



# Conserving Water in the garden

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## Landscape and Lawn Care

### Landscape

During a severe drought when the use of water supplies is restricted, homeowners become concerned that their trees, ornamental shrubs, lawns, and flower plantings may die.

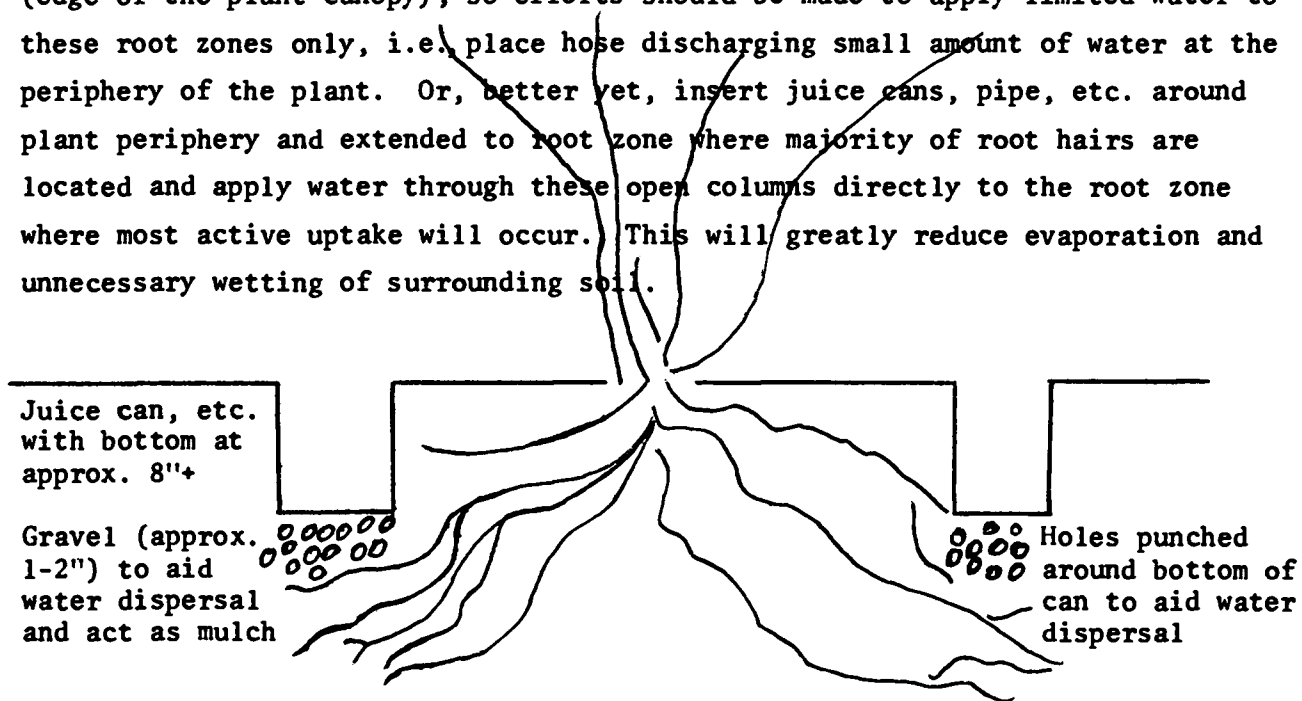
Plants do gain in value and sentimental worth over the years. You can take steps to maintain your valuable plantings and to also conserve water. You might set the following priorities:

- \* Trees - As trees increase in size they become increasingly valuable. Mature trees should receive top priority.
- \* Shrubs - Shrubs in good health, form, etc. that have been established for several years and are contributing significantly to the overall landscape picture should be second to trees in priority. New shrub plantings of relatively low initial cost or old, overgrown, misplaced shrubs may not be of such great value.
- \* Perennial Plantings - Perennial plantings of rare plants or of plants of high initial cost should be maintained and have a high priority. Their water requirements compared to trees and shrubs are relatively low.
- \* Annual Bedding Plants - If annuals are to be maintained, attention to mulching should be stressed.
- \* Lawns - Many varieties of grass are relatively drought resistant - though they may look bad under drought conditions, they will survive. Lawns are possibly the greatest water consumers! (See Lawn Care section)

This may be the year that plants that have been placed in the wrong locations fail to survive, i.e., azaleas planted on the south side of a building. Previously weakened plants (diseased, etc.) may also perish.

