Dear Small Farmer and Landowner:

Welcome to the March/April issue of the Mid-Columbia Small Farms & Acreage Newsletter. Hopefully by now you have discovered, this issue is now available in PDF file format. By going to PDF format, it is hoped this will make it much easier for you to use this newsletter and make copies if you choose to down load it from your computer. For those who do not have the PDF Acrobat Reader to access the newsletter, there is a link on the Small Farm Web Page for you to down load Acrobat Reader on to your computer. Just click on the Acrobat Reader Hot Button and it will take you through the steps to obtain the Reader. Once you have the Reader Program you can access any file in PDF format in this newsletter and as well as articles found on other web pages that you might use.

I want to take a moment to thank those who have filled out our Small Farms Newsletter Survey. This newsletter has been designed to serve the small farmers of the Columbia Basin, so it is critical that we receive your feed back to make sure the newsletter is meeting your needs. For those who have not had the time to fill out the survey, we would ask that you go to the Small Farms Web site where the survey is located and please fill it out. The survey is set up such that you only have to click on the hotlink to the survey, fill it out and just hit send. All responses on the survey will be kept confidential. We will compile the results into a general report that will be used to show how the newsletter is used and guide any changes that we make. Thank you again for your help with this effort.

As we come to the end of winter and start looking towards spring, despite the reports that we hear in the media about the drought being over, we are still very short on moisture. Current numbers for the area indicate that we have the following percentages of normal for precipitation for the current crop year are as follows: The Dalles 98%; Dufur 95%; Hood River 99%; Parkdale 124%; and Moro 84%; Heppner 62%; Arlington 94%; Condon 78% Soil conditions are still very dry particularly for the sub soil in some of the areas. What this means is that pastures, trees and other non-irrigated crops need to be treated with care and good management practices. Plants, which have been drought stressed are more susceptible to disease and insects pests, and to invasion by noxious weeds. Using good grazing practices on your pastures, controlling diseases and insects in shrubs and pastures, monitoring weed problems and the careful use of fertilizer are all areas where appropriate all help plants to withstand problems. Do be careful with how much fertilizer you do use as too much can cause leaf burning where moisture is short. I would also ask that you do be careful as to fire. We had a pretty tough year last year in the Mid-Columbia and folks should be looking at how to make their homes fire safe. I do have a web page listed under the resources section in the newsletter that talks about fire-resistant plants that you might consider when looking to landscape around you home.

As you review this issue should you have any questions concerning any of the information found in this newsletter, please contact your local OSU or WSU Extension Office.

Sincerely,

Mid-Columbia Extension Agents
Calendar of Events

2002

March

12 Columbia Gorge Society of American Foresters & Mid-Columbia Small Woodland Owners joint meeting, Charburger, Hood River, 6:30 p.m., Roger Scott, Washington Hardwoods Commission will talk about hybrid poplars and other hardwoods in Pacific Northwest forestry.

20 Skamania County’s WSU Cooperative Extension Office Open House, noon to 7:00 p.m., celebrating their new location, 25 Russell Street, Stevenson, WA.


April

1-6 Sheep Shearing School, Moses Lake. Contact Sarah Smith at 509-754-2011 x413 F.A.X.: 509-754-0163

6 Tree School 2002, Clackamas Community College, 8:00 am to 5:30 pm. Program provides numerous workshops on woodland management as well as an extensive vendor display. Cost for the workshop is $35/person. For further information and to register contact Clackamas County Extension Office at 503-655-8631.

9 Columbia Gorge Society of American Foresters & Mid-Columbia Small Woodland Owners joint meeting, 6:30 p.m., Fidel’s Restaurant, Bingen, WA

May

8-10 Oregon Society of American Foresters Annual Meeting, LaGrande, Oregon. Contact Ole Helgerson, 509-427-9427 or helgerso@wsu.edu

17-19 Hood River Pear and Wine Festival, Expo Center, Hood River. Tickets $5 per person or $10 for three-day pass. Bus tour tickets available at $7.50 per person. Festival Hours: 3-9 p.m. May 17; 11 a.m.-9 p.m. May 18; 11 a.m.-5 p.m. May 19.

Information: Kaye White, (541) 386-7697.

24 Sixth Annual NE Oregon GIS Conference, Pendleton Convention Center, Pendleton. Registration information: Layne Sylvester, (541) 962-3755, or on the Internet: www.eou.edu/rsi/gisconference.

