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### EC97-2506 A Place in the Country: The Acreage Owner's Guide

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# A Place in the Country:

# The Acreage Owner's Guide



University of Nebraska Cooperative Extension / Institute of Agriculture and Natural Resources / University of Nebraska-Lincoln



## Questions? Perhaps we can help!

We put knowledge to work in University of Nebraska Cooperative Extension – scientific knowledge developed to help Nebraskans address the critical economic, social and environmental issues that affect their lives. Over 2,500 research-based publications on everything from gardening to raising livestock, and from drinking water to wildlife management are available at your nearest Extension office. You also can check out our extensive publications listing on the World Wide Web.

## Our World Wide Web home page:

For more information on University of Nebraska Cooperative Extension and what it has to offer you, access the Cooperative Extension home page on the World Wide Web at:

<http://www.ianr.unl.edu/ianr/coopext/coopext.htm>

We also have an *Acreage and Small Farm Insights* Web site. Topics at that Web site include landscaping, waste water, safety, water management, animals, buildings, crops, machinery, specialties, weeds, wildlife, haylands and pasture, farm management and home management. You'll find that Web site at:

<http://www.ianr.unl.edu/ianr/dodge/acreage/>

## NUFACTS Information Center — available 24 hours a day!

Dial 1-800-832-5441 (441-7188 in the Lincoln area) for fast, convenient, accessible recorded information on yard and garden, nutrition, agriculture, family life, environment, finances, wildlife, insects, water quality and household topics. This information is available 24 hours a day, seven days a week.

If you prefer, you can visit our NUFACTS Information Center Web site at:

<http://citvsgil.unl.edu/nufacts/>

## Our mission in University of Nebraska Cooperative Extension:

*Helping Nebraskans enhance their lives through research-based education.*

### The resource guide development team (in alphabetical order):

Gary C. Bergman, Corey Brubaker, Kathleen Cue, Dennis Ferraro, Keith Glewen, Don Janssen, Kevin Kock, Rich Lodes, Barb Ogg, Jim Peterson, Warder Shires, Sharon Skipton, Monte Stauffer and Dave Varner, all University of Nebraska Cooperative Extension.

**Designer:** Clint Chapman



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# Contents

Assessing the Rural Life  
 Knowing your Responsibilities  
 Making a Plan  
 Exploring Horticulture  
 Evaluating Drinking Water  
 Protecting Surface Water Quality

3  
4  
5  
6  
7  
8

Handling Waste Water  
 Managing Wastes  
 Understanding Soil Resources  
 Controlling Pests  
 Keeping Animals  
 Living with Wildlife

9  
10  
11  
12  
13  
14

## WHAT You Need to Know As A Nebraska Landowner

## WHO To Contact

<p><b>Building Codes and Permits</b> — Before building, contact your county planning office to obtain zoning requirements and information. Find out if your city or county has special ordinances, such as property access covenants that may affect your proposed activity.</p>	<ul style="list-style-type: none"> <li>◦ City/County Planning</li> <li>◦ Local Building Official</li> </ul>
<p><b>Floodplain Protection</b> — A local <i>permit</i> may be needed before doing any construction work in an area designated as a 100-year floodplain. If you are in a floodplain, insurance and financing may be restricted.</p>	<ul style="list-style-type: none"> <li>◦ Local Planning or Building Official</li> <li>◦ Local USDA Natural Resources Conservation Service Office</li> <li>◦ Local Natural Resources District</li> </ul>
<p><b>Buried Utilities</b> — There may be any number of utilities on your property that serve you and others. Care should be taken to determine proper location of utilities before construction begins. Call before you dig!</p>	<ul style="list-style-type: none"> <li>◦ Diggers “One Call” Hotline of Nebraska 1-800-331-5666</li> <li>◦ Local utility companies</li> <li>◦ County engineer</li> </ul>
<p><b>Trees, Grasses and Ornamentals</b> — Care should be taken in selecting plant materials for your acreage. Consider water and maintenance requirements, adaptability, soil type and planned use of the vegetation.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ Local USDA Natural Resources Conservation Service Office</li> <li>◦ Local Natural Resources District</li> </ul>
<p><b>Drinking Water Wells</b> — All wells must be registered with the Nebraska Department of Water Resources and must meet Nebraska Water Well Construction Standards.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ Nebraska Department of Water Resources (402) 471-2363</li> <li>◦ Nebraska Health and Human Services System (402) 471-2541</li> <li>◦ Local Health Department</li> </ul>
<p><b>Waste Water Treatment Systems</b> — State law regulates waste water treatment system installation, including the minimum acceptable distance between your septic system and drinking water wells, streams and groundwater. Some counties also require a <i>permit</i> and must approve the system design and installation.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ Nebraska Department of Environmental Quality (402) 471-4220</li> <li>◦ Local Health Department</li> <li>◦ Local Planning or Building Official</li> </ul>
<p><b>Irrigation Wells</b> — All wells must be registered with the Nebraska Department of Water Resources. Landowners also must obtain a <i>permit</i> from their Natural Resources District to drill a well producing over 50 gallons per minute in a Groundwater Management Area.</p>	<ul style="list-style-type: none"> <li>◦ Nebraska Department of Water Resources (402) 471-2363</li> <li>◦ Local Natural Resources District</li> </ul>
<p><b>Water Quality Protection</b> — You are responsible for preventing livestock manure, pesticides, sediment and other pollutants from reaching surface water or groundwater.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ Nebraska Department of Environmental Quality (402) 471-4220</li> <li>◦ Local Health Department</li> <li>◦ Local Natural Resources District</li> <li>◦ Local USDA Natural Resources Conservation Service Office</li> </ul>
<p><b>Surface Water Use</b> — Water use <i>permits</i> are required before diverting, withdrawing, impounding or distributing any surface water.</p>	<ul style="list-style-type: none"> <li>◦ Nebraska Department of Water Resources (402) 471-2363</li> <li>◦ Local Natural Resources District</li> </ul>
<p><b>Wetland and Stream Bank Protection</b> — <i>Permits</i> to fill, drain, dredge or alter any waters of the U.S., including wetlands, are mandatory. <i>Permits</i> also are necessary prior to any activity modifying the stream channel or stream banks.</p>	<ul style="list-style-type: none"> <li>◦ U.S. Army Corps of Engineers, Omaha (402) 896-0723</li> <li>◦ Nebraska Department of Environmental Quality (402) 471-4700</li> <li>◦ Nebraska Game and Parks Commission (402) 471-0641</li> <li>◦ Local USDA Natural Resources Conservation Service Office</li> <li>◦ Local Natural Resources District</li> </ul>
<p><b>Solid Waste Management</b> — Solid waste disposal must adhere to Nebraska statutes. Locating a licensed dump site, securing waste disposal services and implementing a recycling plan are important.</p>	<ul style="list-style-type: none"> <li>◦ Local Health Department</li> <li>◦ Nebraska Department of Environmental Quality (402) 471-4210</li> </ul>
<p><b>Open Burning</b> — Open burning <i>permits</i> may be required by local ordinance and/or in accordance with the Nebraska Air Pollution Control Rules and Regulations. The State Fire Marshal’s ban on open burning makes all open burning illegal unless waived by the local fire chief.</p>	<ul style="list-style-type: none"> <li>◦ Your Local Fire District</li> <li>◦ Nebraska State Fire Marshal (402) 471-2027</li> <li>◦ Local Health Department</li> <li>◦ Nebraska Department of Environmental Quality (402) 471-2189</li> </ul>
<p><b>Noxious Weed Control</b> — State law requires control of noxious weeds. Find out which weeds are considered noxious and how to control them.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ Nebraska Department of Agriculture (402) 471-2341</li> <li>◦ Local Noxious Weed Control Authority</li> </ul>
<p><b>Fence Laws</b> — Nebraska livestock owners are responsible for any damage their animals cause. Neighbors are not required to share the expense of fencing unless (1) neighbors agree or (2) <i>neighbors fence viewer</i> process is implemented. The “fence viewers” determine each participant’s responsibilities for the fence.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ County Clerk</li> </ul>
<p><b>Threatened and Endangered Species</b> — Certain plant and animal species have been identified by the U.S. Fish and Wildlife Service. Management of your private lands may be affected if these species are present.</p>	<ul style="list-style-type: none"> <li>◦ Local University of Nebraska Cooperative Extension Office</li> <li>◦ U.S. Fish and Wildlife Service (308) 382-6468</li> <li>◦ Nebraska Game and Parks Commission (402) 471-0641</li> </ul>

