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MAY 2000

ONLINE MAGAZINE

Cracking Down on Water Waste

Modern
Agriculture:
The **Best-Kept**
Secret

The **Care &**
Nurture of
Beneficial
Insects

NEW!
Matching
Irrigation to
Weather

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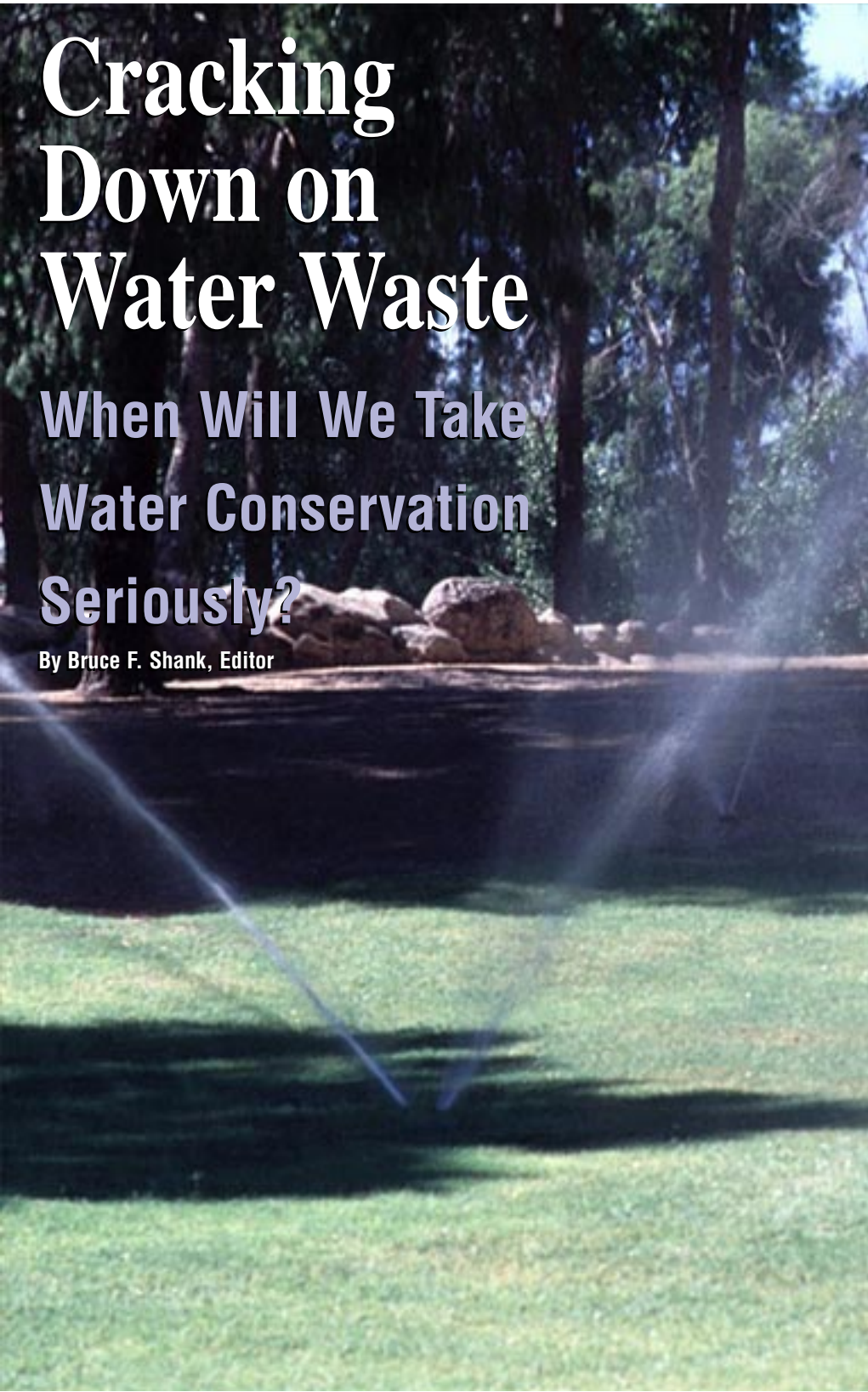
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Cracking Down on Water Waste

When Will We Take Water Conservation Seriously?

By Bruce F. Shank, Editor

Ironically, it took a comedian to finally make us face the reality of water shortages in the West. Tonight Show Host Jay Leno recently exposed a decision by the Los Angeles Department of Water and Power to solve water shortages by blending fully treated sewage water with insufficient supplies of fresh water.

