

Living on a Few Acres



There's a touch of the farmer in most of us, whether our land is measured in acres or feet – a love of growing things and doing what we can to bring beauty and diversity to our property.

This booklet provides ideas and do-it-yourself techniques to help care for the soil, water, plants and animals so you can have the place of your dreams.



Helping People Help the Land.



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The Natural Resources Conservation Service (NRCS) is an agency of the U.S. Department of Agriculture (USDA). Since the 1930s, NRCS has provided private landowners voluntary technical and financial assistance to care for their natural resources.

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Contents

Getting to Know your Soil - 2

Examining the soil carefully before you buy or build a home can save money and grief.

Make a Plan - 3

A detailed, thoughtful plan based on your resources and goals will help you avoid some costly mistakes.

Water-Efficient Landscaping - 4

Plan your landscape using plants that are naturally adapted to your area...plants that will thrive for years to come.

Using Compost and Mulches - 5

Like good cooking, composting is part science and part art.

Weed Control - 7

Four ways to control weeds on your property.

Rodent & Wildlife Control - 8

What to do about some of those pesky "critters."

Fertilizer Use - 9

A short course on applying nutrients to grow healthy plants and protect water quality.

Irrigation ... How Much and How Often? - 10

There's a better way to schedule irrigation than waiting for plants to wilt.

Pasture Management - 11

Over-estimating the carrying capacity of your land for livestock and horses is a common mistake.

Managing Animal Waste - 13

What to do about the livestock manure and waste that accumulates.

Protecting Water Quality - 14

Water is a basic necessity of life. Every activity depends upon a safe and clean supply.

Attracting Wildlife to your Home - 15

Make your land, no matter how large or small, feel like home for wildlife.

Keep Canals Clean - 16

The canals that crisscross the rural landscape are more than just ditches.

Living with the Wind - 17

Windbreaks provide wildlife habitat, protection from wind and snow, and will help reduce fuel costs.

Forest Management - 18

No matter what stage of development your trees are in, you need to plan for the future.

Protect your Home from Wildfires - 19

Wildfires can happen at any time... protect your home.

Resources - 20

Agencies to contact and websites to visit for further information or assistance.



Getting to Know Your Soil

Taking a close look at the soil *before* you buy or build a home can save you frustration, grief and money afterwards. In general, the ideal soil for most uses is one that is moderately permeable; free from flooding, high water tables, bedrock or restrictive layers; and level to gently sloping. Such soils will support both buildings and growing plants.

Make sure the soil where you plan to build is suitable for building foundations and septic systems.

Read the Clues from the Landscape

Consider the topographic position of the home in relation to its surrounding landscape:

- When it rains hard, where will the water flow in relation to the house and site?
- Is there a wastewater disposal system that will control runoff from the land above you?
- Is the building site in a low, depressed area where water will accumulate from higher surrounding areas? Will the soil stay wet and spongy for long periods of time?
- Study nearby undisturbed areas and note any evidence of soil slippage down slopes or nearby ravines. Even in wooded areas, you can see natural slips if you look carefully. Road cuts or excavations may expose compressed layers below. Soil and geology maps will show potential slide areas.



About to buy or build a home?

Is the site in a floodplain?

Is it subject to flooding from nearby waterways during heavy storms or spring snowmelt?

Does the site have a shallow water table?

Is the lot on a hillside subject to slippage or severe soil erosion?

Is the soil fill dirt or raw subsoil?

Will you be in the path of a wildfire?

*If you answered “yes” to any of these questions, you have some planning to do.

During Construction

Keep bare soil covered during construction. Without protective vegetation, storms can move soil into your neighbor’s yard, clog storm drains and streams, and carry pesticides and nutrients into the water. Here are some ideas on what you can do:

- Cover bare areas with mulch such as straw, grass clippings, stones or wood chips to provide a protective cover.

- On steeper slopes, cover the mulch with burlap netting for extra protection.
- Watch where water runs off during storms. These are the areas of concentrated flow that need to be protected.

After Construction

If the area on which you are building has a steep slope, build terraces or steps across the slope to divert water and prevent soil erosion. Spread a thick layer of mulch between terraces to protect the soil. If the slope is gentle, seeding grass may be enough.

Use splashguards on gutter outlets to help reduce erosion at or near your home’s foundation.

Landscaping

Select plants that grow well in your area and are suitable for the climatic conditions of your yard – sunny/shaded areas or wet/dry soil. Plant appropriate ground covers in shaded areas where grass is difficult to establish or maintain.

A local nursery can help you find plants that grow well in your area. Consider using plants that mimic nature and consume little water.



Make a Plan

Even if you like things just the way they are on your few acres, a well-designed plan will help you keep it that way. If you want to make improvements, a plan is essential.

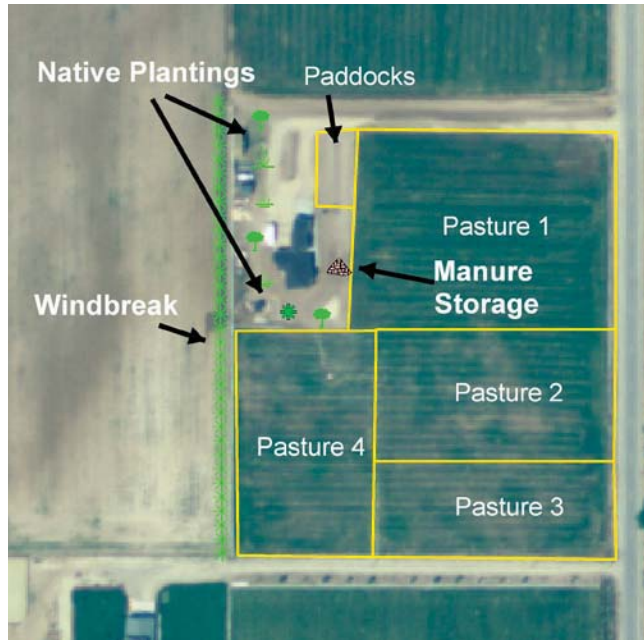
How to Start

Survey your land and document your resources. Draw to scale a plot of your property showing all features:

- Property boundaries, location of house, driveways and walks
- Work and storage areas, fences and corrals
- Wells for home use or livestock
- Irrigation ditches, pipelines or structures
- Septic system, streams, canals or ponds
- Lawn, pastures, garden, trees and shrubs
- Bare ground, flat or sloped ground
- Utilities, either above-ground lines or buried cables (telephone, electricity, gas, cable TV, etc.)