# Assessing the Rural Life

## Why own an Acreage?

- *Additional space, privacy and quiet?*
- *More diverse landscape, better view or to observe wildlife?*
- *Provide a better environment and/or smaller school for children?*
- *Establish a location for a home-based business?*
- *Have space for gardens, animals and pets?*
- *Other reasons?*



Before making the decision, several matters should be thoroughly investigated. Unless at least one family member has experienced living in a rural area, the chances for an easy transition are not good. In many

cases urbanites discover (sometimes too late) that there are some aspects of rural life that fall short of their expectations when compared to the conveniences available in the city. It will take a very thorough evaluation on the part of the entire family to determine if their lifestyle is going to fit into this new environment. Those who find that rural living does not measure up to their expectations may want to think twice

about moving to the country. It is far better to discover these facts in time to avoid making a costly mistake if rural life is not for you.

Here are a few important issues to consider in making that important decision:

## Safety -

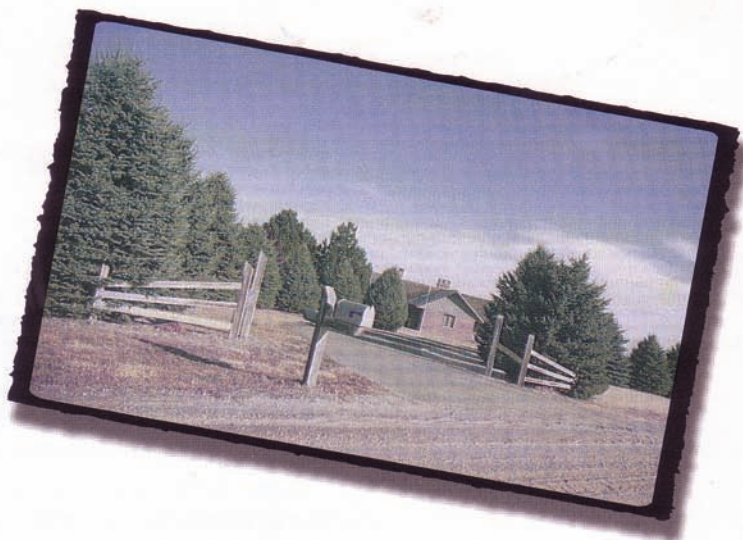
Law enforcement outside of city limits belongs basically to the county sheriff. Some small towns also contract the services of the sheriff's patrol. Although some people will argue that rural areas are generally safer from crime, reduced coverage and longer response to calls create a concern for many acreage owners. Some acreage owners overcome this deficiency with modern security systems.

## Schools -

This is probably the single greatest concern of parents with children. They need to know about a school's credibility, curriculum, disciplinary policies and educational opportunities. This investigation should involve more than just checking the distance to and the outside appearance of the school.

## Transportation -

In nearly every situation, living in the country will require more transportation than living in an urban area. It will result in more time and expense in getting to work, school, church, shopping, entertainment, etc. In many rural school districts, buses are provided to transport students to school. If bus transportation is not provided, additional vehicles may be needed for kids who are old enough to drive to school. Kids not old enough to possess a driver's license may require someone to transport them. County road surfaces are often maintained less frequently and snow removal can be a problem



in rural neighborhoods where the county is able to provide only minimal service. Those who expect all county roads to have the same priority as major highways will be greatly disappointed.

## Fire and Rescue -

Most rural communities rely on their organized volunteer fire and rescue units for these services. Because of the large areas these units have to cover, response times to an emergency may be longer than in the city. The volunteers for these units are generally local residents. People in the area have to be willing to donate their time to provide these essential services. There is no better way, however, to become accepted as a member of a community than to work as a volunteer.

## Cost of Living -

Even though rural property taxes may be less compared with equivalent urban properties, acreage owners may actually find it more expensive to live in the country than in the city. Capital costs of water supply, waste disposal and transportation

are usually much higher. Maintenance expense for snow removal, landscapes, driveways, etc., is also usually higher than in municipalities. Financial planning and management are primary factors in being able to meet short-term and long-term needs of acreage owners. Those who do not have sound financial plans generally fail to meet their goals.

## Time Commitment -

Those who have never lived in the country may fail to realize the time needed to properly manage an acreage. Generally the acreage family will attempt to maintain the entire acreage themselves. This may include many activities or enterprises not previously available to them, such as gardening, raising animals, horseback riding, etc. People who do not have enough spare time may become frustrated with the additional time needed to care for an acreage. On the other hand, those who enjoy doing all the tasks required to maintain an acreage will consider it to be a good investment.

## Environment -

Recognize that production agriculture can and usually does generate dust, odors and noise that should be realized and expected in many situations.



**F**or many, living on a few acres in a country setting is a new lifestyle. You will be coexisting with new neighbors whose lifestyle and values may differ from yours. Some will be longtime farmers, perhaps established for several generations, whose livelihood is based on production of crops and livestock. At times you may be surrounded by strange farm equipment, noises and odors. To a newcomer this may be alarming; to others it may be a rewarding learning opportunity.

Experiencing the changing seasons with spring planting of crops, cattle grazing on green pastures and large machines harvesting mature crops can truly be something to behold. Take time to learn about production agriculture and what is required for our nation's food and fiber system. Try to understand why a farmer must operate his tractor at night, and the management practices used for the production of food.



## Knowing your Responsibilities

A special place in the country is often a long-awaited dream. For many it communicates freedom, open space, clean air and unique opportunities to enjoy hobbies, nature and quiet living at its best. Making this a reality not only requires a major financial investment, it also requires careful planning and assessment of the existing property or new homesite under consideration.

Assume personal responsibility—time spent on early problem solving and decision making can prevent costly mistakes and unhappiness.

- ⊙ Acquaint yourself with the community land use plans and vision for the area; determine how they will fit your goals of land ownership and a place to live.
- ⊙ Consider zoning, future traffic patterns, impact of lighting from future developments (air, light and noise pollution) and other situations that may be detrimental to you.
- ⊙ Consider natural environmentally sensitive areas that encompass land and water masses that will require particular maintenance and preservation to include land-use restrictions.
- ⊙ Determine permit requirements, building setbacks, codes, easements, covenants and other circumstances surrounding your identified property.
- ⊙ Enter into land purchases only when your requirements for water, sewage and accessibility are met and contingency is assured.
- ⊙ Have an attorney at law represent your interests when considering properties and when signing purchase agreements.

