

“Demonstrate, Educate and Promote”

Water Conservation

Across the country, our growing population is putting stress on available water supplies. For the last half of the century the U.S. population nearly doubled. However, in that same period, public demand for water more than tripled! Coloradans now use an average of 150 gallons of water each day. This increased demand has put additional stress on water supplies and distribution systems, threatening both human health and the environment.

Recent government surveys showed at least 2/3 of the states are anticipating local, regional or statewide shortages by 2013. By using water more efficiently, we can save money, help preserve water supplies, and protect the environment.

Saving water is also saving energy and chemicals. By supplying and treating cold water (in Colorado the under ground temperature is 53 F – 12 Celsius) we are using electricity. For example, American public water supply and treatment facilities consume about 56 billion Kwh per year (approximation for 2008). They also use harmful agents like alum, coagulants, flocculants, filter aids like sand, gravel, charcoal and polymer, chlorine, fluoride, soda ash, etc.

Remember: Saving water is saving energy; letting your faucet run for five minutes uses about as much

total energy as letting a 60 Watt light bulb run for 14 hours!

In the near future, water conserving communities will not need to pay as much to develop new supplies and expand or upgrade water and wastewater infrastructures.

Light Green Tips:

Do

- . Educate and involve all employees on water conservation
- . Identify and implement water conservation practices
 - . Train employees to conserve water, and place signs in the kitchen to promote water conservation
 - . Repair leaks and malfunctioning equipment promptly
 - . Check and unclog your drains every day
 - . Use “Low-Flow” showerheads and faucets
 - . Use water commercial rebates available in your area
- . Use “Water Sense” labeled products
- . When thawing food, use the least amount of water possible (It takes 5 to 8 min for 5 pounds of meat to thaw after two days in the fridge, but 120 min if taken straight from the freezer...)

Dark Green Tips:

Do

- . Replace water-cooled refrigeration units with air-cooled units
- . Replace old icemakers with new air-cooled, water efficient models (FYI The useful life of an icemaker is about 5 years)

- . Use softened water in ice cube machines to minimize bleed-off
- . Install low flow toilets and faucet aerators in restrooms
- . Install hands-free or foot activated valves or faucets
- . Install Sub Meters for multiple users
- . Obtain a Water Audit by a professional

Remember: With water you get hit 3 times; once for the water itself, second for the energy to heat it up, and third for the sewer!

5-5-2/ Sewage

Restaurants and food related Businesses use a lot of water for cleaning equipment that involve pots and pans that have been in contact with fats and oils, mixing bowls that have been used for processing oily dressings and floors on which a lot of food debris, oils and other waste products have been tossed improperly. This very dirty, oily and greasy sewage goes directly to the sewage system and clogs your drains, pipes, grease traps and grease interceptor very easily and very fast.

As for waste water, for every gallon sent down the drain to the treatment plant, it takes three (or more) gallons of additional clean water to remove enough debris and toxins to return it to safe levels again. By installing drain screens in sinks and floor drains, much of the debris can be thrown into the trash rather than into the grease interceptor or down stream.

Use the services of a Professional Company specialized with grease interceptors and, preferably, use "Bio Klean™" products, which are a concentrated, all natural industrial cleaner containing powerful bacteria that break down grease, grime and dirt, and therefore

save you money on the maintenance of your drains, pipes, grease traps and grease interceptors.

You want to have a low percentage of oil, grease and solid waste in your grease interceptor in order to reduce the number of pumpings, and possible fines and surcharges from your Utility Department. Usually, most of the Cities mandate that a minimum of 75% of water must be present inside the grease interceptors; that means the remaining of 25% will be composed by oil, grease, solid waste and other sediments.

For your information, the Cities of Denver and Loveland are requiring, in the total of solid waste percentage, a maximum of 25 %, while the City of Fort Collins is requiring a maximum of 33%.

By using the services of a professional company using “Bio Klean”, by recycling 100% of the used frying oil and by monitoring the behavior of the cooks in my last Restaurant, I was able to reduce by half the frequency of pumping the sewage from my interceptor; the average cost of each pumping was about \$300, and by reducing from 8 to 4 times a Year, the savings were \$1200 per Year!

Light Green Tips:

Do

- . Install drain screens in sinks and floor drains then dump the debris in the trash can
- . Request a water audit by a technician from your local City Utilities Department
- . Use the services of a Professional Company to have your lines, grease traps and grease interceptor checked and treated with bacteria once a month

Dark Green Tips:

Do

. If your grease interceptor is very old (over 15 Years or already not efficient) have it inspected by your City Water Utility Department and proceed immediately to do the recommended or mandatory changes and repairs

Remember: Saving sewage is saving clean water; It takes 3 gallons of clean water to clean up after releasing 1 gallon of sewage water!

