Are you *Water Wise*? Find out!

Check it ✓ for Water and Resource Conservation!

If everyone in the Sierra Vista Subwatershed (70,000 population) saved 2 gallons/day, we could save 51 million gallons of water each year!!

This check list will help reduce your water use and give you ideas on good stewardship of natural resources (soil, rain water, vegetation, wildlife, etc.). Use it to look at your home or business and see what is possible. Develop a plan outlining actions you will take to reduce water use, conserve resources and enhance the natural environment. These simple, low-cost practices can save you time and money, and will add to your enjoyment and pride in your property.

For a **FREE ON - SITE** consultation, call the University of Arizona Cooperative Extension's Water Wise program. A Water Conservation Specialist will visit your site and suggest water saving alternatives specifically for you. ***For residents of Sierra Vista, Hereford, Palominas, Tombstone, Bisbee, Whetstone and Huachuca City call 458-8278 x 2141; for Benson, Pomerene, and St. David, call 586- 3467; for Willcox call 384-3594 and for Douglas, call 364-4146.***

Bulletins on water wise landscaping and natural resource stewardship are also available free of charge. Call the numbers above to request them. These research-based publications have been tailored to the elevation and climate of Cochise County. Individual brochures are highlighted in this check list. Brochures by title are found at the end of this publication. For more information, visit www.ag.arizona.edu/cochise/waterwise and http://cals.arizona.edu/pubs/quarterly.html.

REDUCE YOUR WATER CONSUMPTION (AND COST)

(Check each item ✓ as completed.)

INSIDE

National Average *Indoor* Water Use

Homes: Conserving = 45.2 **gallons per person (capita) daily (gpcd)**.
Non-conserving (high water use fixtures) = 69.3 gpcd
Apartments: Conserving = 33.3 gpcd, Non-conserving = 55.7 gpcd

Bathroom: where 75% of your in-home water use occurs!

Toilets: Average use: low flow toilet 8.2 gpcd, high flow toilet 18.5 gpcd

You can determine how much water your toilet takes to flush by knowing the date it was manufactured. Inside the tank or lid, there is a date with the month, day and year of manufacture. There may only be a stamp on the bowl or tank with 1.6 gpf or 6.0 lpf. This means that the toilet uses 1.6 **g**allons **p**er **f**lush which is equivalent to 6.0 **l**iters **p**er **f**lush.

Toilets that were manufactured before 1980, flush 5-7 gallons; between 1980-1993 flush 3.5 gallons; after 1994 flush 1.6 gallons.

Prepared by Susan Pater, Rob Call, Kim McReynolds, Cado Daily and Cyndi Wilkins of the University of Arizona Cochise County Cooperative Extension 11/04

___ **If you have a toilet older than 1994, it is time to replace it!** There are excellent low flush toilets. Do some research before buying. Call your city or county and ask if there is a rebate available towards the purchase of a new toilet. Look into **dual flush toilets** that use half the volume of a low flow toilet for liquid flushes (0.8/1.6 gpf).

___ **If you can't replace an older toilet,** place a weighted quart bottle in your toilet tank.

___ **Avoid using the toilet as a trash basket** for facial tissues, etc. This can save you 5 gallons or more of water a day.

___ **Check your toilet for leaks.** A leak in your toilet may be wasting more than 100 gallons of water a day! Put a little food coloring in your toilet tank. Wait at least 15 minutes. If without flushing, the coloring begins to appear in the bowl, you have a leak.

FIXING TOILET LEAKS

(It is OK to put your hands in toilet tank water. It is the same water that comes out of your faucet.)

___ **Check the water level in the tank**. Often, even in new toilets, the water level is too high. If the water in the tank is at the same level or higher than the overflow tube in the tank, adjust the water level device that so the water level is 3/4" below the top of the tube. Look for a line on the overflow tube or tank that indicates the recommended water level.

___ If the water level is correct, then **adjust or replace the rubber or plastic flap. Check to see if there is any calcium build-up on the "seat"** (the hole the flap covers). Mineral deposits can prevent the flap from sealing the hole. If there are deposits, remove with a mild acid or a scrubbing pad. If you need to replace the flap, note that ALL FLAPS MAY NOT BE EQUAL for the 1.6 gpf toilets. Replacements can leak, and a different flap can alter the flush volume. Try to replace the original flap with the same kind. If you do not know what kind it is, research the brand, style and model of toilet you have for a proper replacement**. If you have the flap, take it to the store with you.**

Do not use products with chlorine or bromine in your tank.
It can disintegrate the plastic or rubber flap!!

___ If all the above are correct, and the toilet still leaks, **you may need to replace the water fill device gasket and/or washer or the whole flush assembly** in the tank because it is not shutting off.

___ **If none of the above fix the leak**, call a plumber or talk to your hardware store.

Showers*: *Average use: low flow showerhead 8.8 gpcd, high flow showerhead 11.6 gpcd

___ **If your showerhead is older than 1994, replace it.** Federal law requires showerheads newer than 1993 to use 2.5 gallons per minute or less. Older ones use 5 gpm.