Make a Plan

Now that you know what you have to work with, write out a plan of what, when and how you will proceed to meet your goals. You can also utilize resources such as the free conservation planning software, Idaho OnePlan. Visit www.oneplan.org or Home-A-Syst at homeasyst.idahoag.us for more information.

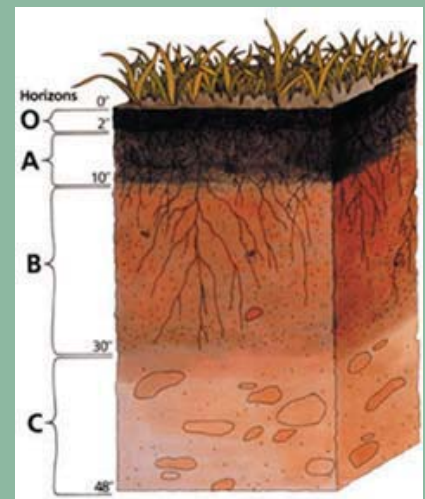


An example of a small acreage plan.

Did you know? All soils are not alike.

Soils can vary widely, even across a backyard. The type of soil you have will influence:

- What type and how much grass or crops your land can produce.
- How quickly water moves through the soil.
- If the soil will filter human and animal wastes before they reach groundwater.
- How often you need to irrigate.
- How much fertilizer to use.
- Suitable conditions for building foundations and septic systems.
- If the area is a wetland.
- What you need to do to prevent soil erosion.



Water-Efficient Landscaping

Water-efficient landscaping (sometimes called Xeriscape™) often includes the use of native plants that are naturally adapted and will thrive for years under the West's extreme environmental conditions. The use of native plants, or plants more adapted to an arid climate, can help reduce water, energy and chemical use, enhance wildlife habitat and manage invasive weeds.



An example of a rock garden using more drought hardy native plants.

Choosing Grasses, Wildflowers, Shrubs and Trees

Visit a local, reputable nursery or garden center that carries or specializes in water-efficient landscaping. When choosing plants, strive for contrast, harmony and boldness to provide interesting variety throughout the year. It will take some time for plants to mature, so allow plenty of room for growth.

Xeriscape™ principles include:

- Plan and design comprehensively
- Improve soil with amendments
- Reduce irrigated lawn areas
- Use appropriate plants and group them according to their water and environmental needs
- Irrigate efficiently
- Use mulches
- Maintain your landscape (Xeriscape™ is a trademark of Denver Water.)

Planning

You'll want to draw a plan specifically for your landscaping along with a plan for your entire acreage. Consider the following:

- Family interests and needs, including those of your pets.
- Soil type (previous section) and vegetative inventory (existing native and non-native plants).
- Climatic conditions including your USDA Winter Hardiness Zone, heat index or zone, elevation and topography, expected precipitation and how much wind you receive.

Draw your landscape design, keeping in mind these "rules of thumb":

- For borders, place short-statured plants in front of taller plants. In small areas, borders are best maintained if no wider than 4-8 feet.
- Borders and edges that curve are more natural-looking than those with rigid, straight lines.
- Group plants into zones according to their needs for sun, water and specific soils.
- Utilize plants so they are visible and colorful throughout the year.

Site Preparation

Fully prepare your site for the new landscaping. This could include removing existing sod, incorporating organic matter, applying weed control and preparing the seedbed to improve soil tilth and moisture percolation. You can then plant more hardy grasses and begin transplanting new plants, shrubs and trees.

(Excerpted from "Creating Native Landscapes in the Northern Great Plains and Rocky Mountains," available from Montana NRCS. Visit www.mt.nrcs.usda.gov.)

Comparisons of traditional landscapes and Xeriscapes have shown that up to a 50 percent savings in water usage can be achieved. Other studies indicate potential savings of nearly 30 percent in maintenance and labor, 61 percent in fertilizers, 44 percent in fuel and 22 percent in herbicides and pesticides.

(At Home with Xeriscape, Xeriscape Colorado, Inc., www.xeriscape.org)

Using Compost and Mulches

Most homeowners have little choice in selecting soils for gardens and ornamental plantings. More often than not, the original surface soil has been disturbed or is of poor quality, so you must build a soil to suit the plantings you want. Composts and mulches are very important in soil building.

Compost is a dark, crumbly mixture of decomposed organic matter such as grass clippings, leaves, twigs and branches, and manure. Compost loosens the soil for easier penetration of plant roots, water and air, and increases the soil's water-holding capacity.

Mulches are surface coverings applied to soil to prevent moisture loss, increase water intake and moderate soil temperature.



A homeowner sifts rich compost from his compost bin.

Composting: How To Start

Like good cooking, composting is part science, part art and a time-honored practice. You will find many different procedures recommended in gardening books. The choice of methods to use or types of compost bins to build is a matter of taste and tradition.

Basically, the process consists of the partial rotting of mostly plant organic materials by bacteria, fungi and other soil organisms. During the process, the most readily decomposed organic materials are consumed, leaving a crumbly product that will hold nutrients in the soil until plants can use them, loosen and aerate clay soils, and help sandy soils retain water.



Raised garden beds can be used for composting during the off-season.

Materials

The bulk of compost will usually be lawn clippings and autumn leaves supplemented with annual plants. Anything that was once alive and in small enough pieces will naturally decompose. Some organic wastes, however, should not be composted at home.

DO compost grass clippings, leaves, plant stalks, hedge trimmings, old potting soil, annual weeds without seed heads, livestock manure, straw, vegetable scraps, coffee filters and tea bags.

DO NOT compost diseased plants, weeds with seed heads, invasive weeds such as quack grass and morning glory, pet feces, dead animals, bread and grains, meat or fish parts, dairy products, grease, cooking oil or oily foods.

(continued on next page...)

Using Compost and Mulches

Making it Work

The site for a compost pile should be an out-of-the-way corner of the garden, screened from view. A satisfactory compost pile can be made without any retaining structure, but some type of box or frame is helpful.

