

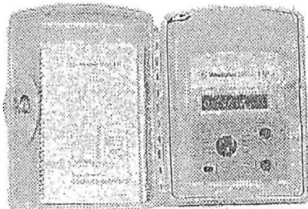
Letting the weather control the water

Climate-based controllers

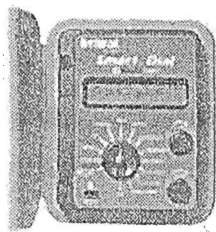
With off-site weather stations:



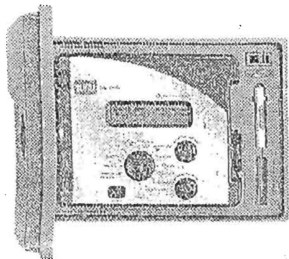
ET Water Systems, (800) 438-3400, www.etwater.com



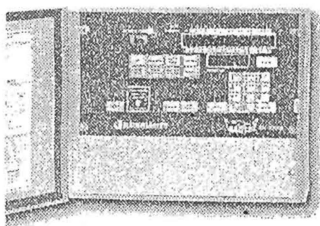
HydroPoint-WeatherTRAK, (800) 362-8774, www.weathertrak.com



Irritrol, (800) 634-8873, www.irritrol.com



Toro, (800) 664-4740, www.toro.com



RainMaster, (800) 777-1477, www.rainmaster.com. RainMaster also makes controllers with on-site stations.

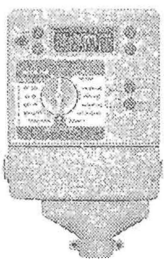
With on-site weather stations:



Aqua Conserve, (877) 922-2782, www.aquaconserve.com



Hunter, (800) 733-2823, www.hunterindustries.com



Weathermatic, (888) 484-3776, www.smartline.com

By Jillian Steinberger
SPECIAL TO THE CHRONICLE

Plants haven't been genetically engineered (yet) to think like humans, but a new generation of "smart" irrigation controllers is thinking for them — and for us.

These high-efficiency systems can be heroes in the garden. According to WaterSense, an Environmental Protection Agency water-conservation program, as much as 70 percent of a home's total water use during the dry season may go to landscape irrigation, and some experts estimate that more than 50 percent of landscape water is wasted because of evaporation, wind or overwatering.

"Smart controllers can have a large impact on making every drop of irrigation count toward keeping your landscape well-watered, healthy and beautiful," says Cynthia Havstad, program manager at Stopwaste.org.

Smart controllers work by delivering the right amount of water to plants, creating healthier growing conditions with improved plant performance, plus fewer pests and diseases. After installation, homeowners can see a 30 to 40 percent drop in landscape water use — and lower bills.

Reduced water also means less maintenance because of fewer weeds and less pruning. Another benefit is less runoff, which can leak fertilizers, petrochemical residues and other pollutants into the bay.

How they work

Traditional timers turn water on and off based on a programmed schedule that changes only when manually adjusted. If a homeowner or gardener forgets to turn off the irrigation in winter, it kicks in even if it's raining.

Smart controllers self-adjust and recalculate how much and where and when to water based on a plant's evapotranspiration rate, or ET, which considers environmental factors like weather (rain, freeze, wind, temperature, etc.), plant type, soil type, slope, sun exposure and root depth. So if the rains fall in March, the system kicks in, but if it's pouring in July, it discontinues water until conditions change — without so much as a toe wiggle from you or your gardener.

Award-winning landscape architect Michael Thilgen, co-owner of Four Dimensions Landscape in Oakland (www.fourdimensionslandscape.com), recommends smart controllers to his clients. "Gardeners will learn to love the new smart systems because they take so much of the guesswork out of programming a controller, and it saves a lot of water and time in reprogramming," he says.

Which unit to buy?

Some homeowners can retrofit their old "unintelligent" unit, thereby saving money.