___ **Take shorter showers.** Place a valve before the showerhead and turn it off while lathering up without adjusting water temperature! **(Turn - off valves may be offered free with an on-site Water Wise visit).**

Sinks

___ **Don't let the water run unnecessarily while brushing your teeth**, washing your hands or shaving. Turn off the water or slow the water flow to reduce waste. Install an aerator with a flow adjuster.

___ **Repair leaky faucets**. A small leak will waste over 50 gallons of water a day; larger leaks will waste hundreds of gallons a day.

Other Household Tips

___ **Put drinking water on the table only if** people really drink it.

___ **Cut down on the number of utensils,** plates and glassware used in preparing food and used with the meals. This will save on dishwashing.

___ **Don't let the water run unnecessarily** while rinsing dishes, cleaning vegetables or washing your hands. Slow the water flow to reduce waste. If possible, use the same sudsy water for several items. Save up dishes for washing. Install an aerator with a flow adjuster on it **(may be offered free with a Water Wise on-site visit.)**

___ **Use your dishwasher and washing machine only for full loads**. Avoid buying clothes that require separate washings. Encourage children to change into play clothes after school so that school and play clothes can be worn several times.

___ **Install energy and water efficient appliances**. Buy a low water washing machine. Front loaders and some top loaders use ½ the amount of water (16-27 gallons /wash) older top loaders use (40 gallons/wash).

___ **Locate the hot water heater as close as possible** to bathroom, kitchen and laundry areas. Locate small water heaters or on - demand heaters in strategic places.

___ **Does it take a long time to get hot water? Consider installing a circulating hot water system** in a new home or in retrofitting an existing home. Make sure to install a timer too. This system, often used in hospitals, has the advantage of making hot water immediately available when you turn on the tap.

___ **Insulate hot water pipes** to reduce the amount of water which must be run to get hot water to the faucet.

Water Softeners

___ **Water softeners on average backwash 15-120 gallons of water for every 1,000 gallons processed.** You may want to cut down on the use of such equipment. Reserve softened water for kitchen use, bathing and laundry only. This may require a bypass line.

___ **If you use your graywater,** do not use a sodium chloride salt, it will burn your plants. Use a potassium salt instead as it won't harm your plants.

Drinking Water Filters

___ **Reverse Osmosis** (RO) **water filter systems can waste 2-20 gallons for every 1 gallon processed**. Consider another more water efficient water filtration system. If this is not possible, direct RO waste water to drain into landscapes.

Evaporative Coolers

___ **Evaporative coolers use on average 4 gallons of water per hour of use** in this climate if they do not have a bleed-off valve. With a bleed-off valve, the use is on average 8 gallons/hour. It is estimated that in Tucson, there are approximately 2,906 cooling hours/year. The average annual water use would be approximately 11,624 gallons without a bleed-off valve and 23,248 gallons with a bleed-off valve.

____ **Save 50% of your cooler water** use by turning on your cooler when the outside temperature is 85 degrees rather than 79 degrees. Be brave!
For more tips request a copy of the brochure "**Cool Rules for Coolers**."

Septic Care

___ **Water conservation will help extend the life of septic systems.** Fix leaks, replace high water fixtures with new "low flow" types, use your greywater and reduce unnecessary water use.

___ **Limit the use of garbage disposals**. *Faucets deliver approx. 2 gallons per minute of water*. Increasing the load of solids into the tank decreases the capacity of the tank and shortens the interval between pumpings. Use your sink strainer and compost appropriate food waste. Use the compost to enrich garden soil.

___ **Do not plant any shrubs or trees over or near the septic tank or leach field**. The majority of tree roots reach depths of 3 feet, and can extend to 4 times the diameter of the tree canopy. Shrub roots extend to a depth of approximately 2 feet and extend at least 2 times as wide as the shrub canopy. If trees and shrubs are planted too close to the septic tank or leach field, roots will clog the system resulting in costly repairs.

___ **Natural grass is OK growing over a leach field**, but do not plant turf grass needing frequent watering and fertilizing.

___ **Do not use excessive amounts of disinfectants.** Disinfectants like bleach and antimicrobial products can kill beneficial bacteria needed for septic digestion. Dilute products or use milder cleaning products.

__ **Periodically test your water** for potential contaminants if your well is downslope or near your septic tank. .

___ **Request a copy of the packet of Septic Care bulletins** that covers understanding, managing, maintaining, inspecting and operation tips for septic systems.

Graywater is Great!

On January 1, 2001, the Arizona Department of Environmental Quality issued new regulations for the use of graywater in residences, making it easy to use. Graywater is the waste water from your washing machine, bathroom sink, shower and bathtub. It is **not** the waste water from your dishwasher, kitchen sink or toilet. To learn about the new regulations, visit www.azdeq.gov/environ/water/permits/download/graywater.pdf.
If you satisfy the state regulations, call your city or county to find out if they have regulations you must meet.

If you have a septic system, using graywater will help reduce the maintenance of the system by reducing the amount of water it has to process.

Graywater is an excellent source for landscape water. There are a few additives that you should not put in landscape graywater- sodium chloride softened water (potassium chloride softened water is OK), and laundry soaps containing boron and high in salts. Request a copy of the brochures "**Can I Use My Graywater?**" and "**Greywater and your Detergent.**"

Building a new home?

___ **Plumb for graywater**- especially for a washing machine. Have a diverter valve plumbed at the waste pipe for either going to your landscape or to your waste water system. Plumb the shower and bathroom sink for graywater too.

