Rural Living Handbook

A Resource for Rural Living and Land Stewardship
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The material in this handbook is presented by the Linn Soil & Water Conservation District (SWCD) and other contributors as a convenient reference. The book is not intended to provide legal advice and should not substitute for specific technical advice from county, state or federal agencies. Neither the Linn SWCD nor its members make any express or implied warranties in regard to the accuracy or use of the material presented herein. This information was compiled over time. We thank all who contributed.
Introduction

What is the Linn Soil & Water Conservation District Rural Living Handbook?

This publication is intended to introduce current and prospective country property owners to available resources in our district. It will answer general questions on the management of land and livestock, water issues, wildlife and timber. Rural living requires self-reliance as well as developing good relationships with neighbors. Transitioning from “guaranteed” services in urban settings to the hard work of managing rural property may bring unexpected surprises for newcomers.

Rural living is, at times, not as idyllic as you may imagine. You may experience the following:

• You lose a kitten or baby lamb to a predator.

• Your garden is munched on by deer.

• You start a little burn pile which spreads to neighbors’ trees and property. And you receive a fine because it wasn’t a ‘burn day’.

• Many of the tree seedlings you planted have been gnawed on by voles or mice and now require sleeves.

• The neighbor calls to let you know that the spraying you did a couple of days ago has killed his prize roses.

• You discover that windy days bring power outages that may last more than a few minutes.

• You realize that your property’s access road is not publicly maintained and it is your responsibility to maintain it with rock and grading.

• The noise you hear at 3 a.m. is the neighbor doing some logging.

• You are responsible for the quality of water leaving your land.

Making a Plan

As you begin your life in the country, developing a management plan can be very helpful. Walk the property, draw sketches and take an inventory of assets already in place, as well as problem areas. The Linn Soil & Water Conservation District (SWCD), the Natural Resource Conservation Service (NRCS) and the Oregon State University Extension staff can assist you to develop forestry, grazing, farm, wildlife and wetland management plans.

If you choose to develop a management plan, contact information for resources are included on the back cover of the handbook.
Linn County History

When settlers first walked across the lower valley of Linn County during the 1840s and 1850s they told a story about grass growing so tall that if you took two pieces of grass and tied them together they would reach all the way across the pommel of a saddle.

Yet, before these settlers crossed into what is now Linn County, an Indian tribe called the Kalapuya or Calapooias, lived a peaceful life in the valley. Around the 1840s, the tribe declined rapidly.

According to Oregon State Archives, on December 28, 1847 the Provisional Legislature created Linn County from the southern portion of Champoeg (later Marion) County. The boundaries were altered in 1851 and 1854 with the creation of Lane and Wasco Counties.

The county consists of 2,297 square miles and is bounded on the north by Marion County; on the east by Deschutes and Jefferson Counties; on the south by Lane County; and on the west by Benton County. Linn County was named for U.S. Senator Lewis F. Linn of Missouri who was the author of the Donation Land Act that gave free land to settlers in the West.

Brownsville was the first settled community in 1846. Once formed, the first center of business and civic activity took place in Brownsville. Brownsville also was the first to organize the county and elect county officers. Although the county seat moved from Brownsville to Albany, Brownsville remained the county’s historical marker and is home to the Linn County Museum operated by the Linn County Parks and Recreation Department.

In 1851, the Territorial Legislature passed an act establishing Albany as the county seat. By 1863, the extension of routes across the county indicated Linn County was growing steadily in population and economic importance.

As population grew, settlers began various activities. In 1864, there were 181 farmers, four merchants, five carpenters, one manufacturer, two sawyers, two lumbermen, one packer, one potter, and one hotel keeper.

By 1882, the population of Linn County jumped to 12,677. Of its land base, 483,658 acres were under cultivation with a total value of $420,170,000. By 1930, the population was 54,493. The county focused mainly on agricultural development and livestock. In addition to many resources within the farming community, Linn County had 376,788 acres of timber lands.

Linn County Today

The county population has grown from 54,493 residents in 1930 to 116,672 in 2010. The top three industries are timber, grass seed farming (also number one in the state), and sheep farming.

The climate and soil conditions provide one of Oregon’s most diversified agricultural areas, allowing a wide variety of specialty crops. Linn County is also home to major producers of rare and primary metals, processed food, manufactured and motor homes, traditional logging, and wood products industries. Winter in Linn County is mostly rain with chances of snow and freezing temperatures in the hills. Summer weather is mild with rare 100-degree temperatures.

Fall and spring are also mild with cool mornings and evenings and warm days. Linn County’s principal points of interest focus around outdoor recreation and abundant natural resources. The Covered Bridge Scenic Byway is always beautiful; numerous communities hold summer festivals.

During the winter, Hoo doo Ski Bowl – about an hour’s drive east of Sweet Home – is a great place for skiing and snowboarding. There are also numerous trails along the Santiam Pass for snowshoeing and cross-country skiing.

A number of rivers and lakes within the county attract boaters and campers and the Pacific Crest Trail crosses through Linn County for day hikes and backpacking.
What is the Linn Soil & Water Conservation District?

The first conservation district to form in Linn County was the Linn-Lane Soil & Water Conservation district which was organized on December 23, 1946, and had as its first board of supervisors: Randall Grimes, chair; Reese Janigan; Wilbur Evans; A.B. Herman; and Ben Christensen. The original secretary was O.E. Milesell, county agent.

A second district, the East Linn Soil Conservation District, was formed in July 1954. The board included O.R. Griffen, chair; Leo Metcalf; Elmer Donicht; Joe Schlies; and Stan Lenox. The original secretary was O.E. Milesell, county agent.

The districts in Linn County were active in drainage improvement and flood control programs. They sponsored numerous projects through the Upper Willamette Resource Conservation & Development (RC&D) Council and through the Public Law 566 programs.

Some of the projects included the Lacomb Gravity Flow Irrigation System, Albany Monteith Park, Periwinkle Flood Control and Recreation Project, and the Little Muddy, Rowland, South Priceboro, Little Oak, Halsey, Peedee RC&D Flood Control measures, and the Grand Prairie Watershed Project in Linn and Lane counties. They also put a considerable amount of effort into improving the irrigation projects.

The current Linn Soil & Water Conservation District (SWCD) was organized on March 7, 1978, through a consolidation of the East Linn and Linn-Lane SWCDs. The district now includes almost all of Linn county (except a small portion near Sweet Home) and the Coburg community in Lane county.

The first board of directors of Linn SWCD included chair Paul Livingston, vice-chair Ernest Glaser, treasurer Lynn Barnes, Ben Christensen, Leonard Opel, Glenn Wilson, and Merwin Vannice. The district secretary was Kay Burton, who was hired by the district with funds furnished by Linn County.

Today’s Duties

By promoting the wise use of all natural resources, the Linn SWCD provides technical assistance to landowners and operators regarding soil and water quality issues. The responsibility for the natural resource programs includes the control and prevention of soil erosion, prevention of flood water and sediment damage, conservation and development of water resources, water quality management and protection (both surface and groundwater) and promotion of health, safety, and general welfare of the people, and a source of advice for the public.

The Linn Soil & Water Conservation District is run by seven elected directors who serve a four-year term as volunteers. These board members are local landowners and citizens with a commitment to the agricultural and natural resources of the area.

A board meeting is held at 7 p.m. on the second Tuesday of each month, at 33935 Hwy. 99E, Suite C, Tangent, OR 97389. The meeting is open to the public.
After passage of a State Act in 1913, counties began cooperation by appropriation of county funds for Extension work under the provisions of the same act. There was a gradual increase in cooperating counties up to the time of the outbreak of World War I.

In 1917, 14 county agents were employed. In 1937, for the first time, every county was cooperating in the employment of one or more Extension agents, and the number has rapidly increased since that time.

Today’s Services
The Oregon State University (OSU) Extension Service partners with Linn County to help you apply OSU research to your daily life. This research strengthens western Oregon’s economy, helps sustain its natural resources, and builds healthy communities, families, and individuals. OSU Extension Service provides educational programs in 4-H youth development, small farms, commercial agriculture, forestry, livestock and forages.

4-H Youth Development
4-H offers diverse, fun and hands-on programs for Linn County youth in the 4th through 12th grades. Programs include art, natural science, livestock, climatology, food and nutrition, technology and more. Animal science projects continue to remain among the largest and most popular of the programs.

Through 4-H activities and club meetings, members learn skills that help them to become productive, healthy citizens. They learn leadership skills, a sense of responsibility, public speaking, meeting etiquette, and people skills.

Youth and adult volunteers can join 4-H starting in October of each year. For more information, call the Linn County Extension Office at 541-967-3871 or visit www.extension.oregonstate.edu.

UPDATE
The UPDATE is a monthly publication owned and administered by the Linn County Extension Association. Articles within the UPDATE are provided by Linn County Extension service agents and other organizations that contract with the Linn County Extension Association.

Weeds, composting, gardening, crops, farming, and forestry are just a few of the topics discussed on a regular basis in UPDATE.

A monthly issue is provided in the Albany Democrat Herald or at the OSU Extension office (4th and Lyons, Albany, OR 97321).
Purchasing Rural Property

Living in the country can be very satisfying. Whether you raise crops and livestock or just enjoy cleaner air, open space and solitude, this section offers some tips to help first-time rural property buyers or those new to our district with considerations when purchasing.

First, understand your expectations of rural living. When you consider buying property, you will likely work with a realtor. Select a realtor that specializes in rural properties. He or she should be familiar with land use restrictions, water problems, and where to get answers to your questions.

Land Maintenance

Is your new acreage something you can manage? Do you have the equipment or will you have to hire someone to get the work done?

Water (see page 19 for more information)

Unlike city property with water and sewage connections, you will need to know if there is a reliable water source for home use and farm irrigation. If there is an existing well, it should be professionally tested for purity and adequate flow. If there is no well, it may make sense to make the sale of the property contingent on successfully drilling a well. It is also important to know if there are irrigation rights that apply to the property, the method of irrigation and point of allocation, such as well or surface water rights.