24 Blueberry Production Workshop. OSU Extension Service will present a workshop on blueberry production at the Pine Grove Grange in Hood River on Friday, May
24. The morning workshop will be followed by an afternoon tour of several existing blueberry plantations in the Hood River area. The workshop will address several aspects of blueberry production including cultivars, site selection, soil, nutrition, irrigation, trellising, harvest methods, and economics. The workshop program will be available in late April. For more information, contact the OSU Extension Office in Hood River at 541-386-3343.

June
2-5 Windpower 2002 Workshop, Portland.

August
3 HOS Budding & Summer Pruning Workshop, 9 am - noon, HOS Arboretum, Clackamas Community

Area Workshops and Seminars

OSU has in the works a number of excellent field tours and workshops coming up this summer and fall including:

April 23-24, 2002 – Managing Species Mixtures in Coastal Forests to Mitigate SNC.

May 2-3 Managing Douglas-fir Forests for Timber and Amenities

May 21-22 Thining Alternatives to Promote Diversity in Young Plantations.

June 11-12 Managing Oak and Oak Woodlands


Note additional information concerning these workshops will be found on the OSU web site at outreach.cof.orst.edu/silvopt/ or by calling 541-737-2329.

4th Annual Small Fruit Growers Workshop

The 4th Annual Small Fruit Growers Workshop will be held on Tuesday, March 19, 2002 from 8:00AM-2:30 PM at Washington State University Vancouver, 14204 NE Salmon Creek Avenue, Vancouver, WA, Classroom Building Room CL225.
The workshop will cover various aspects of small fruit (caneberry, blueberry) production and includes updates from WSU and OSU researchers and extension folks.

Registration is $30/person and includes lunch. For additional information and a registration form, call 360-576-6030.

Specialty Cut Flower Northwest Regional Meeting

The annual Association of Specialty Cut Flower Growers Northwest Regional meeting will be held April 20, 2002 at the LeMera Gardens in Ashland Oregon. For more information concerning the meeting or a copy of the registration form, please contact the Association of Specialty Cut Flower Growers web site at ascfg@oberlin.net or call 440-774-2887. Registration is required by April 1, 2002.

Sheep and Goat Management Skills Workshop Part 1, Fernandez Ranch, Centerville, WA. 9 AM-4 PM, March 16. The focus of this workshop will be on proper vaccination administration, deworming techniques and foot trimming. Call 509-773-5817 or e-mail kerrs@wsu.edu for more information and to pre-register. Please bring your own lunch. Sanitation procedures will be required. Please wear clean coveralls and CLEAN RUBBER BOOTS. Come prepared for cold and/or wet weather.

Purpose: To help agriculture producers in the project area achieve economic health by growing higher value crops and/or adding value to the crops they grow. A further goal is that this project could spread to other economic areas of Oregon.
Plan Writing

There are good reasons to have a woodland management plan; obtaining timberland tax status, saving on federal income taxes, qualifying for cost-share programs and getting Tree Farm certification which can assist marketing of logs. This 8-class course will be held in Underwood, WA and starts April 2, running through May 8. The course covers fundamental woodland ecology and management plan writing. Participating woodland owners have a better ability to get what they want from their woodlands. Contact: Ole Helgerson, 509-427-9427, helgerso@wsu.edu

Wasco County Watershed Stewardship Education Workshops

Oregon State Extension Service and Wasco County Soil and Water Conservation District will be hosting a series of five watershed education training sessions. Each includes an indoor classroom session and an outdoor field session.

The schedule will be:

- **April 10** (Indoor) Watershed Processed & Wetland Classification & Functions, 6-9pm
- **April 11** (Field) Threemile Wetland and Watershed, 4-7pm
- **April 17** (Indoor) Salmonid Biology & Fish Habitat, 6-9 pm
- **April 18** (Field) Mill Creek – Wicks Water Treatment Plant, 4-7 pm
- **April 24** (Indoor) Soils, Erosion & Conservation, 6-8 pm
- **April 25** (Field) Threemile & Fivemile Watershed, 4-7 pm
- **May 1** (Indoor) Riparian Area Functions & Management, 6-8pm
- **May 2** (Field) Mill Creek, 4-7 pm
- **May 8** (Indoor) Water Quality Monitoring, 6-8 pm
- **May 9** (Field) Mill Creek, 4-7 pm

Forest Stewardship Management
Area Workshops and Seminars  Continued

All sessions will meet at the Mid-Columbia Fire and Rescue Hall, 1400 W. 8th Street, The Dalles. The cost of the workshops are $25 for the full five weeks, or $10.00 for a single session, which includes one indoor class and one field day. Cost of the workshops include light refreshments, transportation, and handouts. The Learning Guide, the primary resource notebook for the workshops, is available at a separate cost of $10.