For those shopping from scratch, Jon Bauer, East Bay Municipal Utility District water conservationist, advises: "It is a good idea for consumers to consider the different features offered by the various products on the market. The choice between having an on-site weather station versus an off-site subscription weather service seems like a pretty fundamental difference, but the real difference is in what features the product of-

Where to find smart controllers

Ewing Irrigation. Locations in Concord, Dublin, Fremont, San Carlos, San Francisco, San Leandro and San Rafael. www.ewingirrigation.com.

Horizon Irrigation. Locations in Concord, Dublin and San Rafael. www.horizononline.com.

Irrigation Equipment Co. 2818 Eighth St., Berkeley. (510) 841-9651.

John Deere Landscapes. Locations in Concord, Dublin, Livermore, Pacheco and San Rafael. www.johndeerelandscapes.com

The Urban Farmer Store. Locations in San Francisco, Mill Valley and Richmond. www.urbanfarmerstore.com

Watersavers Irrigation. Locations in Concord, Livermore and San Rafael. www.watersaversinc.com

Local rebates and conservation info

Contra Costa Water District, (925) 688-8321, www.ccwater.com.

East Bay Municipal Water District, (866) 403-2683, www.ebmud.com.

Marin Municipal Water District, (415) 945-1512, www.marinwater.org.

Santa Clara Valley Water District, (408) 265-2607, Ext. 2554, www.valleywater.org.

San Francisco Public Utilities Commission, (415) 551-4730, www.sfwater.org.

Taking the low-tech path

Now you know about high-tech developments in the garden. Some homeowners are taking the opposite path to achieve similar ends. Four Dimensions' Michael Thilgen explains, perhaps counterintuitively, "More people are hand-watering. Some people are starting to want the experience of being close to their garden. They want to get to know their plants, and they want to engage."

Thilgen says that hand-watering is particularly appropriate for smaller gardens with drought-tolerant plantings — California natives like wild lilac and flannel bush, and Mediterranean plants like bush germander and rosemary. After a couple of years of getting established, these may require no supplementary water, negating the need for a high-flying irrigation system to begin with.

— Jillian Steinberger

fers, what it does with that weather data, and how well the customer understands how it works. Above all," he adds, "it is not so much about the controller as how well it is programmed."

Models with on-site weather monitors are popular because they gather climate data specific to a site's microclimate without subscription fees.

Rated a Best Buy by Consumers Digest, Weathermatic, which uses on-site weather sensing, has a reputation for excellence and outstanding technical support. The company's SmartLine 800 is also relatively affordable at \$99, for a controller with four zones, and \$199, for an effective yet compact weather station the size of a soda can. Additional water stations cost \$25 for two-zone modules.

Says garden manager Kerry Harvey: "We installed a Weathermatic in one of designer Harland Hand's historic gardens last year, and it has made a big difference in the amount of water that was being used. You can program slope, soil, etc. It's incredibly configurable for each watering zone, and EBMUD gave us a rebate, which made it a very attractive deal."

Other models communicate with off-site weather stations. Petaluma's HydroPoint Data Systems offers WeatherTRAK ET Plus, which uses advanced climatologic modeling techniques developed at Penn State, and draws weather data from more than 14,000 stations, including the National Oceanic and Atmospheric Administration's network. A six-station unit costs \$509 plus a subscription fee.

HydroPoint shares WeatherTRAK technology with partner Toro, an international supplier of

landscape products that also manufactures controllers under subsidiary Irritrol. Toro's Intelli-Sense and Irritrol's SmartDial are each priced at about \$230 for six stations plus a subscription fee. All three feature an eight-week scheduling window for infrequent watering of low-water plants, such as California natives.

Corte Madera's ET Water Systems received the Wall Street Journal's Technology Innovation Award for its controllers, which are managed via the Web. These will appeal to Internet-savvy folks, to those who get frustrated with the knobs and buttons on a box, and to customers managing multiple properties such as distant vacation homes, since it's unnecessary to travel to the site to program changes. For that reason, ET Water appeals to large facilities: the UC Berkeley Botanical Garden, Cisco, Adobe Systems, Bayer and Autodesk are among its clients. ET Water's residential model starts at about \$400 for eight stations plus a subscription fee for weather data drawn from more than 8,000 WeatherBug stations, which sit atop schools and government buildings.

