for Madras, Powell Butte, Christmas Valley, and Bend, OR Agrimet weather stations.

Crop	2010 Madras 2440 ft. (in)	2010 Powell Butte 3180 ft. (in)	2010 Bend Agrimet 3650 ft. (in)	2010 Christmas Valley 4360 ft. (in)
ETr	22.5	21.3	19.0	18.6
Alfalfa Peak	20.4	18.5	17.1	15.1
Alfalfa Mean	17.7	16.3	14.8	13.3
Pasture	14.3	13.1	12.0	11.3
Grass Hay Mean	20.4	19.3	16.8	15.4
Grass Hay Peak	19.2	18.5	15.7	14.8
Lawn	17.1	15.8	14.3	13.6
Winter Grain	19.3	19.8	16.2	16.7
Spring Grain (early plant)	14.4	13.3	12.1	12.7

*Mylene Bohle*

## Daily Crop Water Use

The crop water use example in the table below is for Bend this time. Powell Butte, Madras, Bend, and Christmas Valley are the local Agrimet weather station sites that producers can go on line and follow predicted crop water use by different crops. These ET numbers represent the amount of water that is transpired and evaporated from the crops on a per acre basis. What these numbers do not take into account is the efficiency of the irrigation system. The web site is: <http://www.usbr.gov/pn/agrimet>.

For example if you had a wheel line, one might start with the premise that the wheel lines or hand lines are 70 percent efficient or that a pivot is 85 percent efficient. You would divide the ET rate by the efficiency percentage rate and that number would be the amount of inches per acre that a person would irrigate back to fill up the soil profile. One will always be irrigating more than the plant uses. Remember this is a guide, and is not exact for your place.

Table. Estimated crop water use or evapo-transpiration (ET) for July 3-7, 2010 based on the Agrimet weather station data located at Bend, OR.

Crop	7/3 ET (in.)	7/4 ET (in.)	7/5 ET (in.)	7/6 ET (in.)	Daily Forecast (in.)	Sum ET (in.)	7 Day Use (in.)	14 Day Use (in.)
ETr	0.24	0.25	0.25	0.26	0.25	19.0	1.7	3.5
Alfalfa Peak	0.24	0.25	0.25	0.26	0.25	17.1	1.7	3.5
Alfalfa Mean	0.20	0.21	0.21	0.22	0.22	14.8	1.4	3.0
Pasture	0.16	0.17	0.17	0.18	0.17	12.0	1.1	2.4
Grass Hay Peak	0.22	0.23	0.23	0.24	0.23	16.8	1.5	3.2
Grass Hay Mean	0.19	0.20	0.20	0.21	0.20	15.7	1.3	2.8
Lawn	0.19	0.20	0.20	0.21	0.20	14.3	1.3	2.8
Winter Grain	0.11	0.11	0.10	0.10	0.10	16.2	0.8	1.9
Spring Grain 4/15	0.24	0.25	0.25	0.26	0.25	12.1	1.7	3.5
Spring Grain 4/30	0.24	0.25	0.25	0.26	0.25	9.8	1.7	3.5
Spring Grain 5/15	0.24	0.25	0.25	0.26	0.25	8.0	1.7	3.5
Field Corn 6/20	0.09	0.09	0.09	0.10	0.10	1.3	0.6	1.2
Strawberry	0.22	0.23	0.23	0.23	0.23	14.5	1.5	3.3
Blueberry	0.23	0.24	0.24	0.25	0.24	14.3	1.6	3.4
Trailing Berries	0.23	0.24	0.23	0.24	0.24	10.8	1.6	3.4
Apple	0.23	0.24	0.24	0.25	0.24	4.0	1.6	3.4
Wine Grape	0.12	0.13	0.13	0.15	0.14	1.9	0.8	1.4
Concord Grape	0.08	0.09	0.09	0.10	0.09	1.4	0.6	1.0
Poplar 1	0.11	0.12	0.12	0.13	0.12	5.4	0.8	1.6
Poplar 2	0.19	0.19	0.20	0.20	0.20	8.9	1.3	2.7
Poplar 3	0.24	0.25	0.25	0.26	0.25	12.0	1.7	3.5

*Mylen Bohle*

### N Fertilization for 2<sup>nd</sup> Cutting Grass Hay

First cutting grass hay is a done deal in terms of how, when and what rate of N fertilizer we applied. First cutting is the most efficient for fertilizer and water use, and the reward is the highest yield we will achieve of the usual 2-3 grass hay cuttings we harvest in central Oregon.

