Dear Small Farmer and Landowner,

Welcome to the January-February Issue of the Mid-Columbia Small Farms and Acreage Newsletter. With this first issue of the New Year we will be ushering in some changes for the Mid-Columbia Small Farms and Acreage Newsletter. Some of you may be aware that the Oregon Small Farms Program has developed an electronic statewide quarterly small farms newsletter with the first issue put out in December 2006, which can be found at: http://smallfarms.oregonstate.edu/newsletter/index.php. To provide better service and information to our Mid-Columbia Small Farmers, we have made the decision to merge our Mid-Columbia Small Farms Newsletter with the State Small Farms Newsletter beginning with the June issue.

What this means to you as a current subscriber to the Mid-Columbia Small Farms and Acreage Newsletter is that you will receive March-May Issue of the Mid-Columbia Small Farms and Acreage Newsletter and then in June automatically start receiving the Oregon Small Farms Newsletter beginning with the June issue.

As always this issue is packed full of information on workshops, conferences and resource materials. I do want to make note of a few events of interest including the Wasco County Tree and Shrub sale that is on until the end of January. The Edible Landscape Workshop to be held January 27th is not one to be missed and we are also hosting on February 12th the Farm Succession and Estate Planning Workshop which is a continuation of our November 30, 2006 Workshop. For more information about all these events, please see the Coming Events section of this newsletter for more information.

As you review this issue, if you should have any questions about any of the information found in the newsletter or questions about small farming, please give us a call. You can contact your local county extension office at the numbers found on the top of this page. Again, please let us know how we can be of help to you.

Also as a reminder, if you receive this newsletter electronically, please make sure you let us know whenever you change your e-mail address so we can make sure you remain on the mailing list.

Sincerely,

Brian V. Tuck
Mid-Columbia Extension Agent
Oregon State University
Wasco County

As noted with this merger we anticipate better small farms information support to you. As we go through this merger should you have any questions or concerns, we would encourage you to contact either the OSU Wasco County Extension Office at 541-296-5494 or the WSU Klickitat County Extension Office at 509-773-5817.
Calendar of Events

2007

January

24 **Mold In Buildings**, 8:30am – 12:30pm Portland Community College Event Center, Rock Creek Campus. Cost: $30. For contractors, inspectors, appraisers, realtors, maintenance personnel, building managers, HVAC and others who work with single and multi-family housing, schools, and other buildings. Contact Washington County Extension Service, 503-724-2101

24 **Mold Control In Your Home**, 6:30-8:00pm. Portland Community College Event Center, Rock Creek Campus. Cost: $10. Why does mold grow, health concerns, mold control, and when to call professionals – geared to the home dweller/owner. Contact Washington Cty Ext, 503-724-2101


27 **Horses and Mud**, Canby, Oregon. Information 541-766-3556 or http://smallfarms.oregonstate.edu/

27 **Edible Landscape Workshop**, The Dalles. See Coming Events Section for more information.


29 Last day to order trees and shrubs with the **Wasco County Tree and Shrub Sale**. See Coming Events Section for more information.

29 **Wine Grape Pruning Workshop**, Hood River. Contact OSU Hood River County Extension Office for more information at 541-386-343.

31-Feb 1 **Northwest Ag Show**, Portland, Oregon. Information: http://www.nwagshow.com/

February

1 **Soils 101 – Introduction**, OSALT, Canby, OR. http://www.osalt.org/events/osalt

6 **Business Legal Entities**, 5:30-7:30 pm, Erin Glenn Winery, The Dalles. For more information call Columbia Gorge Community College at 541-506-6121; to register contact 541-506-6011


10 **Fruit Tree Pruning Class**, 9:00 a.m. to 12:00 p.m. at the Home Orchard Society Arboretum. Demonstration and practice of pruning methods appropriate for a variety of fruit trees. Bring your pruning tools and appropriate outdoor wear. Co-sponsored by the Home Orchard Society and Clackamas Community College. Pre-registration encouraged. $10.00. Information: Loretta Mills at 503-657-6968 ext 2246.

10 **Value-Added Food Processing**, 9-4 pm, WSU Snohomish County Extension, Cougar Auditorium 600 128 St SE, Everett. Cost $90 by January 26th. Create value-added products from farm fresh produce and meat. Topics include private labeling, packaging and processing. Local experts discuss regulations, product testing, niche markets and direct marketing. To register Download pdf file @ http://snohomish.wsu.edu/calendar.htm or contact (425) 338-2400 x5500 klchristen@cahnrs.wsu.edu


12 **OSU/WSU Farm Succession and Estate Planning Workshop – Part 2**, from 12:30 to 5 pm, Columbia Gorge Community College. See Coming Events Section for more information.

