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Xeriscaping: water conservation through creative landscaping

James R. Feucht[1]

Quick Facts

- Proper planning is the first step in landscaping to reduce water use.
- Steep slopes with south and west exposures require more frequent water applications to maintain the same condition of plant cover than east or north slopes.
- Terracing slopes will reduce water runoff.
- Irrigated bluegrass turf should be reduced to small or heavily used areas.
- Soil preparation is a key to water conservation.
- Proper irrigation practices and sprinkler system design can lead to 30 to 80 percent water savings.
- Mulches help to reduce water needs in the yard as well as control weeds.
- Plants used in xeriscapes should be selected to be compatible with soil, exposure and irrigation systems.
- Using extensive rock, gravel and paved areas in a landscape can result in increased cooling costs in summer; plants help moderate temperatures when used near a house.

Xeriscaping (Zēr-i-skāping) is a word coined originally by a special task force of the Denver Water Department, Associated Landscape Contractors of Colorado and Colorado State University to describe landscaping with water conservation as a major objective. The derivation of the word is from the Greek "xeros" meaning dry, combined with landscaping, thus, xeriscaping.

The need for landscaping to conserve water received new impetus following the drought of 1977 throughout the western states, and the recognition that nearly 50 percent of the water consumed by the average household is used for turfgrass and landscape plantings.

Unfortunately, many homeowners have cut back on turfgrass areas by substituting vast "seas of gravel and plastic" as their answer to water conservation. This practice is not only self-defeating as far as water conservation is concerned, but also produces damaging effects to trees and shrubs. **It is not xeriscaping.**

This fact sheet will explain what xeriscaping is and how you can build the beauty and water savings of a xeriscape into your own garden.

Planning—An Important First Step

Whether you plan to redesign an old landscape or start fresh with a new one a plan is a must. The plan does not have to be elaborate but should take into consideration the exposures on the site. As a general rule, south and west exposures result in the greatest water losses, especially areas near buildings or paved surfaces. You can save water in these locations simply by changing to plants that adapt to reduced water use. However, don't be too quick to rip out the sod in these areas just to substitute plastic and gravel. Extensive use of rock in south and west exposure areas can cause temperature increases near the house and result in wasteful water run-off.

Slope of Property

Slope or grade is another consideration. Steep slopes, especially those on south and west exposures, waste water through runoff and rapid water evaporation. A drought resistant ground cover

[1]*James R. Feucht, Colorado State University Cooperative Extension specialist, landscape plants; prepared in cooperation with the Technical Advisory Committee for Xeriscape Front Range, an affiliate of the National Xeriscape Council, Inc. (6/87)*

can slow down water loss and shade the soil. See Service in Action sheet 7.230 for suggested ground covers. Strategically placed trees also can shade a severe exposure creating a cooler soil with less evaporation. Terracing slopes will help save water by slowing runoff and permitting more water to soak in.

Reduce Irrigated Turf

Narrow strips of turf, hard to maintain corners and isolated islands of grass that need special attention should be avoided. Not only is maintenance more costly, but watering becomes difficult, often wasteful.

Bluegrass turf can be reduced to areas near the house and in places of higher use. In outlying areas, use more drought-resistant grasses or even meadow mixes containing wildflowers, particularly if your property is large. Refer to Service in Action sheet 7.232 for suggested alternatives to bluegrass for turf areas.

Soil Preparation

Preparing the soil properly is the key to successful water conservation. If the soil is very sandy, water will be lost along with valuable nutrients, due to leaching below the root zone. If your soil is of a heavy, clay texture most common in this area, you will lose water through runoff.

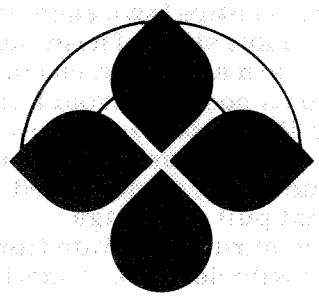
A good soil, one which both supports healthy plant life and also conserves moisture, has a balance of rather coarse soil clusters (aggregates), sand and pore spaces. The "ideal" soil will have as much as 50 percent by volume pore space with the soil itself consisting of a good balance of sand, silt and clay.

A major problem with "heavy" soils is that clay tends to dominate the soil complex. Clay is composed of microscopic crystals arranged in flat plates. When a soil has a high amount of these crystals they act much like a glue, cementing the particles of sand and silt together and resulting in a compact, almost airless soil.