___ **Store excess graywater** in a container if needed. Storage systems can be above or below ground. Make sure state and local regulations are followed.

Retrofitting for graywater:
Retrofitting to use graywater can be difficult and expensive for some homes. The washing machine is usually the easiest retrofit. If the machine is next to an outside wall, put the drainage pipe through the wall. If the drainpipes are easily accessed and above grade (crawl space or manufactured homes) then retrofitting for all applicable appliances may be practical.

For more information on plumbing for graywater, visit http://www.watercasa.org/pubs/pubsindex.

Graywater cleaning systems are also available for residential and commercial graywater reuse in toilets, washing machines and for household cleaning. Visit http://www.pontos-online.de/index_e.html to learn more about one of these innovative products.

These indoor water conservation practices can save over 8,000 gallons per person/year and help prolong the life of your septic system.

OUTSIDE THE HOME

Average *Outdoor* Water Use

Nationally = 31.7 gallons per person daily (gpcd)
Hotter parts of the U.S. = Up to 175 gpcd
80-90% of outdoor water used is for vegetation

In the <u>yard</u>: Over half the water used by a typical household goes into lawns and gardens.

a. What is your average water bill during the summer months? $ _____

b. What is your average water bill during the winter months? (Assuming outside watering frequencies have been reduced) $ _____

c. Would you like to reduce that difference? _____

Take a walk around your yard/property and make the following observations:
Check ✔ each as completed.

Watering Landscape Plants

Plants don't waste water- People do!

Understand the Water Needs of Your Plants

Plant roots need both air and water to survive. Many problems involve over-irrigation of the more drought-tolerant plants. Too much water will deprive the roots of air and can rot your plant. Check with your nursery, plant books or your Cooperative Extension to learn about plant water needs. Drought tolerant plants may be found growing in all types of soils, from sand to clay. Sandy soils do not hold moisture well, and drain quickly needing more frequently waterings. Clay soils hold water tightly for long periods of time, and can cause the most problems with over-watering. Water clay soils less frequently to allow the soil to dry somewhat between waterings. Often, new homes have compacted soil making water penetration very slow. Make sure you water to the depth of the root zone to encourage deep roots each time you water, and don't water again until it is needed. **"Deep and infrequent watering" is a good motto.**

___ **Look for signs of under-and over-watering** or uneven watering. When plants are **overwatered**, leaves become brittle. Young shoots on the plant wilt. The soil is damp, algae, fungus, and/or mushrooms start to appear. Dried green leaves indicate root suffocation due to over watering. Tree roots on top or near the surface of the soil often result from shallow, frequent watering. Over watering also can promote root rot.

A plant in the first stages of **water shortage,** has leaves that become dull green. The new terminal growth at the tips of the plant begins to droop and wilt. There will be a thinning of foliage with dead stem or branch tips. The older leaves may turn yellow starting at the tips of the leaf. Next, the leaves begin to curl but they stay green. They may recover if they get water quickly. However, if the next stage is reached, the brown stage, it is final and the leaves are dead.

DRIP IRRIGATION

Drip irrigation - also known as low flow, micro and trickle irrigation- is the slow measured application of water through devices called "emitters." A drip system can be 90% efficient in getting water to where it is needed, using 50 to 75% less water than other irrigation methods. Because water is not given to a broad area, drip irrigation also helps reduce weed growth. Drip systems can be used for landscaped areas, vegetable gardens and potted plants. Drip systems do not have to be elaborate and you can install them yourself! Request a copy of the brochure "**Drip Irrigation.**"

Drip System Parts

Controller/Timer: On an automatic system, this controls the watering frequency and duration by activating solenoid valves. It is best to have a controller or timer that allows you to water at least every
15 days or more. A 30 day controller or timer is the best. Even hose-bib timers can be purchased for 30 day maximum watering frequencies. If you need to water every 2-3 weeks, and you have a controller that waters every 1-7 days, you are wasting water.

From the point of water connection:

Backflow Preventer: This device prevents the irrigation water from being siphoned backwards into your drinking water supply. All cities have ordinances requiring these. They should be on an irrigation system, and on your hose bibs (that is the brass attachment you see). Backflow preventers can drip for a few seconds because they may be releasing pressure. That's normal.

Filter: All irrigation systems need some type of filter to keep dirt and debris from clogging valves and emitters. Periodically clean the filter. Often it can be the cause of a poorly performing system.

Pressure Regulator: House water pressure can be at least 30 psi (pounds per square inch) and often is as high as 90 psi. Most drip systems work at 20 psi. Pressure regulators reduce the high pressure to a low pressure for the drip system to work correctly. Too high a pressure can blow off emitters leaving you watering with geysers rather than drips!

Valves: These can be manual or solenoid (activated by a controller/timer). These allow you to water different parts of your landscape at different times. Each watering system should have at least 2 or more valves. If you have to water everything on one valve, you will probably be overwatering some plants resulting in wasted water- and money.

Piping: PVC (rigid white pipe) and/or polyethylene (poly) pipe takes the water from the valve to the planting area.

Spaghetti or ¼ inch Tubing: This tubing connects to the poly piping and reaches to the plants.

