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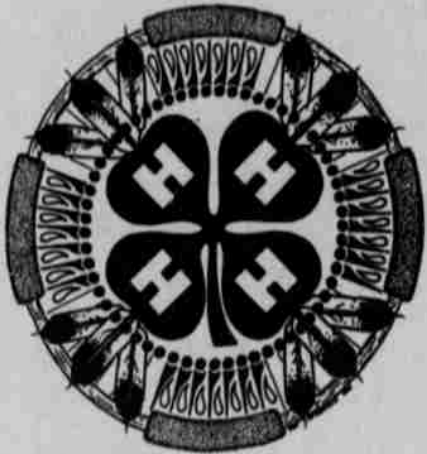
Internet Address: <http://www.orst.edu/dept/wsext>

The Oregon State University Extension Service staff is devoted to extending research-based information from OSU to the people of Warm Springs in agriculture, home economics, 4-H youth, forestry, community development, energy and extension sea grant program with OSU, United States Department of Agriculture, Jefferson County and the Confederated Tribes of Warm Springs cooperating. The Extension Service offers its programs and materials equally to all people.



**The Clover speaks**

The Innovation Center for Community & Youth Development  
 Youth and the people who work with youth increasingly recognize that community youth development - the processes and philosophy of involving youth as full partners with adults in the work of meeting



community needs - benefits both youth and the community.  
 The National 4-H Council established the

Innovation Center to promote bold and creative practices in community and youth development. The Innovation Center builds on nearly a century of 4-H experience in progressive and socially challenging youth development.

The Innovation Center draws on many resources and partners to strengthen community and youth development efforts:

- The Innovation Center's cadre of youth & adult partners are skilled innovators and are trained in developing youth-adult partnerships, youth development, youth-led community philanthropy, community development, facilitation and visioning, learning innovations, and change management.

- The resources and expertise of existing National 4-H Council partners (land grant universities, the

- Cooperative Extension System, and other youth organizations) are available to the Innovation Center.

- The Innovation Center continues to build new partnerships with other local and national centers and organizations that share its vision.

**CALENDAR OF EVENTS**  
 —Warm Springs OSU Extension—  
 Central Oregon and Beyond for 1999

DATE	ACTIVITY
May 6th, 1999	What:Cattlemen's Risk Management Workshop Where: Warm Springs Contact: Extension office,553-3238
May 7th, 1999	What:Horse Health Clinic Where: Warm Springs Contact: Extension Office,553-3238
May 12th, 1999	What:Kids Cooking Class Where: Warm Springs Contact: Bea Handley,553-3238
May 14th, 1999	What:Sacred Landscapes: Native American Perspectives of the Pacific N.W. Where: Oregon State University Contact: Ethnic Studies Dept.541-737-0123
May 27th, 1999	What:Resilient Communities Teleconference Where: Warm Springs Contact: Extension Office,553-3238
May 28th, 1999	What:Deadline ! Hi-Desert Youth Camp signup Where: Redmond Contact: Extension Office,548-6088
July 14th-18th,1999	What:Crook County Fair Where: Prineville Contact: O.S.U. Extension Office541-447-6228
July 20th-24th,1999	What:Jefferson County Fair Where: Madras Contact: O.S.U. Extension Office541-553-3808
July 27th-August 1st,1999	What:Deschutes County Fair Where: Redmond Contact: O.S.U. Extension Office541-548-6088
August 8th-14th, 1999	What:4-H Culture Enrichment Camp Sxn I Where: W.S. Indian Reservation Contact: Extension Office,553-3238
August 17th-22nd, 1999	What:4-H Culture Enrichment Camp Sxn II Where: W.S. Indian Reservation Contact: Extension Office,553-3238
August 18th-22nd,1999	What:Wasco County Fair Where:Tygh Valley Contact: O.S.U. Extension Office541-296-5494
August 26th- September 6th,1999	What:Oregon State Fair Fair Where: Salem Contact: State Fairgrounds503-378-3247

**Natural Resource notables**

by Zach del Nero, Natural Resources Agent

Ground Water in Oregon – The Unseen Resource

Ken Lite, Hydrogeologist for the Oregon Water Resources Department recently submitted the following information on groundwater resources in Oregon.