15 **Wasco County Fruit & Produce League Mid-Columbia Cherry Day**, Discovery Center. Contact OSU Wasco Cty Extension Office : 541-296-5494.
17 **Small Farms & Direct Marketing Conference**
Corvallis, Oregon LaSells Stuart Center, OSU. Keynote speaker: Marion Nestle, author of *Food Politics* and *What to Eat*. Nine concurrent sessions on marketing, production and food policy. $30 per person; $50 for two people registering together. (includes lunch) Info: Chrissy Lucas 541-766-3556 OR [http://smallfarms.oregonstate.edu](http://smallfarms.oregonstate.edu)

Feb 17 - Apr 21 **Successful Small Farming Series**, OSALT, Canby [http://www.osalt.org/events/osalt](http://www.osalt.org/events/osalt)

20 **Hood River Winter Hort Meeting**, Pine Grove Grange. Contact the OSU Hood River County Extension Office for more information, 541-386-343.

20-22 **Basic-Plus Cheese Making Shortcourse**, Lynden, WA. [www.wsu.edu/creamery/education/cheesemakingEd.htm](http://www.wsu.edu/creamery/education/cheesemakingEd.htm)

20-21 **Agritourism and Direct Marketing Conference**, Yakima Convention Center. For more information contact 800-221-0751 or see their website at [http://www.visityakima.com/agTourism.htm](http://www.visityakima.com/agTourism.htm)

22 **Biodiesel for Farmers Class**, Chemeketa College, 4000 Lancaster Ave., Salem, 8 a.m. - 2 p.m. Information: 503-399-5139.


24 **Fruit Tree Grafting Class**, Clackmas Community College, Clarmont Hall room 118., 9am - 10:30am, Beginning; 10:45am - 12:15pm, Beginning; 12:45pm - 2:15pm, Intermediate. **Beginning:** Veteran grafters & members of the Home Orchard Society cover the basics of grafting, including hands-on experience with grafting your own fruit tree. You will receive an apple rootstock and your choice from several varieties of scion wood. Please bring a straight-edged knife. **Intermediate:** This session will cover more advanced grafting methods, including: Cleft graft, Kerf graft, Bark graft, Side-Bark graft, Bark Inarching and invent your own.” Again, you will be provided with a rootstock and scion wood. Please bring your straight-edged knife. $15 per session. Pre-registration is through Clackamas Community College. For more information contact Loretta Mills at 503-657-6968 ext 2246.

March

3 **Ethanol Production Class**, Chemeketa College, 4000 Lancaster Ave., Salem, 9 a.m. - 4 p.m. Information: 503-399-5139.

5 **Farmer-Chef Connection** Canby, OR
8:30am—4:00 pm, Clackamas County Fairgrounds. Day-long gathering designed to foster collaboration and direct marketing opportunities for local farmers, ranchers, chefs and retailers. Free registration via weblink above. Information: Andrew Haden at 503-467-0763; or ahaden@ecotrust.org.

5-8 **22nd Annual WSU Cheesemaking Short Course**, Pullman, WA. Information 509-335-4014 or [www.wsu.edu/creamery/education/education.htm](http://www.wsu.edu/creamery/education/education.htm)

Food Packaging and Sustainable Alternatives and Energy Efficiency and Renewable Power, Vancouver, WA. Information: 541-346-1609 or nwhite@organicgrown.com

30 **Wasco County Business and Agriculture Hazardous Waste Collection**. Pre-registration is required by calling 1-800-228-2772.

April

17 **Franchising**, 5:30- 7:30 pm, Horse and Hound Pub, Hood River. For more information call Columbia Gorge Community College at 541-506-6121; to register contact 541-506-6011

## Coming Events

### Edible Landscaping Workshop

Wasco Co. SWCD is offering a workshop on Edible Landscaping, January 27, 2007, at the USDA Service Center, 2325 River Rd. Ste 3, The Dalles, from 9:00 am to noon.

Workshop will cover basic design, succession planting, and lists of edible plants appropriate for the home landscape.