### Quiz

- 1 *Rural properties can be subject to zoning and permit requirements.*  
True False
- 2 *Water, sewage disposal and accessibility to the property are three key factors in selecting a homesite.*  
True False
- 3 *An attorney at law should always be used to represent your interest when entering into purchase agreements.*  
True False
- 4 *Maintaining quality of life in a rural setting requires mutual understanding, respect for others, and practiced citizenship.*  
True False
- 5 *Assuming personal responsibility, becoming informed and utilizing available resources will prevent many costly mistakes.*  
True False
- 6 *It is important for acreage owners to acknowledge a farmer's "right to farm" in an agricultural setting and to coexist without conflict.*  
True False

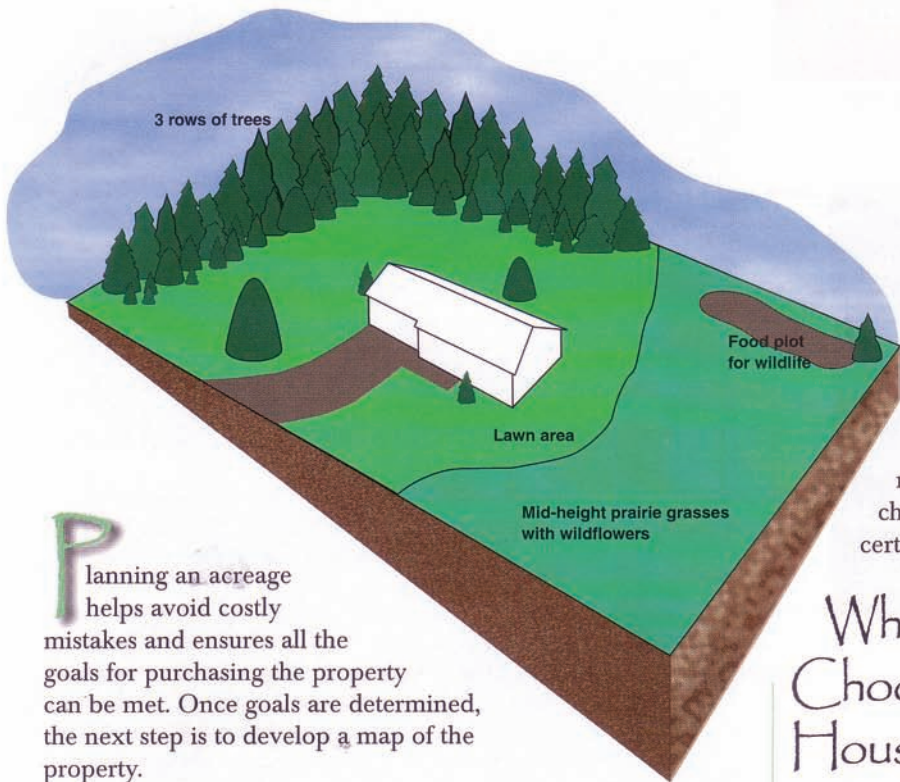
If you answer **False** to any of the above questions it is suggested that you carefully review this brochure and seek information from the provided list of agencies and contacts.

Practice being a good neighbor... take responsibility to maintain the quality of life you and your neighbors desire

- ⊙ Establish good neighbor relationships. Practice citizenship, contribute to the community and respect neighboring properties and the rights of others.
- ⊙ Respect trespassing laws and inform children about safety issues. Many times neighboring pastures and fields are inviting playgrounds full of potential risks, i.e. frozen ponds, large animals, rough terrain.
- ⊙ Assume responsibility for sustaining land, water and environmental quality. Attend educational programs and use resources of Cooperative Extension, the Natural Resources District and Game and Parks Commission.
- ⊙ Determine impact to others when you make decisions regarding your property. Examples include planting trees that eventually grow into power lines or create icy road conditions and snowdrifts on public roadways and private driveways.
- ⊙ Understand ownership responsibilities for pets, horses and other livestock. Loose animals cause safety concerns and overgrazing of your pastures can bring negative impact to adjoining property.
- ⊙ Don't assume that complete freedom exists in the countryside. Shooting firearms, various commercial activities, outdoor collections of vehicles and equipment often are viewed as nuisances distracting from the neighborhood.
- ⊙ Acknowledge that expectations for snow removal on public roadways, emergency rescue, fire and law enforcement protection are much different in a country setting. Response times usually are longer due to distance, road conditions, etc.



# Making a Plan



**P**lanning an acreage helps avoid costly mistakes and ensures all the goals for purchasing the property can be met. Once goals are determined, the next step is to develop a map of the property.

- desirable and undesirable views, and potential noise sources;
- buried pipelines, power cables, telephone lines, cable television conductors and easements.
- Be creative and try anticipating where adjacent landowners will build houses and plant trees. Also, think about the land uses in the surrounding properties. Could the current use of the land change? If so, how? Is it going to be desirable to screen certain neighboring properties?

## What Should be Considered in Choosing a Location for a House?

- Place the house to provide the desired views, but realize the only view landowners control is the view to their property line. Beyond the property boundary, the view is controlled by other landowners.
- Sewage systems must go downhill, which is critical in properly locating a house.
- The location of the driveway is dictated by the safest point of entrance and exit. For safety, driveways should be placed where there is a minimum of 100 feet sighting distance in both directions along the local road. Driveways should follow the lay of the land where possible to create a more aesthetic entrance to the house, and to avoid steep grades (especially on north-facing slopes where snow and ice may accumulate in the winter).

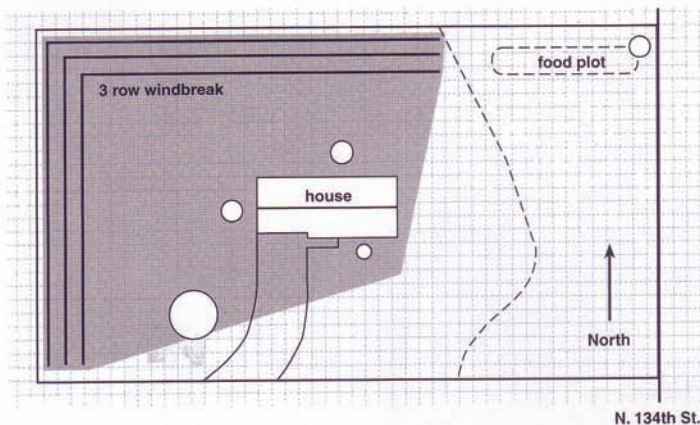
## Are Maps Available?

Aerial photographs are available from the Farm Service Agency (FSA). County engineers or county planning offices also may have aerial photographs.

Maps may be available from the county assessor, county clerk or county surveyor. The realtor or developer also may have maps.

## Making a Map if One is not Already Available

If no map exists, then draw the property to scale onto a piece of graph paper using the dimensions provided by the county surveyor. Graph paper on 8.5 x 11 inch paper with 10 squares to an inch is common. If the lot is 500 feet x 500 feet (5.7 acres) and each square equals 10 feet, you need 50 squares (5 inches) to equal 500 feet.



## What is Existing on the Property?

- Once a map of the property is drawn, inventory all the features and place them on the map at their appropriate locations. Be sure to look for existing physical features such as:
  - drainages or waterways, roads, fences, underground pipelines, aboveground wires, existing wells, location of floodplains and wetlands, predominant winter and summer wind directions;
  - vegetation features such as existing forests, tree lines, prairies, grasslands and croplands;

- Predominate winter winds are from the west, northwest and north. House and windbreak placements are important. There should be 100-150 feet between windbreaks and driveways or houses to avoid depositing snow onto the house and driveway.
- Be aware of underground cables, pipelines and overhead wires before incorporating tree plantings into the plan. Remember, trees planted under wires will be subject to removal by the telephone or power company, and trees planted over underground pipes will be destroyed if any repairs are needed on the pipes.

## Other than the Building Site, What about the Rest of the Land?

Decide how much lawn you want around the home. Be sure to consider time and money in maintaining the turf. Typically, many areas of an acreage do not need to be high maintenance turfgrass. Use of buffalograss and other native grasses can lower maintenance while enhancing aesthetics and habitat value.