While we may seldom realize it, right now in the soil and rocks beneath us travels an unseen but crucial resource, a constantly renewing supply of water. This underground water resource occurs everywhere in Oregon, within a variety of geologic materials or "units." It exists in cracks and holes in volcanic and sedimentary deposits, and within fractured granitic and metamorphic rocks. Groundwater is also found in loose materials such as silt, sand, and gravel within stream drainages. The depth at which groundwater is encountered varies greatly throughout the state, from a few feet to hundreds of feet. Those water-holding parts of geologic units are called aquifers.

Oregon's aquifers are mostly used for irrigation, municipal, and domestic (household) uses. Records for about 250,000 water wells drilled in Oregon are on file at the Oregon Water Resources Department. While the vast majority of the wells are for domestic uses, nearly 15,000 water rights have been granted in Oregon for other groundwa-

ter uses. The effects of groundwater use are constantly monitored throughout Oregon. Groundwater levels in over 300 state observation wells, and hundreds of basin-project wells are measured monthly, quarterly, or annually. Automatic water-level recording devices are installed in about 50 wells to gather round-the-clock data.

Annual groundwater recharge generally keeps pace with ground water use throughout the state. However, some overdraft of the resource is occurring. Overdraft is a condition in which annual groundwater recharge exceeds annual groundwater use, resulting in long-term groundwater declines. Aquifers within some of the Columbia River Basalt Group geologic units, found in parts of northern Oregon, have been particularly susceptible to overdraft. "Critical groundwater area" and "groundwater management area" protections established by the Water Resources Commission have been set for some aquifers in the Umatilla, Hood, and Willamette basins.

Potential effects on stream flows from groundwater use is another issue faced by water managers. Groundwater naturally flows out or "discharges" to springs and streams, providing necessary base-flow to surface water, particularly during late summer months. The rate at which groundwater discharges to

streams varies greatly. Some discharges from in large volumes from porous lava flows,



while other systems discharge slowly through fine-grained sediments such as silt and clay. The relation of rate and timing of groundwater use to surface-water flow are not known in many areas throughout the state. That information is necessary for proper groundwater and surface-water management in Oregon. Currently, the OWRD is conducting hydrogeologic studies in the Deschutes, Willamette, South Coast, Rogue, and Klamath Basins - with future projects slated for the Umatilla and Grande Ronde Basins.

**The View from here**

by Texas Bob

Unless you've been living in a cave somewhere northeast of Tonopah, you've no doubt heard about this Y2K thing and reasons why we need to be worried.

Well, I wasn't concerning myself with it much until recent circum-stances struck me pretty hard. Last July, for instance, I went down home to the ranch back in Texas. The drought had gotten so bad that the cows were eating mesquite bark, as all the prickly pear had been burned and consumed way earlier. Cracks in the ground swallowed whole trees. Wildfires grew rampant. Moreover, what few saddle-horses left on the range that were still alive were probably not going to be for long. Not a very welcome homecoming. So while there, my family and I made the rueful decision to sell off half the cows we had left from a previous drought-related dispersal two years before.

Then in October, four of the remaining cows floated away to the Gulf of Mexico during a horrific bout of flooding. At the time, the Nueces River swelled to three miles wide!

Sure, they were only cows. But, what kind of run of bad luck is that, anyway? One that I'd like not to have to repeat anytime soon.

Well, what's any of this got to do with

Y2K anyway? Well, it is clear that disasters don't happen only to livestock. Take the Northeast a few weeks ago. Would you not assume that it would take quite a blizzard to completely shut down the City of Buffalo, New York?

