

Green Notes

STRATEGIES FOR WATER EFFICIENCY III: SYSTEM UPGRADES

WATER UPDATE

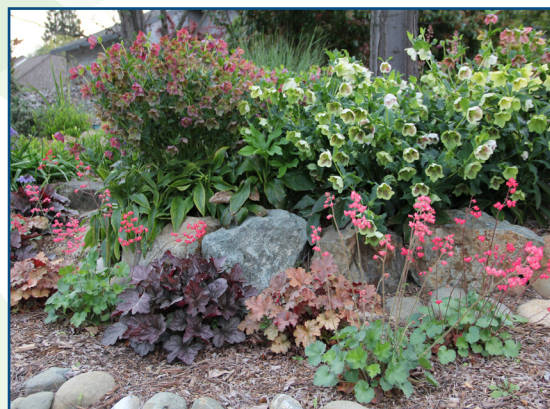
By now, of course, you know that the state of emergency for landscape water use has been lifted. You also know that water agencies are asking users to maintain a fairly conservative level of water use going forward to meet the goals put in place in 2010 to reduce landscape water use 20% by 2020. In order to meet that, landscapes must continue to be managed at almost drought-condition levels!

While this may sound like grim news, it is actually promoting some really positive changes in landscape composition and management which have the potential to create more interesting and healthy urban landscapes, while protecting our watersheds from polluted runoff. After all, a poorly performing lawn with high water, fertilizer, and man-hour needs is no asset to the urban environment!

In the past year we have talked about timely maintenance, understanding system delivery rates, and proper scheduling for your system. Now we will explore some of the system upgrades that can really kick your water and time savings into high gear while rebates and incentives are still available.

REBATES

Financial help for system upgrades falls into two categories: irrigation systems and turf replacement. In both cases, you must usually document the original state of the landscape you plan to upgrade, sometimes providing photographs, and possibly having an initial and/or final inspection by a representative from the local water district. The



rep may make recommendations for specific changes to make. In all cases, *keep careful track of all receipts!*

AGENCIES W/ACTIVE REBATES:

- [California Water Service-Stockton](#)
- [City of Ripon \(smart controllers\)](#)
- [City of Lodi](#)
- [City of Manteca](#)
- [City of Modesto](#)

State Turf Rebates (CA DWR):

- [Institutional Rebates](#)
- [Residential Rebates](#)

SYSTEM UPGRADES

Weather-based Controllers

If the controller is outdated or there isn't one, the first step is to install an appropriately-sized one for the site. Look for as many start times and programs as possible to help you schedule without runoff. Current models should also have a rain shut-off device; this will cause any scheduled programs to be overridden if more than 1/8" of rain falls. Install it where it won't be blocked by trees or roof



No check valves mean dribble after station valve turns off

overhangs. Irrigation scheduled by a controller to match the plants, the system precipitation rate, and the weather can save a great deal of water.

Spray heads

One of the easiest upgrades to make is to simply swap out older, high precipitation rate spray heads with newer, low-volume, rotator-type heads (e.g. Hunter MPs and Rainbird RNs) in most residential and commercial turf applications. They have a large droplet size that doesn't get thrown by wind, adjustable spray distance, and many also have adjustable angles for odd-shaped spaces.

Another important feature of most new heads is that they have built-in check valves that automatically close when the water pressure begins to drop. This prevents water from continuing to dribble out until the lines are empty, which can waste thousands of gallons of water per summer for a single site. If you purchase the entire canister, some brands also have pressure regulation built in. This is important for systems whose inlet pressure is too high for the spray head rating, since it prevents the misting that causes systems to deliver less water than expected, resulting in low distribution uniformity and incorrect run timing.

For large sports or park lawns, shop your local distributor for the latest technology in multi-stream rotors that will make your

system delivery more efficient. Always pay attention to specs to be sure you are matching precipitation rates between full circles, half circles and quarter circles.

Drip Conversions

Now is a great time to convert any shrub beds, narrow strips or borders from sprays to drip. When plants mature they tend to block sprays from reaching other plants, and sometimes from reaching their own root zones. Replacing sprays with a grid of internal emitter dripline covered with mulch can provide even coverage to the root zone where it is needed. This kind of line has far fewer maintenance needs than traditional point source (tube-and-button) drip.

Spray-to-drip conversion kits are available, but you can create your own with a little help from your local irrigation distributor and some basic parts. See the next page for a simplified explanation of the conversion process.