## Use Conservative Methods for Applying Irrigation Water

Water uptake by the plant occurs primarily at the root tips and through the fine root hairs immediately behind the growing root tip. Very little water or fertilizer ions are taken up through the older, discolored portion of the root. The growing root tips and root hairs are located primarily beneath the drip line (edge of the plant canopy), so efforts should be made to apply limited water to these root zones only, i.e., place hose discharging small amount of water at the periphery of the plant. Or, better yet, insert juice cans, pipe, etc. around plant periphery and extended to root zone where majority of root hairs are located and apply water through these open columns directly to the root zone where most active uptake will occur. This will greatly reduce evaporation and unnecessary wetting of surrounding soil.



The most effective time to apply irrigation water to minimize evaporation losses and plant diseases is very early morning, preferably before sunrise.

Sprinkler irrigation of ornamental plantings should not be practiced. As much as 25% of the water may be lost due to evaporation in the air prior to reaching the ground surface. Sub-irrigation as outlined and diagrammed above is the most water conservative. A "soaker" hose with the discharge holes turned downward on the soil surface is also an irrigation method minimizing evaporative water losses. "Drip", "trickle", and other "micro-source" methods of irrigation can reduce water loss/requirements by as much as 50% compared to overhead sprinkler irrigation.

## Use Waste Water

A question frequently asked is, "Can I use waste water, even if it contains detergents and soap, to irrigate my ornamentals and vegetable garden?" The answer is yes -- you can use such water if you're willing to take a few simple precautions:

\* DON'T irrigate with water that contains Borax. An excess of Borax will harm certain plants.

\* When you irrigate with waste water containing soaps or detergents, periodically rake the soil lightly around the roots. This prevents formation of a crust that could seal out oxygen which is required not only by the plant's roots, but also by the soil bacteria that break down and decompose the detergents and other additives such as bleaches, softeners, bluing and starch. DON'T RAKE TOO VIGOROUSLY, or you could destroy some of the plant roots near the soil surface. Needless cultivation can waste moisture as it will increase movement of moisture from around the plant roots to the soil surface where it is lost by evaporation.

A pail full of water - 3 to 4 gallons - about once a week around a plant that's 6 to 8 feet tall can keep such a plant alive through a drought, especially if the soil surface is well mulched. Waste water from your laundry could be more than enough to keep your plants alive through a drought. An automatic clothes washer uses from 27-40 gallons of water. Bath water contains relatively little soap. To save your plants, you may be willing to bail a few gallons out of the tub, or to put a pail at your feet when taking a shower. By saving water that would normally go down the kitchen sink drain (i.e., abandon your automatic dishwasher), quantities of wash and rinse water can be saved.

NOTE: Check with local sanitarians before using waste water. Some areas have regulations prohibiting surface application of waste water.

#### Mulch to Conserve Water

Choose the right mulch for your purpose. A mulch that will reduce soil temperature, decrease surface moisture evaporation, and decrease weed competition for available moisture will slow down the depletion and evaporation of water from the upper 6-8 inches of soil. Tests show that merely shading the bare soil will reduce evaporation as much as 30% -- mulch will reduce evaporation by as much as 70% and promote more even moisture supply in the upper layers of the soil. Mulching materials may be classified as plastic film mulches and organic mulches; a combination of plastic film mulch covered with up to 2 inches of organic mulch is very effective in lowering soil temperature, conserving soil moisture, controlling weeds, and maintaining good soil structure.

#### Plastic Film Mulches

Clear plastic film mulch allows the sun's rays to enter the soil with resultant soil temperature increases of 10 degrees or more; soil temperatures may become so high as to kill plant roots. High soil temperatures increase

water requirements of the plant and increase moisture loss due to evaporation. Since clear plastic film does not exclude sunlight, weeds may become a problem underneath the film. In general, clear plastic is not recommended unless an organic mulch such as bark is applied over it to eliminate sunlight.

Black plastic film excludes sunlight transmission and therefore does not result in as large a temperature increase as does the clear film; exclusion of light by the black film also prevents weeds from growing underneath the film.

NOTE: Before applying plastic film mulch, make sure the soil is damp; dry soil should not be mulched.

#### Organic Mulches

Organic materials having small particle size, i.e., sawdust, should only be applied to a depth of 1-2 inches to avoid excessive compaction and allow air exchange between the soil and the atmosphere. Coarse or fluffy materials that are not readily decomposed or compacted such as bark chips can be applied 3-4 inches thick.

