

# BO YARD SMART A Guide to Environmental Gardening

Fall 2005

Special Insert to University of Nebraska–Lincoln Extension in Lancaster County **The NEBLINE**

## Conserve Water with Proper Irrigation

A careful homeowner avoids under- or overwatering their landscape. However, many people unintentionally overwater — which needlessly wastes water and can lead to foliage diseases. An estimated 75–85 percent of plant problems result from overwatering. An irrigation system applying 1 inch of water to an average size lawn\* which has already received sufficient rain wastes more than 3,000 gallons of water — a year's supply of drinking water for 17 people.

**CHOOSE APPROPRIATE IRRIGATION SYSTEM** — Choose the appropriate irrigation system and then install and maintain it properly.

Drip and soaker hose irrigation systems best serve trees, shrubs and flowers. These systems place water on the soil surface in the immediate vicinity of a plant's root system, reducing evaporation loss and irrigating only the desired plants. An added bonus of these systems is the reduction in foliar diseases which can accompany sprinklers.

Sprinklers are generally used for



*Trees, shrubs and flowers are best served by drip and soaker hose irrigation systems.*

turf. If you install a sprinkler system, the rate and uniformity of the application must be carefully designed. Plan emitter patterns to fit water output to the shape, soil infiltration rate and wind characteristics of your site. If you are using a conventional hose and sprinkler, remember the location and quality of the sprinkler head determines how efficiently water is delivered.

**ZONE WATERING** — Automatic irrigation systems can be designed to

support zone watering. Zone watering means grouping plants with similar water requirements in the same area of the landscape. Remember all shrubs, trees, flowers and turf in a given irrigation area or zone will receive the same amount of water. The water conserving value of buffalograss will be defeated if it is in the same irrigation area as trees needing more water.

**AVOID RUN-OFF** — You want water on the plants, not down the gutter. Careful location of emitters may not be enough to minimize run-off. You may need to reshape land to reduce slopes that encourage water to move too quickly for soil to absorb it. The slope should direct water toward the plants that are high water users and away from hard surface areas such as driveways, walks and patios. Another way to reduce run-off is to incorporate compost into the soil to improve the infiltration rate and water-holding capacity of the soil.

**MINIMIZE EVAPORATION** — The best time to water is early morn-

ing between 4 and 10 a.m. Less water is lost by evaporation, and disease incidence is reduced. Water emitters which distribute water uniformly at the soil surface can minimize evaporation, even on windy days.

**AVOID OVERWATERING** — Closely observing landscape plants and the soil is often the best way to determine whether watering is needed.

*\*Approximately 5,000 square feet*

### FOR MORE INFORMATION

These University of Nebraska–Lincoln Extension NebGuide publications are available at the extension office or online at <http://ianrpubs.unl.edu>

- "Watering Nebraska Landscapes, When and How Much" (G1400)
- "Conserving Water in the Landscape" (G1061)
- "Perennial Flowers for Water-wise Gardeners" (G1214)
- "Evaluating Your Landscape Irrigation System" (G1181)
- "Checking the Performance of Your Landscape Irrigation System" (G1221)

### Estimated water requirement for maintained LAWNS in eastern Nebraska landscapes\*

Season	Estimated inches per week
April/May	.75-1.0
June	1.0-1.5
July	1.5-2.0
August	1.0-1.5
Sept./Oct.	.75-1.0

*The low end of the range should be used for low maintenance turf, while the upper end of the range reflects the amount of irrigation needed for high maintenance turf. High maintenance turf is defined as a lawn that is mowed at 2.5 inches or less and receives four or more fertilizer applications each year.*

### Estimated water requirement for WOODY PLANT and ANNUAL/PERENNIAL FLOWER BEDS in eastern Nebraska landscapes\*

Landscape zone (based on expected water use)	Types of plants associated with zone	Estimated inches per week
Very low	Native and/or adapted plants with high drought-tolerance and minimal water use that require little or no supplemental water once established	0-0.25
Low	Native and/or adapted plants with moderate drought-tolerance and moderate water use that require occasional supplemental water during periods of drought	0.25-0.5
Average	Native/adapted or exotic plants with low drought-tolerance and moderate to high water use that require frequent supplemental water during and beyond drought periods	0.75-1.5
High	Mostly exotic plants with little or no drought tolerance that require consistently high soil moisture	1.25-2.5

\*Site factors such as amount of sun/shade, wind protection, type of soil and amount of slope may require adjustments to estimated irrigation amounts.