TO REGISTER or for additional information please contact the Wasco County Extension office at 541-296-5494 by April 3, 2002. The program is limited to 25 participants. Priority will be given to those attending all five weeks.

Sheep and Goat Management Skills Workshop Part 2, Fernandez Ranch, Centerville, WA, 9 AM-4 PM, April 19 and 20 (same program offered twice) The focus of these workshops will be handling sheep, neonatal lamb management skills, and other lambing-time management issues. Call 509-773-5817 or e-mail kerrs@wsu.edu for more information and to pre-register. Refreshments will be provided; please bring your own lunch. Sanitation procedures will be required. Please wear clean coveralls and CLEAN RUBBER BOOTS. Come prepared for cold and/or wet weather.

Hazardous Waste Collection Event
The City of Hood River Public Works Department will be holding a hazardous waste collection event for farms and small businesses on April 19 at the Public Works Yard. Pre-registration with Philip Services, the waste collector, is required no later than April 12. Contact Pat Hymas with Philip Services at 800-547-2436 to pre-register. A small fee will be charged for collection of farm and business waste. A household hazardous waste collection event will be held on April 20. No pre-registration will be required for that event. For more information, contact Jan Morris at the City of Hood River Public Works Department (541-387-5201).

The Japanese Agricultural Training Program
Many of you may be familiar with the Japanese Agricultural Training Program, which has been operating in the U.S. since 1952. Trainees are assigned to farms in Washington, Oregon, Idaho, California, Arizona, Nebraska, Illinois, and Hawaii to meet their various fields of interest. Big Bend Community College in Moses Lake, Washington has coordinated the program since 1962. The program is currently seeking host farms for trainees. If you are interested in hosting a trainee or want additional information about the program, contact: Pete Morris, Operations Coordinator, at 206-306-7913.

Resources

Web Pages
http://pubs.wsu.edu/  Washington State University Publications. I am putting this in again as this site has greatly increased their on-line publications that will be of interest to small farmers. They provide a large variety of publications that address field crops, livestock, horticulture and livestock enterprises.

Examples of some of the new publications include: Grower Experiences with Alternative Field Crops in Eastern Washington, with each publication focusing on specific alternative crops. Those crop and publication numbers are as follows: Safflower - EB1890; Field Corn - EB1911; Alternate Cereal Crops - EB1912; Buckwheat - EB 1913;
Resources  Continued

Flax and Linola - EB1915; Sunflowers - EB1916; Millet - EB 1918; Mustard and Canola - EB 1919; and Alternate Wheat Crops - EB1920.

www.reeusda.gov/smallfarm/ This is the USDA website that provides some good information on small farms publications, access to the national small farm newsletter, small farms mailing group, and links to other useful resources.

tncweeds.ucdavis.edu/esadocs.html. This is a good site for additional information on invasive weeds. It provides good photos and control methods.

fw.oregonstate.edu This is OSU’s new Fisheries and Wildlife Web site. This is a good site to find links to sources of information for Oregon the region concerning fish and wildlife issues and publications.

University of California sites:

UC Small Farms Center: www.sfc.ucdavis.edu

UC Fruit and Nut center: fruitsandnuts.ucdavis.edu

UC Agricultural and Natural Resources (ANR) News and Information: danr.ucop.edu/news

UC Integrated Pest Management: www.ipm.ucdavis.edu

UC Plant Pathology: www.plnem.ucdavis.edu/plp/ext

UC Sustainable Agriculture Research and Extension Program: www.sarep.ucdavis.edu

extension.orst.edu/deschutes/FireResPlants.pdf This is a very good page put out by OSU in Deschutes County that focuses on what plants are more fire-resistant for use around your home. It has some great ideas and we would encourage folks to really take a look at this page as you think about fire safety around your home.