Septic (see page 19 for more information)

If there is a septic system, it should be professionally tested to assure that it is properly functioning. If there is no septic system, percolation tests should be professionally completed to assure that a new septic system will be approved for installation and will work. This should be completed before purchase of the property.

Power

Power hook-ups can be expensive in the country. The ideal homesite may require a costly power run. If you are on a tight budget, consider the cost of getting power prior to making an offer on the property. Don’t forget to include the telephone lines at the same time. For those considering going “off-the-grid” and generating their own power, a local resource can be found at www.homepower.com/home.

Communications

Can you get reception with your cell phone? What is the availability of internet services?

Animals

Farm animals require time and resources to properly care for them. Can you fix fences or trough floats? Have you checked into the proper ratio of livestock to the number of acres you have available? How will you manage odors and waste?

Timber

Does this property border forested areas? While you may enjoy the view, be aware that your neighbor may be planning to log his trees. High winds may also drop trees on your new fence, or your roof.

Legal Issues

County records should be checked to determine zoning, easements, surveyed property lines, and land use restrictions or permit requirements?
Building on the Land

To maintain the quality of life that attracted you to the area, certain rules, regulations and best management practices are in place. As you plan to make changes to your property, there are many resources available to assure the improvements are safe and legal.

Planning

Before calling the Linn County Planning Department, it is best to know exactly what your plans are. Most improvements require a permit of some kind. You can obtain information from the planning department about prior building, zoning, and septic permits issued, sales information, plat maps and tax assessment records, and maps of your property with overlays (zoning, flood plain, soils, aerial views, etc.).

All proposed building on your property must be reviewed and approved by the Planning Department. When you are ready to present your proposal to the Planning Department, you will first need to submit an accurate to-scale plan. The plan should include all existing structures, septic drain field and tank, well, and any proposed new structures or additions with distances to property lines.

Homesites

After purchasing your new property, a new house may be in mind, so make sure to plan for erosion control and keep away from flood plains and steep slopes.

Some other things to keep in mind:
- If installing a well or septic system, you’ll need to provide adequate space between them and your house.
- Wetlands, and riparian areas should be avoided.
- Create an area to control pets so they don’t disturb livestock.

Roads

There are many types of roads in Linn County; paved, asphalt, gravel, and dirt. Gravel roads are usually not paved because they have fewer than 100 people driving on them per day, or it may be someone’s driveway.

Living on some type of rural paved or gravel road means routine maintenance activities are less frequent. If the road is not maintained by the county, you will need to maintain it yourself. Building an access road (or driveway) for the first time? Finding the right contractor with experience is the first priority.

Public Services and Utilities

Public services and utilities are not always available in rural living. Water may have to be pumped into a well from underground or from a nearby stream (if a permit allows).

A septic tank and drainage field may have to be built underground on the property in order to have a septic system on the land. The ditch between your property and the main road may be your responsibility also, as the road department does not mow or spray for weeds in all parts of the county.

Electric lines are usually run to a home’s connection box, but if not, an alternative may be required. For example, solar panels, generators, or woodstoves can be used to generate heat and electricity.

Most city services come with rural living, but depending how far out of the city limits you live, services such as garbage, recycling, yard debris, natural gas, mail, cable T.V., or newspaper services may not be available. Check the phone book for local sanitation services, mail and cable companies.

**When building a good road you’ll need:**

- Culverts and drainages to control runoff.
- Location to follow the contours of the natural landscape to minimize excavation and runoff.
- Banks should be stabilized during construction and reseeded frequently to discourage the spread of noxious weeds.
- Stream crossings; on a salmon-bearing stream must be properly designed and permitted.

**CALL YOUR LOCAL UTILITY/POWER COMPANY BEFORE YOU DIG!**

You never know what kind of power cables or utilities are lurking in the ground. Striking one with your shovel may be a shocking surprise. Pacifice Power 1-888-221-7070 or Consumers Power 1-800-872-9036.
Being Neighborly

It is important to be a good neighbor in both rural and urban environments. Get to know your neighborhood before you move to the area. Remember the current residents moved there for fresh air, space and privacy too.

How to be a Good Neighbor

- Recognize that being neighbors is a two-way street.
- Respect your neighbors’ endeavors.
- Cooperatively build and maintain boundary fences to keep livestock from trespassing.
- Control your dogs so they will not harass or harm your neighbors’ livestock or create tensions.
- Recognize that some portions of the county are open range and livestock may be on county roads or in open areas.
- Recognize that moving livestock and farm machinery on county roads is necessary. Be cautious and prepare for delays.
- Understand that some practices, such as burning along irrigation ditches and running machinery after dark are common farming practices and necessary at certain times of the year.
- Prevent noxious weeds from moving from your property to your neighbors’ land via wind, water, or other means.
- Remember that it is unlawful to use country roadways as parking areas during yard sales or family gatherings.
- Realize that people who live in rural areas value their privacy and space.

Dogs/Domestic Animals

Though you may not think your dog is a pest, it can be to other farmers. Just like in the city, domestic animals should not roam at will. Dogs must be under control and on your property at all times. Free roaming dogs are a threat to neighboring livestock.

Farmers and ranchers have the right to protect their livestock. If they feel a threat, or if a dog attacks a farmer’s livestock, he has the right to destroy the animal. At the very least, you may be fined for the injured livestock and your animal’s behavior.

License and vaccinate your dogs against rabies. Tags and a collar are also essential to keeping your pets safe.

Fences

Fences and property lines are potential sites of conflict. By working with your neighbors to maintain these areas, there is opportunity to improve cooperation and build relationships with neighbors.

Properly maintained fences are important for the protection of livestock and wildlife, which may become entangled, injured and/or killed. See page 23 for fencing ideas and types of fences that will help you choose the right one for your needs.
Planting and Pest Control
Grass seed crops generally are managed in rows with specialized techniques. To control weeds and other pests, activated charcoal and a herbicide may be applied during seed planting. This process allows the grass seed to germinate and emerge unharmed.

Fertilizers are applied by a machine with large flotation tires, called a swamp buggy during the late winter or early spring depending on soil temperature and moisture level.

Cutting and Harvesting
Swathing (cutting the crop) usually begins in late June or early July, depending on seed variety and weather conditions. Grass is laid in windrows for 10-14 days until seed reaches 12% moisture to insure safe storage.

Cleaning for Shipment
Seed is sent to a warehouse after combining to be cleaned. After cleaning, seed is bagged and sampled for purity and germination. Some seed will stay local, but the majority of grass seed produced is sent all over the United States and to other countries. Japan is a major importer of grass seed grown in Linn County.

Straw Residue
After combining the seed, left-over straw remains as residue. In the past, farmers would field-burn about 250,000 acres annually. Today field burning is no longer allowed in most of Linn County (except a small section in the north). Most farmers use other options such as leaving all the straw on the field to decompose, baling the straw to sell for low-grade feed, using it for livestock bedding, or removing the straw and replanting the field using direct seeding techniques.

Check the local weather conditions, the Oregon Department of Agriculture, or the OSU Extension office for application methods and crop protection inputs.
Gardens

Growing your own garden, whether it is a vegetable or flower garden, is both enjoyable and satisfying. Time in the garden can reduce stress, save money, create an aesthetic environment, and provide wildlife habitat. Research and information can limit the frustrations of gardening in the region. The Oregon State University Extension Office Master Gardener Program in Linn County is an excellent resource to answer questions or provide training on gardening.

Climate
Like most of Oregon, the Willamette Valley has a winter rainfall climate. Precipitation usually comes from November through March.

The Willamette Valley sometimes gets late hard freezes causing plantings to heave. OSU Extension has a list of frost dates. These may differ in Albany (on the valley floor) or in Cascadia (at a higher elevation).

Winds are another common weather problem for seedlings and even established plants which may snap with high wind gusts. Plants also transpire (lose water by evaporation) at a faster rate under windy conditions.

Choosing a Garden Spot
Researching the different types of vegetables or flowers you choose to plant can save you a lot of energy. Each plant has differing needs. They each have different sun requirements, soil, and water exposure needs. Know the frost date on seeds; this must be taken into consideration when selecting seed variations.

Sunlight, water, and good soil are key points to growing nutritious vegetables and healthy flowers. Perhaps the most important thing you can do to maintain healthy soil is to regularly add compost.

By choosing a garden area in your daily route, you will more readily keep an eye on the plants and notice problems early enough to remedy.

Soil
Soil (or improved soil) is the basis of a healthy garden and nutritious vegetables, herbs or flowers. A soil test (see page 20) can help you understand your soil’s chemistry and what nutrients may be lacking. You can improve soil quality with reduced tillage and increasing organic matter. Compost and aged manure can be incorporated into your soil to feed microbes. Cover crops, planted in the fall and tilled into the soil in the spring, reduce erosion and add organic matter to the garden.

Pests
What may seem to be pests to you may not be pests to your garden. Bugs, such as spiders, praying mantis and lady bugs are beneficial to your garden. Working with these insects and other predatory insects will benefit your garden by keeping the real pests out. If you find your garden being overtaken by insects, try using the least toxic alternative for edibles.

Water Conservation Tips
Water conservation saves time, money and energy, and can improve the health of your plants. Some water-wise gardening tips to consider incorporating in your garden include the following:

• Group plants with similar water, soil and sun exposure needs.
• Select plants that are adapted to your site.
• Water in the early morning and avoid watering when the wind is blowing.
• Eliminate leaks inside and out.
• Keep irrigation water on target (off concrete).
• Apply water to the plant root zone (top 12”).
• Mulch to reduce evaporation.
• Consider planting drought-resistant varieties.
• Install an efficient irrigation system that fits your needs.

Refer to the OSU Extension website for more specific help and ideas for your garden:
Ponds and Water Storage

Building a pond on your property can be a complex, time consuming effort. The permit and approval process can be lengthy. There are many aspects to consider: rules, permits, planning, design and placement on your property. It may all be worth it when you can say, “Fish on!”