Emitters: These connect to the ¼ or poly piping and regulates the amount of water emitted. Emitters come in gallon quantities of ½, 1, 2 and 4 gph (gallons per hour) or in liter quantities of
2, 4, 8 and 16 lph (liters per hour). A liter is a little less than a quart, so in gallons, the liter quantities would be ½, 1, 2 and 4 gph respectively. Sometimes the emitted quantity is noted on the emitter (it is usually very small!!) or the emitter may be color coded. It is VERY IMPORTANT that you record the quantities when you buy the emitters, or you may forget.

Irrigation System Maintenance

___ Install **a drip irrigation system or add components to an existing system** (pressure regulator, filter, replace controller, etc). Diagram the system for future reference.

___ **Add more valves.** If you have one or two valves watering the entire landscape, consider adding more valves. Watering different plant types (groundcovers and trees) on the same valve means that you will be over watering the trees to keep the groundcover alive.

___ **Install soaker hoses** (hoses that weep water) to temporarily water, or water plants independently of the drip system (ex. take the tree off the valve with the groundcovers).

___ When **watering trees and shrubs by hand or with bubblers**, **are earth basins** being used to concentrate irrigation water at and beyond the drip line (the outer periphery) of the tree? Extend the bermed basin beyond the drip line by at least one-half the radius of the canopy.

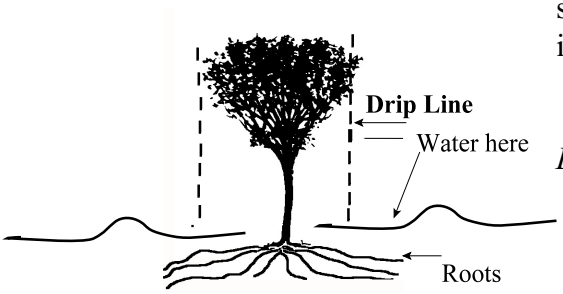
___ **Check and clean the irrigation filter**.

___ **Has the system been flushed during the past year?** If not, open the end of each line and run the system for a couple of minutes. Close the end of the line.

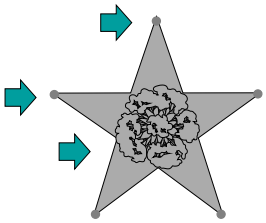
___ **Find, check, clean, add and close off unnecessary emitters.** Check to see that each plant or plant grouping is getting water. Measure the output of water coming out of the first and last emitters to determine if the pressure is consistent throughout the system. If it is, output will be the same.

___ **Replace unmatched emitters.** *In general*, small plants use ½- 1gph emitters, shrubs use 2gph and trees 4gph. Try and be uniform in your emitter output.

___ **Move emitters to the dripline.** "Grow your system" as your plants grow. Water applied at the base of the plant has limited value. Roots will spread 1½ to 4 times as wide as the plant's canopy. Add emitters and move old ones out as the plant grows. A star pattern (see illustration) is recommended in installing emitters around a tree.



Drip Emitter Placement



___ **Check the system for leaks.** Look for tubing above ground, holes or wet spots where there are no plantings.

___ **Reschedule the irrigation frequency.** See **Suggested Watering Guidelines**.

??????????????? When Do I Water ?????????????????

Many factors influence watering frequencies. For example, dry winds cause plants to use more water than on calm days; a fruiting tree needs more water than one that is not; if rain penetrates the soil to the plant's root depth, irrigation is not needed, and sandy soils need more frequent watering than clay soils. With all these variables, it's easy to see that watering can be an art! Be observant. Look for signs of stress such as drooping or dull leaves and excessive leaf drop. Make adjustments and act quickly. Request the brochure "**Watering Trees and Shrubs**."

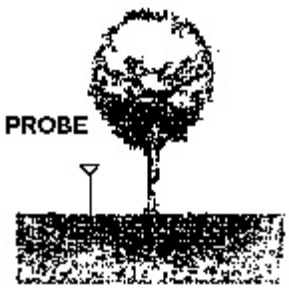
The **Suggested Watering Guidelines** on the next page can help you get a general idea of when to water. The **Soil Probe Chart** below can tell how deep the water has penetrated the soil, and help determine when to water again. **A key point to watering: water to the depth of the root zone each time you water. Shallow, frequent watering is not water wise!**

For established plants, once you know how long you need to water to wet to the depth of the root zone, you do not need to change that length of time. You will need to change the FREQUENCY of watering depending on the season (ideally you would change the frequency monthly.) Some controllers have a budgeting feature. This option shortens the *amount* of watering time, but not the *frequency*. You do not want to do this. You want to leave the watering duration the same.

___ **How Do I Know How Deep I've Watered? Use a soil probe** (a long screw driver, a ¼ - ⅜ inch pointed iron rod or stake. Probes are available at a County Extension Office (see location on the back of this Check List). Push the probe into the soil at the drip line as far as it will go easily. If the soil surface is dry you may have some difficulty pushing the probe through the initial 2-4 inches. If there is moisture underneath, the probe will "pick up speed" as you lean on it. Don't use a hammer. Mark the depth on the probe at ground level with your finger and pull it out of the ground. Measure it with a tape measure or ruler. Use the following chart to fine-tune when to water.