## Good Lawn Care Practices Reduce Need for Chemicals

A healthy, dense stand of turf reduces weeds and recovers quickly from insect or disease injury. Cultural practices play a big role in the health of the lawn and need for pesticides.

Lawns requiring frequent pesticide use — in particular herbicides — may have an underlying problem causing the repeated invasions of pests, such as weeds. Correcting the problem leads to a healthier lawn that can resist weed invasions and reduce the need for chemical use.

Good lawn care practices can also save water and prepare turf for dry summer months. Taller mowing and proper fertilization result in a deep and efficient root system which reduces the need for additional water.

**SOIL CONDITION** — Many lawns are growing on

soils high in clay, compacted and poorly drained. Aerating and topdressing with organic matter or screened compost may improve these conditions. Another option is starting over and amending clay soils with compost. Thoroughly preparing soils before seeding or sodding is critical.

**GRASS SELECTION** — Make sure the proper grass species is used on the site. Full sun and sun/shade environments call for different grasses. Kentucky bluegrass is the primary species for lawns in full sun; in some cases mixed with perennial ryegrass and/or fine fescues. For shade areas, shade-tolerant Kentucky bluegrass cultivars are commonly mixed with fine fescues.

**WATERING** — Proper watering includes irrigating as lawns need it and getting mois-

ture down into the root zone.

**FERTILIZING** — Proper fertilizing includes supplying adequate nutrients and proper soil pH. In particular, avoid excess or lack of nitrogen, fertilize during cooler weather (especially early and late fall) and use controlled-release nitrogen fertilizers. Don't apply high rates of nitrogen in spring.

**MOWING** — Proper mowing has a major impact on lawn health. Many lawns are mowed too short, allowing weeds to invade and other problems to appear. Mow between 2- and 3- inches and mow often enough so no more than one-third of the leaf blade is removed in any one cutting.

**CORE AERATING** — Manage lawn stress factors, such as thatch, shade and soil compaction. Core aerating on a regular basis is an excellent



*Core aerators can be rented at some garden centers and rental agencies.*

practice to consider, in particular for sodded lawns over clay soils. Spring and fall are good times to aerate. Topdressing the turf with screened compost after aerating will further help relieve these stress factors.

Occasionally, problems

will still come up requiring special management. Start by identifying the problem, then look at control options; both cultural and chemical. When using pesticides read, understand and follow all label directions.

## Yard Smart Resources

### City of Lincoln Recycling Office

Phone: 441-8215

Web site: [www.lincoln.ne.gov](http://www.lincoln.ne.gov)  
— keyword “compost”

Recycling Hotline; Information on Managing Yard Waste, backyard composting, and much more; LinGro compost and wood chip availability.

### UNL Extension in Lancaster County

Phone: 441-7180

Web site: [lancaster.unl.edu](http://lancaster.unl.edu)  
Educational resources on backyard composting, grasscycling, lawn chemical use, and much more.

### Lincoln-Lancaster County Health Department

Phone: 441-8040

Disposal Lawn Chemicals, Complaints on Backyard Composting

### Lincoln Solid Waste Management Association

Phone: 475-8376

Yard Waste Collection

### Nebraska Department of Agriculture

Phone: 471-2394

Information on certification for private and commercial pesticide applicators

### The Water Center

472-3305

Water Conservation

## Yard Waste Disposal Options

Garden waste, weeds, brush and tree trimmings over 1-inch in diameter can be deposited of in the regular trash throughout the year. The following options are available to Lincoln residents for grass and leaf materials.

**48TH STREET TRANSFER STATION** — For a fee, residents may dispose of grass and leaves at the 48th Street Transfer Station located approximately 1/2 mile north of 48th & Superior Streets. Grass and leaves must be free of garbage, litter and tree trimmings over 1-inch in diameter. Grass and leaves must be removed from plastic bags at the transfer station. Call 441-7738 for more information.