Review your original reasons for purchasing the land and incorporate areas of land uses consistent with your original reasons for owning an acreage. Some possibilities include:

- aesthetics;
- garden space;
- tree plantings for visual screening or sound barriers;
- pasture or hay fields for livestock;
- wildlife habitat;
- prairie grasses and wildflowers;
- cropland.

# Check Your Plant IQ!

Are you using pest-resistant landscape plants to minimize maintenance and save money? **Yes No**

Are you aware that mulching conserves soil moisture and reduces weeds? **Yes No**

Are you implementing planting beds to reduce the size of your high-maintenance turfgrass areas? **Yes No**

If you answered **No** to any of these landscape questions, read on for more plant information!

## A Sustainable Nebraska Landscape...

minimizes high maintenance turfgrass areas, utilizes plant material for shade, wind protection, erosion control and beauty, and uses native/adapted plant species to save on maintenance costs.



Get the most for your plant dollar! Besides choosing plants for their flower, consider plant species that offer:

- multi-season beauty;
- healthy, pest-resistant foliage;
- fall coloration;
- persistent fruit for attracting wildlife;
- interesting bark, buds, or seed heads for winter viewing.

For more information on environmentally-sound landscape design and management, refer to “Prairie Scapes” (eastern Nebraska) or “Plains Scapes” (western Nebraska) available from the UNL Water Center (402) 472-3305.

## Tips

- Choose the right plant for the right place; sun-loving plants require at least six hours of direct sunlight per day, shade-loving species must have shade, and stream bank areas or low areas are needed for plants that prefer wet feet.
- Mulch beds to reduce weeds, conserve soil moisture, reduce soil temperature, and lessen “mower blight” of desirable trees and shrubs.
- Position plants with the ultimate height and width in mind. This minimizes overplanting and costly plant removal.
- Why choose water-efficient plant species? By lessening the need for irrigation, homeowners decrease the chance of erosion, runoff, and nonpoint source pollution.
- Organic matter added to soil will loosen a clay soil, increase water-holding capacity of sandy soils, make soil easier to till, and provide nutrients.
- Lawn maintenance is a labor- and money-intensive chore. Mowing, watering, weeding, fertilizing and equipment upkeep account for the bulk of landscape maintenance. Lower these demands by limiting turfgrass area, using native buffalograss which requires less inputs, and implementing mulched beds.

For diversity, consider using all of the following types of plants in your landscape.

- Annuals for quick color, as a filler (see NebGuide G77-344\*, “Annual Flowers for Specific Uses in Nebraska”)
- Perennials for long-term color (see NebGuide G97-1214\*, “Perennial Flowers for Water-Wise Gardeners” or NebGuide G96-1310\*, “Ornamental Grasses in Nebraska Landscapes”)
- Vines—twining and clinging to suit any situation
- Shrubs (see NebGuide G91-1014\*, “Ornamental Shrubs for Nebraska”)
- Trees—for shade, understory (see “Woody Landscape Plants for Nebraska Communities” by the Nebraska Statewide Arboretum (402) 472-2971)

\* NebGuides are available at your local University of Nebraska Cooperative Extension Office.

## Native and Adapted Plants for Nebraska...



◦ are hardy to USDA hardiness zone 4 or 5 (depending on where you are located in the state);

◦ tolerate the desiccating winds of summer and winter;

- resist disease and insect pests to minimize homeowner pesticide use;
- possess deep root systems for maximum drought tolerance;
- use existing soil fertility with low-input fertilizer applications;
- tolerate Nebraska winters, i.e., periods of minimal snow cover, desiccating winds, temperature extremes, and winter warm spells.

Questions about the hardiness of your plant? Call your local Cooperative Extension office.



# Evaluating Drinking Water



## How Safe Is Your Drinking Water?

Is your drinking water well located less than 100 feet from your waste water treatment system drain field? **Yes No**

Do water tests show coliform bacteria or nitrate contamination? **Yes No**

Is the well constructed of material other than watertight heavy-gauge metal or National Sanitation Foundation approved plastic? **Yes No**

If you answered **Yes** to any of these questions you will want to take immediate action to correct the problem. Get help.

## Before You Rent or Buy

Most town and city dwellers rely on a public water system for their source of water. These water supplies are regulated by the Environmental Protection Agency (EPA) and the Nebraska Department of Health and Human Services. Users need only pay the water bill to keep an adequate supply of safe water flowing. Publicly supplied water may be available to some acreage dwellers able to access municipal, community or rural water district systems, but most acreage dwellers rely on private wells as their source of water. Private water supplies are not regulated, and users must operate, maintain and ensure the safety of their water supply. Before renting or buying an acreage, be certain you will have a source of water that will provide the quantity and quality you need.

## Water Quantity

The average American uses from 60 to 100 gallons of water per day. Cleaning, fire protection, landscape irrigation, water for animals and other uses increase the total gallons needed per day. Water use does not occur evenly over the course of a day and the water system must often meet the needs of many uses during short periods of time. These times, called peak use periods, usually last from 30 minutes to two

hours and usually occur near mealtimes, during laundry periods, and shortly before bedtime. A water system must be able to meet both total gallons per day and peak use demands. The water system flow rate is the quantity of water delivered in gallons per minute. The flow rate should at least equal the peak use rate (the greatest water demand likely to occur at one time), and should be capable of maintaining this rate continuously for one to two hours. For home use, a minimum flow rate of 10 gallons per minute is recommended, but a higher flow rate is desirable. If water needs exceed the maximum well yield, intermediate storage can be installed to help supply water.



## Water Quality

A safe source of water for human consumption does not need to be pure water, but should meet EPA primary drinking water standards. All private wells should be tested by a certified, independent laboratory and results compared to EPA drinking water standards. Two contaminants of primary concern are coliform bacteria and nitrate. There should be no coliform bacteria in the water and the nitrate-nitrogen concentration should not exceed 10 milligrams per liter. Water also should be tested for any pesticide, petroleum, or volatile organic chemical known to have been stored, mixed or used near the well location; lead, if suspected in the water distribution system; and any other suspected contaminants. While not health risks, nuisance contaminants of iron, manganese, calcium and magnesium also can be tested.

Proper well construction, keeping contaminants away from the well, backflow prevention, and decommissioning illegal unused wells can help protect a water supply. Check the history of and existing condition of each well on the property.

## The Water Well

While the water supplied by a private well is not regulated, the design, location and construction of the water well is regulated by the Nebraska Department of Health and Human Services.

A private water well must be located and constructed to protect it from surface waters and from seepage from sources of contamination. It should be located at least 50 feet from a septic tank or non-watertight sewer line; at least 100 feet from any seepage pit, cesspool, tile field, privy or other subsurface disposal system; and at least 100 feet from any feedlot, manure pit, manure or sewage lagoon or livestock lot.

It should be constructed of watertight casing, preferably heavy-gauge metal or National Sanitation Foundation approved plastic; have all joints in the well casing screwed, welded, or otherwise properly sealed; have a well casing that extends at least 12 inches above the grade of the land surface; have a sanitary well cap used on the casing; and have pitless installation, or, if a pit is used, have a pit at least 10 feet away from the well.

The space between the casing and the wall of the drill hole must be filled following specific guidelines.

## Additional Information

For additional information on the rules and regulations governing a private water well, contact the Nebraska Department of Health and Human Services.

If you need help with environmental issues, contact your Cooperative Extension Office.