Landscape and Gardening

According to the Northern Colorado Water Conservancy District, because of Colorado's arid climate, Coloradoans water their landscapes extensively to keep them lush and green, and they use 2/3 of their drinking water to water out doors, most of which goes on lawns. To make it worse, one-half of the water is wasted through incorrect watering and these landscapes, often composed of non-native plants from wetter regions, consume even more!

Are you concerned about saving water? You can convert all or part of your landscaping into a low-maintenance xeriscape. Cut your water use up to 75% while reducing the environmental costs of lawn care; Xeriscaping refers to the conservation of water through creative landscaping. Originally developed for drought-afflicted areas, the principles of xeriscape today have an ever broadening appeal. With water now considered an expensive and limited resource, all landscaping projects, residential or commercial, can benefit from this alternative. Xeriscapes do not have a single look and almost any landscaping style can be achieved. The principles can be applied to all or part of a yard, in any geographic region of North America.

The Xeriscape benefits are:

- . **Saves Water** – For most of North America, over 50% of residential water used is applied to landscape and lawns. Xeriscape can reduce landscape water use by 50 – 75%.
- . **Less Maintenance** – Aside from occasional pruning and weeding, maintenance is minimal. Watering requirements are low, and can be met with simple irrigation systems.
- . **No Fertilizers or Pesticides** – Using plants native to your area will eliminate the need for chemical supplements. Sufficient nutrients are provided by healthy organic soil.
- . **Improves Property Value** – A good Xeriscape can raise property values which more than offset the cost of installation. Protect your landscaping investment by drought-proofing it.
- . **Pollution Free** – Fossil fuel consumption from gas mowers is minimized or eliminated with minimal turf areas. Small turf areas can be maintained with a reel mower.
- . **Provides Wildlife Habitat** – Use of native plants, shrubs and trees offer a familiar and varied habitat for local wildlife.

One summary of xeriscaping can be found at the website www.eartheasy.com and includes the following 7 Principles of Xeriscaping:

1. The fundamental element of Xeriscape design is [water conservation](#). Landscape designers constantly look for ways to reduce the amount of applied water and to maximize the use of natural precipitation.

Before setting pencil to paper, familiarize yourself with the 7 Principles of Xeriscaping and take a tour of your local nurseries to see what drought-resistant plantings are available locally. Using graph paper, draw an aerial

view of your property and begin your plan with the following considerations:

- . orient the plot by marking down north, south, east and west. Include any limiting features such as trees, fences, walkways or structures. Note areas of sun and shade, which will help you establish zones of differing water needs. You'll want to group plants with similar watering needs for most efficient water use.

- . study the natural contours and drainage patterns of the land. These contours can be easily developed into terraces, which add visual interest and help reduce soil loss and erosion due to rain or irrigation. Terraces can be as little as 3" and still offer visual appeal; terraces over 12" will require considerable support, such as rock walls or timbers reinforced with steel stakes.

- . consider the planned use of each area within the plot. Areas for seating, walkways, visual barriers, dining or play should be defined and incorporated into your plan.

- . areas to be left as turf should be designed to be easily mowed. Curved swaths are usually better than straight runs with sharp turns. Narrow swaths can be difficult to water with conventional sprinklers.

- . larger plantings, such as shrubs and trees, can be positioned to provide natural heating and cooling opportunities for adjacent buildings.

2. Soil Improvement

The ideal soil in a water-conserving landscape does two things simultaneously: it drains quickly and stores water at the same time. This is achieved by increasing the amount of organic material in your soil and keeping it well aerated. Compost is the ideal organic additive, unless your xeriscape contains many succulents and cacti. These species prefer lean soil. It may be worthwhile to have your soil tested at a garden center or by using a home test kit. Most Western soils tend to

be alkaline (high pH) and low in phosphorous. Adding bonemeal and rock phosphate will help.

3. Create Limited Turf Areas

Reduce the size of turf areas as much as possible, while retaining some turf for open space, functionality and visual appeal. When planting new turf, or reseeding existing lawns, ask at your garden center for water-saving species adapted to your area.

4. Use Appropriate Plants

For best results, select plants that are native to your region.

- . use drought-resistant plants. In general, these plants have leaves which are small, thick, glossy, silver-grey or fuzzy – all characteristics which help them save water.

- . select plants for their ultimate size. This reduces pruning maintenance.

- . for hot, dry areas with south and west exposure, use plants which need only a minimum of water. Along north and east-facing slopes and walls, choose plants that like more moisture. Most importantly, don't mix plants with high- and low-watering needs in the same planting area.

- . trees help to reduce evaporation by blocking wind and shading the soil.