After we harvest first cutting grass hay, we will be faced with: “how much N fertilizer do we apply for 2<sup>nd</sup> cutting – economically”. Everyone’s situation can be different, so the following table shows yield responses to N fertilizer on 2<sup>nd</sup> cutting grass hay at 6 different sites in Crook and Deschutes counties in 1992 and 1993. Hopefully this will be of help to producers in trying to figure out an economical rate of N to apply. The trick is to apply to the point that the last lb/ac N applied gives you back a positive return based on cost of N, application cost, and value of hay – it is a partial budget exercise – \$ return to N fertilizer. As you keep adding N, each pound of N applied needs to provide a positive return, when the last pound of N provides no return, then you should stop at that rate – not always easy to pinpoint. Of course there are other production costs to determine as well.

Table. 2<sup>nd</sup> Cutting yield response of different grass hay fields to different N rates in Crook and Deschutes counties in 1992 and 1993.

N Rate / lb/ac	Bluegrass (older stand) (t/ac)	Orchardgrass (older stand) (t/ac)	Timothy (newer stand) (t/ac)	Orchard/Blue (older stand) (t/ac)	Orchardgrass (new stand) (t/ac)	Orchard/ Legume (newer stand) (t/ac)
1992						
0	0.30	--	0.13	1.55 (85)	0.99	1.58
50	1.27	--	1.03	1.89 (135)	1.96	1.89
100	1.73	--	1.58	2.12 (185)	2.38	2.04
150	1.56	--	1.72	2.44 (235)	2.78	1.91
1993						
0	0.97	0.66	0.22	0.98	0.85	1.73
50	1.21	1.93	1.87	1.29	1.65	2.40
100	1.47	2.21	2.22	1.45	1.98	2.71
150	1.85	2.30	2.37	1.58	2.30	2.50

( ) After plots were fertilized, the field was fertilized with 85 lb/ac N, and the trial was fertilized again by mistake.

*Mylon Bohle*

### Nitrogen Contained in Forage

The table below shows the minimum amount of nitrogen it takes to produce a grass or cereal forage crop with varying levels of yield and protein percentage; or more specific, the amount of nitrogen that the hay crop would contain and be exported off of the field. More soil and fertilizer N would be required than these amounts shown.

Table. The total pounds of nitrogen (lb/acre) contained in a grass or cereal hay crop at varying yields and protein percentage on a 100% dry matter basis.

Protein (%)	0.5-ton Crop	1.0-ton Crop	1.5-ton Crop	2.0-ton Crop	2.5-ton Crop	3.0-ton Crop	3.5-ton Crop	4.0-ton Crop	4.5-ton Crop	5.0-ton Crop
	Lbs of N									
6	9.6	19.2	28.8	38.4	48.0	57.6	67.2	76.8	86.4	96.0
7	11.2	22.4	33.6	44.8	56.0	67.2	78.4	89.6	100.8	112.0
8	12.8	25.6	38.4	51.2	64.0	76.8	89.6	102.4	115.6	128.0
9	14.4	28.8	43.2	57.6	72.0	86.4	100.8	115.2	129.6	144.0
10	16.0	32.0	48.0	64.0	80.0	96.0	112.0	128.0	144.0	160.0
11	17.6	35.2	52.8	70.4	88.0	106.2	123.2	140.8	158.4	176.0
12	19.2	38.4	57.6	76.8	96.0	115.2	134.4	153.6	172.8	192.0
13	20.8	41.6	62.4	83.2	102.0	124.8	145.6	166.4	187.2	208.0
14	22.4	44.8	67.2	89.6	110.0	134.4	156.8	179.2	201.6	224.0
15	24.0	48.0	72.0	96.0	118.0	144.0	168.0	192.0	216.0	240.0

*Mylon Bohle*

## Calendar

### July

- 17 High Desert Garden Tour (see article front page).
- 23-25 SolWest Renewable Energy Fair (see article page 3).

### August

- 15 Oregon Country Trails Kick Off (see article front page).
- 16 Central Oregon Food Network Drawing (see article page 3).
- 19 Wine Grape Association of Central Oregon Monthly Workshop (see article page 5).

### September

- 1-4 National Hay Association Annual Meeting, Griffin Gate Marriott Resort, Lexington, KY.  
TBA Wheat Marketing Meeting?
- 18 Healthy Horses-Healthy Pastures On-Farm Workshop, 9-2 pm, Location TBA (Deschutes County),  
(541) 647-9604 or R.S.V.P. and more details.

### October

TBA Wheat Marketing Meeting

### November

TBA Oregon Hay King Contest. Central Oregon Location TBA

Oregon State University  
Deschutes County Extension Service  
3893 SW Airport Way  
Redmond OR 97756

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