Publications

Horse Keeping: A Guide to Land Management for Clean Water. Stewardship on horse property is a major opportunity and responsibility. This guide focuses on caring for the land and managing manure, giving practical solutions to horse owners on what can be done to protect the environment. Whether an owner has one horse or operates a boarding facility, all equestrians plan an important role in assuring that our watersheds are healthy and our creeks clean. This large format manual is over 100 pages, with color photographs and diagrams showing conservation practices and management measures. Cost for the publication is $25 per copy plus $2.25 for postage. To order send your check to Council of Bay Area Resource Conservation Districts, 1301 Redwood Way, Ste 215, Petaluma CA 94945-1134

How Herbicides Work: Uptake, Translocation, and Mode of Action EM 8785, August 2001, Cost $3.50. This is a very good publication that explains how herbicides work in the plant. This is a very important subject in the context of herbicide resistance that is beginning to show up in a number of weeds in the Columbia Basin. This publication can be obtained from any OSU Extension Office or ordered directly from OSU via their web page at eesc.orst.edu or by calling them at 541-737-2513.

List of Analytical Laboratories, EM 8677, Revised January 2002. This is the current list of analytical laboratories serving Oregon, Washington and Idaho. These laboratories can provide soil, water, plant tissue and feed analysis. A free copy of this publication can be obtained from any OSU Extension Office.

2002 Pest Management Guide, EM 8203, Revised 2002. This is an excellent resource for those with fruit trees. Copies are available through Wasco or Hood River County Extension Offices at a cost of $1.25 per copy.

Phone Numbers

Anyone facing a poison emergency can now get help by calling a free 24 hour toll-free hot line that links callers from anywhere in the country to medical experts at local poison control centers. The number – 1-800-222-1222.
This is the third in a series of three articles on formulating basic rations for livestock. Part 1 provided general background on nutrition, feeding and ration formulation. Part 2 explained how to formulate a ration for a horse. For latecomers, these articles can be found in the Nov.-Dec. 2001 and Jan.-Feb. 2002 issues of the Mid-Columbia Small Farms and Acreages Newsletter, respectively. Part 3 will focus on calculating a ration for a lactating ruminant. It will also introduce readers to two common methods of ration formulation: the Pearson Square method and the Simple Substitution method. It should be noted that computer software programs are available to help create balanced, least-cost rations for animals; nutrition professionals and many commercial livestock managers use such software.

Lactation places the greatest nutritional demands on an animal. In the case of a heifer that has just had a calf, she has several nutritional requirements:
- Maintenance (increases with cold weather, amount of work needed to obtain food, parasites, illness, etc.)
- Growth (until mature size is reached)
- Lactation (for about 6 months for beef cattle, 10 months for dairy cattle and 3-10 for dairy goats)
- Gestation (increasing demands throughout pregnancy, especially the last trimester; cattle are re bred 2 months after calving, sheep and goats after 2 months, and horses after 9-30 days).

A lactating goat has incredible nutritional requirements; these requirements depend in part on the amount of milk produced as well as its fat content. Let’s get started with an example. We will formulate a ration for a 60kg (130 lb.) adult goat producing 4 kg (about 9 pints) of milk per day with 3.5% fat. This goat is grazing and browsing a bit, so her maintenance requirements reflect this activity level. Referring to The National Academy of Science’s 1981 publication titled “Nutrient Requirements of Goats: Angora, Dairy and Meat Goats in Temperate and Tropical Countries” here are this goat’s requirements for major nutrients:

<table>
<thead>
<tr>
<th>Dry Matter (DM)</th>
<th>Total protein (TP)</th>
<th>Digestible Energy (DE)</th>
<th>Calcium (ca)</th>
<th>Phosphorus (P)</th>
<th>Crude Fiber (CF)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7 kg*</td>
<td>0.377 kg</td>
<td>9.39 mcal</td>
<td>12 g.</td>
<td>8.4 g.</td>
<td>0.46 kg (min.)</td>
</tr>
</tbody>
</table>

*using DM requirement of 4.5% of body weight
**Crude fiber (CF) isn’t a major nutrient, but lactating ruminants need at least 17% crude fiber in their diet to ensure proper rumen function and high butterfat content in milk.