**HIRING A LAWN CARE SERVICE** — Include yard waste management in your lawn care package.

**HIRING A PRIVATE HAULER** — Lincoln refuse haulers offer a separate weekly pick up of yard waste to be taken to a city-operated compost site for a fee. Contact your hauler for more information. Use approved paper lawn bags available from retailers, a cart provided by the hauler, or a clean, 32-gallon trash can with a lid. Grass and leaves in plastic bags are NOT allowed at the city's compost site (plastic will not decompose in the compost mixture).

# Tips to Reduce Yard Waste

Yard waste can account for 20 percent of the total waste stream. Nebraska regulations prohibit sending grass and leaves to landfills during the growing season, from April 1 to November 30. By reducing or removing this waste source, the Lancaster County landfill life will be extended by 3 to 5 years. Homeowners and grounds managers can reduce yard waste with these good landscape practices.

## Appropriate Landscape Design

With appropriate landscape design and plant selection, the landscape waste stream can be significantly reduced, in turn reducing the overall waste stream.

**PLANT SELECTION** — An effective way to reduce waste by design is by designing the landscape based on anticipated use (turf vs. shrubbery), and then purchasing plants requiring less maintenance and water.

**CHOOSE GROUND COVERS** — The installation of perennial ground covers can be an attractive alternative to

turf and result in a reduction in waste.

**TURF SELECTION** — If turf is selected, choose dwarf or other slow growing varieties requiring less water.

**CHOOSE PERENNIALS** — The use of perennials can give year-round color without the cost and waste of replacing annual plants.

**MINIMIZE PRUNING NEEDS** — Certain trees and shrubs, most often those slow growing or drought tolerant, need little or no pruning and produce less waste. Choose plants fitting the

available space in order to minimize pruning needs.

### FOR MORE INFORMATION

These University of Nebraska–Lincoln Extension NebGuide publications are available at the extension office or online at <http://ianrpubs.unl.edu>

- “Growing Annual Flowers” (G721)
- “Turf in the Landscape” (G1418)
- “Perennial Flowers for Water-Wise Gardeners” (G1214)
- “Woody Landscape Plants: Selection and Planting” (G1349)

## Grasscycling Has Multiple Benefits

Grasscycling, or grass mulching, is the natural practice of leaving clippings on the lawn when mowing. It is obvious how this practice can save resources such as landfill space, but there are additional benefits as well. The clippings quickly decompose, returning nutrients to the soil. Grasscycling, in conjunction with the practice of reducing water and fertilizer inputs, can reduce mowing time in addition to disposal costs.

Grasscycling can be practiced on any healthy lawn as long as responsible turf management guidelines are followed. Proper mowing, watering, and fertilizing practices result in more moderate turf growth yet still produce a healthy, green lawn.

The nitrogen contained in grass clippings removed from a lawn almost equals the recommended application rate for healthy turf (about five pounds of nitrogen per year per 1,000 square feet). While some of this nitrogen is lost through the decomposition of the clippings, leaving the clippings on the lawn by grasscycling can have the overall impact of reducing fertilization requirements by 15–25% or more. Similar savings on water use are possible.

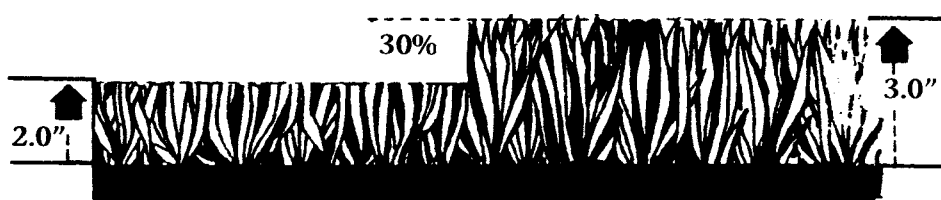
Returning clippings to the lawn usually means mowing more than once a week during the few weeks of rapid



growth in spring and early summer. Grass clippings should be less than one inch, or no more than one-third of the total plant height, to ensure rapid decomposition. Mowing more frequently is not as much extra work as you might think, because lawns mowed at the proper height cut more easily and quickly. Mowing infrequently damages the lawn by removing too much of the plant at one time. When mowed regularly, clippings filter down through the grass, decompose rapidly and recycle nutrients back into the soil.