5. Mulch

Cover the soil's surface around plants with a mulch, such as leaves, coarse compost, pine needles, wood chips, bark or gravel. Mulch helps retain soil moisture and temperature, prevent erosion and block out competing weeds. Organic mulch will slowly incorporate with the soil, and will need more applied, "top-dressed", from time to time. To be effective, mulch needs to be several inches thick. There should be no areas of bare soil.

6. Irrigate

Water conservation is the goal, so avoid over watering. [Soaker hoses](#) and [drip-irrigation](#) systems offer the easiest and most efficient watering for xeriscapes because they deliver water directly to the base of the plant. This reduces moisture loss from evaporation. They also deliver the water at a slow rate which encourages root absorption and reduces pooling and erosion. In general, it's best to water deeply and less frequently.

7. Maintain your landscape

Low-maintenance is one of the benefits of xeriscape. Keeping the weeds from growing up through the mulch may require some attention. Thickening the layer of mulch will help. Turf areas should not be cut too short – taller grass is a natural mulch which shades the roots and helps retain moisture. Avoid over fertilizing.

For those who wish to keep some turf in your yard, some research and some very interesting comparisons in usage of water per “gallons per square-foot per growing season” have been made:

- . For the “Buffalo Grass” is 2 gsfgs
- . For the “Tall Fescue” is 6 gsfgs
- . For the “Kentucky Bluegrass” is 18 gsfgs
- . For the “Canadian” is 14 gsfgs

Some comparisons also have been made using another scale, for some more practical: inches of water per growing season and/or inches of water per week.

The other common point of interest is looking for a “low maintenance” turf; but it means different things to different people. To some, it means “no maintenance” at all. To most, it means reduced levels of irrigation,

fertilization and pest control. When you select your lawn, first consider if you really need a turf. Second, if you do need it, what it will be used for. Third, what kind of maintenance and care you are willing to give, including how much water you will need to use to keep it green.

My favorite way to select a species of grass is to understand the turf grass persistence under low maintenance, including low watering needs during the drought season. Also depending on your taste, you have the option between a “cool season” grass (the grass will be green during spring and fall, and dormant during summer and winter) or a “warm season” grass (the grass will be green only during the summer).

On the top of the list we have the Buffalo grass, the Blue grama (Both of them Colorado natives), and the Wheatgrass. Then we have the Smooth brome grass, Hard fescue and Sheep fescue. In the middle of the category we have the Creeping, Chewings and Tall fescues, followed by the Kentucky bluegrass, Common and Improved and on the bottom of the list we have the Perennial ryegrass.

Personally, I didn't measure exactly how much water my lawn was using, but I did some **Light Green** improvements in my yard since April of this Year, and at my Home I have been saving Year to date more than 66% of water, in comparison for a same size house and family in Colorado.

Remember: Saving water is saving energy!

Light Green Tips:

Do

- . Check your parking lot and landscape twice a week
- . Check regularly for broken or missing sprinkler heads. Make sure sprinklers are adjusted properly to water your lawn, not the house, the sidewalk or the street
- . Water late in the evening or early in the morning
- . Don't water your lawn on windy days when most of the water blows away or evaporates; sprinkler performance and efficiency decrease rapidly as wind speed increases
- . Rather than following a set watering schedule, check for soil moisture 2 to 3 inches below the surface before watering
- . Water when your lawn shows the need. A change of color and foot prints that remain for a long time indicate a thirsty lawn
- . Water infrequently but thoroughly to promote vigorous root growth and allow the lawn to benefit from rainfall
- . If a small area is dry, water that spot by hand
- . If water runs off lawn easily, split your watering time into shorter periods to allow for better absorption, better soaking time
- . Use a "Smart" Irrigation Controller with a weather monitor for your sprinkler system; the rainfall sensor can detect rain water and the system won't run when it is raining
- . Convert the "Traditional Spray Heads" to "Rotary Nozzles Heads"
- . Use water commercial rebates available in your area
- . Consult with your local landscape nursery for information, plant selection, and placement for optimum outdoor water savings
- . Use "Water Sense" labeled products

Dark Green Tips:

Do

- . Increase Plant Beds over Turf areas
- . Choose shrubs and groundcovers instead of turf for hard-to-water areas such as steep slopes and isolated strips
- . Use Drip Systems whenever appropriate
- . Use subterranean irrigation for lawn areas (Grid System)
- . Convert to a Xeriscape landscaping (Choose your favorite style: Ornamental, Native, Yucca, Perennial, Water-wise, Keep-it-simple, Prairie, Southwest, etc...)
- . Use Rock Garden landscaping
- . Use Artificial Grass landscaping (Be careful of artificial grasses containing high levels of lead)
- . Use ET Irrigation Clocks
- . Use Sub Meters for multiple users
- . Use Flow Meters for users at irrigation tap
- . Obtain a Water Audit by a professional

Remember: A Xeriscape and/or a Rock Garden will also save you maintenance labor costs!

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“Because Ecology means Business”