The major forage on hand is alfalfa hay. Based on analysis at a commercial lab, it has 91.4% DM, 30.6% CF, 17% TP, 2.36 mcal DE/kg, 1.41% Ca and 0.24% P. It is usually most cost effective to use a forage to meet as much of the nutritional requirements as possible, so here goes:

**Ration balancing attempt #1: 100% alfalfa hay**

<table>
<thead>
<tr>
<th>Alfalfa hay</th>
<th>DM</th>
<th>TP</th>
<th>DE</th>
<th>Ca</th>
<th>P</th>
<th>CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7 kg</td>
<td>0.459 kg</td>
<td>6.372 mcal</td>
<td>38 g</td>
<td>6.5 g</td>
<td>0.826 kg</td>
<td></td>
</tr>
</tbody>
</table>

As you can see, protein requirements are met but we lack about 3 mcal of digestible energy and 2 grams of phosphorus. We’ll use the Pearson Square method to substitute a high-energy feed such as cottonseed meal (CSM) for some of the low-energy roughage. Here is the rundown on CSM’s nutritional value: 86% DM, 21.4% CF, 24% TP, 3.78 mcal DE/kg, 0.16% Ca and 0.76%P.
After subtracting across the square, you will have the number of parts of each feed needed in the ration to achieve the proper concentration of the desired nutrient. Add these two numbers of parts together to get the total number of parts in the ration, then divide the total into each part to get the percent of each feed in the diet (this is a more useful number that is the number of parts). In the example above, we subtracted 2.36 from 3.48 to get 1.12 parts of CSM in the ration, and subtracted 3.48 from 3.78 to get 0.3 parts of hay in the ration. 0.3 + 1.12 parts = 1.42 total parts in the ration. Hay is 0.3/1.42 or 21.1% of the ration and CSM is 1.12/1.42 or 78.9% of the ration. Let’s see if this new ration meets the goat’s requirements.

Ration balancing attempt #2: 21.1% alfalfa hay and 78.9% CSM.

<table>
<thead>
<tr>
<th>Feed</th>
<th>DM</th>
<th>TP</th>
<th>DE</th>
<th>Ca</th>
<th>P</th>
<th>CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa hay</td>
<td>0.57</td>
<td>0.097 k</td>
<td>1.35 mcal</td>
<td>8 g</td>
<td>1.4 g</td>
<td>0.174 k</td>
</tr>
<tr>
<td>CSM</td>
<td>2.13</td>
<td>0.511 k</td>
<td>8.05 mcal</td>
<td>3.4 g</td>
<td>16.2 g</td>
<td>0.456 k</td>
</tr>
<tr>
<td>Total</td>
<td>2.7 k</td>
<td>0.608 k</td>
<td>9.4 mcal</td>
<td>11.4 g</td>
<td>17.6 g</td>
<td>0.630 k</td>
</tr>
<tr>
<td>Requirements</td>
<td>2.7 k</td>
<td>0.377 k</td>
<td>9.39 mcal</td>
<td>12 g</td>
<td>8.4 g</td>
<td>0.459 k</td>
</tr>
</tbody>
</table>

Now you can see that we have met the energy and protein requirements, but we are low in calcium and high in phosphorus. Balancing calcium and phosphorus is very important, especially in lactating and growing animals. Let’s use the Simple Substitution method to substitute some dolomite limestone (DL) for some CSM. DL is 22.3% calcium and 99% DM.

The difference in calcium content between CSM and DL is 221.4 g (223 g Ca/kg DL - .16 g Ca/kg CSM); this difference is the substitution value of DL for CSM. The calcium deficiency of ration #2 is 0.6 grams. Divide the deficiency by DL’s substitution value: 0.6/221.4 = 0.0027, which is the percent of CSM to substitute with DL (0.27%), leaving our final ration with 78.63% CSM.
Feature Articles continued

Ration balancing attempt #3: 21.1% alfalfa hay, 78.63% cottonseed meal, 0.27% dolomite limestone.

<table>
<thead>
<tr>
<th>DM</th>
<th>As Fed</th>
<th>TP</th>
<th>DE</th>
<th>Ca</th>
<th>P</th>
<th>Crude Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa hay</td>
<td>0.57 kg (1.25 lb)</td>
<td>0.62 kg (1.36 lb)</td>
<td>0.097 kg</td>
<td>1.35 mcal</td>
<td>8 g</td>
<td>1.4 g</td>
</tr>
<tr>
<td>CSM</td>
<td>2.12 kg (4.66 lb)</td>
<td>2.47 kg (5.43 lb)</td>
<td>0.509 kg</td>
<td>8.01 mcal</td>
<td>3.4 g</td>
<td>16.1 g</td>
</tr>
<tr>
<td>DL</td>
<td>0.01 kg (0.022 lb)</td>
<td>0.01 kg (0.022 lb)</td>
<td>-</td>
<td>-</td>
<td>2.2 g</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>2.7 kg (5.94 lb)</td>
<td>3.10 kg (6.82 lb)</td>
<td>0.606 kg</td>
<td>9.36 mcal</td>
<td>13.6 g</td>
<td>17.5 g</td>
</tr>
<tr>
<td>Requirements</td>
<td>2.7 kg</td>
<td>0.377 kg</td>
<td>9.39 mcal</td>
<td>12 g</td>
<td>8.4 g</td>
<td>0.459 kg</td>
</tr>
<tr>
<td>Difference</td>
<td>-</td>
<td>+.229 kg</td>
<td>-0.03 mcal</td>
<td>+1.6 g</td>
<td>+9.1 g</td>
<td>+0.169 kg</td>
</tr>
</tbody>
</table>