Ponds come in many sizes and types, from the vernal pool that dries up in the summer to the beaver pond that backs up a stream into that pond we visited in our youth. Ponds provide critical habitat for many species of plants and animals. They also provide recreational, agricultural and aesthetic benefits to the landowner.

Rights to Store Water

The construction of a reservoir or pond of any size to store water requires a permit from the Oregon Water Resources Department. If you are intending to use the stored water for an “out of reservoir” use, such as irrigation, you must have a secondary permit to do so.

Reservoirs with a dam 10 feet or more in height and that store 9.2 acre-feet or more of water require engineering plans and specifications approved by the Oregon WRD prior to construction. This will help ensure a sound dam with the necessary safeguards in place for the protection of downstream property owners. To learn more about permits for ponds, contact the Watermaster’s office.

The Western Region District 2 Watermaster is Michael Mattick, Central Lane Justice Court, 220 N. 5th St., Springfield, OR 97477, phone 541-682-3620. The Western Region Manager is Bill Ferber, 725 Summer St. NE, Suite A, Salem, OR 97301, phone 503-986-0893.

In addition to a water rights permit, any fill/removal activity in stream channels (perennial or intermittent), or in wetland areas will likely require a permit from the Department of State Lands (DSL), prior to any construction.

While ponds provide important habitat for turtles, frogs and many other species, they can impair water quality and aquatic life downstream. Unless the pond is disconnected from a waterway, the water in the pond will warm and grow algae before flowing downstream. This is of concern because many of the streams in our watershed are temperature impaired.

A poorly designed or constructed pond can be breached during a storm. Ponds can also be a liability to a landowner. Check your insurance coverage to assess the risk.

Key Points when Considering a Pond

1) Determine the pond purpose and type.
2) Evaluate the land for a suitable pond site.
3) Investigate the need for permits.
4) Understand the basic pond design process.
5) Find sources of technical and financial assistance.
6) Understand the construction process.
7) Record all information throughout the process of planning and building a pond.

Maintenance

A great deal of maintenance is required with keeping a pond. Proper maintenance will include keeping dikes clear of livestock and vegetation, as well as keeping your control structures in proper working order.

Harvesting Rainwater

Rainwater is a free source of water for gardening and landscaping. Rain barrels provide an easy way to store the rainwater. Do not drink the water as roofs pick up contamination from leaves, bird droppings, dust and other airborne particles. Do not collect rainwater if your roof is old tar and gravel, old asbestos shingle or treated cedar shakes.

Choose a rain barrel that fits your needs. They should be a solid color; translucent barrels encourage algae growth. A screened inlet prevents leaf litter and mosquitoes from entering the rain barrel. A secured lid makes the rain barrel safe for children.

Attach a hose bib to the base of the barrel to provide access for garden use. Overflow should be channeled away from a home’s foundation during a large rain event to prevent flooding the basement or crawlspace.

To calculate the number of gallons of rainwater you may collect in a year: multiply the roof area times the annual rainfall times 0.46.

A copy of the Water Resource Department’s “Water Rights in Oregon” is available in our office, 33935 Hwy. 99E, Suite C, Tangent, OR. or online at www.wrd.state.or.us/OWRD/PUBS/aquabook.shtml
Wildfires and Prevention

Each year, more and more people move into previously uninhabited, forested rural areas of Linn County. Dry, hot summer weather increases wildfire dangers. In addition, these remote areas have just as high a risk of structural fires as urban areas yet longer response times and limited water hydrants. Difficult terrain and unpaved roads all increase the risk of losing your home to fire.

Requirements

A fire needs three components to burn; oxygen, fuel, and heat. With oxygen all around us, heat and fuel are the controllable components. Fuel can be any dead or leafy material that will ignite, carry fire, and burn. In your backyard woodlots these fuels can be standing and fallen trees, shrubs, and ground cover.

Prevention

A treated wood shake roof is the number one cause of home loss from wildfires. Try replacing wood shakes with asphalt shingles, slate, or clay tile, metal, concrete products, or terra-cotta tiles when constructing your roof. Keep roof clear of leaves and other debris.

Create a safety zone. This zone should contain about 30 feet of defensible space on level or gently sloping ground and 100 feet or more on sloping grounds.

Maintain your lawn. Keep leaves, twigs, and other debris clear. Remove tree limbs to about 6 feet off the ground and spaced so crowns are at least 10 feet apart.

Even out of the safety zone, you should prune trees and limbs away from power lines and outbuildings.

When to burn

Under state law, a person must have a valid burning permit obtained from Oregon Department of Forestry or the local fire district to burn any material. On the day you plan to burn, call your local fire department or ODF before lighting the fire.

During fire season, Oregon fire prevention laws are required to be followed. Fire season typically begins in May or June and ends after the first fall rains. During fire season, burning restrictions apply and open burning may be prohibited. Also, public use restrictions may limit times that the public can perform various activities on forest land. These activities include off-road vehicle use, campfires, smoking, mowing, welding, using chain saws and fireworks.

In case of fire, prepare an evacuation strategy that includes a portable supply kit and a planned meeting place if you become separated. Disconnect gas lines and electricity at the breaker boxes if you have time.

Check with Oregon
Department of Forestry, 541-367-6108,
Backyard and Agricultural Burning 541-451-1904 or your local fire department for burn days and permits.
Small Woodland Management

If you have recently purchased forest land, you may be faced with the daunting task of managing these resources. Unlike seasonal farming or gardening, small woodlands tend to operate over longer time frames of years rather than months.

The Plan
What you do with the woods in your backyard depends on what you want to get out of them.

• Do you like the scenery of the woods and the animals it attracts?
• Do you want to log your timber and sell it?
• Do you want to use your trees as a tax break by saving carbon?

Knowing exactly what you want to do with your trees will help immensely when planning. Keep in mind that your backyard woods are like a garden that needs to be tended to get the best results. Trimming your trees’ lower branches, as they grow, makes them look nicer and more knot-free for the mills.

Pruning
Pruning is a time consuming task but it will help protect your trees’ health and possibly your safety. You should prune most broadleaf trees in the dormant season, when the tree structure is easy to see.

Although pruning is done primarily to enhance tree value, it can fulfill other objectives. Pruning in a large forest helps reduce fuel load and prevents fires from spreading by alleviating bottom fuel. Pruning also lessens the impact of blister rot in white pines and reduces incidence of leaf diseases.

Replanting
When planting or replanting the area you have chosen, the first step is finding out the soil conditions of the area. Knowing what type of soil you have will give you an idea of the types of trees that will grow best.

Hand planting is the best method for planting a small number of trees. Follow these methods when planting a tree:

• Plant trees at a depth right above where the roots stop at the “trunk” of the tree.
• Plant the tree in a vertical position to avoid crooked stem.
• Place roots in the planting hole without bending them.
• Carefully firm the soil around the roots to eliminate air pockets.

Remember, when planting, small trees are more vulnerable to climate than bigger, older trees, it’s crucial to keep them protected from weather. Planting the new trees next to an old tree trunk or brushy area will help protect the trees during cold seasons.

OSU Extension services/forester is available for assistance. If you are interested in learning more go to www.cof.orst.edu/cof/extended/extserv.
Forestry in Linn County

A healthy forest is characterized by vigorous trees that are resistant to disease, insect infestation, and animal damage. Trees are spaced far enough apart to allow sunlight to reach plants on the ground and are comprised of a diversity of species.

Large Timber Area

Agriculture and urban land uses occupy 460,000 acres in Linn County. Additionally, 508,000 acres of public land include the U.S. National Forest with 367,000 acres; U.S. Bureau of Land Management (BLM), 84,000 acres; and state, 7,000 acres. The total timber acreage in Linn County is 917,000.

According to the Oregon Forest Resources Institute, the 2008 timber harvested totaled 262,371 MBF (thousand board feet) in Linn County. Employment in the forestry and wood products industry in 2008 was 43,792 jobs.

Large private owners in Linn county include Hill Timber Interests, Giustiana Land & Timber, Giustina Resources, and Weyerhaeuser.

Types of trees

Linn County has conifer and broadleaf trees. Conifers have needles instead of leaves, produce their seeds in cones and are almost always evergreen. These include Douglas fir, western hemlock, grand fir, western red cedar, incense cedar, and Ponderosa pine.

Broadleaf trees have flattened leaves, produce their seeds in a variety of berries, nuts and samaras, and are generally deciduous. Broadleaf trees include white alder, red alder, Oregon ash, black cottonwood, big leaf vine maple, and Oregon white oak.

Managing / Harvesting

Whether you’re a small woodlands owner or a major corporation, a forest management plan should be written. It is important to verify property boundaries prior to harvest.

The Oregon Department of Forestry in Sweet Home (541-367-6108) offers technical advice through the Forestry Assistance program, which administers most cost-share programs for non-commercial forest and resource management activities.

ODF regulates forest management on private lands and provides fire protection. ODF administers the Oregon Forest Practices Act which guides all non-federal forest activities in the state.

The Oregon Forest Practices Act

- Limits size of clear cuts.
- Requires clear cuts to be replanted with “free to grow” trees within six years of harvest.
- Streams, lakes, and wetland buffers are required to protect water quality and fish habitat.
- Road building across water ways is strictly regulated to protect water quality and reduce the chance of erosion.
- Live trees, snags, and downed wood are left after harvest for wildlife habitat.
- Buffers are left to protect visual quality on designated scenic highways.

The Oregon Small Woodlands Association (503-588-1813) and Oregon Forest Resources Institute (971-673-2953) may also be contacted for more information on managing your woodlands.
Riparian Areas, Wetlands & Water Quality

Riparian areas are defined by the Natural Resources Conservation Service (NRCS) as ecosystems that occur along waterways and water bodies. They act as an interface and transition between aquatic lands and the terrestrial lands. Made up of unique plant communities, they comprise only a small portion of the landscape yet are critical areas of plant and animal diversity. If you have streams or surface water on your property, consider the following.