For information and registration please contact Tammy or Shilah at 541-296-6178 ext 3, or email Shilah at shilah.olson@or.nacdnet.net. This workshop is free, but seating is limited to 15 individual participants.

### Wasco Co. SWCD Annual Tree Sale

Wasco County SWCD is holding its’ Annual Conservation Tree and Shrub Sale. The district offers a selection of conservation plants suitable for our local area.

This year’s tree species are: Hedge Maple, Paper Birch, Theves Poplar, Quaking Aspen, Cottonwood, Native American Plum, and Black Locust. Shrub species that are beneficial to wildlife are: Serviceberry, Caragana, Red Osier Dogwood, Tatarian Honeysuckle, Ocean Spray, Wild Mock Orange, Golden Currant, Rugosa Rose, and Western Snowberry, and Purple lilac. Species suitable for riparian areas, screens, or wildlife habitat are: Red Osier Dogwood, Peachleaf Willow and Coyote Willow. Conifer species are Incense Cedar, Noble Fir, Ponderosa Pine, Douglas Fir, and Giant Sequoia. Willows and Cottonwoods are cuttings and all others are bareroot seedlings.

For a tree list visit wasco.oacd.org, or contact the Conservation District at 541-296-6178 ext 3, and they can mail, fax, or email a copy to you. Orders need to be in to the District by January 26, 2007 in order to guarantee selections. However, orders will continue to be taken through March 2007. They just can’t guarantee they will have every species.

### Viticulture One Day Workshops

The WSU Viticulture workshops offer a comprehensive series of seminars focused on grape growing techniques and harvesting methods by local, professional grape growers. The three part series (Winter, Spring/Summer, and Fall) is designed for local grape growers, winery owners and employees, and wine grape growing enthusiasts.

Workshops will be held at the WSU Northwestern Washington Research & Extension Center, 16650 State Route 536, Mount Vernon, WA 98273

#### WINTER PRACTICES

Saturday, January 27, 2007 • 8:00 am - 4:00 pm

**Winter Practices Topics & Presenters Include:**

- Welcome & Introduction – Gary Moulton
- Measuring Heat Units – Mercy Olmstead, Viticulture Specialist, WSU Prosser
- Handling transplants, plant layout & spacing – Tom Thornton, Cloud Mountain Farm
- Irrigation & monitoring soil moisture – Tom Walters, WSU-MV
- Vineyard floor management, weed identification, weed control, cover crops – Tim Miller, WSU-MV
- Trellis design & structure – Steve Kuhn, Wilson Irrigation
- Pruning & training vines – Mercy Olmstead
- Field demonstration: pruning, weed identification

#### SPRING / SUMMER PRACTICES

Saturday, April 28, 2007 • 8:00 am - 4:00 pm

**Spring/Summer Practices Topics & Presenters Include:**

- Vine physiology (the cycle of vine growth)
- Canopy management, shoot management, leaf removal
- Powdery mildew control
- Botrytis control
- Micronutrient sprays
- Bird netting

Cost: $80.00 per person, per workshop

For information call 360-416-7605 OR: [http://learningcenters.wsu.edu/skagit/wine.html](http://learningcenters.wsu.edu/skagit/wine.html)
Coming Events... continued

Farm Succession and Estate Planning Workshop
Part 2

The second in a series of Farm Succession and Estate Planning workshops for farm families will be held on February 12th from 12:30 to 4:30 pm in the Auditorium at Columbia Gorge Community College in The Dalles. This workshop is a follow-up to an introductory session held November 30th in The Dalles. The second workshop will include discussion on estate laws and writing wills, conducting successful family meetings, and a question and answer session on challenges families are encountering in the succession planning process. The workshops are open to all, even if they missed the first meeting."

Pre-registration for this workshop is required by calling the OSU Wasco County Extension Office at 541-296-5494 by February 11th. There is no charge for this workshop.

Wine Sensory Evaluation Workshops

Wine Sensory Evaluation

Tuesday - Wednesday, May 1-2, 2007
Introduction to Wine Aroma Wheel, Sensory Analysis of White and Red wine, Spotting Defects. Workshop designed for winery staff, restaurant staff, wine shop owners and employees, wine media, amateur wine makers, and wine enthusiasts.

Experience traditional and unique wines from grapes grown in the Northern Puget Sound counties with detailed systematic description using taste, aroma and visual senses for local wines. Includes developing wine judging skills.

Workshop designed for wine judges, wine media, amateur and professional wine makers, viticulturalists, sommeliers, and chefs.