Such soils usually repel surface water, resulting in runoff. What water does get into these soils is held so tightly by the clay itself that plants cannot use it. Plants in a clay soil, even though it is moist, often will wilt from lack of moisture. Plant roots also need air to thrive. In clay soils air spaces are small and may be filled with water, thus plant roots often suffer from oxygen starvation.

In very sandy soils, the opposite is true. Sandy soils have very large pore spaces, but because the particles also are large there is little surface area to hold the water, thus a sandy soil will tend to lose water rapidly.

A good soil is not made in just one year. Organic matter should be added to garden areas on an annual basis. In areas to be sodded or seeded, organic amendments are added as a one-time only procedure. Take advantage of this one time before seeding or sodding by doing a thorough, complete job. This will encourage deep roots that will tap the water stored in the soil, reducing the need for wasteful, frequent water applications. For more information on soil improvement, refer to Service in Action sheet 7.222, *Soil—the key to successful gardening.*



XERISCAPE

WATER CONSERVATION THROUGH CREATIVE LANDSCAPING

Xerigation—Saving Water With Proper Irrigation

Proper irrigation practices can lead to a 30 to 80 percent water savings around the home grounds.

If a sprinkler system is already installed, check it out for overall coverage. If areas are not being properly covered or water is falling on hard surfaces, such as driveways and patios, the system needs readjustment. This may mean replacement of heads, the addition of more heads or changing the head to do a more efficient job.

With the system on, observe places that are receiving water where it is not needed. Overlaps onto paved areas or into shrub borders will result in considerable water waste. Overwatering trees and shrubs may lead to other problems.

Turf areas should be zoned and irrigated differently than shrub borders and flower beds. North and east exposures need less frequent watering than south and west exposures. Water should be applied to slopes more slowly than to flat surfaces. These should be examined closely in your own yard and inefficiencies in irrigation system design corrected.

If you do not have a sprinkler system and are just beginning to install a landscape, you have the advantage of avoiding the pitfalls of poorly designed and installed systems. Have a professional irrigation company do the job correctly. Make sure the system is designed to fit the landscape and the water needs of the plants, and zoned to reduce unnecessary applications of water. The landscape design itself, selection of plants and the irrigation system should all be coordinated to result in a sensible water-saving scheme.

Consider a drip system in those areas such as outlying shrub borders, raised planters, around trees and shrubs and in narrow strips where conventional above-ground systems would result in water waste.

If hoses are used instead of an underground system, you can observe the same things indicated earlier for sprinkler installations. Instead of watering the entire lawn each time, spot water based upon visible signs of need such as turf areas that begin to turn a gray-green color.

As much as possible avoid frequent, shallow sprinklings that lead to shallow root development. Soils that are compact and result in quick puddling and water runoff need aeration with machines that pull soil plugs.

Trees and shrubs separate from the lawn are best watered with deep root watering devices.

Xerimulch the Landscape

Properly selected and applied mulches in flower and shrub beds will reduce water use by decreasing soil temperatures and amount of soil exposed to wind. Mulches also discourage weeds and can ultimately improve soil conditions.

Mulches are of two basic types: organic and inorganic. Organic mulches include straw, partially decomposed compost, wood chips, bark and even ground corncobs or newspapers. Inorganic mulches are such things as plastic film, gravel and woven fabrics. Sometimes, a combination of both organic and inorganic is used.

If soil improvement is a priority, use organic mulches. Wood chips and compost are most appropriate. As these materials break down they become an organic amendment to the soil. Earthworms and other soil organisms will do much to help "incorporate" the organic component into the soil. The organic method of mulching is preferred because most soils in this area are low in organic content and need organic amendments to improve aeration and water-holding capacity.

Inorganic mulches, such as plastic film, effectively exclude weeds for a time, but they also tend to exclude water and air essential to growth of plant roots. The newer woven fabrics and fiber mats now available in many hardware and garden centers are preferred over polyethylene films. Fabrics and mats exclude weeds yet allow water and air exchange. Used in combination with decorative rock or bark chunks, they often outlast the less expensive, but short-lived polyethylene films. For more information, refer to Service in Action sheet 7.214, *Mulches for home grounds.*

Selecting Plants

Plants used in xeriscapes should be carefully selected so that they are compatible with soil, exposure and irrigation systems. Consult Service in Action sheets 7.229 *Xeriscaping: trees and shrubs for low-water landscapes,* and 7.230, *Xeriscaping: ground cover plants for low-water landscapes,* for more details on plant selection.