A Healthy System
A healthy riparian area will be highly vegetated with lush vegetation, good shade, and an abundance of woody and organic debris. This vegetation along the water’s edge improves water quality by filtering out sediments, chemicals, and excess nutrients from runoff. Plant roots provide the bank with increased stability.

Water retained in the soil releases slowly, enhancing stream flows and groundwater recharge. Slower water reduces erosion and property loss.

Native plants such as willow, red alder, and salmonberry function well in riparian areas to provide shade which keeps water cool in the summer, fish and wildlife habitat and hold soils to prevent erosion.

Enhancing Your Riparian Area
Increasing the width of the buffer along the waterway will enhance the ecological benefits of the riparian area. Widths of 50 feet trap eroded soils, 100 feet will filter pollutants and 200-300 feet widths provide wildlife corridors.

Good upland practices, such as erosion control and pasture management, are also necessary to maintain the health of the land and water. This includes fencing livestock out of riparian areas and removing noxious weeds.

Mechanical removal of weeds is best, but some chemicals are approved for use near water. If weeds are removed, you should plant with native plants as soon as possible.

Check with Linn SWCD for riparian enhancement programs.


Wetlands
Wetlands are unique ecosystems that often occur at the edge of aquatic or terrestrial systems. They may be wet year-round during certain seasons, or just part of the day. The flow of water, the cycling of nutrients and the sun’s energy create an ecosystem characterized by its hydrology, soils and vegetation.

The Clean Water Act defined wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.”

Wetlands also include tidal marshes, forested wetlands and seasonally ponded sites, such as vernal pools. Seasonal wetlands often dry out and may not appear to be wetlands. Their two primary characteristics are hydric soils and water-tolerant plants.

Because they exist where land and water meet, wetlands are often used by animals from both wet and dry environments. A number of invertebrate, fish, reptile, and amphibian species depend on wetlands to survive or complete their life cycles.

Wetlands are home to nearly all amphibians and nearly 50 percent of migratory birds use wetlands regularly.
Agricultural Water Quality Protection Rules and Plans

As a landowner you should be aware that you are responsible for water quality issues on your property.

Program Overview
The Agricultural Water Quality Management Program is responsible for developing and implementing agricultural pollution prevention and control programs to protect the quality of Oregon’s waters. In 1993, the Agricultural Water Quality Management Act (formerly known as SB1010) was created with assistance from the agricultural industry and the State Board of Agriculture. This Act and further legislation in 1995 made the Oregon Department of Agriculture (ODA) responsible for water quality issues related to agricultural and farming practices.

The ODA worked with SWCDs and Local Advisory Committees (LAC) composed of local farmers, ranchers, and community leaders to create 39 geographically distinct Area Plan and Rules.

Regulatory Outline
The focus of the program is on voluntary and cooperative efforts by landowners, ODA and others to protect water quality. However, the Act also provides a regulatory backstop to ensure prevention and control of water pollution from agricultural sources in cases where landowners or operators refuse to correct problem conditions. Agricultural water quality regulations serve as this backstop while allowing landowners flexibility in how they protect water quality. Local area regulations describe characteristics to be achieved rather than practices that must be implemented. For more information and the local area plans and rules, visit the ODA website at: www.oregon.gov/oda/nrd/water_agplans.shtml. To notify ODA of a problem, the complaint form can be downloaded at: http://www.oregon.gov/ODA/NRD/docs/pdf/water/wq_complaint_form.pdf.

Soil Erosion
Erosion is not allowed from agricultural lands due to management practices where sediments have the potential to impact the waters of the state and cause pollution. Sedimentation of nearby waterways can occur with any type of activity that disturbs the soil, including home building. Measures should be taken to avoid runoff and erosion.

The intent is to prevent erosion from agricultural and land development practices. One of the main concerns is ground being left bare going into the winter without adequate vegetation to prevent soil erosion. Grass filter strips can be used to settle out sediments from water leaving the bare areas.

Riparian Vegetation
Agricultural practices should not cause stream banks to slough off at a rate more than normal for that particular system or prevent appropriate vegetation from establishing and reproducing, leaving the stream side area vulnerable to high flow events.

A combination of deep rooted trees, shrubs and grasses are needed to support stream side soil systems and limit erosion. Willows, sedges and snowberry are deep rooted plants that can help protect the stream banks. Vegetation is required along perennial streams to provide shade, streambank stability, and infiltration of overland flow.

Crop Nutrient or Animal Waste Management
You must prevent manure and fertilizers from leaving your property and entering waters of the state. Small acreage landowners are especially vulnerable to this rule. Stored waste from barn cleanings or feeding areas could leave the property if water gets in it from rain, runoff, or if stored in a flood plain.

Paying attention to where you put your manure pile, covering it and diverting clean water away from it are all easy ways to stay in compliance. The best way is to compost it and use it on your own property.
Irrigation Water Management

Proper irrigation water management will save money when producing crops. Knowing when and how much water to apply at the correct rate is invaluable.

Irrigation water rights are appurtenant (attached) to individual parcels of land. Irrigation districts provide the infrastructure to deliver the water, and therefore assess annual charges to maintain their systems.

Linn County has three irrigation districts/projects:
- Muddy Creek, 541-995-6332 (ask for Jane), Lacomb 541-451-2869, and Grand Prairie, 541-926-7500.

Water Rights and Management

Irrigation rights are disclosed upon the sale of the property. You can also contact the local Watermaster to verify a water right. He can tell you which irrigation district provides your irrigation water and answer other questions related to your water rights.

If you do not have an irrigation water right, you can apply for a permit through the Oregon Water Resources Department (WRD). Watering for domestic use, watering cattle, and irrigating your lawn or garden (non-commercial and no more than 1/2 acre) are exempt from the permit process.

You need to obtain a water right before you divert any water from a stream, even if the stream crosses your property.

Water Conservation

Maximum efficiencies may be reached utilizing the correct system and management techniques for your application. This can save the land owners money by reducing energy costs and increasing the amount of land irrigated.

Drip irrigation uses the least amount of water and is the most efficient. This system requires good water quality to avoid emitter plugging, maintenance and an initial investment. It is used for trees and other single plants.

Sprinkler irrigation includes handlines, wheel lines, and center pivots.

“Big gun” sprinkler irrigation applies excess water and doesn’t work well on clay-type soils.

Flood irrigation uses lots of water and is the least efficient. It is important to add fish screens to irrigation intake pipes and diversions so that fish don’t get sucked in!

Southern Willamette Valley Groundwater Management Area

In May of 2004, the Department of Environmental Quality declared a portion of the Southern Willamette Valley a Groundwater Management Area (GWMA) due to elevated groundwater nitrate levels. In December 2006, after significant debate and research, the GWMA stakeholder committee Action Plan for the GWMA was finalized and accepted. This action plan is not a regulatory document, but includes many recommendations and voluntary strategies to address the issue of excess nitrate in regional groundwater. Currently, 93 percent of the land area within the GWMA is in agricultural use. Although agricultural use makes up the vast portion of land area, there are also many non-agricultural potential sources of nitrate. To address this, the action plan provides recommendations and strategies to reduce nitrate inputs as related to four focus sectors: (1) agricultural, (2) residential, (3) commercial / industrial / municipal and (4) public water supplies. Some of the agricultural recommendations and strategies are already accomplished by or included in this document, and some will likely be incorporated and developed over time. In Linn County, the east boundary of the GWMA is I-5 from just south of Coburg north to the intersection of I-5 with Muddy Creek. The east boundary of the GWMA then follows Muddy Creek until its confluence with the Willamette River near Corvallis. For more information on the GWMA go to: http://gwma.oregonstate.edu/.
Wells and Septic Systems

To keep you and your family safe, you should protect, test, and purify the water.

Locate your well.
It may be somewhere other than where your pump or pressure tank is. Most wells have a 4” to 8” diameter metal pipe (the casing) lining the hole. In some older wells, the casing doesn’t reach the surface, and the wellhead is underground. If you have an underground wellhead, or one that isn’t very high above ground level, you need to be especially sure that surface runoff is diverted away from the well area. Locate all wells around your home; inactive wells that haven’t been properly sealed are very risky. For information on abandoning wells or to order well records (logs), contact the Oregon Water Resources Department (503) 986-0893. Well logs can be used to get information about groundwater in an area prior to drilling a well or buying property.

Locate your septic tank.
Use the map of your property. Your county building or health department may be able to provide you a copy. If you can’t locate a copy of the map, follow the discharge pipe from your house. Poke into the ground with a rod to determine the exact location.

Locate your drain field.
This is a set of underground pipes that distribute waste water from the septic tank through the soil. Protect your drain field from damage by excluding vehicles, heavy equipment and large animals. Wet spots in this area indicate a failing system that needs professional attention. Do not add or remove surface soil in the drain field area. Only grass should be grown over a drain field.

Have your water tested.
Water from household wells should be tested every year for coliform bacteria, arsenic and nitrates. You can order additional tests if you suspect other contaminants. Check prices before ordering tests. A list of state-certified labs and information on water testing are available from your county health department, the OSU Extension Service or the Oregon Health Division.

Have your septic tank pumped.
Frequency of pumping depends on your household and septic tank size. Generally, a family of four needs to pump every 3 years. Neglecting septic system maintenance can result in backed-up sewage, expensive repairs, and contaminated surface seepage that can pollute your well water.

Use less water.
Drawing water up your well can pull nearby groundwater pollution toward your home. The more groundwater you use, the greater the risk. Also, your septic system functions better if less water goes down your drain.

How Safe Is Your Well and Septic System?
• Is your well at least 50 feet away from the septic tank and 100 feet from the drainfield?
• Has a well test within the last year shown acceptable results for bacteria and nitrate?
• Do you keep fertilizers, pesticides, fuel tanks, and animals away from your well?
• Are you sure there are no old, unused wells on your property?
• Has it been less than 5 years since you last pumped the septic tank?
• Do you know how to maintain your well and septic system to protect your drinking water and avoid costly repairs?
• If you answered “no” to any of the questions, contact your OSU Extension Service agent to help you protect your drinking water supply, your family’s health, and the investment in your rural property.