One simple solution is to make a 4-5 foot diameter cylinder of heavy wire fencing, 3-4 feet high, in which to build the compost pile. A compost pit will also work if there is free drainage from the bottom. More elaborate frames can be made from cement blocks, bricks or railroad ties. In all cases, the most important point is to have free drainage and aeration at the bottom.

In building the compost, add the leaves, clippings, etc. and tamp them down. When a packed layer 6 inches deep has accumulated, spread a small amount of nitrogen fertilizer on the top and water the layer thoroughly. Repeat the process for additional layers.

Two key conditions for good composting are moisture and aeration. The compost should be kept moist but not soggy. If it gets too wet, it will become anaerobic (without oxygen) because too much water prevents air movement through the pile. Anaerobic compost will not decompose as fast nor heat up properly. If the mix is too dry, microbial breakdown stops.

It is helpful to poke aeration holes down into the pile occasionally, using a stake or rod. Leaves and lawn clippings should be mixed with coarser plant wastes to prevent formation

of wet, compacted layers. Since air is usually used up faster than moisture, the materials must be turned or mixed up occasionally to **add** air that will sustain high temperatures and control odor. Materials can be turned with a pitchfork, rake or other garden tool.

Time and Temperature

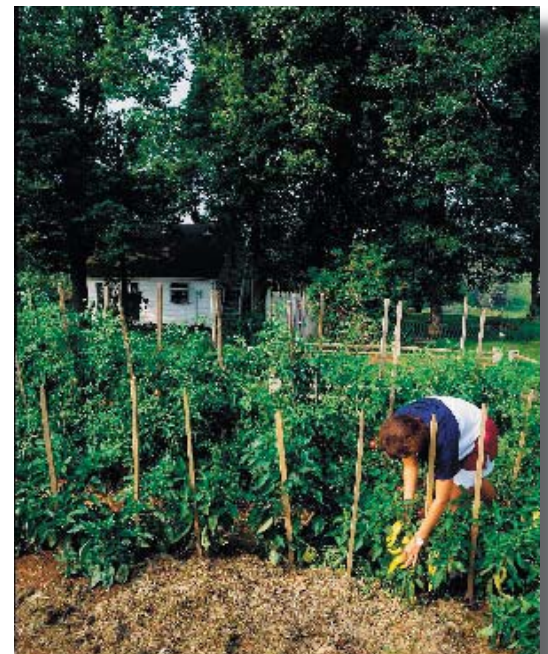
The most efficient decomposing bacteria thrive in temperatures between 110 and 160 degrees. Thus, the hotter the pile, the faster the composting rate. The temperature will rise over several days when a good balance of carbon and nitrogen is achieved. To maintain this, provide lots of surface area within a large volume of materials and maintain adequate moisture and aeration. The composting process will take from 1-2 years to complete, depending on the climate, amount of mixing and other conditions.

Using Mulches in your Garden

Using mulch in your flower or vegetable garden may well be your most valuable garden practice. Good mulch can reduce soil blowing and erosion, suppress weeds, keep the soil moist and cool and add organic matter to the soil.

Pesticide-free grass clippings, clean straw and compost make

excellent mulches, and they are easy to apply. Simply spread a 3-6 inch layer of one of these organic materials on the soil surface around plants, making certain not to cover them. Keeping the layer deep enough to do the job is important too. This means that additional mulching material should be added to the old layers as needed to get all the benefits.



Gardeners use mulch to prevent moisture loss, increase plant water intake and moderate soil temperature.



Weed Control

Weed: any plant growing where it is unwanted. Weeds are divided into the common classifications: annuals, biannuals and perennials. Understanding the biology of each type of weed is key to their control/management.

One of the first steps you can take to control weeds is to change the practices that allowed the weeds to become established in the first place. For example, continuous grazing of livestock on small acreages can result in bare soil allowing weeds to establish more readily.

One of the best weed control methods in this situation is to plant long-term perennial grasses. Once established, weeds will spread slower and grass competition will help prevent them from establishing seed. It's also a good idea to team up with your neighbors to improve the effectiveness of weed control.

Biological Weed Control

Biological weed control involves finding living organisms in nature that feed on or otherwise suppress weeds. Certain fungi and insects weaken weeds by attacking seed heads, roots and other plant parts.



Be careful not to overgraze pastures and allow weed infestation.

Mechanical Weed Control

- Mow weeds before they go to seed.
- When near streams, pull small patches by hand to protect water quality.
- Place pulled weeds on the ground to dry out if no flowers or seeds are present. If flowers or seeds exist, pull them carefully to prevent seeds from falling and place in a plastic bag to contain seeds. Dispose of by burning or taking to a landfill.

Chemical Weed Control

Herbicides can be used effectively when applied in the right amounts and time of year.

- Use EPA-registered herbicides. Read and follow label directions.
- Do not use, mix or store herbicides near wells or other water sources to prevent adverse health effects to you or your animals, and to prevent stream and groundwater pollution.
- Apply herbicides only when the air is calm. Herbicide drift can kill desirable grasses, trees and shrubs.
- Properly dispose of leftover chemicals and empty containers according to label instructions.

Natural Alternatives

When used incorrectly, pesticides can pollute water. They can also kill beneficial, as well as harmful, insects. Natural alternatives can prevent both of these problems and save money. Examples include:

- Non-detergent insecticidal soaps
- Garlic or hot pepper sprays
- One teaspoon of liquid soap in a gallon of water
- A forceful stream of water to dislodge insects
- Plant adapted perennial grasses that will compete with weeds
- Animals such as goats can help reduce certain weed species

BEWARE: NOXIOUS WEEDS

Idaho has 35 different species of weeds that are deemed noxious by state law. The spread of these weeds and the damage they do to Idaho lands can be lessened through proper identification and handling.

Contact your local County Weed Superintendent or Cooperative Extension office.



An infestation of the noxious weed leafy spurge takes over a roadside. If not controlled, the weed will move to adjacent areas.

Rodent & Wildlife Control

Part of “living on a few acres” is the enjoyment of seeing wildlife. However, mice and rats pose a health threat while others, like rabbits and deer, can be nuisances. Here are a few tips for managing problem “critters.”