### Grasscycling Saves Lawn Care Costs

- **Fertilizer** — Grass clippings can supply up to one-third of a lawn's nitrogen fertilizer needs.
- **Time** — Recent trials confirmed leaving grass clippings on the lawn saves one-third of the mowing time.
- **Water use** — Clippings shade grass roots, cool the soil, return moisture, add moisture holding organic matter, and thereby reduce lawn watering needs.
- **Soil health** — Clippings decompose rapidly, feeding soil organisms that keep soil healthy and help prevent turf diseases.
- **Thatch** — Studies prove grass clippings do not cause thatch build-up.



Remove no more than 30% of the leaf with each mowing.

## Mulching Tree Leaves into Lawns

The changing colors of Fall inevitably land in people's yards. When there are many trees on the grounds, leaf clean-up can be a time-consuming chore. Composting leaves requires a home compost pile or the expense of collection, bagging and a means of transport to a compost center.

Another means of disposal is simply mowing the turf/tree leaves with a rotary mower often enough to pulverize the leaves so they fall into the turf. Returning the leaves to the turf is not harmful to the grass **if the mulching/mowing is done at appropriate times.**

**It is best if the tree leaves are “mowed” regularly, not allowing them**

**to lie on the turf more than three or four days.** When oak leaves are predominant, it will be necessary to mulch them into the turf later in the fall because they are held on the trees longer than most other trees.

It is important to **use a rotary mower** that pulverizes the leaves well and that the **leaves are dry** when mowed. Leave the mower set at the same height as you have been mowing the turf. Sharpening the mower blades and a slow movement with the mower will help to grind the leaves finer. It may be necessary to make as many as three or four passes over the area to grind the leaves fine enough. The finer the leaf

particles, the more easily they fall into the turf, leaving grass blades exposed to the sunlight.

The pulverized leaves will settle into the turf within a day or two, particularly if followed by rain. Take care that the pulverized leaves do not cover the grass blades entirely. Fall is a very important time for the turf to photosynthesize and store carbohydrates, particularly under trees where the turf receives limited sunlight during the summer.

It is suggested to add 1/2 pound nitrogen per 1,000 square feet in addition to the normal fall nitrogen fertilization to enhance decomposition of the tree leaves.

# Composting Turns Yard “Waste” Into Useful Material

Compost is a mixture of partially decomposed plant material and other organic wastes. It is used in the garden to amend soil and fertilize plants. Making and using compost recycles yard wastes and reduces the burden of organic trash on our landfills.

## Make Your Own Compost

Almost all organic materials will decompose. Composting hastens this natural process by creating conditions conducive to decomposition.

### Composting Materials

Yard wastes, such as leaves, grass clippings, straw and non-woody plant trimmings can be composted. The predominant organic waste in most backyard compost piles is leaves. Grass clippings can be composted; however, with proper lawn management, clippings do not need to be removed from the lawn (see article on opposite page). If clippings are used for compost, it is advisable to mix them with other yard wastes.

Branches, logs and twigs greater than 1/4 inch in diameter should be put through a shredder/chipper or cut up prior to placement in the compost pile. Kitchen wastes such as vegetable scraps, coffee grounds and eggshells may also be added.

Certain organic materials should not be used to make compost because they may pose a health hazard or create a nuisance. Do not add pet feces since they may transmit disease. Meat, bones, grease, whole eggs and dairy products should not be added because they can attract rodents. Large amounts of weeds with seeds or diseased plants may create problems.

### Building the Compost Pile

A compost pile should be large enough to hold heat and small enough to admit air to its center. As a rule of thumb, the minimum dimensions of a pile should be three feet by three feet by three feet (one cubic yard) to hold heat. The maximum to allow air to the center

of the pile is five feet tall by five feet wide and as long as you wish.

The compost pile can initially be prepared in layers. This will facilitate decomposition by insuring proper mixing. To build a compost pile, start with a four to six inch layer of chopped brush or other coarse material set on top of the soil. This will let air circulate under the base of the pile.