Turf Reduction

There is no other plant quite like turfgrass for a play surface, but if it's simply being used as a groundcover or a pathway, there are more water-efficient options. Rethink the unused grass and consider putting in a permeable path along with some of the many choices for low water use plants or groundcovers. Below is a link to an easy-to-use online resource for creating lists of choices by water use category:

<http://ucanr.edu/sites/WUCOLS/>



Low and moderate water-use plants with decomposed granite path

CONVERT SPRAYS TO DRIP

GETTING STARTED

First check your system's inlet pressure and regulate it down if it's too high for the dripline you have chosen to use- typically between 30 and 50 psi is acceptable. You can do this by turning off the main water and cutting into the pipe from the valve you're converting to install a pressure regulating filter. You can also install individual pressure regulators (see the image at the right) at the head if cutting into the main line is impossible or undesirable, but then individual flush relief for each line is essential. (See Step 5)



GETTING GOING

1. Locate all the spray heads and flag them. Choose those that are strategically located to convert, and cap the rest of them.
2. Measure your beds and *consult the manuals* that come with dripline to see how many linear feet of line you can run on a single riser for your inlet pressure and the emitter gallonage you choose. Choose your gallons/hr and emitter distance based on your soil type and planting spacing. Generally, the heavier your soil, the lower the gph you should use. The manuals also have good illustrations of layouts for the line.
3. Fit each riser you are converting with a fitting that takes you from screw to compression/barbed T. If you are using individual pressure regulators, use an elbow and the fitting to transition from screw end to either compression or barbed T-fittings. (By using a "T" you will be making a closed loop grid of line, which equalizes the pressure throughout.) If your riser is below grade



Riser with elbow, individual pressure regulator and conversion fitting to inline drip barbed -T fitting

once you have removed the old spray head, you may need to add a nipple to raise it to grade. Check your fitting sizes before leaving the store to be sure they are all compatible!

4. Begin running your line. It is very helpful to unroll and lay it out in the sun the day before you plan to use it, or at least earlier in the day. Trying to work with cold, stiff line can lead to kinks. You will need to use large landscape staples to hold the line in place. Use only enough to get it down at first; you may need to make adjustments, and you can always add more staples later. Use elbows for turns that are too sharp to make without kinking.
5. Once the line for each riser is laid, you need to add a vent or flush valve. Find the spot farthest from each head, and cut the line. You can purchase a ball-valve type or create one cheaply with a T-fitting, a piece of blank line and a screw end barbed fitting. Once all the lines are laid and fitted with flush valves, unscrew all the end caps and blow out the lines before capping and running for the first time.



GREEN NOTES

2016

4

SUMMER

USING THE NEW WUCOLS

Water Use Classification of Landscape Species

<http://ucanr.edu/sites/WUCOLS/>

How *DO* you find out which plants to use for a low-water landscape in the Central Valley? UC Agriculture & Natural Resources (UCANR) now hosts an easy-to-use online searchable database to help you answer that question.

You can search for any incorporated city in California. If you know either the botanical or common name of a plant, you can look up what water use category it falls into: High, Moderate, Low or Very Low. Alternately, if you want to make a list of plants to group together by water use (hydrozoning), you can choose the type(s) of plants and the water use category, and the database will return a list which you can export whole or in part to an Excel spreadsheet.

Below is a small example of a list generated for LOW water VINES for TRACY, CA.

Botanical Name	Common Name
<i>Bougainvillea</i> spp.	bougainvillea
<i>Campsis</i> spp.	trumpet creeper
<i>Cissus antarctica</i>	kangaroo vine
<i>Clematis lasiantha</i>	pipestem clematis
<i>Fallopia baldschuanica</i> (<i>Polygonum aubertii</i>)	fleeceflower
<i>Gelsemium sempervirens</i>	Carolina jessamine
<i>Lonicera hispidula</i>	California honeysuckle
<i>Lonicera periclymenum</i>	flowering woodbine
<i>Macfadyena unguis-cati</i>	cat's claw
<i>Rosa</i> "Cecile Brunner"	Cecile Brunner rose
<i>Rosa banksiae</i>	Lady Banks rose
<i>Sollya heterophylla</i> f. <i>parviflora</i>	vining bluebell
<i>Vitis</i> "Roger's Red"	Roger's Red grape
<i>Vitis californica</i>	California wild grape
<i>Vitis girdiana</i>	desert grape



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NEXT COURSE RUNS FEB. 7- MAR.28, 2017

FOR MORE INFORMATION:

<http://ucanr.org/GreenGardener>

PLANT THIS

Calamagrostis x acutiflora 'Karl Foerster'

This is a medium sized, very erect ornamental grass that makes a great focal point and even more dramatic border. Although technically dormant in the winter, it can be allowed to remain unpruned, holding its lovely tan seedheads aloft until very early spring. Once pruned very low in late February or very early March, it will begin to put out new green growth followed by flower stalks mid-summer. These turn into seedheads held like golden plumes which contrast nicely with the foliage. It grows about 3- 5' high with seedheads. We evaluated this grass in our UC Landscape Plant Irrigation Trials and it was shown to be a true LOW-water user, but adaptable to any irrigation regime. It can be seen with seedheads now in the UC Davis Arboretum All-Stars section of the **The Learning Landscape** demonstration gardens at the Robert J. Cabral Agricultural Center, 2101 E. Earhart Ave., Stockton.



SUMMER

5

2016

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