About the Presenter
Dr. Ann Noble, Emeritus Professor of Enology at the University of California, Davis, is internationally known as an expert in wine sensory analysis. Best known for her development of the “Wine Aroma Wheel”, Dr. Noble’s research and methods of sensory evaluation of wine flavor are widely used throughout the wine and beverage industry. Visit Dr. Noble's Wine Aroma Wheel Website

Cost, Information and Registration
Costs and further workshop details will be announced soon. For more information, call 360-416-7605.
Coming Events...continued

Wasco County Farmer’s Market

The Wasco County Farmer’s Market is scheduled to run this year from April 15 to October 15th. The market will be held on Fridays from 8 am to 2 pm at The Dalles Area Chamber of Commerce office, 404 West 2nd Street, The Dalles. The cost is $15/vendor space per week. There will also be a community table available for small scale producers and gardeners operated by students from The Dalles Wahtonka High School. They will be charging 20% of the value of the items sold for a maximum of $15/vendor. The funds will go to support youth programs.

Acceptable items for sale include fresh and processed and dried agriculture products including fruits, vegetables, flowers, jams, jellies etc. Non-agricultural products will not be allowed. Vendor space is limited, so potential vendors who want to assure having a space are required to signup by March 30th. Any spaces not reserved by March 30th will be available on a first come first served basis. Those who will be selling products through the community table can sign-up weekly from April 15-October 15. For further information please contact Lorrie Fricke, manager at 541-296-5800.

The Wasco County Farmers Market is a collaborative effort between local producers, The Dalles Area Chamber of Commerce, The Small Business Development Center, Wasco County Soil and Water Conservation District, The Dalles Wahtonka High School, Master Gardeners and the OSU Extension Service.

Resources

Publications

OSU Extension Publications

The following are new publications from Oregon State University. Please see the OSU Web Site at for more information on these and other publications at: http://eesc.oregonstate.edu

EM 8915, Alternative Crops for the Columbia Basin
New October 2006, 32 pages, $10.00

EM 8916-E, Sheep Production Guide (available only online) New November 2006, 20 pages, no charge


PNW 592, Four Simple Steps to Pruning Cherry Trees on Gisela and Other Productive Rootstocks New January 2007, 4 pages, $4.00 http://extension.oregonstate.edu/catalog/pdf/pnw/pnw592.pdf


EC 1227-S-E, Cultive sus Propios Chiles (Grow Your Own Peppers), available only online New October 2006, 5 pages, no charge http://extension.oregonstate.edu/catalog/pdf/ec/ec1227-s-e.pdf

EC 8782-E, Drip Irrigation: An Introduction (available only online) Revised October 2006, 8 pages, no charge http://extension.oregonstate.edu/catalog/pdf/ec/ec8782-e/


Other Publications

ATTRA Publications

Transgenic Crops
This publication updated and retitled in 2006 describes the basics of genetic modification or genetic engineering for agricultural purposes, and presents a brief history of the technology and the governing policies surrounding it. The publication offers a brief overview of the main agricultural crops that have been genetically modified, the characteristics they express, and the market roles they play. Unintended consequences, economic considerations, and safety concerns surrounding the cultivation and dissemination of transgenic crops are also discussed. Biopharmaceutical aspects of transgenic crops are also briefly addressed. Economic, legal, and management concerns associated with these types of crops are discussed, as well as political and regulatory aspects. Implications of transgenic technologies for sustainable agriculture are briefly addressed. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/geneticeng.pdf

Small Poultry Processing Plants and Services
This searchable database developed in 2006 lists processing facilities across the U.S. that provide poultry processing services for independent producers. It is searchable by state, and includes notes on whether facilities are state or federally inspected. Additional listings may be added to the database via an online form. This publication can be found at: http://attra.ncat.org/attra-pub/poultry_processors_main.php
**Resources... continued**

**Alternative Poultry Production Systems and Outdoor Access**
This new 2006 publication discusses differences between alternative and conventional poultry production systems. Various aspects of free-range systems in the U.S. and abroad are presented. Common poultry housing approaches are also discussed, as well as integrating poultry production with vegetable production or livestock grazing. Considerations related to organic poultry production are presented. Production topics such as outdoor access, pasture management, and predator control are also addressed. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/poultryoverview.pdf