Next, add a three to four inch layer of low carbon organic material such as grass clippings. This material should be damp when added to the pile. On top of this, add a four to six inch layer of high carbon organic material (leaves or garden waste) which should also be damp.

On top of this, add a one-inch layer of garden soil or finished compost. This layer will introduce the microorganisms needed to break down the organic matter.

Mix the layers of high carbon organic matter, low carbon organic matter, and soil before adding another layer to the pile. This will ensure a speedy and even composting of the organic matter. Repeat the “layering” process until the composting bin is filled.

Microorganisms can only use organic molecules dissolved in water. A moisture content of 40–60 percent provides adequate water without limiting aeration. The “squeeze” test is an easy way to gauge the moisture content of composting materials. The material should feel damp to the touch, with just a drop or two of liquid being released when the material is tightly squeezed in the hand.

### Making a Compost Bin

To save space, hasten decomposition and keep the yard looking neat,



On the left, mixed organic material just beginning to decompose. On the right, finished compost.

contain the compost pile in some sort of structure. Composting structures can be made from a variety of materials. Yard wastes can be composted either in simple holding units, where they will sit undisturbed for slow decomposition, or in turning bins which speeds up decomposition.

**HOLDING UNITS** — Holding units are simple containers used to store garden waste in an organized way until these materials break down. It only requires placing wastes into a pile or bin as they are generated. Decomposition can take from six months to two years. Since yard and garden wastes will be added continuously, the stage of decomposition will vary from the top to the bottom of each compost pile. Generally, the more finished compost will be found near the bottom of a pile and partially decomposed materials near the top.

**TURNING UNITS** — Turning units are typically a series of bins used for building and turning active compost piles. A turning unit allows wastes to be conveniently mixed for aeration on a regular basis. Turning systems require

frequent maintenance and preparation of the wastes to be composted. Composting in these units is most efficiently done in batches. Materials should be stockpiled until there is enough to fill the bin. These bins should be monitored and turned after temperatures have peaked (90°–140° F) and begun to fall. This occurs four to seven days after pile construction. Turn a second time when the temperature peaks again, four to seven days later. Compost processed this way will be ready in six to eight weeks.

### Location

The compost pile should be located close to where it will be used and yet not offend neighbors. The pile will do best where it is protected from drying winds.

### FOR MORE INFORMATION

University of Nebraska–Lincoln Extension NebGuide “Garden Compost” (G810) publication is available at the extension office or online at <http://ianrpubs.unl.edu/horticulture/g810.htm>

## The City’s Composting Operation

The City of Lincoln maintains a 16-acre yard waste compost facility next to the Bluff Road Sanitary landfill (at Highway 77 and Bluff Road). This site receives about 20,000 tons of grass, leaves and brush each year. This is equivalent to about 2,000 garbage trucks during an eight month period.

Grass is mixed with leaves and wood chips to form windrows roughly six feet high and 12 feet wide. It takes about 12 months to complete the composting process. The material is screened to remove any debris and wood chips and placed in a curing pile. This finished material is then available to the public as LinGro Compost.



Lincoln’s 16-acre yard waste compost facility receives about 20,000 tons of grass, leaves and brush each year.

Since the program began in October 1992, the city has composted an estimated 171,300 tons of grass and leaves and wood chipped 201,865 tons of tree debris. For an average year the compost facility grinds about 5,000 tons of brush and tree debris.

The diversion of grass, leaves

and brush by the city for 12 years, has added almost 3½ years to the life of the sanitary landfill. If the program was discontinued and the yard waste was buried in the landfill, it would close in 2022 instead of the current projection date of 2026.

Partial funding for the city’s composting program was provided by the Nebraska Department of Environmental Quality, Waste Reduction and Recycling Program.

### TO GET LINGRO COMPOST

A list of locations to pick up or purchase LinGro compost are listed on the next page.

## Avoid Clopyralid Products in Compost

City officials urge residents to check to see if the herbicides used on their lawn contain clopyralid. If it does, the City would like residents to mulch their grass clippings rather than compost them. Alternative products are available that will kill undesirable weeds and not affect compost.

