

Stormwater Management: Yard Waste Management

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This NebGuide describes ways to prevent organic waste through composting and other means in preventing stormwater pollution. This is part of a series.

Organic materials are found everywhere in the outdoor environment. Plants grow and plants die. It is the cycle of life. Nutrients and components of the growing plant are concentrated in the plant and then redistributed back to the environment after its death.

Yard Waste and Pollution

How does organic yard waste become a contaminant of streams and lakes? Rain or melting snow in urban communities flows across lawns or impervious surfaces such as rooftops, paved areas, and bare soil. As it flows, this runoff water transports sediments, leaves, grass clippings, litter, and other landscape waste into streets and gutters leading to storm sewers. Unlike household wastewater, storm sewer runoff water receives almost no treatment. Thus any particle or nutrient that enters the storm sewer likely will end up in a stream or lake.

The problem occurs when excess nutrients encourage algae and rooted plant growth in lakes and streams. An overabundance of algae in a water body can lead to oxygen depletions, fish kills, strong odors, toxin production, unsightly surface scums, and reduced recreational opportunities. Rooted aquatic plants in overabundance can clog boat props, hamper fishing, foul swimming beaches, and limit fish growth. Although plant material and nutrients gradually accumulate in lakes and streams, a neighborhood or community with improperly managed yard waste practices can be a significant contributor of excess amounts of nutrients and cause unnecessary degradation of lakes and streams.

What is Landscape Waste?

Sources of landscape waste include grass clippings, leaves, tree and shrub trimmings, organic mulch, and plant materials from vegetable and flower gardens. By weight, grass is the largest component averaging half of all yard waste. Leaves and brush each provide nearly one quarter. Other landscape wastes contribute less than 10 percent. On average, nearly 200 pounds of yard waste is produced per person each year.

Managing Landscape Waste

Controlling organic waste and reducing potential contamination of surface water can be achieved in several ways. One way to control landscape waste is through source reduction. Grasscycling and backyard composting combined will reduce significant amounts of landscape waste.

Grasscycling is the natural recycling of grass clippings by leaving them on the lawn when mowing. Leaving grass clippings saves time, money, and protects the environment. Mowing time is reduced since bagging and disposal are eliminated. The clippings add beneficial organic matter and nutrients to soil. This in turn reduces fertilizer and water needs, which can minimize nutrient runoff entering storm drains.

Grasscycling can be practiced on any lawn as long as some simple turf management guidelines are followed. Proper mowing is required. Cut grass when the surface is dry and keep mower blades sharp. Follow the “one-third rule.” Mow the lawn often enough so no more than one-third of the length of the grass blade is removed during any one mowing. This will produce short clippings that will filter back into the turf. Mulching mowers can be used if blade lengths are longer than 1 inch. Raising the mower height in summer encourages deeper roots and protects turfgrass from heat stress. Always sweep clippings that fall onto sidewalks and driveways back onto the lawn. Do not sweep or hose them onto the street.

Most cool-season turfgrasses need 1 inch of water per week during the growing season. Lawns watered too frequently develop shallow root systems. Overwatering causes lawns to grow faster and require more frequent mowing.

Proper fertilization maintains a healthy lawn without excessive growth. For moderate, even growth, use a combination of quick-release and slow-release nitrogen fertilizers. Rates and timing depend on the grass species. It is better to apply smaller quantities of fertilizer more frequently rather than large amounts less frequently. Leaving grass clippings on the lawn can supplement up to 25 percent of the lawn’s yearly fertilizer needs, reducing the amount of money spent on fertilizer.

Composting grass clippings, leaves, and garden debris creates a humus soil amendment to use for potting plants and turf or garden soils. Compost added to heavy clay soils improves water infiltration and drainage by improving soil structure. Compost also absorbs water and improves the water and nutrient 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.

Create a Compost Pile

The predominant organic waste in backyard compost piles is leaves and grass clippings. Branches 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. Plant kitchen wastes also may be added.