Whew--this ration is almost balanced! We are feeding more than the required amount of protein; the only concern here is the financial impact of this excess protein. The energy level is acceptable. The real concern is the calcium-to-phosphorus ratio, which we would like to be between 1.5 or 2 parts of calcium to one part of phosphorus to maintain bone health and avoid important metabolic diseases such as milk fever.

We are currently feeding 10 grams of DL; increasing this by a factor of eight will not add significant dry matter to the diet and will result in a much healthier total of 29 grams of calcium to 17.5 grams of phosphorus (ratio of 1.6 to 1). This fine tuning is another example of the “art” vs. the science of ration formulation. With free choice water and trace-mineralized salt crumbles, this ration should meet this goat’s nutritional needs. As mentioned in Part 1 of this series, we would monitor the effectiveness of this ration by the animal’s performance and general health. If the goal is to maximize production, this goat could probably be “pushed” to consume more than 4.5% of her body weight in dry matter, thereby providing her with more nutrients, but not all animals can consume more. Lactating cattle are hard pressed to consume 2.5-3.0% of their body weight daily.

A few final thoughts:

- I initially tried to balance this ration using corn, but there was not enough fiber in the diet to make it a safe ration. I changed to CSM due to its high concentration of protein, energy and fiber.
- If you feed an animal more than its nutritional requirements, it will save the excess energy as fat and eliminate excess protein in the urine. Pushing an animal nutritionally will achieve some degree of added performance (more milk, faster rates of gain), but eventually performance will peak and the animal will just get fat. This is not good for the animal or your wallet.
- Feeding below required levels will adversely affect performance and the animal will not perform up to its genetically-determined potential. Underfed animals will lose body condition and eventually show signs of malnourishment.
- It is OK and even expected that lactating animals will lose some body condition during lactation. A heavily-lactating animal does not have the physical capacity to take in as much feed as it needs to keep up with its nutritional demands, so it calls on its energy reserves – the body fat that was laid down during pregnancy. Large swings in body condition are neither healthy nor desirable, though—

- The goat in the example above will consume some additional roughage and energy while playing. With a heavily-lactating animal, a manager should use the philosophy of “If you have finished your dinner, you can go out and play”; heavily-lactating animals really need to consume all the nutrients you have provided in the balanced ration; you don’t want this animal going out to browse and filling up on low-energy but fun-to-chew fiber.
- In order for the Pearson Square to work, the nutrient content of one feed must be above the final nutrient content needed and the other must be below it. For example, you can’t have 25% protein in a final ration if the protein content of the feeds used are 10%, 17% and 5%.
- In high-producing animals that are being fed a high percentage of grain, some bicarbonate or other buffer may need to be added to the ration because concentrates (such as grains) are very acidic. If the pH in the rumen drops too low, vital digestive bacteria and protozoa in the rumen die and the animal will be unable to digest the feed well; serious other problems can also occur.

- Additional examples of the Pearson Square and Simple Substitution methods can be found in any textbook on livestock feeds and feeding.

- Remember to convert the final ration to an “as fed” basis because in reality, feeds contain water. Our final ration above is 2.7 kg of DM, but this is 3.07 kg as fed. Information on how to convert from a dry matter basis to as fed basis was covered in a previous part of this series.

Ration formulation is a great way for youths to see math in action and a good excuse for us old-timers to blow the dust off some brain cells! I hope this series of articles has provided you with information you can use as you develop your ration formulation skills.
**Weed Management**

By Brian Tuck  
Wasco County Extension Agent and  
Small Farm Newsletter Editor

As the weather begins to turn warmer and thoughts turn to spring so do weeds begin to grow. With the early spring, weeds are also taking advantage of this warmer weather and getting a jump on rest of the competition. Often, invasive weeds are better adapted to our environment than the cultivated crops that we produce, so good weed management is a must.