A must for the future

By 2010, smart controllers could be legally required, along with other water-efficiency measures. Water agencies are encouraging their adoption by offering significant rebates. Says EBMUD's Bauer, "The regulatory trend seems to be toward eventually mandating self-adjusting controllers."

Jillian Steinberger operates the Garden Artisan, a Bay Area design-build company with a focus on ecology. E-mail her at home@sfcchronicle.com.

The Kitchen Gardener

Palate-pleasing plantings yield greater rewards than neat rows

By Jillian Steinberger
SPECIAL TO THE CHRONICLE

How does your kitchen garden grow — with serendipity or structure?

I admire kitchen gardeners who grow big yields in tidy rows. Neat rows, straight as a pin, weeded in between. I imagine them as highly organized people, producing more or less on schedule and as expected. That's because they started their seedlings and got their plants in the ground on time.

Some edible landscapes are also decorative, defined by curved and shapely lines with the same varietal lined up. In idealized pictures, the cabbages all grow to the same size and leaf out in the same way. They share the same hue.

Not in my garden. Although I try, my plants are not together in lines, either curved or straight. At this party, they're mingling. It's more like, "Oh, the Romano beans decided to come up by the radishes, but not over by the carrots. God knows why."

As far as I knew, those Romano beans had the same conditions: soil, water, sun, same number of "I love you, you scrumptious little plants." And then there's a frustrating gap where I broadcast a packet of Italian heirloom salad greens. Did they go to the birds?

But it's OK. I'm flexible. And I'm still producing. Last year's 'Bull's Blood' beet seeds finally decided to come up. Their tops taste better than spinach. They are full, just loaded with beet leaves pretty as a picture. I see

dinner: beet greens lightly sauteed with a head of outrageously strong garlic (pulled moments before cooking, along with pungent unfiltered olive oil and a little pink Himalayan salt with 84 trace minerals. And a major vitamin boost: green smoothies for days.

But why are the beets coming up now, instead of last year? Is there a method to this madness? This spring, there were so many self-seeded — nearly weedy — tomato plantlets, looking so cheerful that I considered not planting tomatoes at all. However, I worried that they would all come up orange. 'Sun Sugar' cherries — yummy, and great for drying, but who needs a whole bed at the expense of the plums and the beefsteaks?

In hindsight, it would have worked out beautifully, and I may trust in the process next spring. 'Sun Sugar' repeated itself for two

years, but this year nada. 'Black Cherry' returned, vining its way through the long bed, forcing me to forage on all fours. I gave away a mystery tomato to a doubling taker; it turned out to be the 'Cherokee Purple' of my dreams — sprawling foliage jam-packed with fruit. There's a 'San Marzano' and

a nameless clustering tomato with a pointy end that seems to have reverted back to primal tomatohood. It's prolific, drought tolerant and great in sauces. "Welcome back," I say.

A while ago, I broadcast 'Russian Mammoth' sunflower seeds, not knowing what I was in for. Unless I decide to eradicate them — and, in fairness, they're easy to weed by hand — these friendly monsters are here for good, creating an annual spectacle particularly appealing to a certain beneficial beast: kids. So while I'm short on salad greens, I am rich in

sprouts, and there will always be a source of homegrown greens here.

The sunflowers that never get a spray of the hose stay petite — perfect in the vase — while the tall flowers stalks make sturdy supports for beans. Nothing goes to waste.

It can be tough to identify the varieties growing in my kitchen garden, with seeds from years past and cross-pollinated creations popping up. Someday I'll go through my seed packets. I'll get more serious about identification with attention to Latin as well as common names, of course. But gardening is also about arranging priorities. And in my garden, we can live with a little unorganized mystery as long as it tastes good and delights the eye.

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