For successful composting follow these simple guidelines. First, a compost pile should be large enough to hold heat and small enough to admit air to its center. The minimum dimension should be 3 feet by 3 feet by 3 feet to hold heat. The maximum to allow air to the center of the pile is 5 feet by 5 feet by 5 feet.

Microorganisms (bacteria, fungi, actinomycetes, etc.) that decompose the organic waste need to have the organic molecules dissolved in water. A moisture content of 40 percent to 60 percent provides adequate water without limiting aeration. The material should feel damp to the touch, with just a drop or two of liquid being released when it is tightly squeezed in the hand.

Mix equal units by weight of green fresh yard waste with brown dry yard waste. (The browns need to be saturated with water.) Mix thoroughly before placing them in the bin. Continue mixing greens and browns until the bin is full. Add a little soil or finished compost as an activator as the organic wastes are mixed.

For a passive compost pile, nothing more needs to be done. After a year the composting process should be finished and the compost can be used in the landscape.

For an active compost pile, maintenance involves turning or mixing the pile and adding water to keep the composting process active. An active compost pile will create a temperature of 110-140°F in its center. When the temperature decreases, mix the pile again. The compost will be finished when the pile cools and decreases to about one-third its original volume. It will be dark, crumbly, and have an earthy odor.

Using Landscape Waste As Mulch

Using an organic mulch can help gardens in many ways. Mulch reduces weeds by making conditions unfavorable for weed germination and growth. Mulch also maintains uniform moisture conditions in gardens. Water loss through evaporation is decreased and soil erosion is decreased by reducing the impact of heavy rainfall. Soil temperatures are modified by mulch. And last but not least organic mulch adds nutrients and humus to the soil as they decompose.

Tree and shrub trimmings are another source of yard waste. These materials are a greater challenge since they are woody and quite resistant to decay. They need to be shredded or chipped for quicker decomposition and to reduce waste volume. Various shredders and chippers are available to home owners for purchase or rent.

Shredded branches may be used in the compost pile but they require a longer time to decompose. They are best used as mulch in garden beds.

A 2-inch layer of **grass clippings** provides good weed control. Build up the layer gradually, using dry grass. A thick layer of green grass will give off excessive heat and foul odors.

A layer of **leaves**, 2 to 3 inches thick after compaction, provides annual weed control. Leaves decompose fairly quickly, are an attractive mulch, and improve the soil. Leaves of black walnut trees should not be used because of juglone, a chemical in the leaves that inhibits growth of many plants.

A 2- to 3-inch layer of **shredded bark** provides good weed control. Wood chips are slower to decay than shredded bark and can be used for pathway material in gardens.

Limiting Landscape Waste

The best way to deal with landscape waste is to limit its production in the first place, or at least produce as little as possible. Select trees and shrubs with their mature height and spread in mind. Plants that require little or no pruning do not produce much landscape waste. There are many dwarf and semi-dwarf cultivars available of plants adapted to Nebraska's climate and soils.

Sound yard waste management will benefit the landscape as well as surface and groundwater resources. No matter the location, size of home, or the amount of time and money to invest in the yard, everyone can do something to improve or maintain water quality. The following are a few suggestions of ways to contribute to clean water and a healthy environment through sound yard waste management.

- Mow often enough to leave grass clippings on the lawn.
- Sweep grass clippings off of paved areas. Place them on the lawn or in a compost pile.
- Keep fallen leaves out of the street gutter or ditch, using them around the yard as practical or composting them.
- Do not dump yard waste down a storm drain or near surface water.
- Plan your landscape with the environment in mind, reducing intensely maintained areas.
- Recycle organic waste through sound composting practices and mulching.
- Mulch annual and perennial gardens with yard waste compost.
- Use organic mulch to suppress weeds, conserve soil moisture, and reduce soil erosion.
- Add compost annually to build good soil and to add and hold nutrients in the soil.

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**Index: Water Management, Water Quality
and
Lawn and Garden, Miscellaneous**

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