To help folks know what weeds they have there are a number of excellent resources available to help you identify weeds on your small farm. Several good resource publications include:

**Weeds of the West.** This is an excellent resource book that provides very good photos of weeds in our area and information on how they grow. It can be ordered through any OSU Extension Office.

**Northwest Weeds** by Ronald Taylor. This is a smaller version of Weeds of the West. Again a very good resource for small farmers.

**Wetland Plants of Oregon and Washington,** by B. Jennifer Guard. A good plant identification resource for small farmers with wetlands or riparian areas.

**For those with livestock,** The Field Guide to Plants Poisonous to Livestock: Western US by Shirley A. Weathers is a good resource in identifying poisonous plants in your irrigated or dryland pasture.

**OSU has a large number of individual Weed Publications including Russian Thistle, puncturevine and knapweed to name a few.** Again, they can be ordered through any OSU Extension Office or on their web site at eesc.orst.edu. The publications have excellent photos and information on control.

**There is also a good web site at tncweeds.ucdavis.edu/esadocs.html.** This is an excellent site for additional information on invasive weeds. It provides good photos and control methods.

*King County in Washington has a very good web site with a number of weed photos and information about weed control. Their site is [dnr.metrokc.gov/wlr/lands/weeds/weedpics.htm](http://dnr.metrokc.gov/wlr/lands/weeds/weedpics.htm)*

Another important point that small farmers need to consider is how long seeds can last in the soil. The following is a list of common weeds and how long their seeds have been found to survive.

- **Brome Grass** – 2-3 years
- **Annual Ryegrass** – up to 9 years
- **Perennial Ryegrass** – up to 3 years
- **Annual Bluegrass** – up to 5 years
- **Wild Oats** – 3-6 years or longer in deep soil
- **Jointed Goatgrass** – 3 to 5 years
- **Barnyardgrass** – up to 13 years
- **Quackgrass** – up to 4 years
- **Mustards** – decades
- **Lambsquarters** – up to 4 decades
- **Russian Thistle** – 1-2 years
- **Curly Dock** – more than a decade
- **Canada Thistle** – more than 2 decades
- **Field Bindweed** – more than 50 years
- **Leafy Spurge** – 3-4 years

The need to have good weed management strategy in your fields is of critical importance. If you have any weed control questions regardless of whether you have pasture or a specialty crops, please contact your OSU or WSU Extension Office or your local weed control district.
need to be aware of new federal regulations now in effect for the eradication of scrapie. Scrapie is a transmissible spongiform encephalopathy (TSE), similar to “mad cow disease.” Although it is relatively uncommon in the U.S., scrapie costs the nation’s sheep and goat producers an estimated 20-25 million dollars every year. The disease is characterized by itching and rubbing, loss of coordination, and muscular weakness. Although it may take several years to develop clinical symptoms, scrapie is always fatal. The National Scrapie Eradication Initiative hopes to eliminate scrapie in the United States by 2010.

The following animals are required to participate in the program:

- All breeding sheep, regardless of age.
- All sheep 18 months of age and older.
- All breeding goats, except low-risk commercial goats.
- All scrapie-exposed, suspect, test-positive, and high-risk animals.
- All sheep under 18 months of age in slaughter channels that are pregnant or have aborted, or intact males from an infected herd.
- All sheep and goats for exhibition, other than castrated males.

Producers or owners that are required to participate should request a Premises ID number and select an approved ear tag or other official identification system. ID numbers and ear tags can be obtained free of charge by calling toll free, 866-USDA-TAG (866-873-2824). Animals must be officially identified (tagged or tattooed) before they leave the owner or producer’s premises.

In addition, all breeding and sexually intact exhibition animals must have a Certificate of Veterinary Inspection (health certificate) issued no more than 30 days before shipment. All ID and health certificate records must be kept for five years, even if the animals have been sold, slaughtered, or died from other causes.

Scrapie Eradication Program information and materials are available by calling toll free, 866-873-2824.

Information is also available at www.animalagriculture.org/scrapie, or at the Wasco County Extension office.

Pruning Fruit Trees

By Steve Castagnoli

One of the common questions for anyone growing tree fruits is, when is the best time to prune fruit trees? Typically, most fruit tree species are pruned during the dormant season, perhaps in large part because this is the most practical time to do the work without interfering with other orchard operations or fruit.