Remove any chemicals stored in your well house.
Spilled chemicals can reach your well water by entering the top of the casing or by wicking through the soil down the outside of the casing.

Ensure that a sanitary seal caps your well.
The seal prevents foreign objects from entering your well.

Install backflow protectors on all outdoor faucets.
In some cases, water can siphon backwards through a hose and down the well.

Limit your use of lawn and garden chemicals.
Excess fertilizer moves easily through the soil to the groundwater and contributes to high nitrate levels. Don’t store or mix pesticides and fertilizers where spills can enter the soil and eventually reach the groundwater that supplies your drinking water.

Protect the soil from contamination by oil, gasoline and household chemicals.
Never dump motor oil, gasoline, furniture polish, cleaning fluids, paint thinners and other chemicals on your property and never pour them down the drain. Refuel equipment over a hard surface.

Shield animal waste from rain.
Animal yards and piles of composting manure are sources of bacteria and nitrates which could contaminate your drinking water. Take steps to prevent runoff and soil seepage.

Courtesy Oregon State University Extension Service, EM8651
Soils are developed over hundreds to thousands of years. Climate, water temperature, and parent materials all contribute to soil creation. Parent materials can include bedrock, volcanic ash and glacial outwash. Soils are also fragile. Soils are susceptible to erosion when not adequately protected.

Testing Information
Soils should be tested before any cropping decisions are made. Knowing what lurks in your soil before making planting decisions will allow you to match the best crop with your soil and add nutrients, if needed. After your initial test, follow up tests are required:
- Every three years for perennial grass seed, legumes, and pastures.
- Soil testing is not necessary for established fruit trees, berries, or grapes. A foliage sample is preferred.
- Your local chemical supply company field representative may be willing to sample your soil.

How to sample soil yourself:
- Sampling should be done where the crop will be planted.
- Avoid areas where you won’t be planting or you shouldn’t be planting (former manure piles or fertilizer bands)
- Take between 15 and 20 samples within the area to be planted. Make sure not to take them all in one spot.
- Clean off old dirt from sampling tools before using. Any residue of fertilizer or other chemicals on the tools or hands can contaminate the soil sample.
- Take the sample 6-9 inches deep.
- Once all 15-20 random samples are taken within the sampling area, mix them thoroughly together.
- Mail the samples to a soil testing facility for analysis and results.

Erosion Control
Basic, simple knowledge about your soil and land will be your guide to control soil erosion. Soil erosion is the loss of soil through two main sources, water and wind. Humans are accelerating erosion through overgrazing, poor farming techniques, excessive watering, and poor irrigation and drainage systems.

Knowing what type of plants work best for your soil is another way to control soil erosion. The right plants growing in the right soil will act as a shield to the soil and the force of water, thereby protecting against soil erosion. Certain plants will also act as buffers along streams and waterways by ‘digging’ their roots into the soil.

Soil Saving Tips
- Keep all highly erodible soils on your property well covered with some type of vegetation or other erosion control method.
- Cover crops, sod-forming grasses, native plants and ground covers are excellent soil protectors.
- Reseed immediately with weed-free grass seed after earth disturbing activity.
- Grade and reshape roads and building sites to direct water to safe outlets and prevent standing water on soil.

To find out what plant life will work best for your soil and waterways refer to the “Guide for Using Willamette Valley Native Plants Along Your Stream.” You can find this guide at Linn SWCD office. Your local OSU Extension Office offers multiple resources as well.
Improving Soil Fertility

As we ponder our plots of land and wonder how to achieve our dreams of agricultural production, some of you might think: What are some features of good soil?

Any good farmer will tell you that a good soil:

- feels soft and crumbles easily
- drains well and warms up quickly in the spring
- does not crust after planting
- soaks up heavy rains with little runoff
- stores moisture for drought periods
- has few clods and no hardpan
- resists erosion and nutrient loss
- supports high populations of soil organisms
- has a rich, earthy smell
- does not require increasing inputs for high yields
- produces healthy, high quality crops

All these criteria indicate a soil that functions effectively today and will continue to produce crops long into the future. These characteristics can be created through management practices that optimize the processes found in native soils.

Understanding the principles by which native soils function can help farmers develop and maintain productive and profitable soil both now and for future generations. The soil, the environment, and farm condition benefit when the soil’s natural productivity is managed in a sustainable way. Reliance on purchased inputs declines year by year, while land value and income potential increase. Good soil management produces crops and animals that are healthier, less susceptible to disease, and more productive. To understand this better, let’s start with the basics.

Soils are made up of four basic components: minerals, air, water and organic matter. In most soils, minerals represent around 45% of the total volume, water and air about 25% each, and organic matter from 2% to 5%. The mineral portion consists of three distinct particle sizes classified as sand, silt or clay. Sand is the largest particle that can be considered soil.

Sand is largely the mineral quartz, though other minerals are also present. Quartz contains no plant nutrients and sand cannot hold nutrients – they leach out easily with rainfall.

Silt particles are much smaller than sand, but like sand, silt is mostly quartz. The smallest of all the soil particles is clay. Clays are quite different from sand or silt, and most types of clay contain appreciable amounts of plant nutrients.

Clay has a large surface area resulting from the plat-like shape of the individual particles. Sandy soils are less productive than silts, while soils containing clay are the most productive and use fertilizers most effectively.

Soil texture refers to the relative proportions of sand, silt, and clay. A loam soil contains these three types of soil particles in roughly equal proportions. A sandy loam is a mixture containing a larger amount of sand and a smaller amount of clay, while a clay loam contains a larger amount of clay and a smaller amount of sand.

Another soil characteristic – soil structure – is distinct from soil texture. Structure refers to the clumping together or “aggregation” of sand, silt, and clay particles into larger secondary clusters. If you grab a handful of soil, good structure is apparent when the soil crumbles easily in your hand. This is an indication that the sand, silt, and clay particles are aggregated into granules or crumbs.

Both texture and structure determine pore space for air and water circulation, erosion resistance, looseness, ease of tillage, and root penetration. While texture is related to the minerals in the soil and does not change with agricultural activities, structure can be improved or destroyed readily by choice and timing of farm practices.
Raising Livestock in Linn County

Linn County has a diverse and growing livestock population. An area that was traditionally dominated by cattle, horses, and sheep is increasingly seeing new species such as llamas, alpacas, goats and other species that can be managed on small acreages.

Sheep

Sheep are second only to grass seed in terms of farm production in Linn County. Sheep farmers make money by selling lambs, wool and related by-products.

One ewe will eat 0.1 ton/month of hay or requires .2 Animal Units per Month (AUMs) of grazing. They require maintenance for clipping wool once a year, shelter in the winter months, and yearly vaccinations.

Cattle

Some families have two or three cows for their own use while others may have a cow-calf operation or feedlot. Dairymen make their money by producing and selling dairy products and ranchers can sell their weaned calves to the feedlots.

A 1,000-pound cow will eat .4 ton/month of hay or requires 1.0 AUMs of grazing with about 12-20 gallons of water per day.

Cattle typically prefer grass over forbs such as clover and other broad leaf plants which can make grazing cattle with sheep a very good pasture management tool. Grazing cattle on annual grasslands, at the right time of the season, can reduce yellow-star thistle and other weedy infestations.

Horses

Horses are bred for trail riding and pleasure, show, rodeo, and working on the farm.

One horse will eat .5 ton/month of hay or requires 1.25 AUMs of grazing. Horses may require more maintenance than other livestock. It is important to remember that working/riding horses have good shoes, vaccinations and shelter.

Goats

Goats are fairly low maintenance but require good nutrition in their diets. They are not the “eat everything” characters depicted in cartoons.

Goats need many acres to roam to stay worm and disease free. Just like sheep, yearling goats can be sold for meat, milk and other dairy products along with the wool.

Goats eat about .1 ton/month of hay or require .2 AUMs of grazing/month. Though low maintenance, things such as vaccinations, good fencing (woven/non climbing wire fences) and shelter are necessary.

If raising Angora goats, their wool needs to be sheared twice a year.
Fencing

Linn County has both Open and Closed range. Closed range areas are west of Foster Reservoir and within the valley floor while open ranges are mostly east of Green Peter Reservoir.

Open Range
In the upper, forested areas near Foster Lake, keep a lookout for cattle. This is an area of open range. Open range is a large piece of land that has been dedicated to livestock, meaning cattle, equidae (horses, donkeys, mules, etc.), sheep, and goats to roam free outside the owner’s property lines.

If you are living within open range, it becomes your responsibility to keep any livestock off your property, not that of the livestock owner.

**Oregon law restricts swine of any kind to roam free outside owner property lines, even if you are living within open range areas.

Closed Range
Linn County is mostly a closed range area. Closed range is an area where livestock cannot roam freely. Within closed range it becomes the owner’s responsibility to keep livestock within property lines.

There are many different types of fencing options for keeping your livestock in and other livestock out. Picking the right options depends on the types of animals you have and want to keep out.