**Renewable Energy Opportunities on the Farm**
Renewable energy represents an important option for agricultural producers. This new 2006 publication introduces three renewable energy resources that can be attractive and economically feasible for the farm: solar, wind, and renewable fuels. This is not a technical guide for designing or installing renewable energy systems but, instead, an overview that provides information on wind, solar, and renewable fuel technologies, cost and savings, site planning, and financial incentives. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/energyopp.pdf

**Organic Market Farm Documentation Forms**
In order to become certified organic, producers must demonstrate to an accredited certifier that their operation complies with National Organic Program regulations. The 23 forms in this package developed in 2006 are provided as tools that market gardeners and produce farmers can use for documenting practices, inputs, and activities that demonstrate compliance with regulations, or that assist in other aspects of farm record keeping. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/marketforms.pdf

**Oilseed Processing for Small-Scale Producers**
The many varieties of seeds and nuts can produce oils for food, nutraceuticals, skin care products, aromatherapies, biodiesel fuels, and industrial lubricants. This publication updated in 2006 profiles the evolution of a cold-pressing and consulting business in the U.S. It also describes the basic processes involved in oil processing: seed cleaning, extraction, clarification, packaging, and storage. Sources for more information and equipment are included. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/oilseed.pdf

**Dairy Resource List: Organic and Pasture-Based**
This resource list developed in 2006 offers many sources of information helpful to organic and pasture-based dairy farmers, on topics including general organic dairying, pasture productivity, animal management, milk marketing, and farm energy. This annotated list provides information on some of the best resources, both in-print and online, but is not meant to be all inclusive. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/dairy_resources.pdf

**Managing Internal Parasites in Sheep and Goats**
Internal parasite management, especially of *Haemonchus contortus* (barberpole worm, stomach worm), is a primary concern for the majority of sheep and goat producers. These parasites have become more difficult to manage because of developed resistance to nearly all available dewormers. This publication discusses new techniques to manage parasites and to prolong the efficacy of dewormers. New management tools that remain under investigation are also discussed. A list of resources follows the narrative. This publication can be found at: http://attra.ncat.org/attra-pub/PDF/parasitesheep.pdf

**Newsletters**

The December 2006 issue of Sustaining the Pacific Northwest - Food, Farm, & Natural Resource Systems quarterly electronic newsletter is now available. This issue can be viewed or downloaded from http://esanr.wsu.edu/whatsnew/SPNW-v4-n4.pdf. The current issue is 1.2 MB in size.

The current issue of e-News for Northwest Gardeners is "hot" off the press. http://extension.oregonstate.edu/gardening/enews/

The latest Issue of the University of Wyoming “Enterprising Rural Families can be found at: http://eruralfamilies.org/

The January-February issue of Woodland Notes is now available on our website at http://extension.oregonstate.edu/clackamas/forestry/documents/Jan-FebIssue_004.pdf
Resources... continued

The latest issue of the Central Washington Round-up, is now available at http://animalag.wsu.edu, under the current news section of the home page. This electronic newsletter is published by the Central Washington Animal Agriculture Team, comprised of Washington State University Extension educators in the fields of animal science, range management, agronomy, and entomology.

Websites

Oregon Small Farms News is the new Oregon Small Farms Newsletter just developed for Oregon Small Farmers. The latest issue can be found at: http://smallfarms.oregonstate.edu/newsletter/Small%20Farm%20News%20Nov22.pdf

Extension Horse webpage can be found at www.extension.org/horses. This is a very good site for information on horse management.

Feature Articles

Evening Feeding of Beef Cattle in Winter and its Affect on Calving and Feed Efficiency

By: Barbi Riggs
OSU Crook County Extension Agent

Calving

Evening feeding of the mature beef cow has been proven to increase the percent of cows that calve during daylight hours compared to night time hours. A Manatoba producer made this observation when he fed his cows twice daily; 11 a.m.-12 p.m and 9-10. This feeding regime resulted in 80% of his calves born between the time of 7 a.m. and 7 p.m. Likewise, 62% of the calves were born between 7 p.m. and 7 a.m. if fed 8-9 a.m. and 3-4 p.m. Montana State University scientists conducted similar research for a period of two years. Their results showed that feeding in the evening moved 15% of their heifers calving between midnight and 6 am to calving during daylight hours.

Montana State University has determined that the cow’s body temperature drops about 2°F around 16 hours before a calf is born. Furthermore, body temperature increases about 1°F after eating for a period of 2-3 hours. The rise in body temperature may be antagonistic to the drop of body temperature prior to calving and thus may delay the onset of calving.