Soil Probe Chart

Root Zone Depth	PROBE DEPTH		
	Water Now	**Wait Before Watering**	**You Have Over Watered**
Lawn/ Groundcovers/ Wildflowers/ Garden (6-12")	0-4"	5-12"	over 12"
Shrubs (12-24")	0-4"	5-18"	over 18"
Trees (12-28")	0-4"	5-28"	over 28"



Suggested Watering Guidelines

The following watering guidelines are adapted from "Landscape Watering by the Numbers", published by *Water, Use it Wisely*.

NEWLY PLANTED DESERT ADAPTED PLANTS

Week 1& 2: Hot months- water every 1-2 days; Cool months- water every 3-4 days
Week 3 & 4: Hot months- water every 3-4 days; Cool months - water every 6-7 days
Week 5 & 6: Hot months- water every 4-6 days; Cool months - water every 7-10 days
Week 7 & 8: Hot months- water every 7 days; Cool months - water every 10-14 days
After week 8: Gradually extend the time between waterings until plants are established.

WATERING GUIDELINES*: ESTABLISHED* PLANTS

(usually takes 1 year for small plants, 2 years for large shrubs and 3 years for trees to get established)

TREES	Mar-May	May-Oct	Oct-Dec	Dec-Mar	Watering Depth (every time you water)
Desert Adapted	14-30 days	7-21 days	14-30 days	30-60 days	24-36"
High Water Use	7-12 days	7-10 days	7-12 days	14-30 days	24-36"
SHRUBS					
Desert Adapted	14-30 days	7-21 days	14-30 days	30-45 days	18-24""
High Water Use	7-10 days	5-7 days	7-10 days	10-14 days	18-24""
GROUNDCOVERS/ VINES					
Desert Adapted	14-30 days	7-21 days	14-30 days	21-45 days	8-12"
High Water Use	7-10 days	2-5 days	7-10 days	10-14 days	8-12"

The above schedules are ***guidelines*** because watering frequency depends upon current weather conditions, plant type, size, soil type and plant establishment.

Water at the outer edge of the plant's canopy and to the depth indicated above. Depending on emitter output and root depth, **watering times are typically 1 or more hours. Less time means shallow watering**. Think about your emitter quantities- they are measured in amount *per hour*.

It is important that you check your plants to see how they perform with this schedule and modify it according to their needs.

MULCH, MULCH, MULCH!!!
Top dressing with mulch is the secret!

___ Is **there a three inch layer of crushed rock or organic mulch *on top of*** the roots zone of all your plantings? Evaporation from exposed soil is tremendous. A thick layer of mulch also reduces weed growth and cools the soil. You will be very surprised how much mulch can reduce your weeding and watering!

Landscape Design

___ **Group plants together that have similar water requirements** to make maximum use of water applications. The **"Mini-Oasis"** is the area directly around your house and has plants that need the most water. The **"Transition Zone"** is the intermediate zone. This is where plants are that need some supplemental irrigation. The outer zone is the **"Desert Zone"** for plants that are on their own. Request a copy of "**Low Water Plants for Cochise County**" which lists plants and recommended watering frequencies for each plant.

___ **Follow the 7 Principles of Xeriscape**: Planning and Design; Small Turf Area (if needed); Select Low Water Plants; Amend Garden Soil (*not needed in landscaped areas- only for bedding plants and vegetable gardens*); Use Mulch; Irrigate Efficiently; and Maintain Properly. Request a copy of "**Want an Easy, Beautiful and Low Water Landscape?**" brochure that explains these techniques.

___ **Have trees and other plantings been spaced far enough from the house,** overhead power lines and other plantings to allow for mature growth? Generally, trees should be planted 1½ times their mature width from any building, and all plants not any closer than 2 feet from your house foundation (roots, water and insect protection).

Water Harvesting

For every 1,000 sq ft of an impermeable surface, a 1 inch rain will yield 600 gallons of water!

In areas of low rainfall (7-12 inches annually), some families live comfortably on stored rainwater (even with washing machines and dishwashers!).

The big difference is that they use a fraction of water daily - 15 gallons per person per day, compared to others who may use over 100 gallons per person per day.

Just using rainwater for landscaping can save you thousands of gallons of water a year.

___ **Catch rain water** that falls on your property (roof, patio, driveway, sidewalks) and direct it to planted areas (or to a storage container or cistern). Do not allow rain or other water to run off the property into streets, ditches or adjoining land, unless it is in excess.

___ **Install rain gutters and down spout diverters** and direct the run-off to useful areas by using dry stream beds, french drains or containers.

___ **Contour your yard** by constructing small berms (bumps), swales (dips) and dry streambeds to channel rain water from buildings, sidewalks and driveways to trees and larger plants.

___ **Strive for zero runoff.** Do not allow rain or irrigation water to run off your property. Use permeable paving and landscaping materials to facilitate on-site retention of rain water. Request a copy of the brochure, "**Water Harvesting**."

Weed Control

DO NOT USE BLACK PLASTIC OR OTHER IMPERMEABLE COVERINGS
Plastic covering the soil keeps water and air from circulating into and out of the soil. Plant roots tend to grow directly under the plastic resulting in poorly rooted plants that can blow over in the wind. Because of the condensation under the plastic, roaches and other undesirable insects thrive, along with molds. The pest exterminators will be busy on your property! Water runs off plastic and can increase the amount of water flowing into your neighbor's yard, and into the washes causing serious erosion. If black plastic is already present, poke holes through it.