### Fencing Options

<table>
<thead>
<tr>
<th><strong>ADVANTAGES</strong></th>
<th><strong>DISADVANTAGES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4-STRAND BARBED WIRE</strong></td>
<td>Can injure horses, llamas, and wildlife. Place wire to allow wildlife to safely pass. Labor and material costs are high. Periodic maintenance required.</td>
</tr>
<tr>
<td>Good control of cattle</td>
<td></td>
</tr>
<tr>
<td><strong>WOVEN WIRE</strong></td>
<td>Extremely unsafe for wildlife. Limit use to small areas near buildings. Land material cost high. Some maintenance necessary.</td>
</tr>
<tr>
<td>Good control of sheep. Add 2 upper strands of barbed wire for cattle. May keep some predators out.</td>
<td></td>
</tr>
<tr>
<td><strong>4-TO 10-STRAND SMOOTH WIRE</strong></td>
<td>Labor and material cost high. Periodic maintenance required.</td>
</tr>
<tr>
<td>4- to 5-strand good for horses, less harmful to wildlife. 8- to 10-strand will contain large exotic animals. Durable.</td>
<td></td>
</tr>
<tr>
<td><strong>ELECTRIC</strong></td>
<td>Weathers poorly. Don’t use in lengths over 1,000 ft. Requires regular maintenance. Needs solar or electric power source.</td>
</tr>
<tr>
<td>Good for establishing pasture rotation program on small acreage. Lightweight, portable, easy to set up or dismantle before and after irrigation. Less expensive.</td>
<td></td>
</tr>
<tr>
<td><strong>JACKLEG</strong></td>
<td>High labor and material cost during construction.</td>
</tr>
<tr>
<td>Aesthetically appealing. Very durable. Withstands heavy snow. Good in areas where it is hard to dig or drive post. Can be adapted for marshy, wet areas. Low maintenance.</td>
<td></td>
</tr>
<tr>
<td><strong>POST AND POLE (RAIL FENCE)</strong></td>
<td>Less durable in high rainfall areas.</td>
</tr>
<tr>
<td>Durable. Withstands heavy snowfall. Low maintenance, less harmful to wildlife. High labor and material cost.</td>
<td></td>
</tr>
<tr>
<td><strong>HOG PANELS</strong></td>
<td>Appropriate for only a few sheep or other small animals. Should be moved once or twice each day.</td>
</tr>
<tr>
<td>Can be formed into small, portable pen. Wheels may be attached to make moving easier. Good for establishing rotation grazing for a couple animals on a small acreage. Inexpensive and easy to construct.</td>
<td>(Adapted from “Tips on Land &amp; Water Management for Small Acreage in Oregon”)</td>
</tr>
</tbody>
</table>

(Adapted from “Tips on Land & Water Management for Small Acreage in Oregon”)
Animal Density

“Do I have adequate acreage to support the livestock I want to raise?” is a question you want to consider to ensure healthy animals and healthy pasture.

Pasture Layouts

Timing, intensity and duration of livestock grazing can have a dramatic impact on individual plant vigor and overall pasture production.

Here are a few options to choose for your pasture layout:

Exercise lot (1 acre or less)

The exercise lot is used for exactly that, “exercising” the animals; it is not meant for all day use. These lots will not provide enough food for the animals, so the bulk of the feed will come from hay and grains. Also, with close quarters, manure will build up and need to be hauled away often.

Full-time pasture (1 to 5 acres)

Higher forage occurs with larger pastures broken into multiple smaller pastures, or paddocks (1 to 5 acres). Rotating livestock every few days or weeks gives each paddock a chance for regrowth and helps stabilize manure nutrients to the soil, causing less work and lower feeding cost. Increased cost comes from more fencing required to break-up the pasture areas.

Hay and pasture-field (5 acres or more)

With 5 or more acres, you can manage for pastures or grow hay. Make sure to check into all costs of haying production. Without enough livestock on these pastures you may need more fertilizer (besides manure) to produce enough forage to hay.

Grazing

Severe grazing: Livestock will graze “buffet style” by choosing what they want to eat; the new, tender forage. This will cause forage to die and weeds to grow-in as the forage isn’t given the opportunity to mature.

Rational grazing: With multiple small paddocks, rotate livestock in paddocks with forage 6 to 8 inches high, and move them to a new paddock when the grass is grazed to 3 inches in height. Through rotation, the paddocks will have a rest period for regrowth.

Basic Techniques for Healthy Pastures

- Drag pastures to break up and evenly distribute manure, following grazing.
- Irrigate pastures following grazing rather than prior to grazing.
- Adjust animal numbers and management based on pasture production and regrowth.
- Have water, salt, and minerals constantly available and dispersed to distribute livestock evenly across pasture while keeping them healthy.
- Streams should be fenced off so that manure and other sediments are kept away from water resources.
- Adequate sources of drinking water should be available for animals.
- Grass and tree buffers are set up along stream/river banks for preventing erosion.
- Pastures should not be grazed in wet winter months to minimize compaction. Compacted soil restricts root growth and prevents water from moving through the soil to roots.
- If the soil is already compacted, aerate the pasture in spring/summer when the plants are in a vegetative state.

Grazing and Pasture Management

Pasture management plays a big role in the cleanliness of your farm. Managed grazing is one of the best tools available for improvement and maintenance of healthy, productive pastures. Increased infiltration of rainwater, water quality, organic matter, rooting structure, plant health, and animal production, as well as decreased weed invasion, soil erosion, and pesticide use are all benefits of proper grazing management.
Manure Management

Poor Management
Poor manure management can be costly to your animals and farm.
• Flies breed in raw manure.
• Large build-ups of manure can cause thrush, rain scald, and other diseases in livestock.
• Respiratory problems may occur in horses and cattle from dried manure.
• Excess manure on the land causes fertilizer over-load. Animals can suffer poisoning from over-fertilized grasses.

Prevention
• Store manure piles inside under properly constructed, covered facilities during the winter months and keep the pile covered with tarps outside in the spring/summer months.
• Keep manure away from wellhead.
• Keep animals fenced away from flowing water sources and wells to keep fecal matter and other health hazards out of the water sources.
• Divert surface drainage from higher ground around animal yards to help prevent manure run-off into water sources.

These steps will help keep contaminants from getting into your drinking water, surface and groundwater.

Using Manure to fertilize pastures
One 1,000 lb. horse, one 1,000 lb. beef cow, three 150 lb. pigs, twelve 100 lb. sheep, six 100 lb. goats or four 300 lb. llamas on a one acre paddock will provide enough fertilizer needed for the pasture. If the capacity of your property is exceeded, you will need to export either manure or compost.

June, July, August
Manure is applied to pastures and hay ground to match plant needs. Some animals will not graze pastures with freshly applied manure. In this situation, the manager has two or more pastures to graze animals. If the manure has not been composted to kill parasites, the deworming program is continued.

September, October
This is the critical time of year for managing manure in an environmentally sound manner. Soil conditions produce nitrates that may leach into water with the first fall rains and continue through the winter. No manure is applied to annual crops where growth has slowed or stopped. Some manure may be applied to growing grasses or a cover crop, according to soil test recommendations.

November, December
No manure is applied. Manure pile is covered.

It’s the law.
You are responsible for managing manure to protect surface water and groundwater. Federal and state laws forbid discharging animal wastes into water. Manure management facilities can be an asset under today’s regulatory requirement.

Linn SWCD and USDA-NRCS may provide on-site technical advice on managing manure, designing roof runoff systems, and improving water quality. OSU Extension Service offers workshops and publications on manure management and composting.

Courtesy OSU Fact Sheet No. 11, Managing Mud and Manure in Oregon -Tips for Small Acreages in Oregon.

A Year in the Life of a Manure Manager
January, February, March
No manure is applied to frozen or saturated soils, to frequently flooded land, or on days when heavy rains are forecast. Manure is applied at low rates on land with well-drained soil and actively growing grass. In the Willamette Valley and eastern Oregon, grass begins to grow in March and April, respectively.

April, May
Manure from the storage facility is tested for nutrients and applied to match plant needs. Manure buildup is removed from animal yards and is spread on pastures, cropland and gardens.

Storing manure in the winter months
A closed area is needed in the winter months to prevent rain from causing manure run-off. How much storage space will you need?

<table>
<thead>
<tr>
<th>Livestock storage for 6 months</th>
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<tbody>
<tr>
<td>Horse</td>
<td>72 square feet</td>
</tr>
<tr>
<td>Cattle</td>
<td>72 square feet</td>
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<tr>
<td>Sheep/Goat</td>
<td>6 square feet</td>
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<tr>
<td>Pig</td>
<td>12 square feet</td>
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<tr>
<td>Llama</td>
<td>12 square feet</td>
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</tbody>
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Composting

If you’ve been stockpiling your manure in a single pile for as long as you can remember, if you dig into it, you may find something that resembles dirt more than it does manure. If this is the case, at least some of your manure has already gone through the decomposition, or composting, process.

Manure that has been left uncovered in large, spread out piles will eventually decomposes. However, this version of manure storage often creates unpleasant odors because there is not enough air reaching the inside of the pile. Surface and ground water pollution may also be caused by this method.

These piles also rarely reach high enough temperatures to kill parasites, fly larvae, weed seeds and pathogens. The following information on composting will help you learn how to compost all of your manure, instead of what’s just in the middle, speed up the process dramatically, and help heat manure up to temperatures that will kill parasites, fly larvae, weed seeds, and pathogens.

What does compost do? It can improve aeration and water retention. Adding compost to soil builds good soil structure and texture, increasing air infiltration and the amount of water it can hold.

Adding compost to heavy clay soil loosens the packed soil by opening up pore spaces that, like little tunnels, carry air and water down into the soil. Sandy soils, which tend to let water drain away too rapidly, are also improved with the addition of compost. The fine particles are united into large ones that can hold a greater amount of water; 100 pounds of compost can hold about 195 pounds of water. By increasing the soil’s moisture-holding capacity, compost also helps control erosion that would otherwise wash topsoil away.

Compost also supplies nutrients. When fresh manure is spread on a field, about 50% of the nitrogen is in a highly soluble form and will be washed out by rain when it is spread on a pasture.

In compost, however, 95% to 97% of nitrogen has been converted to a much more stable form and will be slowly released, allowing plants to use it over a longer period of time.

Compost does out nutrients slowly when plants are small and at greater rates as soil temperatures warm up and the major growth period begins.

The benefits of adding compost will also last for more than one season. Composted manure releases about 50% of its nutrients in the first season and a decreasing percentage in the following years. This means that with constant additions of compost, the reserves of plant nutrients in the soil are being built up to the point where, for several seasons, little fertilizer of any kind may be needed.