Apply mulch evenly - don't pack it around the stem or trunk of the plant. When the mulch is thoroughly wet, pull it back a few inches from the stem or trunk so there is free air circulation to the base of the plant.

\* Lawn Clippings - Lawn clippings may be used as mulch after they have become dry. Thick layers of fresh grass clippings may mat down, get slimy and odorous during decomposition, and decrease air circulation to the soil. Apply 3/4 to 1 inch in a layer at a time to avoid this. DON'T use grass clippings if the lawn has been treated with a weed-killer.

\* Leaves - Previously composted leaves are more satisfactory; non-composted leaves, like fresh grass clippings, may compact and produce heat during decomposition.

\* Sawdust - Red Cedar sawdust (unleached) reportedly contains phytotoxic materials; other wood sawdust makes an effective mulch.

\* Pine Needles - Pine needles make a light, airy, attractive mulch. Pine needles are moderately acid; they are desirable for use as a mulch for acid-loving plants such as azaleas, blueberries, etc.

\* Bark Chips - One of the most desirable organic mulching materials; they are long-lasting, not easily compacted, and attractive.

There are numerous other materials that might be used as mulches if they have characteristics that enable them to insulate the soil and thereby reduce soil temperature, reduce surface moisture evaporation, and control weeds.

## Don't Stimulate Excessive Plant Growth

### Fertilize Lightly

Heavy fertilizer applications increase the salt concentration around the plant roots and make it more difficult for the plant to utilize what moisture might be in the soil. Over fertilization may also stimulate excessive, new, lush growth and thereby increase the plants' demand for water; if water is already limited, this increased water-demand will make the plants more susceptible to drought.

### Don't Heavily Prune the Tree or Shrub

Heavy pruning stimulates new, lush growth and increases the plant's susceptibility to drought damage. In the spring do only corrective pruning, i.e., removal of dead or diseased branches. Water use will be reduced if leaf surface is pruned off during the summer. Careful, selective removal of leaves so that inner, shaded leaves will not be sunburned might be considered if soil moisture is extremely short.

A good source of information on water conservation is WEATHER-WISE GARDENING (Western Edition) of the ORTHO book series. Sections on "Mulches as Modifiers" and "Drip/Trickle Irrigation" are especially appropriate. It may be purchased at most garden shops.

## Lawn Care

In the spring as rains are still occurring, plan to toughen the grass to withstand a long, dry summer.

In early March, apply a commercial fertilizer containing nitrogen (3-4 parts), phosphorus (1 part) and potassium (2 parts) at a light to normal rate. Do not use the heavy rate.

If rains continue, another light fertilizer application in early April is recommended.

This will encourage new root and crown development from which regrowth will occur next fall. Be sure not to over-fertilize. A lawn pushed into excessive "soft" growth will be less able to withstand drought.

For Eastern Oregon lawns, the first fertilizer should be withheld until the lawn turns green following the breaking of the winter dormancy. Otherwise, the same advice will apply.



When there is a severe water shortage, do not dethatch heavily or renovate a lawn in the spring. Postpone planting a new lawn until fall (or next year). A spring seeded or sodded lawn will most likely not be able to withstand the summer stress of prolonged dry weather.

When weather permits, control weeds with a recommended broadleaf herbicide. Weeds are smaller and more susceptible at this season. Weeds rob the grass of nutrients and water, and will be unsightly during the summer.

When the spring rains stop, do not water the lawn, but let the grass go dormant. Lawns will survive all summer without water and it is better to let them dry up rather than to water occasionally.

Drought stressed lawns are subject to damage by heavy use. Avoid traffic as much as possible.

### Hints for Getting the Most Out of Water - IF IT IS AVAILABLE

- \* If thatch has built up, use a dethatching blade or a rotary mower, or rent a renovator to remove it.

- \* Aerate heavily. Use an aerator before the winter moisture leaves the soil. This will open a pathway for water and nutrients to get to the roots.

- \* Apply fertilizer more often, but at a low rate to maintain good color with a minimum of growth.

- \* Unless you have automatic sprinklers, water heavily (at least 1 inch of water as measured in a can under the sprinkler) about once a week. Water will be utilized better than with light, frequent waterings.

- \* Apply water slowly. Most lawns will absorb water at a rate no higher than 1/4 inch per hour. If much thatch is present, the rate may be less.

- \* Sprinkle in early morning while the air is cool and before the wind begins. On a municipal water system, pressure will be better and the sprinkler pattern will be improved.

- \* Adjust sprinkler pattern to the shape of the lawn to avoid watering the street, driveway, etc.

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