It probably wouldn't take much more than that kind of blizzard to seriously interrupt an otherwise comfortable life here in Central Oregon.

Think about it, how many times did the power go out during that brief cold spell we had last Christmas?

My point is even if a terrible Y2K computer-related disaster doesn't occur, it is wise to keep a few emergency items handy. A severing of water, power, or phone service may happen anytime.

There are six basics you should stock: water, food, first aid supplies, clothing and bedding, tools and emergency supplies, and items required by family members with special requirements.

The Extension Service has been given the responsibility to provide information regarding Y2K. And so, later this spring we will offer disaster preparedness instruction to talk further about the items mentioned above.

And just to be on the safe side, maybe I'll spend next New Year's Eve at Tonopah

**Garden tour set**

The Central Oregon Master Gardener Association, in conjunction with Oregon State University Extension Service is conducting their annual Garden Tour in Madras, Prineville, Redmond, Bend and surrounding areas. The Central Oregon Tour of selected gardens is July 10th, 1999.

Please call or mail names, telephone number and address of gardeners who want to participate in the Garden Tour by June 1st. Address: Deschutes Co. Extension, c/o Cheryl Crane; 1421 S. Hwy. 97; Redmond, OR 97756.

For further information contact Susan Strawn, chair person of the Garden Tour or Cheryl Crane, Educational Horticulture Assistant at the Deschutes County Extension office, 541-5488-6088 ext. 5.

**The OSU Extension Office would like to wish everyone a very "Happy Mother's Day"**

**Parenting Series**  
 When: Monthly  
 Time: 5:30 PM  
 Where: Education Building  
**DATES TOPIC**  
 May 20-Summertime activities - what to do with your child?

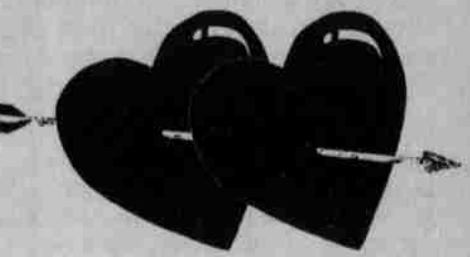
**"Graze right to prevent poisoning"**

By Bob Pawelek

Lupine is a beautiful wildflower, but it can also be deadly.

With a little common sense, however, the stockman can graze pastures with lupine as long as a few rules of good range management and livestock husbandry are carefully followed:

- \*Don't misuse the range so as to bring about the invasion of new poisonous species, or spreading those already present.
- \*Avoid pastures with overabundance of poisonous plants.
- \*Move animals slowly through areas where poisonous plants are present.
- \*Animals forced to remain on the range after they have used good forage species will eventually turn to poisonous plants.
- \*When animals have been deprived of forage, as during trailing or corralling, they should not be put on ranges containing poisonous species until they are well fed.
- \*Provide plenty of fresh water so they will not be encouraged to eat excess amounts of forbs to compensate for lack of water.
- \*Use plenty of salt and mineral.
- \*Most poisonous plants are not dangerous to animals, except in large amounts.



**STOCKMAN'S ROUNDUP: Getting it right from the start**



by Bob Pawelek  
 OSU Livestock Agent

Getting It Right from the Start  
 Planning a new garden can be a great deal of fun. The opportunity to act as creator can be very appealing. But anyone who has gardened for long has learned the necessity of accommodating nature and has developed a sense of humility in the process.

The hardest thing to convince new gardeners of is the need for patience. With the first warm day of spring they are eager to begin planting and nothing can stop them. Many of these bursts of enthusiasm yield

ill-conceived gardens doomed to failure.

The plants wither and the would-be gardeners become convinced that they lack some secret knowledge or inherent skill. In most of these cases, however, a few hours of planning and preparation would have made all the difference. It is quite easy to dig up a plot and throw some plants in the ground. It is another thing entirely to create a healthy, living garden.