Dormant pruning stimulates new growth that forms the long-term fruit-bearing framework of a newly planted or young tree. It also, however, tends to delay fruiting. In a backyard or home orchard situation, you may try to minimize dormant pruning by using summer pruning instead to remove unwanted growth while encouraging early fruiting. Cherries, which generally have a long season after harvest, are more commonly pruned in the summer than are bearing apples or pears. This also helps avoid infection by a potentially serious bacterial disease, known as bacterial canker, which is favored by wet conditions.

If you have passed through any of the fruit growing districts of the Mid-Columbia lately, you have probably noticed quite a bit of pruning going on. Because of its stimulatory effects, pruning may leave fruit trees more susceptible to winter freeze injury. In the lower Hood River Valley, where winter damage is less likely to occur, many tree fruit growers start pruning as early as December. In the upper valley, it is more common to wait until February when the chances for severe winter weather are lower. If winter injury is a concern where you are located, it seems advisable to delay pruning as late as possible to minimize the possibility of damage.

Pruning should be done with a purpose. In commercial orchards, pruning is done to create maximum fruit bearing surface, to create access for workers to thin and harvest fruit, to promote good spray penetration, to renew fruiting wood, and to maintain growth or vigor in all parts of the tree. Pruning should help allow sunlight to enter and air to...
circulate throughout the tree canopy. Although home orchardists are not necessarily concerned with maximizing fruit production, many of these principles still apply.

Pruning is also a way of regulating the fruit load on the tree from season to season. This is particularly important for many apple varieties that tend toward alternate or biennial bearing. During dormant pruning, flower buds that represent potential fruit are removed along with any wood that is cut off. In general, the rule of thumb is to prune more following a light crop year and less following a heavy crop year, thereby evening out the fruit production from year to year.

It is important to remember that pruning is a dwarfing process. Some types of pruning cuts, however, usually stimulate growth near those cuts. These statements may seem contradictory, but they are not when you consider the total size of the tree. An un-pruned tree will ultimately be larger than a pruned tree, but it may have a different form and structure.

Most fruit tree species require annual pruning for consistent production of high quality fruit. Neglected trees that have not been pruned for several years can be rehabilitated but often require extensive pruning to remove unproductive branches. Typically, this should be approached as a several year process, with gradual removal and replacement of the unproductive branches.

One primary goal of pruning fruit trees should be maintaining tree size and structure for ease of management. Smaller trees require less ladder work for pruning, fruit thinning, and picking. Smaller trees are also more easily and effectively sprayed for pests and diseases. When planting new trees, consider choosing trees grafted on dwarfing rootstocks. They are much easier to manage than are large standard size trees.

Another common question is, when is the best time to apply dormant sprays for fruit trees? Dormant sprays are typically applied in late February and March. Now is a good time to start planning your control program. If you do not carry out a program for managing pests, you may be contributing to the spread of injurious pests to nearby commercial orchards. There are numerous insect pests and diseases that may be harbored in unmanaged or under-managed trees and spread from there to commercial blocks. In the Mid-Columbia region, three of these pests, codling moth, apple maggot, and western cherry fruit fly, are of particular concern.

Tree fruit growers carry out regular management programs for each of these pests, but their control practices may become less or not at all effective when there are unmanaged trees nearby. Western cherry fruit fly and apple maggot are quarantine pests. Shipment of fruit from areas with infestations of these insects may be restricted or prohibited, resulting in additional loss to the commercial grower.

Furthermore, increasing numbers of pear and apple growers in the Mid-Columbia area are adopting a non-chemical approach to managing codling moth, which is known as pheromone confusion or mating disruption. Unmanaged or under-managed pear and apple trees can serve as reservoirs of mated female codling moths that ruin the efforts of growers employing environmentally friendly methods of pest management.

If you have fruit trees in your yard or landscape that are maintained strictly for shade or aesthetic value, you should consider replacing those trees with more appropriate plants that do not harbor economically important pests. If you do intend to maintain fruit trees for fruit production, it is critical that you prevent the spread of injurious pests to commercial orchards.

OSU and WSU Extension Service publications can provide you with more information on care and maintenance of fruit trees whether you are a commercial producer or a backyard grower. These are available from your local Extension Service Office and on the World Wide Web at http://eesc.orst.edu/.
Alternative Crops

Please fill out the attached survey to help us better serve your needs.