

Add Mulches to Landscapes to Protect Plants from Temperature Changes

Interest in adding mulches to landscapes is growing as gardeners adopt water conserving and other environmentally sound practices.

Mulch is an organic or inorganic material applied to soil surface during the growing season or applied over plants during the dormant season. Mulch insulates plants and its roots from the effects of extreme temperature fluctuations and also reduces soil erosion. Other benefits include conserving soil moisture and helping control weed growth.

Ideal mulches must allow water and air to enter and exit the soil. They also should be attractive, odor-free and stay in place. Although no single mulch material will meet these requirements, select one that best suits the needs of the site.

"Most gardeners use organic mulches derived from plant material," says Anne Streich, horticulture educa-



Woodchips are a good mulch for landscape plants containing trees or shrubs.

tor. "Organic mulches can be developed by recycling yard waste such as chopped or shredded leaves, branches, wood chips or grass clippings or they can be purchased from garden centers." Inorganic mulches include lava rocks, pebbles and plastic which neither break down and improve soil structure nor add nutrients. Dark-colored inorganic

mulches, such as plastics, warm the soil more than organic mulches. Black plastic will raise the soil temperature about five degrees higher than uncovered soil; clear plastic will raise it about 10 degrees.

Plastic is an effective mulch material for some



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croplike crops, such as strawberries or tomatoes, where the plastic is removed each year. Plastic isn't a good mulch for landscape plants containing trees or shrubs. It restricts movement of gases between the soil and the atmosphere.

Some mulches are intended to function for only a brief time, such as mulch applied to newly seeded lawns. These mulches reduce soil and plant moisture loss until the turf is established.

For warm-season crops, such as tomatoes, apply mulch when soil temperatures reach 70 degrees. Cool-season annuals, such as pansies, are mulched in early spring, as soon as new growth begins. In summer, mulching materials low in nitrogen, such

as straw or coarse sawdust, should be fortified with a nitrogen fertilizer. One tablespoon of ammonium sulfate per one bushel of mulch, applied once or twice in spring, will prevent yellowing of plant material.

Dormant season or winter mulches reduce injury by moderating temperature fluctuation and reducing foliar moisture loss. These mulches reduce frost heaving of the crown and upper roots caused by repeated thawing and freezing of soil water. In the fall, apply a loose mulch after several hard freezes. If applied too early, the mulch will delay the plant processes that allow the plant to tolerate cold temperatures. After mulching, avoid pruning, adding nitrogen or any activities that stimulate new growth. Strawberries and some older rose varieties need winter mulch.

Water Trees During Drought

There may not be enough moisture in the soil during hot, dry summers to maintain healthy trees. Extended drought puts trees under stress and may cause death. Dennis Adams, forester, says "Large, established trees usually can withstand drought periods, but young trees, particularly newly planted trees, need supplemental water to help them maintain vitality throughout summer. Relying on rain showers or sprinklers usually do not provide adequate amounts of water."

Trees should be thoroughly watered. If only lightly watered, soil will dry quickly and trees will receive very little benefit. During

an extended drought, trees should be deep watered every 10 days to two weeks, depending on soil type. Deep watering is done by thoroughly soaking the soil to a depth of two to three feet, equivalent to applying about 50 gallons of water.

A soil berm three to four inches high and three to four feet in diameter around the base of the tree will hold water until it can percolate into the soil. Also, allowing a garden hose to run slowly for several hours will provide about the right amount of water. Mulching around the base of the tree will help conserve soil moisture and insulate tree roots.

Woody Plants Under Stress

When people see their woody plants (shrubs and trees) decline, they often want a "magical" treatment to make them lush, green and healthy again. But no magic exists.

All living organisms exist in a world of stresses. Unusual stresses that negatively affect normal health and growth of woody plants in a home landscape commonly arise from physical factors.