Feed Efficiency

Evening Feeding as it relates to weight gains in feedlot cattle and feed efficiency has also been studied by Alma Kennedy of the University of Manitoba, Lethbridge and Brandon. In her region of study, January temperature is below 32°F. At these temperatures, cattle undergo acclimatization to the weather, generally by increasing resting metabolic rate to maintain body temperature. Thus, feed energy available for growth is decreased. Kennedy hypothesizes that nightly dips in body temperature during cold ambient temperatures triggers the body to acclimatize. If these dips in body temperature could be prevented, acclimatization may be prevented and feed efficiency for growth would increase. Kennedy based her research on the assumption that feeding cattle in the evening would make heat associated with rumen fermentation and other digestive processes available to the cow during the night and in turn suppress acclimation.

The three year studies generated mixed results that varied from location-to-location and from year-to year. Responses to evening feeding ranged from little to no response in some studies to weight gain increases ranging from 9-28% in other studies. One particular year found that rate of gain was not affected, however, cattle finished 12 days earlier. Yet a subsequent year showed a 12% increase in average daily gain and a 6% improvement in conversion. Further investigation into this relationship is necessary to make any definitive conclusions.

Food for thought

Feeding in the evening has definite benefits to calving time and possible benefits to feed efficiency in feedlot cattle. Calving time can be affected by feed time if implemented within 1 month of calving. Acclimatization and de-acclimatization also takes weeks. Does this system provide an opportunity to increase feed efficiency to lactating beef cows during a period of time where energy requirements are at their highest? Could evening feeding of mature cows increase feed energy available to lactation and/or reconditioning?
Pregnant Animal Care During Winter

By Dr. Susan Kerr
WSU-Klickitat County Extension Director

Pregnant animals have a few very important needs that are different from those of other classes of livestock. Without a good record keeping system or management calendar, livestock producers can easily overlook crucial management tasks and disaster can ensue.

The start of care for a pregnant animal should begin well before gestation even starts. Animals need to have an acceptable body condition score (neither too fat nor too thin) to be able to cycle, conceive and support a fetus. This means that producers must have an appropriate nutritional program in place for their breeding herd.

Small ruminant producers typically “flush” their animals by increasing the plane of nutrition for two to four weeks before and after breeding to encourage the production and release of multiple eggs, which produces more twins and triplets. Providing grain, feeding higher quality hay or turning animals into a reserved lush pasture are all effective approaches to flushing.

After animals are bred and confirmed pregnant, few management changes are needed until the last third of pregnancy. In the first two-thirds of pregnancy, animals should be encouraged to exercise and graze to help them stay healthy, wear down their hooves and prevent obesity. Animals can be sorted into groups and fed accordingly if changes in body condition scores are needed during this time.

During the last third of pregnancy, the fetus(es) finally make(s) an impact on the mother’s nutritional requirements. Pregnant animals need more protein and energy to support the growth of a normal, healthy fetus. In some cases, a pregnant animal’s additional nutritional requirements can be met by simply feeding more of the current ration. If animals are already consuming their maximum amount of dry matter possible each day, however, a more nutritionally-dense feedstuff will have to be added to or substituted for the current ration. Examples of more nutritionally-dense feedstuffs include high-quality hay, protein concentrates or energy concentrates. Remember to make all ration changes gradually.

Dr. Rodney Kott, Montana State University Extension Sheep Specialist, reports that ewes carrying singles in late gestation need 50% more nutrition than in early pregnancy and 75% more if they are carrying twins. The National Research Council’s current recommendations for a 1,172-pound beef cow in late pregnancy include 13.9 megacalories of net energy per day and 672 grams of metabolizable protein per day. Compare these figures to daily recommendations for non-lactating, first trimester pregnant cows of 8.9 megacalories of net energy and 436 grams of metabolizable protein and you will note a 55% increase in requirements in late gestation for beef cattle.

Energy requirements also go up as the thermometer goes down. For every one degree drop in temperature below a critical temperature (20°F is often used), an animal’s energy demands increase by 1%. This is because additional energy is required to maintain normal body temperature. If this energy isn’t provided through feed, animals will need to call on their body fat reserves.

If pregnant animals are underfed, they will be in poor body condition when they give birth and begin lactating; milk production will be significantly reduced. They will also be slow to start cycling again. Underfed animals may also give birth to lightweight and/or weak offspring. In small ruminants, the dam may be unable to support twins or triplets and one or more may die in utero.