Clopyralid has been discovered in compost operations in several states, including at The City of Lincoln’s composting facility. Testing of the City of Lincoln’s LinGro samples has found levels of clopyralid as high as 87 (ppb). Levels of clopyralid of 10 (ppb) or less can damage some plants.

It is unlikely that damage will occur to sensitive plants if the compost is properly applied and mixed thoroughly with the soil (1” of compost into 6” of soil). “The clopyralid levels found in Lincoln’s compost are not known to present health risks to people or animals,” said Scott Holmes, Environmental Health Division Manager for the Lincoln-Lancaster County Health Department.

Additional information regarding clopyralid in compost can be obtained by contacting Gene Hanlon with the City of Lincoln 441-7043 or checking the City’s Web site at [www.lincoln.ne.gov](http://www.lincoln.ne.gov) – keyword “compost.”

# Using Compost and Wood Chips

In addition, to the multiple benefits to using compost and wood chips, doing so recycles yard wastes and reduces the burden of organic trash on our landfills.

## Adding Compost into Soil

The chief advantage of compost is its ability to improve soil structure. Good garden soil is loose and has a high water-holding capacity with adequate drainage. Adding compost to heavy clay soil improves drainage by improving soil structure. Compost also absorbs water and improves the water-holding capacity of sandy soils. To conserve moisture it is essential to have soil with good water-retention.

In addition to improving soil structure, decomposing compost will slowly release plant nutrients. Compost will not provide all the nitrogen that highly productive crops require. Organic gardeners can supplement compost applications with manure to produce good yields without the addition of other fertilizers.

Finished compost is dark brown, crumbly, and is earthy-smelling. Small pieces of leaves or other ingredients may be visible. If the compost contains many materials which are not broken down, it is only partly decomposed. Allow partly decomposed compost

particles to break down further or separate them out before using compost around growing plants.

Compost can be blended into soil mixes and is suitable for most outdoor planting projects. It is typically mixed with other ingredients such as peat moss, shredded bark, sand, or loamy topsoil when used as an outdoor planting mix. Mixing ratios vary; but 10 percent compost is considered to be a minimum, 30 percent optimum and 50 percent maximum in planting shrubs and trees.

Compost has its greatest value when rototilled directly into the soil. One cubic yard of compost covers 108 square feet at three inches, 216 at two inches, and 324 at one inch. The rule of thumb is to spread compost no more than one-third the depth of the rototiller. A one-inch layer of compost should be tilled in six inches. Making two or more passes with the tiller helps blend the compost with the topsoil and break up any clumps of material.

### Locations to Pick up or Purchase LinGro Compost

- The City of Lincoln has limited quantities of organic compost, called LinGro, available to the public each spring at the N. 48 Street Transfer Station located at 5101 N. 48 Street. This material must be self-loaded and is available at no cost, on a first-come, first-serve basis. Information on loading pick-ups can be obtained by contacting the Lincoln Recycling Office, 441-8215.
- Delivery of compost within a 50-mile radius of the Bluff Road Landfill is available for a fee. Call the Lincoln Recycling Office at 441-8215 for more information.
- The following area firms have LinGro compost available for a fee: Campbell's Nurseries and Garden Centers, General Excavation, Nebraska Nursery and Color Gardens, Pine Valley Nursery and Landscaping, PreCast Productions, Inc., Seeds of Life. Landscapers can obtain compost upon request.
- Information on LinGro Compost is also available through the City's Web site: [www.lincoln.ne.gov](http://www.lincoln.ne.gov) – keyword "compost."



## Wood Chips as Mulch

Wood chip mulch is made from the chipping of tree and landscape prunings. Mulch is material placed on the soil surface for the purpose of protecting the soil and plant roots. Not only do organic mulches add a decorative natural appearance to the landscape, they also provide many landscape benefits.