**What Will Grow There?**  
 The first thing to determine is what will grow in the spot available for your garden. This is where many gardeners make their first mistake. Too often plants are purchased before thought has been given to the conditions under which they will have to grow.

The three chief factors determining what will grow in a particular spot are sunlight, the composition of the soil and soil moisture. While you can have some influence on soil composition and moisture, as far as sunlight goes, you're stuck with what you have. It is important to have a good idea of what amount of sunlight will reach your garden throughout the year. Plants that require "full sun" will generally need at least 6 hours of direct sunlight a day. Patches under large deciduous shade trees receive only mottled sunlight. In this situation there can be large variations in the amount of light hitting nearby spots, so generally you will want to find plants that require "half sun," or a few hours of direct sun a day. Other sites, like the north side of a building, are going to remain in

shade year-round. The shade garden requires the most careful planning, but there are many wonderful plants that will thrive in the darkest of shade.

**The Lay of the Land**  
 Next, you will need to determine what type of soil you'll be working with. The three main constituents of soil are sand, silt and clay. Sand has the largest particles and clay has the smallest, which is why it packs so tightly together. Silt particles are of intermediate size. An ideal garden soil, or loam, would be about 40% sand, 40% silt and 20% clay. The easiest way to see what type of soil you have is to dig a few holes and take some samples. There are a number of simple tests you can do to determine the composition of soil. One method is to take a fistful of soil and squeeze it into a ball. If it is unable to hold its shape, your soil is probably too loose, or sandy. Now try to break the ball apart by pressing on it with your thumb. A good soil will break apart readily; if not, you probably have too much clay in your soil.

Another method is to take a couple of cups of soil and put them in a half-gallon jar half filled with water. Agitate the mixture until all the soil is in suspension and then let it settle overnight. The next day you will see that three distinct layers have formed: sand at the bottom, then the silt and at the top a layer of clay.

**Amending Your Soil**  
 The best way to amend a poor soil, whether sandy, clay or silty, is to add organic matter.

If your soil is high in sand or silt, add a combination of topsoil and peat moss or compost. (Always moisten peat moss before adding it to your soil.) If the problem is too much clay, add peat moss or compost and some sand. Many

gardeners advise never adding sand to soil as it can sometimes create a kind of concrete. I have found this to be the case when dealing with urban soils, which can be 80% silt. But when used in addition to organic matter, sand can help loosen clay soils and allow for proper drainage. If your soil is very heavy, i.e., high in clay, you may want to work with a raised bed. This will provide your plants with a little more drainage than they might have otherwise and won't entail replacing several tons of soil. Landscape timber or stones can be used to create a short wall several inches high, or the soil can be gently sloped to prevent erosion.

**Keeping a Watch on Moisture**  
 Soil moisture is obviously tied to the climate of the area where you live, but even in a small yard there can be wide variations. If your garden is at the bottom of a hill, the soil may remain wet for long periods of time. In this situation, you can try creating a raised bed as mentioned above, but it is best to stick to plants that enjoy having their feet wet. Alternatively, if your plot is very dry, don't assume you'll be able to compensate by frequent watering. Select plants that will be happy in a dry place and you'll be able to take

that two-week vacation without worrying whether your neighbor has remembered to water every day for you.

**Don't Fight Mother Nature**  
 While some measures can be taken to make your garden a hospitable place for particular plants, your experience will be much more rewarding if you learn to work with nature. Yes, you may be able to plant your rose garden in that shady spot, but you'll need to feed the roses more fertilizer and spray more fungicide, and they still won't look as nice as if they were planted in full sun. And azaleas in bloom might look great at the front of your south-facing home, but if they were planted beneath some protection from the sun, they might not be constantly infested with lace bugs. Of course, you can spray them regularly with insecticide, but now your garden is becoming about as environmentally friendly as an oil refinery. Learn to work with nature and you will save yourself a lot of time, money and grief.