New landscapes will have more weed growth for the first three years due to disturbed soil. **Spread a 3-inch layer of crushed rock on top of the soil to help control weeds**. Weed control fabrics are available that allow water and air to penetrate into the soil. Weed control chemicals are available at your local garden center.

Lawn Care

LAWNS CAN USE FROM 20 - 31 GALLONS PER SQUARE FOOT OF WATER A YEAR.

WISE LAWN WATERING WILL CONSERVE A PRECIOUS RESOURCE AND WILL ALSO REDUCE YOUR MONTHLY WATER BILLS.

WHEN SHOULD I WATER?

Watering in the early morning is the most effective time. Less water evaporates and fewer disease problems will occur.

HOW OFTEN SHOULD I WATER?

Watering too much = More mowing!!!

Water lawns ***every three or four days***. Even during the hot summer months, lawns do not need to be watered every day. Third-day watering promotes deeper root growth which makes your lawn more water efficient.

Look for signs of stress: Does the grass stay flat after you step on it? Are the blades curling? If so, then it is time to water.

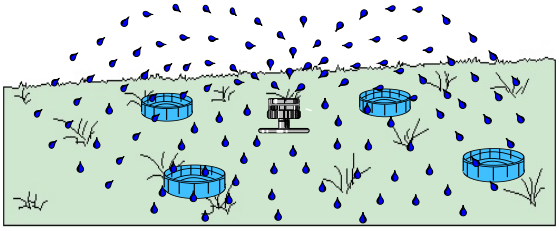
HOW LONG SHOULD I WATER?

How long you should water depends upon two factors:

1. How quickly your sprinklers put water on your lawn **(Sprinkler Output Test).**
2. The amount of water your grass needs to stay healthy **(Suggested Turf Watering Schedule).**

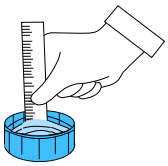
SPRINKLER OUTPUT TEST

1. PLACE 4-6 CATCH CANS (tuna fish or cat food cans) AT VARIOUS LOCATIONS ON YOUR LAWN.



2. RUN THE SPRINKLER FOR 15 MINUTES.

3. MEASURE THE DEPTH OF WATER IN EACH CAN WITH A RULER.



4. FIGURE THE AVERAGE DEPTH.

For Example:

can 1 = 1/8 inch
can 2 = 1/4 inch
can 3 = 5/16 inch
can 4 = 1/4 inch
total 15/16 inches ÷ 4 =
Approximately 1/4 inch

GRASS TYPES

There are two types of turf grasses: warm season and cool season.

Cool: These grasses grow best during the cooler parts of spring and fall. They may or may not go dormant during the winter cold. Generally, cool season grasses are bunch grasses, meaning that they do not spread by runners. They include perennial ryegrass, annual ryegrass, Kentucky bluegrass and tall fescue.

Warm: Warm season grasses actively grow from late April (when the soil temperature warms above 65˚F) to mid-October, and go dormant in the winter. Spreading warm season grasses include bermuda grass and buffalo grass. Bunch warm season grasses include a Cochise County native-blue grama.

Suggested Turf Watering Schedule for Cochise County

1) Determine your **sprinkler output** using the test.

2) Use the **suggested watering schedule.**

Warm Season - Uses 19.50 gallons/ft²/yr						
Month	If Your Sprinkler Output in 15 minutes, in inches, is:					
	1/8	1/4	3/8	1/2	5/8	3/4
	Irrigate for the Number of Minutes Indicated Every 3 Days					
Jan	No Supplemental Irrigation Needed					
Feb						
Mar						
Apr	44	22	15	11	9	7
May	73	37	24	18	15	12
Jun	85	43	28	21	17	14
Jul	51	26	17	13	10	9
Aug	39	19	13	10	8	6
Sep	51	25	17	13	10	8
Oct	23	12	8	6	5	4
Nov	No Supplemental Irrigation Needed					
Dec						

Cool Season- Uses 30.75 gallons/ft²/yr						
Month	If Your Sprinkler Output in 15 minutes, in inches, is:					
	1/8	1/4	3/8	1/2	5/8	3/4
	Irrigate for the Number of Minutes Indicated Every 3 Days					
Jan	No Supplemental Irrigation Needed					
Feb						
Mar	50	25	17	13	10	8
Apr	72	36	24	18	14	12
May	91	45	30	23	18	15
Jun	106	53	35	26	21	18
Jul	68	34	23	17	14	11
Aug	54	27	18	14	11	9
Sep	65	32	22	16	13	11
Oct	42	21	14	11	8	7
Nov	35	17	12	9	7	6
Dec	No Supplemental Irrigation Needed					

Overseeded- Uses 29 gallons/ft²/yr						
Month	If Your Sprinkler Output in 15 minutes, in inches, is:					
	1/8	1/4	3/8	1/2	5/8	3/4
	Irrigate for the Number of Minutes Indicated Every 3 Days					
Jan	14	7	5	3	3	2
Feb	23	12	8	6	5	4
Mar	50	25	17	13	10	8
Apr	44	22	15	11	9	7
May	73	37	24	18	15	12
Jun	85	43	28	21	17	14
Jul	51	26	17	13	10	9
Aug	39	19	13	10	8	6
Sep	51	25	17	13	10	8
Oct	23	12	8	6	5	4
Nov	35	17	12	9	7	6
Dec	13	7	4	3	3	2

For example, if your sprinkler output is ¼ inch (in 15 minutes) and it is April, water for 22 minutes for warm season grass, 36 minutes for cool season grass and 22 minutes for overseeded grass. Water again in 3-4 days.