- **Helps retain soil moisture.** Mulch helps soil retain moisture and reduces water evaporation caused by wind and hot sun.
- **Reduces soil temperature extremes.** An application of mulch acts as an insulating blanket to help avoid extreme temperature fluctuations.
- **Reduces weed growth.** When the site has been properly prepared, mulching reduces weed growth.
- **Saves time in landscape maintenance.** Place mulch under and between plants in tree and shrub beds, border plantings, hedges, rose beds and fruit orchards. By replacing grass with mulch, mowing and watering time is cut dramatically.
- **Prevents direct contact with soil.** Mulch prevents vegetables from making soil contact, thus helps to reduce rot.
- **Prevents heavy rain damage.** Mulching prevents soil erosion. It permits water to seep slowly beneath the protective covering.
- **Increases survival of new trees.** Not only do mulches keep the soil cool and moist, they also keep the lawn mower and weed trimmer from damaging young bark and killing trees.
- **Gives a natural look.** A few fallen leaves in a planting bed with a wood chip mulch gives your landscape the natural beauty of a forest floor.

### Free Woods Chips from City of Lincoln

The City of Lincoln has limited quantities of wood chip mulch on a first-come, first-served basis. Contact the Lincoln Recycling Office at 441-8215 for more information.

- Wood chip mulch is available at the N. 48th St. Transfer Station, located at 5101 N. 48th Street, (any vehicle) and the Bluff Road Landfill, located at Highway 77 and Bluff Road, (pickups and trailers only). There is a charge of \$5 per cubic yard. City personnel will load woodchips into open pickups or trailers.
- Individuals may also self-load wood chips at no charge at the Recycling Drop-off Site (1/2 mile north of Superior Street on North 48th Street)
- Delivery of wood chips within a 50-mile radius of the Bluff Road Landfill is available for a fee.

## Compost Excellent Tool to Correct Soil Erosion

A recent study demonstrated the most effective approach to reduce storm water runoff and sediment erosion on slopes is to use a compost blanket approximately two-inches thick.

From April, 2004 through June 2005, the City of Lincoln and the University of Nebraska–Lincoln (UNL) conducted an erosion study comparing compost to traditional approaches of straw blankets and silt fences.

### About the Study

Six test plots were constructed on a slope of 3 to 1. This is a fairly steep slope that rises about 33 feet in a horizontal distance of one hundred feet. The amount of rainfall during the study was tracked as well as the amount of run-off from each test plot during the period of the study.

Each test plot was seeded with a fescue-blend grass seed typically used by seeding contractors. The health and

vigor of the established turf was greater in the compost amended plots than those with straw mats. The organic material in compost amended turf was almost five times more than it was for straw mat plots. This healthier turf is able to filter storm water and pollutants and hold soil better preventing sediment erosion.

### The Results

This study demonstrated the use of compost as an effective approach to minimize soil erosion and stormwater run-off. In fact, the study showed applying a two-inch blanket of compost would reduce soil loss by 99.8% compared to bare soil. When compared to the traditional erosion control practice of using a straw mat and silt fence, the compost blanket decreased the amount of sediment running off on the test plot by 81%. Use of the compost blanket increased water infiltration by up to 99.3% compared to a straw mat. In other

words, only one percent of the rainfall ran off the compost blanket as opposed to 24% for the straw mat.

Compost can also be incorporated into the soil. However, it is recommended a filter berm be established at the base of any slope to minimize soil erosion prior to grass seed germination. A silt fence can be used if incorporating the compost into the soil. To produce the healthiest soil possible, soil tests can be conducted to determine the optimum application of compost.

### How Compost Blankets Work

When raindrops hit soil with the vegetation removed, they dislodge and detach soil particles. This is called "splash erosion." If there is more rainfall than the ground can absorb; the resulting run-off carries the detached soil particles away. The compost blanket buffers the un-vegetated soil to help it

receive moisture, increases water infiltration into the soil and prevents the run-off velocities that carry sediment away. After vegetation growth, the compost provides both nutrients and additional organic matter to hold moisture in the soil.

An economic analysis conducted by UNL suggests a compost blanket would cost about five percent more than the traditional approach of using straw mats and silt fences. The cost analysis does not include additional seeding likely to be required in subsequent years for non-compost amended soils.

### For More Information

To obtain more information on the use of compost for erosion control projects, contact the Lower Platte South Natural Resources District, 476-2729; the City of Lincoln Watershed Management Division, 441-4959 or Solid Waste Operations, 441-7043.