Mice and Rats

Mice or rats can spread disease and viruses, consume and contaminate stored products, and may girdle woody plants by chewing bark. Mice eat seed and grain products and grass, and create runways and bare patches on lawns.

Rodent droppings and/or nests are one of the most reliable signs of a rodent problem. Since mice like to run in places that offer protection, you may find droppings in cupboards, under the sink, where you store your pet/animal food, under furniture, and in drawers or bins. Often they build their nests with soft, fuzzy or warm materials in similarly protected areas.

Sanitation is the first line of defense against rodents. Food should be stored in air-tight containers. Seal any holes where mice might find their way inside. Outside, get rid of rock piles, old boards and junk. Mow lawns regularly and remove tall grass and vegetation from adjacent areas.

Mice and rats can be controlled through bait boxes, poison baits, and spring or live traps. Place wire cylinders, tree collars, and plastic or paper wraps around the base of trees for protection. If you are cleaning an area heavily infested with rodents, take proper precautions

including wearing rubber gloves. For more information, contact your local Cooperative Extension office.

Rabbits

Rabbits will girdle young trees, chew off bark and young twigs of woody plants in winter, and consume leafy plants during summer. Control measures may include:

- Live traps and relocation. You can also reduce rabbit habitat by removing overgrowth on ditches, bush fence rows or brush piles within or near garden areas.
- Place guards made of fine mesh (1/4 inch) around the base of trees to prevent rabbit damage.
- Plant “trap” crops like beans to divert rabbits. Since onions seem to repel rabbits, it may help to interplant onion rows with the rest of your crops.
- There are also several commercial repellents available. Some gardeners sprinkle dried blood meal or other types of deterrent materials to discourage rabbits.

Ground Squirrels/Gophers

Ground squirrels are voracious feeders on lawns, bulbs and leafy succulent plants during spring and summer. They may dig a burrow system with entrances 2-3 inches in diameter. They are particularly troublesome in gardens that border fields or wildlands.

The simplest removal method for ground squirrels is to fill the burrows with water. Also consider live traps, gas bombs and poison baits. Protect bulb beds above ground with a cover of fine mesh chicken wire.

Pocket gophers burrow through the ground, feeding on root crops and roots of garden plants. They can also do surface damage to lawns and gardens. Gopher runways run parallel to the ground and are located 6-10 inches below ground level.

Gopher control is usually easiest in early spring or fall when fresh mounds indicate activity. Options include placing poison baits, fumigant type pellets or traps in their runs.

Deer

Deer can damage herbaceous and woody plants by browsing. Orchard and vegetable crop damage are also a

concern. Control options include:

- Plant deer resistant or less palatable vegetables, annuals, perennials, trees and shrubs.
- Construct a wire-mesh fence, 7-10 feet high, around small gardens or orchards.
- Use registered commercial repellents that may be partially successful. They require repeated applications, particularly after rains or watering.



Fertilizer Use

Fertilizers provide nitrogen, phosphorous and potassium which are necessary for plant health and growth. These are what the N, P and K stand for on bags of fertilizer.

- Nitrogen (N) is needed for healthy green growth and regulation of other nutrients.
- Phosphorous (P) helps with proper root and seed development and disease resistance.
- Potassium (K) is also important in root development and disease resistance.

Commercial organic fertilizers are available. Also, planting legumes (green manure crops) can naturally replace some nutrients. (Visit your local Cooperative Extension for more information.)

When properly applied, plants will absorb the nutrients in fertilizers and little or none will enter ground or surface waters. When mowing the lawn, leave the grass clippings to decompose. Annually, this will provide nutrients equivalent to 1-2 fertilizer applications. Set the mower blades at two inches or higher to reduce water use during hot weather.

Applying Fertilizer

- Use a soil test to determine what nutrients your soil contains. (Look in your phone book for soil testing organizations.)
- Follow label directions.
- Apply fertilizer when the soil is moist and water lightly. This will help it move into the root zone and be available to plants.

- Watch the weather. Avoid applying fertilizer immediately before a heavy rain is predicted. Too much rain (or sprinkler water) will wash the nutrients below the lawn's root zone.
- Use the minimal amount necessary and apply it in small, frequent applications. Two pounds of fertilizer applied five times per year is better than five pounds applied twice a year.
- Calibrate your spreader to be sure you know exactly how much is being discharged in a given space. Follow instructions accompanying your spreader.
- Do not put fertilizer in your irrigation system unless you have a fertigation license.
- When spreading fertilizer, cover the ends of the lawn first, then go back and forth across the rest of it, using half the recommended amount. Shut the spreader off before reaching the ends to avoid over-application. Apply the other half of the fertilizer going back and forth perpendicular to the first pattern.
- Dispose of fertilizer bags or containers in a recommended, safe manner.



Think Conservation!

Protect Idaho's water quality by carefully applying your fertilizers, pesticides and irrigation water. Right now Idaho has:

- 24 aquifers impaired by nitrates.
- Over 2,000 miles of streams impacted by nitrogen and phosphorus.

(left) Taking a soil sample and getting it analyzed at a certified soil lab can help you apply the precise amount of fertilizer.



(left) A farmer side-dresses fertilizer on his grass seed crop. Some small acreage owners may use tractors to spread fertilizer while many use a four-wheeler or hand-spreading.

Irrigation...How Much, How Often?

Whether you refer to it as “watering” or “irrigation,” plants need water to survive and thrive. The soil provides the reservoir from which plants draw their water. The amount of water available depends on soil depth, texture and the weather – temperature and precipitation.

Pasture and lawns are similar in water needs and management. Plant rooting depths and water use vary:

- Shallow rooted plants require short frequent watering.
- Deep rooted plants will need longer, less frequent watering.
- Plants near sidewalks and driveways or south slopes will show drought first.

Avoid runoff situations where the water can start soil erosion or run down the street. If runoff begins, shorten the irrigation time and irrigate more frequently, or reduce the application volume.

Know your Soil

The texture of your soil will tell you its capacity to store and absorb water. How does your soil feel when wet?

Silt feels silky smooth. **Sand** feels coarse and gritty. **Clay** feels slick and sticky.

Generally, coarse textured soil like sand has a fast intake rate and a low water holding capacity.

If you have sandy soil, add organic material such as compost or peat moss. Otherwise, the water will pass through so quickly the plants won't be able to absorb it.