Maintenance of the compost pile involves turning the pile and adding water to maintain conditions conducive to the composting process. If the pile is not turned, decomposition will occur, but at a slower rate.

The following maintenance procedure will yield compost in the shortest time:

Turning a compost pile weekly can yield compost in one to two months with the right combination of materials and moisture content. Without turning, decomposition takes six months to two years. Excellent quality compost can be made either way. When selecting a composting method, consider economy, neatness, permanence, need for finished compost, and time available for maintenance.

In a pile constructed according to the method described here, the pile temperature will increase rapidly and soon reach about 110 degrees Fahrenheit.

After about a week, the pile should be opened to the air and any compacted material should be loosened. Then the pile should be reconstructed; material previously on the top and sides of the pile should be moved to the center.

At the second turning, the material should be a uniform coffee-brown color and moist. The relatively undecomposed outer layer can be scraped off and turned back into the center of the pile.

The center material should be spread over the outer layer of the reconstructed pile. By the third turning, the original materials should not be recognizable. At each turning, the moisture content should be checked using the squeeze test. Squeezing a handful of compost you should be able to make some water droplets appear around the edges. If you can’t squeeze some water out of the compost, it is too dry.

During the first few weeks of composting, the pile should reach a peak temperature of about 140 degrees Fahrenheit, the pile should be turned to cool it off. Extremely high temperatures can kill many beneficial organisms. If the pile does not reach at least 120 degrees Fahrenheit, more nitrogen or water may be needed. Piles that give off strong ammonia smells contain too much nitrogen, and may need more high-carbon ingredients.

The compost will be finished when the pile cools off and decreases to about one-third of its original volume. It will be dark, crumbly, and have an earthy odor.

The C:N (carbon:nitrogen) ratio will be less than 15:1, approaching the value of humus in soil, and the temperature usually will be within 10 degrees Fahrenheit of ambient air temperature. Unfinished compost can be toxic to plants, especially to seedlings and newly established plants. Therefore, compost must be allowed to decompose thoroughly before use.
Mud Management

Mud can make chore time unpleasant, increase fly breeding areas, transmit diseases, create unsafe footing, and increase polluted runoff. Often the best protection against mud is prevention. Reduce the amount of rain that runs through your animal yard and you will reduce mud and polluted runoff.

Install roof gutters.
Install roof gutters and downspouts to divert clean water from the animal yard. A 1-inch rain on a 20-foot by 50-foot roof will produce 620 gallons. Design gutters to handle the amount of rainfall in your area.

Protect downspouts.
Protect downspouts from animal and equipment damage by using heavy polyvinyl chloride (PVC) pipe, a hot wire, or a permanent barrier. Empty downspouts into a stock watering tank, rain barrel, dry well, tile line, road ditch or creek.

Control runoff.
Locate new animal yards at least 100 feet from wetlands, ditches, and streams. Curb concrete animal yards or use an earthen berm around animal yards that are close to wetlands, streams, or ditches.
Divert animal yard runoff away from wetlands, ditches, and streams and into a vegetated area that can filter the flow. Divert clean water above animal yards to wetlands, ditches, and streams. Close open ditches with a buried pipe to carry water past animal yards.

Fence animals.
Fence animals away from wetlands, streams or ditches. Rotate water tank areas to avoid mud and manure buildup.

Use sacrifice areas.
Move animals into a corral, run or pen when pastures are wet in the winter or when grass is less than 3 inches high in the summer.
These holding areas are called “sacrifice areas” because the grass is “sacrificed” to preserve cover in the pastures. Locate a new sacrifice area on high ground and at least 100 feet away from wells and open water. Maintain a 25-foot grass buffer around the sacrifice area to filter polluted runoff.
Widen the buffer if the sacrifice area slopes or is located near wetlands, streams, or ditches.

Install firm footing.
Muddy areas are often found at barn entrances, lanes, gates and loafing areas. You can install concrete in these areas.
However, geotextile fabric and gravel will provide an all-weather surface at one-third of the cost. Geotextile fabric allows water to drain down, but stops mud from working up through the gravel.
Use a layer of geotextile fabric next to the soil, a 4- to 6-inch layer of 1.5-inch minus crushed rock in the middle, and a 2- to 3-inch layer of 5/8-inch minus crushed rock on top to provide a firm surface.
In areas with less animal traffic, consider using up to 18 inches of hogfuel or wood chips for footing.
Hogfuel decomposes and needs to be periodically replaced. Avoid using hogfuel near wetlands, streams, or ditches, as resin acids may leach into water.

Design drainage.
Slope the animal yard with a 4- to 6-percent grade and use a southern aspect for quick drying.
Use tile drainage to reduce water in the animal yard and riding ring. Drain tile water into a buffer strip that can filter pollutants in runoff.
Intruders

Some of Linn county’s most invasive plants include:

**Water Primrose**, a bright yellow flowered aquatic perennial herb which aggressively forms mats that impair water flow.

**Purple Loosestrife**, a wetland perennial that grows in a wide range of habitats to heights of two meters with 30-50 stems forming wide-topped crowns that dominate the herbaceous canopy.

**Scotch Broom**, a perennial evergreen shrub with many slender, erect, dark green angled branches and small, yellow pea-shaped flowers. It readily invades disturbed sites, natural areas, and public and private forest lands.

**Paterson’s Curse**, an erect member of the borage family generally 1-3 feet tall. Plants are often multi-branched with an abundance of stout hairs on stems and leaf; blue-purple flowers, but may be pink or blue.

Prevention

A good rotation schedule for pastures and the right mix of fertilizer will grow thicker sod and help prevent weeds. Areas where there is a lot of livestock activity (salt licks, troughs and barn areas) create open soil and are typically the first place where weeds establish. Try planting grass in these areas annually or establishing a heavy use area.

Simple things like cleaning equipment after entering infested weedy areas will reduce spreading the seeds to other pastures. Buying weed-free hay and seeds may cost extra but is another prevention method to keeping weeds out.

Control

There are three main types of weed control: mechanical, natural and chemical. Using a combination of all three will help, but it all depends on how many acres you have and how you want to manage your land.

Mechanical Work

By using mechanical tillage or your own muscles when walking your pastures, weeds can be pulled up right away. If the area is large, tilling may be the preferred method.

Natural Work

Using plants that thrive in your region where you live will usually leave less open space for invasive species. Use of biological controls, including insects that are enemies of weeds will remove weeds with time. But make sure they don’t eat the plants you want to keep!

Chemical Work

Using chemicals to get rid of weeds can be expensive. Make sure to use the correct chemicals for all plants. If chemicals are used in pastures, read the labels for wait-times before grazing animals can eat grasses and other plants.

Watch weather patterns and manage herbicide applications for drying times and non-windy days.

Try to avoid spraying on days when the heat index is more than 68 degrees Fahrenheit; this will cause volatilization which can affect crops up to three miles away.

Verify preharvest intervals, particularly around edibles.

**ALWAYS READ CHEMICAL LABELS AND FOLLOW INSTRUCTIONS BEFORE USING!**

Call ODA, Pesticides Division

503-986-4635 for further information.
Wildlife in Your Backyard

Living in the country includes being closer to nature and wildlife. While most wildlife does not pose a threat, some predators can become a nuisance. They can destroy property, livestock, and pets. The section below discusses attracting desirable wildlife and avoiding predator problems.

Food, shelter and cover

Food, water and cover are the three basic needs of wildlife. Animals will be attracted to your property if there are available food sources such as nuts, seeds, and fruit.

Consider planting native plant species first. Wildlife prefer them to non-natives. Planting a variety of native vegetation at different heights will attract wildlife.

Utilize plants that bear fruit or flower at different times of the year. Plant small grains or large-seeded grasses for wildlife food.

Clean drinking water is essential. Your backyard may include bird baths or garden ponds. Develop ponds, stock water tanks or other watering facilities.

Wildlife need shelter to rest or hide from predators. Shrubs, trees, and bird boxes can provide the necessary shelter. Leave snags and some downed, woody material for perching, hiding and nesting. Nurturing vegetation at different heights for canopy, understory and floor will provide a variety of habitat.

Pollinators

Pollinators are important to our environment and to our crops. They contribute to our food supply as well. Pesticide and herbicide use as well as removal of vegetation impacts their habitat. Plant nectar-bearing flowers or blossoming bushes.

Predators

Many predators live in our valley including cougar, bobcat, coyote, fox, raccoons, bear, mink, and skunks.

Most wild animals will avoid human contact, but will take advantage of easy prey: i.e. your family pets or livestock.

Smaller animals are more vulnerable and may need protection at night when most predators are active. Provide a solid barn or other enclosure with small entry spaces secured. Avoid attracting predators by not leaving pet food outdoors.

While beautiful to look at, deer like to forage on gardens and landscapes. Netting can be draped over roses and ornamentals to discourage their feasting. A tall fence around a garden is also helpful.

Be cautious in the use of poisons for rodents or ground squirrels, since you may kill non-target animals or the family pet.

Wildlife is an important component of the rural lifestyle in the Willamette Valley. You can enhance habitat and diversity of wildlife on your property with the application of a few easy techniques. Ensure a variety of vegetation including trees, shrubs, small grains and native plants and grasses.

Include a year round water supply on your land. Control domestic animals to protect them from being prey or being preyed upon.
In the United States, a conservation easement (also called a conservation covenant or conservation restriction) is an encumbrance – sometimes including a transfer of usage rights (easement) – which creates a legally enforceable land preservation agreement between a landowner and a governmental agency (municipality, county, state, federal) or a qualified land protection organization (often called a “land trust”), for the purposes of conservation.

It restricts real estate development, commercial and industrial uses, and certain other activities on a property to a mutually agreed-upon level. The property remains the private property of the landowner.

The decision of a landowner to place a conservation easement on a property is strictly a voluntary one, in which the easement is sold or donated.