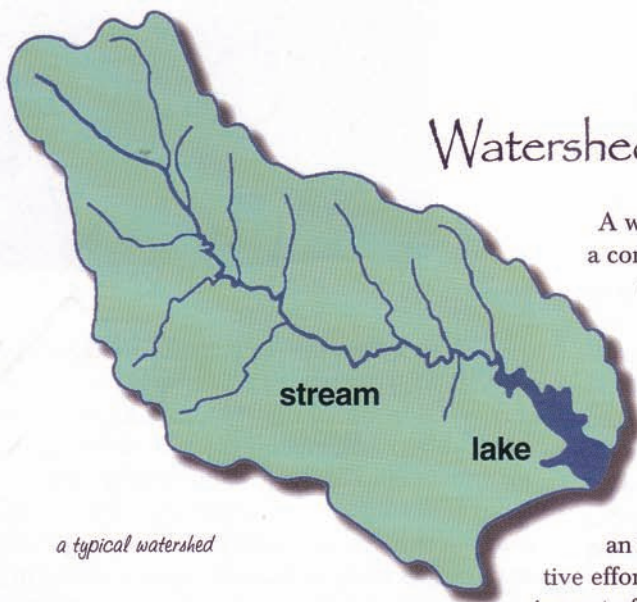
Protecting the water resources on your property, whether natural or constructed, should be one of your highest priorities. Well-managed streams, ponds and wetlands add beauty and diversity to the landscape and enhance the value of the property. In addition, we all have a responsibility to use our water resources wisely and to protect them from contamination.

# Protecting Surface Water Quality

**Water Quality Quiz**

1. What I do on my land has no impact on water quality. **True False**
2. Riparian areas are not essential for protecting water quality. **True False**
3. It's OK to fill or drain a wetland. **True False**

If you answered **True** to any of these questions, read on.



a typical watershed

## Watersheds and Water Quality

A watershed is an area of land from which all runoff drains to a common outlet such as a stream, river, lake or wetland. Land use within a watershed influences both the quantity and quality of runoff. Runoff carries sediment, plant nutrients, oil, antifreeze, pesticides and other pollutants directly into surface waters. Because most of this pollution comes from many dispersed sources throughout a watershed, it is referred to as nonpoint source pollution.

Everyone lives and works in a watershed and has an impact on water quality. Therefore, a conscious, cooperative effort by everyone in the watershed is the key to reducing the impact of **nonpoint source pollution**.



Lower Platte South NRD photo

## Wetlands

Wetlands are environmentally important areas on the landscape where the water table is usually at or near the surface, or the land is covered by shallow water. They generally occur in conjunction with aquatic systems such as streams or lakes, but also can occur in small depressional areas on uplands.

Wetlands play a significant role in protecting water quality by trapping sediment, storing nutrients and removing many other types of contaminants from surface water. Wetlands also provide habitat for a wide variety of plants and animals.

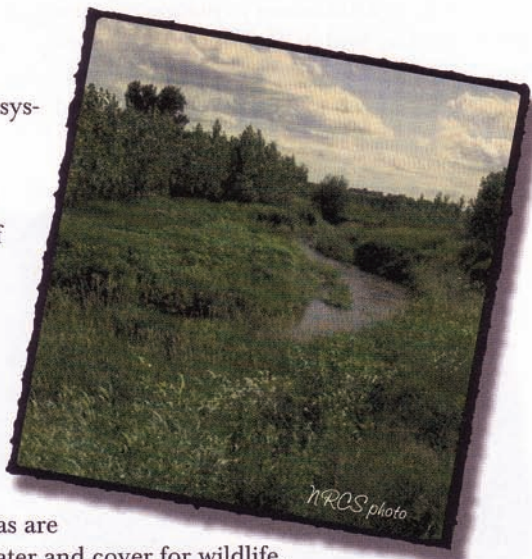
It is illegal to fill or drain a wetland without first obtaining a permit from the U.S. Army Corps of Engineers. To determine whether or not you have a wetland area, contact your local office of the Natural Resources Conservation Service.

### What can YOU do?

- Control runoff and soil erosion on your property.
- Use fertilizers and pesticides sparingly and according to label directions.
- Dispose of used oil, antifreeze, paints and other household chemicals properly.
- Properly maintain septic systems and lagoons.
- Protect wetlands and riparian areas.

## Riparian Areas

Riparian areas are unique ecosystems located along the banks of streams, rivers, lakes and wetlands. Because they occur at the interface between upland areas and bodies of water, the importance of riparian zones far exceeds their minor proportion of the land base. Healthy riparian vegetation stabilizes stream banks, traps sediment eroded from upland areas and can remove plant nutrients and other contaminants from runoff before they reach the stream. Riparian areas are also valuable as a source of food, water and cover for wildlife.



NRCS photo

For more information on protecting water quality, contact your local Extension office or Natural Resources District.

# Handling Waste Water

## Before you Rent or Buy

Most town and city dwellers rely on a public waste water treatment system for sewage management. Users need only pay their bill to ensure sewage removal and treatment. Public waste water treatment systems may be available to some acreage dwellers, but most rely on private on-site waste water treatment systems. The design and installation of private systems for a residence are regulated by the Department of Environmental Quality (DEQ) and local agencies. The user is responsible for compliance with regulations. The user is also responsible for operating and maintaining the system to effectively remove waste water from the house and treat waste water to prevent bacteria, viruses, and other disease-causing pathogens from entering groundwater, surface water and/or coming in contact with humans. Before renting or buying an acreage, be certain you will have a properly designed, installed and functioning waste water treatment system capable of meeting your needs.

## Selecting a System

A private waste water treatment system that is either incorrectly designed, located or installed can cause groundwater contamination (possibly including the drinking water supply), and is a risk to human health. To select the best waste water treatment system for a given acreage, and to design and install a system that will meet the needs of the user, you must take into consideration soils, hydrology, site evaluation and water use. Options include traditional septic tank systems, mound systems, lagoons, constructed wetlands, special developments/options and other innovative systems. After careful consideration, traditional septic tank systems and lagoons most often are selected.

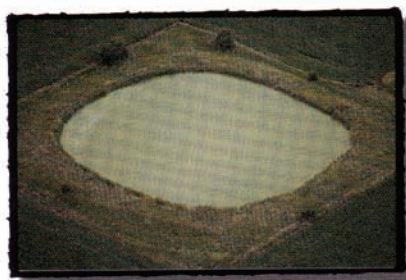
## A Septic System

The typical septic tank system consists of two components—the septic tank and the absorption field. With the septic tank, solids are separated from the liquid, undergo anaerobic digestion and are stored as sludge at the bottom of the tank. The liquid (septic effluent) flows to the absorption field where it percolates into the soil. The soil acts as a final treatment by removing bacteria, pathogens, fine particles and some chemicals.

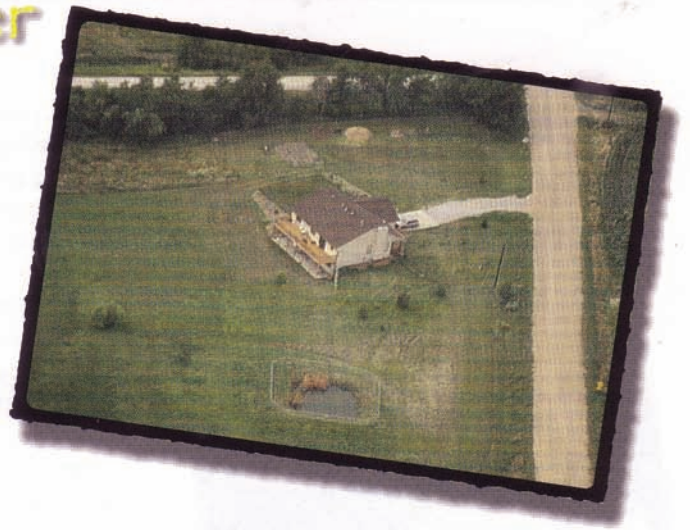
The septic system has proven satisfactory for many areas when properly designed, installed and maintained. However, conditions do exist where this system is not suitable. Areas of seasonal high groundwater tables, bedrock in close proximity to the soil surface, or soils having very fast or very slow percolation rates are not suited for the septic system. Other limitations for this system include topography, small lot size and proximity to water supplies used for drinking or recreation.