NOTE: A properly adjusted underground sprinkler system is better than hand placed sprinklers. Underground systems deliver water more evenly and at a rate that can be absorbed by the soil better than hand placed systems.

Install a sprinkler control clock or faucet timer.

Tips for Improving Turf Watering Efficiency:

- **Dethatch, aerate and top dress** your turf once a year to help water penetrate. **Do not detatch bunch grasses.**

- **If your lawn** begins to show water stress 2 or 3 days after applying the prescribed amounts of water, you may have sandy soil. Water more often but at a reduced amount per application. A general rule for sandy soils is to water every other day but for only one-half (½) the amount of time per application indicated using the **Suggested Turf Watering Schedule**.

- In the **Sprinkler Output test**, **catch cans which vary by 20% more or 20% less water than the average usually indicate sprinkler performance problems** resulting in uneven coverage. Find the cause. If you can't easily correct it, manually water the dry spots rather than increase your average application rate. Use the same brand and model of sprinkler heads. Request the bulletin "**Sprinkler Irrigation System Inspection Checklist**."

- **Efficient turf watering means wetting the soil just below the root zone (8- 12") and then allowing the soil to dry.** To determine the depth of watering, gently push a metal rod or screwdriver into the ground. It will stop when it has reached dry soil. Water again when the probe won't penetrate the soil more than 4 inches.

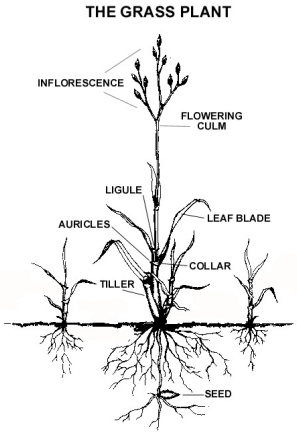
- **Raise your mower height** to 1½ to 2½" for Bermuda grass, 2½ to 3" for fescue and bluegrass, and 3 ½" for buffalo grass. This will reduce water loss through evaporation. Cut grass when it is ⅓ higher than the above recommended height. Never remove more than 40% of the grass height at any one time.

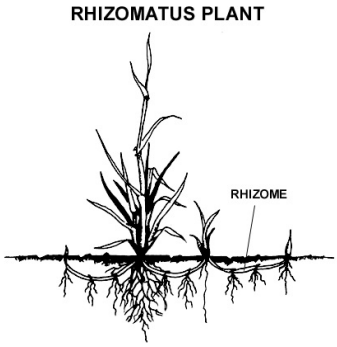
- **During the drier summer months, use less fertilizer**. Your plants will still prosper, but their water needs will be reduced.

- **Adjust sprinklers** so that they water turf, not walls, driveways or sidewalks.

  Request a copy of the bulletin "**Cochise County Lawn Watering Guide**" for more detailed instruction.

- What do you do with your **grass clippings**? Let them lie and be returned to your lawn as a natural fertilizer, compost them, use them as mulch or use them for erosion control. Dumping them in your garbage is a waste. The bulletin, "**Don't Bag It Lawn Care,**" provides mowing tips for returning grass clippings to your lawn as a natural fertilizer, reducing your fertilizer bill by 25%.





Now let's look at **alternatives for reducing the amount of water you now use**.

Check ✔ those you plan to implement.

___ **Reduce the size of your lawn**. Maintain turf only in areas where it is used. A 1,000 ft^2 cool season lawn (25 feet by 40 feet) can consume over 30,000 gallons of water a year.

___ **Create a desert oasis** by concentrating your water (and pleasure) in a small lawn, flower and/or vegetable garden. Place these lush plantings close to your house or business where they can help cool the building through evapo-transpiration (in the "Mini- Oasis"). Zone the rest of your landscape for low water-use.

___ **Replace high water use plants** with native and other **low water use plants**. Before buying any plant, ask about its water needs. Request the bulletin "**Low Water Plants for Cochise County**." Desert landscaping is not limited to rock and cactus. There are many lush, colorful water efficient plants to choose from.

___ **Install a digital electronic controller**, if you don't already have one. Install one that has a 30 day interval. Change your controller seasonally (preferably monthly) so your application rate reflects seasonal demands. Don't set it and forget it; make your controller work for you. If you have an irrigation system on an automatic timer, turn it off during rainy periods.

___ If you water by hand install a **faucet timer.** This will prevent accidental over watering, runoff flowing into the street, etc. CAUTION: Battery controlled timers often fail and should be kept from freezing.

___ Use a **pool cover** or styrofoam floats to reduce evaporation from your swimming pool. In the Sierra Vista area, open water will **evaporate about 40 gallons/year/square foot of water**. **For a 400 ft^2 pool, that means 16,000 gallons is lost each year!** Clean the swimming pool filter often and you won't have to replace the water as often.