The restrictions of the easement, once set in place, “run with the land” and are binding on all future owners of the property (in other words, the restrictions are perpetual). The restrictions are spelled out in a legal document that is recorded in the local land records, and the easement becomes a part of the chain of title for the property.

Something that all landowners must consider is who will finally hold that easement for perpetuity?

The primary purpose of a conservation easement is to protect land from certain forms of development or use. Lands for which conservation easements may be desirable include agricultural land, timber resources, and/or other valuable natural resources such as wildlife habitat, clean water, clean air, or scenic open space.

Protection is achieved primarily by separating the right to subdivide and build on the land from the other rights of ownership. The easement can be put into place to revert a property to a historic land setting; i.e. wetland, upland prairie, or similar native habitats.

The landowner who gives up these “development rights” continues to privately own and manage the land, and may receive significant state and federal tax advantages for having donated and/or sold the conservation easement.

Although a conservation easement prohibits certain uses by the landowner, such an easement does not make the land public. On the contrary, many conservation easements confer no use of the land either to the easement holder or to the public.

Additionally, many conservation easements reserve to the landowner specific uses, which, if not reserved, would be prohibited. Some conservation easements confer specific uses to the easement holder or to the public. These details are spelled out in the legal document that creates the conservation easement.

So, besides preservation, why do some landowners enter into conservation easements?

Landowners who donate a “qualifying” conservation easement to a “qualified” land protection organization under the regulations set forth in 170(h) of the Internal Revenue Code may be eligible for a federal income tax deduction equal to the value of their donation.

The value of the easement donation, as determined by a qualified appraiser, equals the difference between the fair market value of the property before and after the easement takes effect.

To qualify for this income tax deduction, the easement must be perpetual, held by a qualified governmental or non-profit organization, and serve a valid “conservation purpose,” meaning the property must have an appreciable natural, scenic, historic, scientific, recreational, or open space value.

For landowners who will leave sizable estates upon their death, the most important financial impact of a conservation easement may be a significant reduction in estate taxes.

Estate taxes often make it difficult for heirs to keep land intact and in the family because of high estate tax rates and high development value of land. It may be necessary to subdivide or sell land for development in order to pay these taxes which may not be the desire of the landowner or their heirs.

A conservation easement can often provide significant help with this problem in three important ways including reduction in value of the estate, estate exclusion or after death easement.

Like every land use choice, a landowner needs to weigh the options when making decisions that affect themselves and future landowners of that property.

Finding out what your options are, and seeking legal counsel and help from a financial adviser is always advisable. Looking at options is always a good measure in estate planning for your property.
Management Plans

There is a lot to know about owning and managing your property, especially if you are including livestock. Developing a management plan will help you set a course to optimize your land, labor and capital.

Putting together a management plan sounds intimidating, but if you take it step-by-step you will learn more about your property and your goals.

First, walk your property, taking notes on property features such as boundaries, fences, corrals, pastures, buildings, wells, septic system, ponds, bare ground, driveways, trees, shrubs, weeds, land uses and topography.

Make a sketch or access a map on the Linn County GIS website: www.co.linn.or.us/webmap.

Next, define your management goals. What do you want your property to look like in five years? Or in 10 years? How do you want to spend your time? How much time and budget do you have to devote to improvements?

Then decide what is important and what you want to avoid. Your plan should address your objectives and define short and long term goals.

If you would like some help either developing or fine tuning your management plan, the staff at the Linn Soil & Water Conservation District can help. Linn SWCD also has partnerships with many organizations and agencies in the area of natural resources. The following are just a few of the more prominent of these valuable relationships.

Oregon Department of Agriculture (ODA)
The Natural Resources Division (NRD) of the ODA, provides support to all of the SWCDs in Oregon.

Natural Resources Conservation Service, NRCS
The staff of the NRCS provide technical assistance to local land managers, SWCDs and many other entities.

Watershed Councils
Linn SWCD works with the Calapooia Watershed Council, the South Santiam Watershed Council and the North Santiam Watershed Council.

Oregon State University Extension Service
OSU Extension provides education and information based on timely research to help Oregonians solve problems and develop skills related to youth, family, community, farm, forest, energy, and marine resources. Linn SWCD partners with the local OSU Extension offices for workshops, outreach events, and trainings.

Farm Service Agency (FSA)
FSA’s mission is to stabilize farm income, help farmers conserve land and water resources, provide credit to new or disadvantaged farmers and ranchers, and help farm operations recover from the effects of disaster. FSA provides aerial photos for use in conservation planning work done by Linn SWCD and NRCS.

Oregon Watershed Enhancement Board (OWEB)
OWEB provides technical assistance, technical training and forums for communication among the watershed councils and the Linn SWCD. OWEB also provides small grants for locally identified restoration projects.

Conservation Programs

OWEB Small Grant Program
The Small Grant Program is an easy-to-engage-in, competitive grant program that awards funds of up to $10,000 for on-the-ground restoration projects.

Conservation Reserve Enhancement Program (CREP)
A voluntary, non-competitive, program for agricultural landowners. Receive incentive payments for installing specific conservation practices along waterways. Through CREP, farmers and ranchers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible land.

Environmental Quality Incentive Program (EQIP)
The EQIP program promotes voluntary conservation practices from farmers and ranchers, agricultural practices and environmental quality that are in line with national standards. EQIP offers financial and technical help assisting qualified applicants install or implement structural and management practices on eligible agricultural land. EQIP is a competitive cost-share program.

Wildlife Habitat Incentive Program (WHIP)
The WHIP program focuses on improving a variety of habitats throughout Oregon that serve to connect upper and lower watershed habitats, protect and enhance native plant communities, improve salmon habitat, increase biodiversity, and increase habitat for threatened and endangered species.

Conservation Stewardship Program (CSP)
CSP is designed to reward the best conservationists and motivate the rest! CSP supports ongoing conservation stewardship of agricultural lands by providing assistance to producers to maintain and enhance natural resources.

Wetlands Reserve Program (WRP)
WRP provides technical assistance, cost-share and easement payments to landowners to restore and enhance wetlands on private property. Landowners follow a Restoration Plan that they design with the assistance of NRCS and establish either a permanent easement, a 30-year easement, or a 10-year restoration agreement.

If you would like more information about how to participate in these programs, contact Linn SWCD, NRCS or FSA.
## Resource Directory

**Linn Soil & Water Conservation District**  
541-926-2483  
www.linnswcd.oacd.org

**OSU Extension Office**  
541-967-3871  
www.extension.oregonstate.edu/linn

**Linn County Departments**  
www.co.linn.or.us

**Emergency**  
9-1-1

**Sheriff (non-emergency)**  
1-800-884-3911

**Animal Control**  
541-967-3925

**Building Department**
- Building Permits  
  541-967-3816
- Planning & Zoning  
  541-967-3816
- Surveyor  
  541-967-3857
- Law Library  
  541-928-1095
- Parks & Recreation  
  541-967-3917
- County Commissioners  
  541-967-3825
- Environmental Health/Sanitation  
  541-967-3821
  [www.co.linn.or.us/health](http://www.co.linn.or.us/health)

**Dept. of Forestry, Sweet Home**  
541-367-6108  
www.egov.oregon.gov/ODF

**Dept. of Agriculture**  
541-750-7033  
www.rurder.usa.gov  
www.oregon.gov/

**Oregon State Agencies**
- Bureau of Land Management  
  503-375-5646  
  [www.blm.gov/or](http://www.blm.gov/or)
- Dept. of Environmental Quality  
  503-229-5696  
  [www.oregon.gov/DEQ](http://www.oregon.gov/DEQ)
- Dept. of Fish & Wildlife  
  503-947-6000  
  [www.dfw.state.or.us/](http://www.dfw.state.or.us/)
- Dept. of Agriculture  
  503-986-4550  
  [www.oregon.gov/ODA/](http://www.oregon.gov/ODA/)
- Dept. of Ag. (Plant Division)  
  503-986-4644  
  [www.oregon.gov/ODA/plant](http://www.oregon.gov/ODA/plant)
- Dept. of Forestry  
  541-367-6108
- Dept. of State Lands  
  503-986-5200  
  [www.oregonstatelands.us](http://www.oregonstatelands.us)
- Dept. of Transportation  
  503-378-5849  
  [www.oregon.gov/ODOT/MCT](http://www.oregon.gov/ODOT/MCT)

**Oregon Forest Resources Institute**  
971-673-2953

**Oregon Small Woodlands Association**  
503-588-1813

**Water Resource Department**  
503-986-0893  
[www.wrd.state.or.us/](http://www.wrd.state.or.us/)  
[www.oregon.gov/OWRD](http://www.oregon.gov/OWRD)

**Irrigation Districts/Projects**
- Muddy Creek  
  541-995-6332 (ask for Jane)
- Lacombe  
  541-451-2869
- Grand Prairie  
  541-926-7500

**Federal Agencies**
- Natural Resources Conservation Service  
  541-967-5925  
  [www.or.nrcs.usda.gov](http://www.or.nrcs.usda.gov)
- U.S. Forest Service, Sweet Home  
  541-367-5168
- USDA, Farm Service Agency  
  541-967-5925  

**Fire Districts**
- Albany  
  541-917-7700
- Tangent  
  541-928-8722
- Harrisburg  
  541-995-6412
- Brownsville Rural  
  541-466-5227
- Halsey/Shedd  
  541-369-2419
- Lebanon (district)  
  541-451-1901
- Lyons Rural  
  503-859-2410
- Mill City  
  503-394-3000
- Millersburg  
  541-928-1126
- Scio  
  503-394-3000
- Sodaville  
  Not listed
- Sweet Home  
  541-367-5882
- Waterloo  
  Not listed

**Watershed Councils**
- Calapooia Watershed  
  541-812-7622  
  [www.calapooia.org](http://www.calapooia.org)
- South Santiam Watershed  
  541-367-5564  
  [www.sswc.org](http://www.sswc.org)
- North Santiam Watershed  
  541-767-3284  
  [www.nsantiamwatershed.org](http://www.nsantiamwatershed.org)