Proper maintenance and care includes periodic pumping to remove floating scum and sludge that accumulates in the septic tank.

## A Lagoon System



A lagoon system consists of a more or less square body of water. Home sewage is generally discharged directly into the lagoon, where evaporation for dewatering and both aerobic and anaerobic decomposition of sewage occurs.



Aerobic treatment occurs in the presence of oxygen and usually occurs near the lagoon surface. Aerobic treatment aids in reducing the odors released during anaerobic treatment and also provides additional treatment of home sewage. Wind movement aids in mixing oxygen into the lagoon surface and helps to increase evaporation.

The lagoon system is an effective method of home sewage treatment and is well suited for larger lot areas and soils having very slow soil percolation rates. With some soils, additional materials such as soda ash, bentonite or plastic liners may be required to completely prevent seepage of effluent.

Proper maintenance and care include periodic sludge removal and control of weeds on the banks.

## Managing an On-site Waste Water Treatment System

A private waste water treatment system that is not properly operated and maintained can cause groundwater and surface water contamination and risk to human health. Proper operation and maintenance is the responsibility of the user, and includes controlling water use, appropriate product use and disposal, and proper care of the system. Users may need to reduce the amount of water used, spread water use out evenly over a period of time, avoid using and disposing of some products and materials, and find alternative disposal methods for some waste that would normally be disposed of in a public system. Users also will need to arrange for periodic checking and cleaning of the system, and for sludge removal and disposal.

## Additional Information

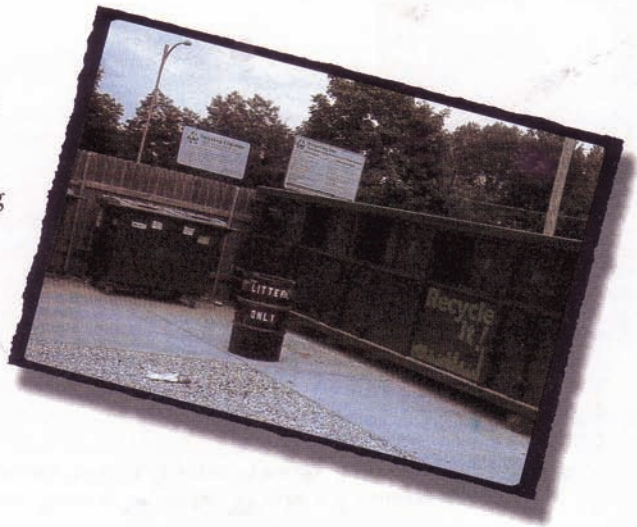
For additional information on the rules and regulations governing an on-site waste water treatment system, contact the Nebraska Department of Environmental Quality.

If you need help with environmental issues, contact your Cooperative Extension Office.

### Does Your Waste Water Treatment System Meet Your Needs?

- 1 Do you know the location of all parts of your waste water treatment system? Yes No
  - 2 Do you know what volume your waste water treatment system is designed to treat? Yes No
  - 3 Is your waste water treatment system checked annually for sludge accumulation, and sludge removed as needed? Yes No
  - 4 Is water use in your home spread out evenly over a period of time? Yes No
- If you answered **No** to any of these questions you will want to take immediate action.

Living on a few acres puts added responsibility on how people handle waste materials. Many of the conveniences associated with waste removal and recycling in urban settings are not always available in the country. In the past, rural residents took care of their own waste by putting it in a dump site on their property. This practice is now prohibited in Nebraska and heavy fines can be incurred if anyone is found with an open dump site. Using local licensed dump sites and available services as well as recycling is imperative for acreage and rural residents.



# Managing Wastes

## Information Sources

- Nebraska State Recycling Association  
800-248-7328
- Appliance Recycling Information Center  
(202) 434-7492
- Keep Nebraska Beautiful  
402-486-4562
- EPA Hazardous Waste Hotline (spills)  
800-424-9346
- Chemicals Referral Center  
800-262-8200
- Clean Community System (check locally)
- National Paint and Coatings Association, Inc.  
1500 Rhode Island Ave., NW  
Washington, DC  
20005-5597
- Steel Can Recycling Institute  
800-876-SCRI



## Recycling

### Plastics

The plastic industry has responded to the problem of recycling by developing a series of cryptic markers, commonly seen on the bottom of plastic containers. Separate plastics accordingly.

### Glass and Metals

Glass, steel (or "tin") and aluminum are easy to recognize and recycle. Separate glass according to its color. Not all glass can be recycled. Glass found in light bulbs, cookware and windows can't be recycled because ceramics were added to the glass when it was made.

### Paper

Most types of paper can be recycled. Newspapers have been recycled profitably for decades.

### Compost

Food and yard scraps placed in a special bin are converted into a valuable garden soil amendment in a matter of weeks. Composting can easily reduce by half the volume of yard waste and kitchen vegetable waste a household sends to a landfill.

## Household Toxic Materials

Items such as poisons, paints, oil, solvents, automotive fluids, cleaners, pesticides and many others must not be dumped into the garbage. The best thing to do is use what you buy and buy only what you need.

## Household and Vehicle Batteries

Dry cell batteries contribute about 88 percent of the total mercury and 50 percent of the cadmium in the municipal solid waste stream. Recycle waste batteries if possible.

Vehicle batteries are banned from disposal in Nebraska landfills. To reduce waste, buy longer-life batteries that may result in fewer batteries to recycle.

## Household Appliances and Tires

Land disposal of discarded household appliances, such as refrigerators, freezers, washers, dryers, stoves, furnaces and water heaters is prohibited.

Tires are restricted from landfills as they are not easily compacted, do not decompose readily, consume space and, due to the hollow shape, trap air and other gases in the tires.

## Open Burning

An increasing number of wildfires resulting from careless open burning has prompted regulation of this activity. Persons who wish to do some open burning must secure a burning permit from the fire chief who has jurisdiction in their area. Burning trash in an approved incinerator or burning barrel with a safety top screen is not classified as open burning; therefore, no permit is required for this activity.



## Quiz

- 1 Is a burning permit required for open burning on private property? **Yes No**
- 2 Are open dump sites on private property banned and is open dumping punishable in most counties? **Yes No**
- 3 Is the best thing to do with household toxics to use what you buy, and buy only what you need? **Yes No**

If you answered **No** to any of these questions you need to contact the State Health Department or your local health department for local waste management regulations.

**S**oils are one of the most valuable assets on an acreage. They are used as a foundation for roads and buildings, a receptacle and treatment medium for waste water and a growth medium for plants. The suitability of a particular soil for a given land use is a function of its depth, texture, structure, organic matter content and slope.

*How well do you know your soil?*

1. Do you have a soil map for your acreage? Yes No
2. Do you know what texture your soil is? Yes No
3. Do you know how deep your soil is? Yes No

*If you answered No to any of these questions, read on.*

# Understanding Soil Resources

## Soil Depth

Limitations for selected uses due to soil depth					
	< 24 inches	24-36 inches	36-60 inches	60-72 inches	> 72 inches
growing plants	severe	moderate	slight	slight	slight
roads	severe	moderate	slight	slight	slight
buildings w/o basements	severe	moderate	slight	slight	slight
septic absorption fields	severe	severe	moderate to severe	moderate	slight
sewage lagoons	severe	severe	moderate	slight	slight

Soil depth is the thickness of soil from the surface to a root-limiting layer such as bedrock or a seasonal high water table. The degree of limitation associated with a given depth depends on the proposed use.