Consider a plant's native environment. Any time a plant is placed into an environment where it is not native, you are removing it from conditions where it has thrived and are placing it in a stressful situation. In a new location it may be attacked by new insects or diseases or it may affect or be affected by other plants. Imported plants put in areas with soil types and/or climatic

conditions similar to their native environment will probably have a better chance of surviving than ones not so well located.

Good soil for plant growth must be loose enough to provide spaces for air and water. Compaction is compression of soil so these spaces are reduced in size and number. Factors affecting soil looseness include foot traffic from people and/or animals; vehicles; paved driveways, sidewalks and roads, that limit the effective functioning of tree roots beneath them.

Bark and wood on tree trunks are often inadvertently damaged by automobile collisions and carelessly operated lawn mowers or weed trimmers. Every nick on the bark provides a potential entry site for insects and disease organisms that are constantly

present in the environment but normally excluded by the physical barrier of intact bark.

Good management of your valuable woody plants may involve both "preventive" and "curative" medicine. First, plant species adapted to Nebraska's climate and plant them in situations that mimic their natural environment. Be observant and monitor woody plants during the growing season for signs of abnormal growth or general poor health, as well as for signs of harmful insects or diseases. Be very careful with equipment such as mowers and weed trimmers so you do not damage tree bark. Remember to keep trees and shrubs adequately watered during dry periods. If needed, fertilize in early spring to improve growth.

Penstemon, a Great Acreage Flower

A great perennial to add to acreage gardens is beardtongue, bearded tongue or Penstemon, pronounced pen-stay-mon. Penstemon is a member of the snapdragon family, having long, tubular flowers that open to five petals. Flowers are produced on tall, showy flower spikes with most species having flowers ranging in color including red, pink, lavender and white. All Penstemon have opposite leaves varying in shape from the oblong-pointed leaves of *P. digitalis*, smooth white Penstemon to the rounded, waxy, bluish-gray leaves of *P. grandiflorus* or shell-leaf Penstemon.

Most Penstemon prefer full sun locations and dry growing conditions, once established. All species are fairly drought tolerant, and in fact, the greatest limitation to Penstemon's survival in the home garden is poorly drained

soil, over watering in summer and wet winter soils.

War Axe' Penstemon, *Penstemon grandiflorus* 'War Axe', is an exceptional strain of the beautiful native, shell-leaf Penstemon. This selection has a wide range of colors including pinks, maroon, reds, purples and creamy white. Plants with dark-colored flowers are nicely complemented by reddish-pigmented stems. This upright perennial has thick, rounded gray-green leaves neatly arranged along the flower stalk with numerous large tubular flowers from mid-to late-spring. Handsome, robust seed heads remain attractive all through the fall and winter. Plants form a basal rosette the first year and flower the second year, reaching a height of two-three feet. The flower stalks can be removed

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Don't Use Black Walnut Shavings for Animal Bedding

A research paper co-authored by two professors at Purdue University strongly advises against the use of American black walnut wood shavings for animal bedding.

Daniel Cassens, professor and extension wood products specialist, and Stephen Hooser, head of Purdue's toxicology section, write, "There have been numerous reported cases of black walnut (*Juglans nigra*) poisoning resulting in laminitis in horses. Typically, these occur through exposure of horses to black walnut shavings used as bedding in stalls. As little as 10 percent of the total shavings, by weight, can result in clinical signs of toxicity in horses. These generally occur within 24 to 48 hours of exposure to contaminated shavings." According to the authors, the severity of lamini-

tis in horses exposed to black walnut residue can range from a mild swelling of the legs of all four limbs, pitting edema of the abdomen and colic.

"In many cases, wood shavings and sawdust are considered residues by the wood industry and the manufacturer simply wants to dispose of it by giving it away to an end user or to an intermediate party that processes and markets it," the professors note. "Therefore, it is suggested that bedding be purchased or otherwise obtained only from reputable suppliers who are aware of the relationship between black walnut and laminitis... because of the possible severe consequences of poisoning, stall bedding for horses should never contain black walnut wood."

Source: *Wood & Wood Products*, Dec. 2004.