___ **If you have a water feature or fountain, consider using stored rainwater**. You won't have any mineral build-up!

___ **Wash vehicles** using a bucket of soapy water and a hose nozzle that shuts off when not in use. This can save up to 300 gallons per wash. Wash your car on the lawn so the water irrigates your lawn. Use a mild soap. Even better, consider using a car wash that recycles its water.

Now let's look at other **natural resources on your property**

Land Care

___ Is there evidence of **soil erosion** on your property? Properly contouring and grading to reduce and lengthen slopes can spread rain water run-off and create natural settling areas. Simple berms or spreaders can be constructed with packed earth, rock, branches, poles and other available material to slow down and divert run-off to near-by plantings. Deeper gullying may require the construction of small check dams using baled straw, rocks, posts, telephone poles and/or larger branches. These materials may need to be wrapped with woven wire, staked and tied into the banks in deeper washes. Further information is available on request.

___ If you have a larger acreage including undeveloped land, native grasses and shrubs, a check-list, "**Rangeland Health Evaluation**," is available to help you evaluate the condition of that land and to make improvements.

___ Do you have **horses or other livestock?** Are these animals corralled, or do they have free run of the property? Over grazing can inhibit the infiltration of rainwater, lead to erosion, dust problems and a reduction in plant cover and diversity. Cooperative Extension bulletins are available on "**Grazing Animals on Small Acreage**" and "**Maintaining a Healthy Horse.**"

___ How attractive is your property to butterflies, birds and other **wildlife**? Many native animals have adapted to the presence of humans and do well in an urban setting if the proper habitat is available. Evaluate your property for the five essential components of wildlife habitat: Food; Water; Shelter (including a place to raise young); Space and Arrangement. With a minimum of creative thinking and a little work you can create your own backyard habitat.

Recycling

___ What is the make-up of the **solid wastes** generated by your family or business? How much of this ends up in your garbage can/dumpster and is in turn landfilled? Take a look! Which of these materials could be composted, recycled, reused, or are potentially hazardous? Call your city or county waste management department to learn about their recycling programs.

___ What are you doing with your **yard wastes**? Are you participating in the **City of Sierra Vista's composting program**? If you are a city refuse customer, you may call 458-7530 (a 24-hour answering service) to schedule a FREE pickup of your yard wastes. If you don't have city refuse service, you may deliver your yard wastes to the Sierra Vista Compost Facility for a small fee. Both finished compost and mulch are available for sale at the site. Questions? Call the Public Works Department at (520) 458-5775.

___ Another option is to maintain your own **compost pile**. Composting is a practical and convenient way to handle your yard wastes. It can be easier and cheaper than bagging waste, dumping them in your dumpster or taking them to the transfer station or community compost facility. Compost improves your soil and the plants growing in it. If you have a garden, a lawn or even planter boxes, you have a use for compost. Request the Cooperative Extension bulletin "**Home Composting**" or the fact sheet "**A Lazy Person's Guide to Composting**" (for a labor saving passive method to composting).

___ The City of Sierra Vista also has special programs to recycle or reuse **old phone books, paint, scrap metal, old appliances, motor oil, anti-freeze, old car batteries, used tires** and **Christmas trees.** Some restrictions apply. Call City Hall at (520) 458-3315 for more information.

Below is a list of the educational bulletins referred to in this audit. They are available free of charge by contacting the University of Arizona Cooperative Extension at (520) 458-8278, Extension 2141, 1140 N. Colombo, Sierra Vista, 85635 or (520) 384-3594, 450 S. Haskell, Willcox, 85643. Seminars on various topics of interest to homeowners are held during the year. Trained Water Wise Educators and Master Gardeners are available to advise local residents on home gardening, landscaping and natural resource issues.

CALL FOR YOUR FREE VISIT!

Publications List:

____ "A Lazy Persons Guide to Composting"

____ "Can I Use My Graywater? "

____ "Cochise County Lawn Watering Guide"

____ "Cool Rules for Coolers"

____ "Don't Bag It Lawn Care"

____ "Drip Irrigation"

____ "Graywater and your Detergent"

____ "Grazing Animals on Small Acreage"

____ "Home Composting"

____"Low Water Plants for Cochise County"

____ "Maintaining a Healthy Horse"

____ "Rangeland Health Evaluation"

____ "Septic Care"

____ "Sprinkler Irrigation System Inspection Checklist"

____ "Want an Easy, Beautiful, and Low Water Landscape? "

____ "Water Harvesting"

____ "Watering Trees and Shrubs"

The University of Arizona Cooperative Extension Water Wise Program

is provided courtesy of

Cochise County, the City of Sierra Vista,

the Upper San Pedro Partnership and Fort Huachuca

In addition to

Arizona Water Company, Pueblo del Sol Water Company, Bella Vista Water Company, Sulphur Springs Valley Electric Cooperative and the Southeast Arizona Association of Realtors

Any products or services listed in this document are intended only to supply information. No endorsement of products or firms is intended, nor criticism implied of those not included.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James A. Christenson, Director, Cooperative Extension, College of Agriculture & Life Sciences, The University of Arizona. The University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation in its programs and activities.