## Soil Texture

Texture	How does it feel?	Available water holding capacity	Fertility holding	Permeability
clay (fine)	sticky	1.0-1.6"/ft	high	very slow
loam (medium)	soft/non-sticky	1.8-2.0"/ft	medium	moderate
sand (coarse)	gritty	0.6-1.1"/ft	low	rapid

Soil texture describes the relative amount of sand, silt and clay in a given soil and influences many other soil properties including porosity, drainage, permeability (the rate at which water moves through a soil), available water holding capacity and nutrient holding capacity. Depending on the amount of each, soils can be grouped into three broad textural classes: clay, loam or sand. You can estimate soil texture by rubbing a small amount of moist soil between your thumb and index finger.

## Soil Structure

Soil structure describes the shape and size of soil aggregates and influences the size distribution of pores in soils. Approximately 50 percent of the total volume of a typical soil is pore space. These pores are either filled with water or air and the balance of air and water has a significant effect on plant growth. This balance is influenced by the relative size of the pores. Large pores are essential for drainage and aeration, while small pores store water. Although fine-textured soils have the greatest amount of total pore space, most of the pores are very small, which restricts movement of air and water. On the other hand, most of the pores in coarse-textured soils are large, which limits water holding capacity.

## Soil Organic Matter

Soil organic matter is essential to the development and maintenance of good soil structure, providing optimal conditions for internal drainage of water and aeration for plant growth in medium- and fine-textured soils. Organic matter also improves the water- and nutrient-holding capacity of coarse-textured soils. The organic matter content of soils is gener-



ally highest in the upper part of the soil profile and decreases with depth. Soils with high organic matter content are usually dark brown or black in color.

Soil organic matter is significantly influenced by management practices. Research has consistently shown that the best means of improving or restoring soil health and productivity is by proper and regular addition of organic materials such as compost or manure.

## Percent Slope

Percent slope is the relative change in elevation measured in feet per 100 linear feet. While it is a feature of the landscape and not a soil property, it has a significant influence on soil formation and soil management. Soils with slopes greater than 3 to 5 percent often have severe runoff and soil erosion and require management practices that protect the soil surface and minimize runoff.

Most of this soil information can be found in modern soil surveys which are available for most Nebraska counties from the Natural Resources Conservation Service or the Conservation and Survey Division of the University of Nebraska. Keep in mind that soil properties can vary considerably over short distances. While soil maps are useful for determining the dominant types of soil on your acreage, a detailed evaluation of the soils may be necessary to determine its suitability for uses such as installation of a waste water treatment system. For more information about soils and soil management, contact your local Extension office, the Natural Resources Conservation Service or the Conservation and Survey Division.

# Weed Management



*Wild parsnip:*  
You will get a nasty rash if you pull these weeds with bare hands.



*Stinging nettle:*  
Stinging hairs irritate soft tissues of humans and grazing animals.



*Purple loosestrife:*  
This perennial weed crosses with lythrum, a popular landscaping plant. Plant alternative ornamentals such as blazing star, obedient plant, purple coneflower.

Weed photos: Nebraska Department of Agriculture, Lancaster County Noxious Weed Control Authority



*Canada thistle*

## An Acreage Owner's Approach to Integrated Weed Management

**Educate Yourself:** Learn to identify your weeds. Understanding their life cycle will help you time your treatments for best control.

**Physical Measures:** Use cutting, mowing, tillage and clean cultivation to discourage weed growth.

**Cultural Methods:** Crop rotations, reseeding with competitive plant species, mulching, proper pasture management and other revegetation projects may limit weed populations.

**Herbicides:** Use registered herbicides found in the current *Guide for Herbicide Use in Nebraska*, available at your local Extension office. The purchase and use of restricted herbicides requires the applicator to hold a private applicator's license. *Contact your local Extension educator for information on certification.*

**Preventative:** Weeds are easiest to control when they are small and before they set seed or spread.



*Leafy spurge*

### Weed Classification: control efforts differ depending on type.

Perennial	Biennial	Annual	Noxious
Canada thistle	Dandelion	Pennycress	Canada and musk thistle
Leafy spurge	Wild parsnip	Downy brome	Leafy spurge
Stinging nettle	Musk thistle	Foxtails	Knapweeds
<i>Back each year</i>	<i>2 year life</i>	<i>1 year life</i>	<i>Control required by law</i>



*Green bottlefly*

Larvae of this metallic blowfly breed in carrion, excrement and garbage.



*Boxelder bugs* congregate to overwinter in sheltered areas around homes.



All spiders feed on insects and most should be considered beneficial. Wolf spiders can be scary looking, but rarely bite.

# Insect Management

Insect pest problems are often more severe in rural areas because insects are closely associated with plants, wild and domestic animals, organic wastes and ponds—plentiful resources found in rural settings.

Ticks thrive where grasses and weeds are tall. Mow lawns and ditches near homesteads regularly, inspect people and pets for ticks. *Area-wide insecticide applications are rarely effective.*



*American dog tick (male)*

## Pest Prevention:

**Good sanitation practices include:**

- ⊙ mowing yards regularly;
- ⊙ discarding decaying garden produce;
- ⊙ prompt manure removal in animal pens;
- ⊙ caulking cracks and crevices around the home exterior;
- ⊙ inspecting pets and people for ticks after they have been in tick-infested areas;
- ⊙ controlling rodents and birds around buildings.

## Prudent Pesticide use Includes:

- ⊙ reading the label;
- ⊙ wearing protective clothing;
- ⊙ applying pesticides carefully: do not mix, apply or dispose of herbicides, fungicides, insecticides, or rodenticides near streams or wells, where they can leak into groundwater;
- ⊙ storing pesticides properly: keep in original container; lock away from feed and foodstuffs; moisture-proof storage is important;
- ⊙ using only when necessary.

## Before you Decide to Treat:

- ⊙ Identify the insect and determine if it is a pest. *Most insects are harmless and many are beneficial.*
- ⊙ Find out what will happen if you take no action. *Many insects disappear within a few days or weeks.*
- ⊙ Learn whether the pest can be controlled using least-toxic control methods. *Most pests are vulnerable to some least-toxic controls.*
- ⊙ Find out if insecticides will control the problem and what type of chemical is most appropriate.

Contact your local Extension educator for assistance.

# Keeping Animals

## Things to Consider

- Why do you want to raise animals?
- Is the animal you want to raise adaptable to your climate?
- How do zoning laws affect you? (i.e., Does your county limit the number or kind of animals?)
- Do you have a market for what you produce?
- Is there adequate feed available?
- Do you have a way to dispose of manure?
- How many animals will your acreage handle?
- What kind of fences do you have or need?
- Do you have a good supply of water?
- Is there a history of soil-borne or other diseases on your acreage?
- Can you use or remodel existing buildings, or do you need to construct new buildings?
- Do you have the labor and financial resources to begin a livestock enterprise?

## Livestock Manure Management

The only effective means of fly control is manure management. Proper disposal of manure is important for animal health, odor control, and good relations with neighbors. Continued application of animal manure to land may cause changes in pH and soil fertility. Zoning regulations may require animal manure to be incorporated during land application. Numerous publications on manure management are available from your Cooperative Extension office.

## A Good Health Program is Essential

Your health program should include:

- fresh, clean water;
- balanced feed and mineral program;
- adequate shelter, lot space and design;
- hoof and teeth care;
- a good working relationship with your veterinarian and feed suppliers;
- a scheduled vaccination program.

## Animal Welfare and Safety Tips

- Allow animals to adjust to their new environment.
- Understand animal behavior, stay alert.
- Don't overcrowd animals, know space requirements.
- Provide adequate shelter and water.
- Use the proper fence for the livestock and job desired.
- Maintain proper nutrition.
- Monitor heat and cold stress.
- Remember – children are attracted to animals. Safety first!