Fine textured soil like clay has a slow intake rate and a high water holding capacity. **If you have clayey soil**, add organic material such as compost or peat moss. Till or spade to help loosen the soil. Since clay absorbs water very slowly, irrigate only as fast as the soil absorbs the moisture.

Loam is a combination of sand, silt and clay. It is the best kind of soil. It absorbs water readily and stores it well for plants to use.

**Rule of Thumb:
One deep watering
is much better than
several light waterings.**

Watering Lawns and Gardens

Lawns need about one inch of water each week. If the weather is very hot, it may need that same inch every 3-4 days.

- Water to a depth of 4-6 inches to encourage deeper, healthier root development and allow longer periods between watering.

- To measure the amount of water you are applying, put an empty tuna or cat food can on the lawn while watering. Stop when the can holds 1 inch of water or if you notice water running off the soil surface.
- Loosen the soil around plants so it can quickly absorb water and nutrients.
- Use a 1-2 inch protective layer of mulch on the soil surface above the root area to reduce evaporation and soil erosion.
- Water during the early morning or at night to reduce evaporation. Early morning provides immediate surface drying, which reduces molds that may attack the grass.
- To help control where your water goes, avoid watering when it's windy.



Drip irrigation conserves water and ensures it reaches the intended plants.



Pasture Management

Over-estimating your land's carrying capacity for livestock is a common mistake many people make. Pasture carrying capacities can be significantly increased by:

- Improved irrigation
- Rotational grazing systems
- Fertilization
- Establishing better forage species

A horse will eat 30-40 pounds of green forage daily. A typical non-irrigated pasture in many parts of Idaho can produce only 500-1,000 pounds of usable forage per acre per year. **It would take 30-50 acres of this land to pasture one horse for a year without supplemental feed and without degrading the forage and soil resources.**

Even with an improved irrigated pasture system, one acre of land will support a horse for only about four months. When horses are on good pasture, they only need to graze a few hours each day. This will allow your pastures to stay healthy and keep the horses from getting fat.

If you want to raise beef cattle, each animal should have at least 1-2 acres of good irrigated pasture. If your pastureland is covered with brush or rock, five or more acres per animal will be required. A reliable water supply is a must. If you don't have one, don't try to raise horses or cattle. Place a free-choice salt-mineral mix where animals can easily find it. If necessary, place in a covered feeder to protect it from inclement weather.

You will need good hay for supplemental feeding, cut at the proper stage of maturity and weed-free. It should have a bright green

Proper grazing will keep grass green and growing.

Short tops mean short roots which in turn means less future grass production. Overgrazing pastures destroys both the leaves and the roots.

Avoid overgrazing!

Overgrazed pastures soon become barren or weed-infested. The quantity and quality of feed on rundown pastures won't meet the nutritional needs of livestock.



This pasture is overgrazed and dominated by low-statured grass species and weedy patches.

color, an abundance of firmly attached leaves and a sweet, pleasant smell.

During a 6-month winter feeding period, a steer will require about 20 pounds of hay daily or 3,600 pounds total. Horses require at least 25 pounds of hay per day. When feeding livestock, they should be taken off pastures so the grass and roots can regrow and stay healthy.

Fencing

Plan your fences and gates carefully. The fencing materials you choose, along with how you design pastures, paddocks and corrals, and where you place gates, can determine whether your animal management is simple or becomes a nightmare.

The secret of a good fence is to have well-set corners and brace posts to which the fence can be fastened and stretched. There are several types of material that can be used for permanent fences. They include woven wire, barbed wire,

a combination of these or wooden boards or poles.

- **Woven wire** is normally used in situations of high animal stress.
- **Barbed wire** will usually control cattle, but is less desirable for horses. In small pastures, double-wrapped smooth wire is a better choice.
- **Wood or plastic** fences are the safest for horses.

Locate gates in or near fence corners rather than in the middle of fencelines to facilitate movement of livestock out of a field.

An electric fence makes an ideal temporary fence. If you live within the city limits, check to make certain such fences are legal. They work well to subdivide fields for improved pasture management rather than traditional line fences. Electric fence wires can be attached to wood or steel posts using insulators or fastened directly to fiberglass or plastic posts.

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Pasture Management

Management

Reseeding to change the plant composition of your pasture will sometimes increase forage productivity. Alfalfa is the most commonly used legume in conjunction with grasses such as meadow brome, orchardgrass or tall fescue. Generally, straight grass pastures should be fertilized with nitrogen, and grass-legume pastures with phosphate and potassium. Use soil tests to determine exact fertilizer requirements.

Tip: If you are in doubt about mineral deficiencies in your area, contact your local Cooperative Extension office.

Grass pastures without legumes peak in spring and early summer, and aren't very productive in late summer. When alfalfa is used in mixtures, rotational grazing is best. Alfalfa can't withstand constant grazing pressure. Pastures can be divided into several smaller areas and rotated during the grazing

season. This will help prevent certain areas from being over-grazed and keep pastures healthy.

Overgrazing occurs when the plants are grazed again and again without rest. Overgrazing stops root growth and reduces production. Pasture grasses are ready to be grazed when they have 6-8 inches of new growth. When 50 percent of the growth is removed, the grass needs to be rested until it replenishes itself. On irrigated pastures, this resting period is usually about 30 days. Control weeds to promote growth of desirable plants.

Leave at least four inches of stubble height through the winter to protect root crowns and promote early growth in the spring. Spread nutrient-rich manure regularly with a drag or harrow. Even a home-made harrow



Top: A herder moves sheep to a better pasture. Above: Horses graze on healthy pastureland.

such as a railroad tie pulled behind a pickup will help.

How Grass Grows

All plants have an area of tissue called the "growing point." That's where new cells are formed which cause the plant to grow.

Grass differs from most other plants in the location of this growing point. Trees, shrubs and forbs grow from the outer tips of their branches. But the growing point of a grass is located in the crown at its base. New leaves grow from this point. Because of

this, grass can withstand grazing by animals.

Once the grass plant begins sending up a seed stalk, the growing point moves up with it. When this happens or if the plants are grazed too close to the ground, the growing point becomes vulnerable and may be lost. The plant then has to develop a new growing point at its base before growth can continue.