Special attention should be paid to pregnant immature animals. Pregnant doelings, ewe lambs, heifers, etc. must be fed for maintenance, growth and pregnancy. For example, Table 1 depicts the minimum nutrient requirements during Winter for spring-calving pregnant beef cows vs. heifers. Grouping and feeding pregnant youngstock separately will help managers remember to pay special attention to these animals.
Table 1. Minimum nutrient requirements during Winter for spring-calving pregnant beef cows vs. heifers

<table>
<thead>
<tr>
<th>Type of animal</th>
<th>% Total Digestible Nutrients (TDN) required in diet</th>
<th>% Crude Protein (CP) required in diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late gestation beef cows</td>
<td>55</td>
<td>8</td>
</tr>
<tr>
<td>Late gestation first- and second-calf heifers</td>
<td>60</td>
<td>11</td>
</tr>
</tbody>
</table>

*Table created with information from University of Minnesota Beef Team.*

Overfeeding pregnant animals can also cause undesirable outcomes: fetuses may grow too large and dams may have fat deposits and poor muscle condition that interfere with giving birth. Overconditioning also puts animals at risk of pregnancy ketosis and/or fatty liver syndrome. Fat youngstock may have reduced milk production due to the deposition of fat in the udder.

Milk fever primarily affects dairy cattle, but it can be seen in any lactating animal. This condition strikes because of the sudden demand for calcium after an animal gives birth and begins to lactate. If a pregnant animal has been on a high-calcium diet during pregnancy, her body is not ready to mobilize calcium from her bones—a process that is necessary during lactation. The sudden drain of calcium through milk makes blood calcium levels fall, which causes weakness, trembling, collapse and even death. To prevent milk fever, avoid feeding high calcium sources (e.g. alfalfa, dairy grain, dairy minerals) in the last month or so of pregnancy.

A few important tasks need to be done in the last month or so before birthing. Your veterinarian may recommend you give Vitamin E/Selenium and/or other vitamin injections to pregnant animals in the last two to four weeks of pregnancy. This action helps prevent White Muscle Disease in the developing fetus and Selenium deficiency in the dam. Your veterinarian may also recommend deworming pregnant animals. Follow your veterinarian’s recommendations about which products to use because some are not recommended for use in pregnant animals. Use low-stress handling techniques as well.

Booster vaccinations are often given about two weeks before birthing to protect pregnant animals from disease and encourage the production of high-quality colostrum. Ask your veterinarian about what vaccinations to give your pregnant animals in late gestation—some vaccines are specifically developed for use in pregnant animals and others should be avoided.

Miscellaneous and common sense other requirements of pregnant animals include providing shelter from wind and precipitation, space and time to exercise and good ventilation. Transportation, handling and any other sources of stress should be minimized. Care should be taken when routine procedures such as hoof trimming, shearing, crutching, etc. are performed on pregnant animals; alternative handling techniques may be needed.

Prepare a clean and dry area in which animals will give birth. Remove dirty bedding and, if possible, disinfect the premises between births. Make sure the birthing area is free from drafts and doesn’t contain anything that could hurt the mother or her offspring.

As with all livestock production practices, time spent planning and preparing will reap large dividends through all the problems that will be avoided. Pay particular attention to caring for your pregnant animals—after all, you are caring for two (or more)! 
Pregnant Animal Care During Winter... continued

More information:
http://oregonstate.edu/dept/animal-sciences/pcs.htm (sheep)
www.ext.vt.edu/pubs/beef/400-795/400-795.html (beef)
http://bedford.extension.psu.edu/agriculture/goat/Body%20Condition%20Scoring.htm (meat goats)
www.animalrangeextension.montana.edu/articles/sheep/Flock%20Handbook/Nutrition-1.htm (sheep)

www.vetmed.ucdavis.edu/vetext/INF-BE_CarePrax.pdf (beef)
www.vetmed.ucdavis.edu/vetext/INF-SW_CarePrax.html (swine)
www.vetmed.ucdavis.edu/vetext/INF-SH_CarePrax.pdf#search=%22care%20of%20pregnant%20sheep%22 (sheep)
www.vetmed.ucdavis.edu/vetext/INF-GO_CarePrax2000.pdf#search=%22goat%20care%20practices%22 (goats)

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