## Quiz

### Livestock Quiz

Do you have more than 5 percent death loss each year? Yes No

Are your animals losing weight? Yes No

Are your animals coughing, listless or have nasal discharge? Yes No

If you answered Yes to any of these questions you will want to look at your livestock management plan.

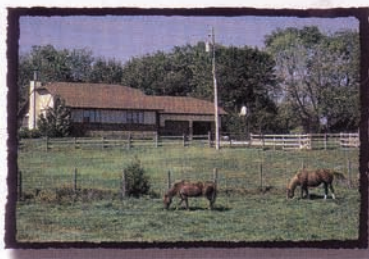
### Pasture Quiz

Does your grass take weeks to start growing back after grazing? Yes No

Have weeds taken over part of your pasture? Yes No

Are the animals losing weight while on pasture? Yes No

If you answered Yes to any of these questions you will need to evaluate your pasture management system.



## Do you Have Enough Forage for Your Livestock?

In Nebraska, livestock are grazed May through October. Fields with cornstalks and other crop residue are grazed during the winter when there is no snow cover. Hay is fed November through April when crop residues are snow covered.

**Forage** is what animals consume by grazing. Forages can be cool- or warm-season grasses; legumes such as alfalfa or clover; annual seeded forages like sudan, millet, rape, turnips, triticale and others; and timely pasturing of crops like winter wheat.

**Harvested forage** is the hay provided to animals when fresh forage is not available. Hay is baled in various sizes: small squares, large squares, round, and various size stacks.

## Successful Grazing Principles

- Check your animals and pastures frequently.
- Use rotational grazing practices to improve plant growth, limit parasites and increase stocking rates.
- Have water in each pasture or pen.
- Do not graze grass areas where soils are water-logged.
- Control weeds.
- Grazing capacity varies between areas, soil types and plant species.
- Leave 2-6 inches of plant material to promote plant health and regrowth.
- Allow plants time to recover before regrazing.

## Warm Versus Cool Season Grasses

Warm-season grasses start growth in late spring and continue to grow through the summer. Growth stops in early fall. Cool-season grasses begin growing in early spring and slow or even stop growing in summer, then renew growth in cool months of fall. Both types of grasses are important to pasture managers. Some livestock producers use cool-season grasses like smooth brome or orchard grass for early spring grazing, and then warm-season grasses like bluestems and grammas during the summer, and back to cool-season grasses in the fall. Generally, warm- and cool-season grasses should not be grown together. These grasses are more productive and easier to manage when grown separately.

## Fencing

Appropriate fencing is critical in any livestock enterprise. Permanent or temporary fencing can be used effectively. Many low-cost electrical fence options are satisfactory for most interior fencing needs. In areas of high traffic and populations, more durable and permanent fencing such as woven wire, wood, cable, high tensile smooth wire or newer PVC-style fences may be required, especially around the perimeter.

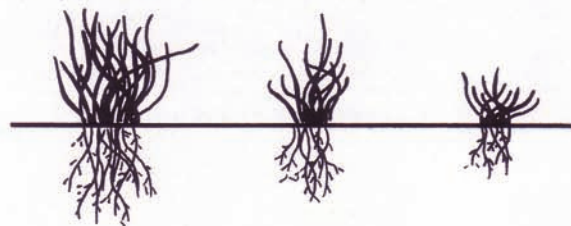
## Stubble/Pasture Health

Post-grazing Stubble

Root Response

Grazing Period

Recovery Allowed



Short

Long

Continuous

Long

Short

None

Graphic source: Living On A Few Acres In Wyoming  
Published by the University of Wyoming Cooperative Extension Service

# WANT WILDLIFE ?

## PROVIDE: Food, Water, & Shelter

### Interactive Assessment Questions

- ⊙ Is there a large diversity of vegetation on the property ?
- ⊙ Do you have accessible year-round water sources in various locations ?
- ⊙ Are there dead trees, brush piles or rock piles scattered across the landscape ?
- ⊙ Is year-round food provided with a diverse planting of grasses, shrubs and trees ?
- ⊙ Do you supplement food resources for wildlife?

### Diversity is the Key

- ⊙ Plant as many different types of grasses, forbs, shrubs and trees as possible.
- ⊙ Select a diverse range of varieties of each type of plant.
- ⊙ Have many sources of water. Ponds, swamps, bogs and bird baths are all great sources of water for wildlife. Place water sources in open and hidden locations.
- ⊙ Take advantage of the fact that many animals prefer the edge where two different types of habitats meet. Form as much "Edge Effect" as you can.

### Master Plan

- ⊙ Find out what species of wildlife are native to your area.
- ⊙ Decide which of the native wildlife you would like to manage.
- ⊙ Learn as much as possible about the requirements of those species.
- ⊙ Determine habitat enhancement needs on your property.
- ⊙ Design short- and long-term plans for habitat improvements.

### Design Guidelines

- ⊙ Select plants that provide cover and food.
- ⊙ Plant a variety of plant types; intersperse, creating a mixed stand.
- ⊙ Plant to create protected nesting areas.
- ⊙ Plant in locations that form corridors or connections between different larger habitat plantings.
- ⊙ Promote and plant woodland, grassland, riparian and wetland habitats.
- ⊙ Create a number of each type of habitat so different habitat are adjacent, forming as many "edge" areas as possible.

### Grassland Habitat Hints

- ⊙ Grasslands are made up of many grasses, legumes and forbs.
- ⊙ Mix as many species of native grassland species as possible.
- ⊙ Do not plant grasslands uniformly, but make them patchy to create a mosaic effect.
- ⊙ Many animal species need a large unbroken prairie area.
- ⊙ Maintain grasslands by eliminating any woody plants (especially cedars).
- ⊙ Add water by forming small "prairie potholes" in low areas. Incorporate a small clay seal in the soil of the lowest point.
- ⊙ Allow piles of dead grasses and forbs to remain through the winter. These become important overwintering cover.
- ⊙ Control introduced noxious weed species.

### Wetland/Riparian Habitat Hints

- ⊙ True wetland or riparian habitats are very difficult to create where the natural components do not exist.
- ⊙ Where wetland habitats exist, protect them from draining and pollution. Manage for natural wetland plants and prevent their destruction.
- ⊙ If a creek or stream transects the property, allow at least 50 feet on each side for a riparian habitat strip. Plant trees and shrubs that provide food, cover and prevent erosion. Many tree species are adapted to riparian locations.
- ⊙ Use riparian habitats to connect other types of habitats.
- ⊙ Consider trying to create wetlands as well as ponds. Establish large shallow areas around ponds with cattails and wetland grasses.

### Woodland Habitat Hints

- ⊙ Mix evergreen, deciduous and shrub species. Plant in random groupings.
- ⊙ Select species that provide food for wildlife, forage, nuts, fruits and seeds.
- ⊙ Select plants that are different heights. Some will give canopy habitat while others form lower habitat cover.
- ⊙ Allow dead trees to stand if they are in an area that is non-threatening to humans or property. These provide nesting for many wildlife species.
- ⊙ Fallen trees also form good cover.
- ⊙ Snags or piles of brush are perfect overwintering sites.
- ⊙ Create dead trees by girdling live ones and shelter by stacking cut branches if there are none.
- ⊙ Construct thick understory areas with thorny brambles to protect small animals from predators.
- ⊙ Create water sources by adding small woodland ponds in lowland areas.

### Tips to Reduce Wildlife Damage

- ⊙ Pro-active prevention is the best control.
- ⊙ Protect high-valued items with fences and physical deterrents.
- ⊙ Supply alternative resources so wildlife has less need for desired items. Provide feed stations, water and nesting material.
- ⊙ Chemical repellents work best when there are enough alternative items.
- ⊙ Competition and predation are natural in a diverse system of habitats.



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