Managing Animal Waste

Remember that a horse only needs to graze a few hours a day, and that part of the year your livestock will be confined in a corral area. You'll need to decide what to do about the manure that accumulates, and how to prevent runoff from contaminating your water.

Runoff can carry manure, soil, chemicals and other pollutants that may contaminate surface or ground water. Feeding sites can also be a potential source of nitrate and pathogen contamination in homestead water wells.

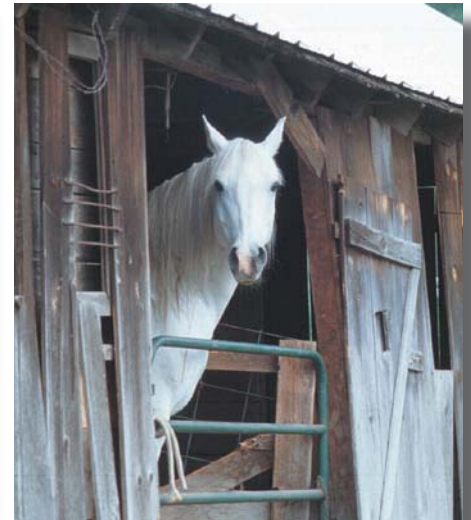
Animal lots, no matter their size or how many animals are housed there, are areas where animal wastes concentrate. The potential for animal lots to affect groundwater is greatest if:

- The lot is not surfaced and located over coarse-textured, permeable soils.
- The water table is at or near the surface.
- Contaminated runoff is discharged to permeable soils.

The potential for surface water contamination is especially critical when there is no system in place to divert clean water (spring or stream) from the animal lot or to collect contaminated runoff for diversion to an area where its effect on surface or groundwater will be minimal.

Maintaining Corrals

One way to prevent pollution is to clean corral areas regularly. Do not clean earthen lots to bare dirt. Leave a thin layer (1-2 inches) of packed manure to seal the surface. Water will move very slowly through this



compacted layer, minimizing the potential for leaching nitrates and bacteria through the soil into the groundwater. The manure you remove can be stored and later applied to your land, hauled off the property or used in compost.

The best time to apply manure as a source of nutrients is just before planting in the spring, or in the fall before snow and frozen soil conditions occur. It can then be tilled into the soil to avoid contaminated surface water from running off. Putting animal manure on pastures, lawns or garden areas at low application rates poses little danger to surface or groundwater due to filtering of contaminants by the soil or plant uptake of nutrients.

Be sure your corrals and/or manure storage areas are not vulnerable to runoff, especially directly into a surface body of water or domestic well. Establishing and maintaining shrubs and grasses around corrals will help trap and absorb pollution-laden runoff before it reaches streams or groundwater. This will also add aesthetic appeal to your property.

More Benefits

In addition to decreasing the chance of contaminating surface or groundwater, a well-drained and dry lot will improve the comfort and health of your animals. In addition, the need for expensive commercial fertilizers will be reduced by spreading manure, feed and bedding wastes on the land. Reducing these waste levels will also decrease flies and parasites as well as their associated health risks and odor problems. The value and visual appeal of your property will increase with the improved health of your livestock and vegetation.

Protecting Water Quality

Everyone is responsible for protecting water quality. If you answer “yes” to any of these questions, you’ll want to take immediate action to correct the problem.

- Have you noticed a change in the taste, color or odor of your drinking water?
- Is your septic tank drain field or livestock corral less than 100 feet from your drinking well or stream?
- Are streambanks bare of vegetation, eroding or falling into the stream?
- Do your well tests show chemical, fecal or nitrate contamination?

The quality of your drinking water can affect property values, since lenders will consider the cost of corrective actions or cleanup in sale prices.

If you are unsure about the safety of your drinking water, the Idaho Home-A-Syst program (homeasyst.idahoag.us) can help. This program can help you assess the potential effects of various farmstead practices on your drinking water supplies. Do-it-yourself work sheets provide suggestions for modifying your practices and identify sources for help. Contact your local Soil Conservation District for assistance.

Tips to Help You Protect Your Drinking Water

- Avoid household products with hazardous ingredients or handle them with extreme care. Many toxic ingredients in paint thinners and drain cleaners can contaminate water sources.

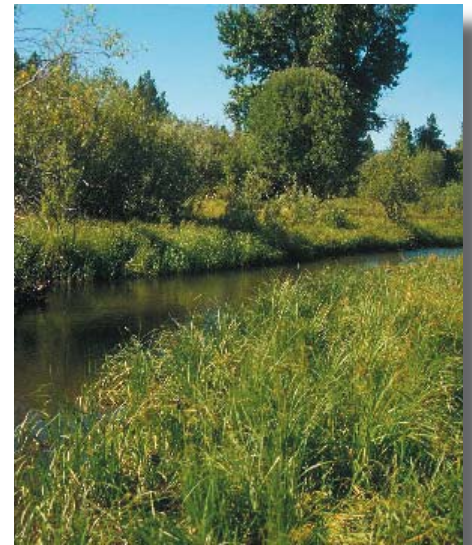


- Use only enough of the product to get the job done.
- Never dump hazardous products down drains, the toilet or near flowing water, ponds or lakes. Do not dump them on the ground.

Actions You Can Take on Your Land

- Establish and maintain shrubs and grasses along streams and around animal confinement areas to trap and absorb pollution-laden runoff before it reaches streams or groundwater.
- Avoid continuous grazing in these areas to protect vegetation.
- Locate corrals and other livestock confinement areas away from streams. Use water gaps or off-stream stock water tanks to minimize livestock trampling of streambanks.
- Avoid over-irrigation that can cause valuable topsoil, fertilizer and pesticides to run off your land and into streams, or leach into groundwater.
- Properly dispose of manure, feed and bedding wastes by spreading them on your cropland. Be sure soil isn't too wet or frozen to absorb it. This will reduce your need for expensive commercial fertilizers.

- Locate any corrals and/or septic systems downslope of any domestic water well. Make sure you know where your neighbors' wells and septic systems are located. Their systems can pollute your well and vice versa.
- Don't over-apply fertilizer or pesticides. More isn't better and can contaminate water sources. It also wastes your money.
- Don't mix, apply or dispose of pesticides, insecticides and herbicides; used motor oil; chemical containers or other toxic substances near streams or where they can leak into groundwater and contaminate your well or those of your neighbors.



Protect your water quality. Avoid keeping livestock or using chemicals or other contaminants near bodies of water.

Attracting Wildlife to Your Home

Sometimes we forget how closely our lives are tied to the other living things around us. Usually, all it takes to remind us is the morning call of a meadowlark.

You have the land and you want wildlife. What kind of wildlife? Where? How?

An amazing variety of wildlife can often be observed on a small acreage. True, you can't logically expect to have a resident herd of deer or elk, but your land may be part of their range. Be prepared to have visitors.

Rules for Success

- Read, ask and visit. Find out what wildlife should be on or around your land and what wildlife is actually there.
- Walk over the land. Do this often and during all seasons to see the many changes. It's amazing what new things you'll observe each trip. Learn to look at things closely.
- Manage your wildlife habitat – food, water and cover.
- Each kind of wildlife species requires specific characteristics (food, cover and space) for their habitat.
- To add, maintain or attract specific wildlife, you must know what they require. NRCS, the Idaho Department of Fish and Game or your local Soil Conservation District will be able to tell you habitat requirements for both existing and potential wildlife.
- Cross-check habitat needs against the existing habitat. Whatever is lacking, you will need to manage or create.



Food

- Wildlife feed on the ground, in small shrubs and in evergreens or broadleaf trees.
- Plant the habitat so that a wide diversity of seed, berry and foliage plants will be available.
- Many plants provide both food and cover. Plant as many multipurpose types as possible.

Water and Cover

Water attracts all kinds of wildlife. It can be as simple as a birdbath or a small plastic pool. Natural wetlands, ponds and streams provide habitat for wetland-loving wildlife and need to be considered in your planning.

There are two kinds of cover: natural and artificial.

- Natural cover can be easily managed by manipulating vegetation (i.e., planting, pruning, thinning or clearing).
- Artificial cover can be created with brush piles, nesting boxes, piles of rock, birdhouses, log piles or similar structures.

For the Birds

Following is a list of plants adapted to Idaho's climate that provide wildlife nesting, food and cover. Most are available locally.

(N = Native in Northwest)

Trees: Alder (N), Hackberry, Mulberry, Apple, Hawthorn (N), Pine (N), Birch (N), Juniper (N), Red Cedar (N), Black Cherry, Spruce (N), Locust: Black and Honey, Redosier Dogwood (N), Silver Maple, Willows (N), Mountain Ash (N), Green Ash

Shrubs and Vines:

Bearberry (N), Golden Currant (N), Silver Buffaloberry (N), Woods Rose (N), Serviceberry (N), Skunkbush Sumac (N), Caragana, Tartarian Honeysuckle, Chokecherry (N), Snowberry (N), Mountain Mahogany (N)



Wildlife can get stranded in livestock water tanks. Consider creating a climbing ladder.

Keep Canals Clean

The canals that crisscross Idaho's rural landscape are more than just "ditches" that look pretty when water is flowing in them.

You probably know how important canal systems are to the economy and that, without this water, our farms would not be able to sustain crops. It should come as no surprise that serious problems are created for the entire community when canal systems become a dumping ground for grass clippings, yard debris and trash.

Trash that is thrown or blown into canals impedes the flow of water to farms. Even small items such as plastic sacks or grass clippings can clog an irrigator's pump, or plug a pipe, and cause thousands of dollars of damage. Canal dumping is a threat to our quality of life. Canal water not used for irrigation returns to rivers. Any chemicals contained in trash, or chemical residue on grass and yard debris, are potential pollutants that threaten water quality as well as fish and wildlife habitat.

If You Live Near a Canal

Remember that most canals and canal rights of way are private property. You must obtain permission from the canal company or association before attempting to maintain these areas.

Here are a few steps to take to keep canals clean:

- Treat used motor oils, paints, paint thinners, cleaning compounds, polishing and degreasing compounds, acids and pesticides as toxic waste. Read labels for information on proper disposal or take them to the local recycling center.
- Create neighborhood pride. Clean up the canal area in your neighborhood, and it will no longer attract continued dumping.
- Remove all old junk, such as tires, boards, construction debris, etc. Trash can obstruct the flow of water, and residual chemicals will contaminate water bodies.
- Plant grass on canal banks to reduce weeds, prevent erosion and provide a filtering action for any waste products that happen to flow into the canal.
- Remove weeds. Canal waters carry noxious weed seeds downstream, spreading them to other urban and agricultural lands.
- Manage rodents that can weaken canal banks.
- Keep your fence away from the easement area so canal managers can properly maintain and service these waterways.

Did You Know?

Used motor oil contains lead and a variety of hydrocarbons that are toxic to aquatic life. When dumped on banks, it can seep directly into canal water and ultimately end up in a river. Even a small amount will prove toxic.

Gardens planted on canal banks prevent easement access. Chemical applications can contaminate canal water.

Don't plant trees along canal banks. They create a water demand, and growing roots damage the banks. Mature trees impair easement access for maintenance.



Living with the Wind

Windbreaks are plantings of single or multiple rows of trees or shrubs established to buffer the wind. Windbreaks provide shelter for homes, livestock and wildlife. They also provide a living screen to control views, lessen noise and help manage snow.

Windbreaks: Planning and Care

The height of the tallest row and overall density of foliage and branches of an individual planting influence the amount of the down-wind area that is protected or sheltered. Good site preparation is essential to success. The site must be free of weeds and other vegetation, and protected from livestock or other grazing and browsing animals. Control weeds that can rob young trees of moisture and slow growth. Consider using a fabric mulch or weed barrier.

New trees will need adequate water. Consider installing a drip irrigation system which is more efficient and less labor intensive than hand watering. Once the windbreak is established, it will still need your attention. Trees and shrubs may need pruning or replacement if they don't grow properly or die.



Where to Get Help

- The Natural Resources Conservation Service can help you plan and design a windbreak.
- Financial help may be available through the Idaho Department of Lands or Idaho Department of Fish and Game.
- Your local Soil Conservation District or Cooperative Extension office may be a source for trees and shrubs.

How Can a Windbreak Help?

- Protects animals by reducing wind velocity
- Reduces drifting snow around buildings, in feedlots and across roadways
- Lowers cost of home heating (up to 30 percent)



(Below) A new windbreak: they do take time to grow.



Forest Management

Some landowners are blessed with an already established small forest when they purchase the property. Others begin with bare land and “build” a forest by planting seedlings. No matter what stage of development your forest is in, an action plan is needed to help manage it. You don’t need to be a forester to prepare a plan. It can be very simple: a list of your objectives and an action timetable.

Tips for Healthy Woodlands

- Maintain diverse species and ages of trees.
- Reduce losses to problem insects and diseases by removing infected trees and slash as soon as possible.
- Thin the tree stand to improve growth, health and vigor and reduce insect attack. It will also increase forage for livestock by providing open space beneath the canopy. Leave the largest and healthiest trees.
- Avoid season-long livestock grazing that can compact soils and damage trees from browsing or rubbing.
- Locate access roads away from streams and construct adequate drainage. Seed cut-and-fill slopes on roadways or trails promptly to reduce soil erosion and water pollution.
- Dispose of heavy accumulations of downed woody material to reduce fire hazard. Leave snags and larger downed trees for wildlife and forest nutrient recycling.



- When chemically controlling weeds, take special precautions not to kill the trees or contaminate water sources.
- When planting trees, select species adapted to your soil, climate and particular site.
- Care for new trees by watering regularly (if possible) and removing competing vegetation in a 2-5 foot diameter around the trunk.
- Contact the Idaho Cooperative Extension Forestry Office in Coeur d’Alene or in Moscow. They also have several publications and videos available on managing forestland.
- Strengthen your forest stewardship skills by attending local workshops designed for private, non-industrial landowners.
- Private forestry consultants can also help. A directory of consultants is available from the Idaho Department of Lands.

Where to Go for Help

- The Idaho Department of Lands assists Idaho landowners with timber harvests and forest stand improvements like thinning and tree planting. They also provide information about forestry best management practices.

Protect Your Home from Wildfires

In areas where wildfires have occurred naturally for centuries, homes and gardens now add fuels that can accelerate the spread of fire. Here are some tips that can help you protect lives and property from wildfire.

Fire Preparedness

- Prepare a simple fire escape plan for all members of your family. Include escape from the vicinity of your home and from within the home itself. Decide on a location for the family to gather should anyone become separated.
- In case of fire, notify the local fire department immediately.
- Make sure emergency vehicles can get into and out of your location.
- Provide a simple tool storage area where common tools such as rakes, shovels, axes, garden hose/nozzle, bucket and ladder are available in case of fire.
- Have an approved fire extinguisher available. Make sure every family member knows how to use it properly.

Landscaping to Prevent Fires

- Use fire resistant plants for landscaping.
- Place larger growing shrubs away from your home in open areas or mass them in small groupings.
- Keep your lawn and shrubs well watered. As plants drink up the moisture, they become less fire-prone.



- Prune the lower branches of trees to a height of 6-10 feet to remove lower fuels that can help a ground fire become more destructive. To avoid stressing the tree, no more than one-third of the foliage should be removed at one time. Do not prune lower branches of windbreaks and shelterbelts.
- Remove dead and diseased branches from trees to reduce the potential of fire spreading into the crowns.
- Remove or mow dry grasses, weeds and underbrush.
- Maintain lawn and garden equipment according to manufacturer's instructions. Without maintenance, an engine can overheat and start a fire.
- Refuel equipment in an area away from vegetation and on level ground to help avoid spills. Gasoline fumes can travel several feet from even a small spill. If the fumes reach a nearby source of ignition, a fire can flash over the surface and back to the spill instantly.
- Store oils, gasoline and other flammables in safe containers kept in well-ventilated areas.

General Precautions

- Place a 1/2-inch mesh screen over chimneys and incinerators.
- Use flame resistant materials for roofing and exterior walls.
- Use barriers like driveways, walks and masonry walls to help retard the progress of a fire toward your home and plants.
- Never pile firewood against your home or outbuildings, under decks or in carports.
- Keep roofs and gutters clean of pine needles or leaf litter that could provide an ignition source for fire.
- Avoid the use of wood shakes for home shingle materials.
- Cut back tree limbs that overhang your home or outbuildings.

Resources

Organizations and agencies to contact for further assistance.

Who to Contact:

Animal manure storage & management

Natural Resources Conservation Service, Cooperative Extension
Idaho Department of Environmental Quality

Certified drinking water testing labs

Idaho Department of Environmental Quality

Construction/inspection, abandonment of unused wells

Idaho Department of Water Resources

Dredging or filling waterways, wetlands or perennial streams

Idaho Department of Water Resources,
Army Corps of Engineers

Drinking water wells, contamination

Idaho Department of Environmental Quality

Fertilizer storage handling, disposal and safety

Cooperative Extension

Forest practices (timber harvest, reforestation, roads, chemical application, slashing)

Idaho Department of Lands

Household hazardous waste disposal

Local public health district, Cooperative Extension

Idaho Home-A-Syst

Local Soil Conservation District

Noxious weed control

County Weed Superintendent or Cooperative Extension

Septic systems, guidelines & standards

Idaho Department of Environmental Quality

Soil surveys & interpretations

Natural Resources Conservation Service

Stream channel alterations

Idaho Department of Water Resources

Water rights

Idaho Department of Water Resources

Water quality problems/solutions

Natural Resources Conservation Service

Preventing Fires

Cooperative Extension

Idaho Resource Conservation & Development (RC&Ds)

Websites:

Natural Resources Conservation Service

www.id.nrcs.usda.gov

Idaho OnePlan

www.oneplan.org

Idaho Home-A-Syst

homeasyst.idahoag.us

Idaho Weed Awareness Campaign

www.idahoweedawareness.net

Xeriscape

www.xeriscape.org
www.water.denver.co.gov
(click on "conservation")

Preventing Fires

www.firewise.org

Idaho Association of Soil Conservation Districts

www.iascd.state.id.us

Cooperative Extension

www.uidaho.edu/extension

Idaho Department of Environmental Quality

www.deq.state.id.us

Idaho Department of Water Resources

www.idwr.state.id.us

Idaho Department of Lands

www.idl.idaho.gov

Helping People Help the Land.



www.id.nrcs.usda.gov



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