To make the idea palatable to the public, the Department devised a plan that avoids direct blending of treated water with fresh water supplies. Instead, the treated water will be pumped down into the ground where “natural filtration” will take place and the water will mix with other groundwater. Once cleansed and mixed, the water will be retrieved for use in the city’s water supply.

Called toilet-to-tap, the idea has been quietly debated at public hearings for nearly a decade. The original intent was to capture treated water to meet some of the significant demand for water by irrigation and industry. However, lacking a dual supply network, the infrastructure in Southern California would require too great an investment to selectively direct treated water for irrigation and industry.

In the meantime, the Department has focused its efforts on water-conserving toilets and an irrigation education program for gardeners. Few restrictions have been placed on landscape irrigation
(continued)



Golf courses are often viewed as a perfect match of nature and sport. However, their water requirements may not be realistic in many areas.

Getting Serious About Water CONTINUED

systems, with the exception of Irvine's tiered rate structure that penalizes waste. San Diego has banned landscape water use during extended droughts.

Water conservation officers from the state have discussed various existing methods to cut water waste, but trial programs are slow in coming. A price point per irrigation system of about \$40 seems too great for regulators to endorse. Promotion endorsements for water-saver toilets produced tremendous results. Advanced concepts in moisture sensing, controllers, and automatic shutoff devices are waiting on the sidelines, ready to be called in to save the game. Apparently, we have not reached the finals in the water championships.

When given the choice of drinking recycled water or cracking down on water waste in irrigation, taxpayers might send a stronger message to water conservation officers to implement some of the available programs regardless of the price point. Let's face it, treated water is safe for drinking and bathing. It's the image of using water that carried waste that bothers people, and image can be stronger than fact. Many households already avoid tapwater for bottled water because of taste and perceived notions of freshness and health.

What Waste?

During the summer, irrigation can consume more than half of our fresh water. There isn't a neighborhood in the West where you won't find streams of irrigation water rolling down curbs and pouring into storm drains in the morning. Every day you see broken sprinkler heads spouting water into the air with no benefit to the landscape.

Are we going to argue that this isn't the case? Who is to blame for this "image" problem? Are we burying our heads in the sand? How seriously are we taking water conservation? Do we need irrigation police?

Research has established that many plants can survive when 80 percent of their evapotranspiration (Et) is replaced with irrigation water. Unfortunately, because of the way we set irrigation schedules on controllers and because many irrigation systems have low distribution uniformity, we are frequently irrigating at 150 percent of Et. This doesn't even take into consideration broken heads, drift and low-head drainage.

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Communities that exploit water when resources are limited should not be allowed, regardless of the price of the real estate.

Getting Serious About Water CONTINUED

Manual adjustments to irrigation scheduling through water budgeting programs on controllers might be made three times a year - spring, summer, and fall. Without automatic adjustments for Et, based on actual, real-time weather data, this will result in 50 percent waste of water! This waste can represent 25 percent of the fresh water consumed by a community during the summer! Are we doing enough?

I was pleased to read recently that Doug Bennett was hired by the city of Las Vegas, NV to implement there some of the education and enforcement programs he developed in Albuquerque, NM. Las Vegas is the fastest growing city in the nation and it sits in a desert valley with less than 14 inches of rain per year. His emphasis has been on making sure irrigation designs are reasonably efficient and that current technology works as promised.

Las Vegas recently passed limitations on the amount of turf any residential landscape or golf course can have. This was its water-saver toilet solution. The city's irrigation experts were allowed only minor input to this decision. Perhaps the city council has seen the error of its ways. Irrigation technology and design can do more than is currently expected of them.

The council was partly right — plant selection impacts irrigation water use. On the other hand, plants have benefits in the form of cooling by shade, reflection, and evaporation. These are on top of the proven psychological importance of nature within cities. Sand and pavement alone won't keep gamblers and retirees flocking to Las Vegas to spend their money. Landscaping does matter and irrigation is part of the package.

Let the Roots Decide

Moisture sensors have been controversial since they were first introduced. They are proven in agriculture, but are not widely adopted in the landscape industry. You don't need to calculate Et or have a fancy controller with moisture sensors. The sensor detects what the roots are experiencing by electrical gradients in the soil. When sufficient moisture is in the root zone, the common circuit to the controller is broken to prevent activation of the solenoid valves. These devices have been perfected to the *(continued)*



Parks are a wise use of water resources and should have the most technologically advanced irrigation.

Getting Serious About Water CONTINUED

point where they are field durable for five or more years and require little maintenance.

So what are we waiting for? Moisture sensor manufacturers tend to be small in comparison to the big guns in the irrigation business. Competition in some cases is insufficient for public agencies to obtain necessary bids. For less than \$50 per installed moisture sensor, we could make a serious evaluation of the effectiveness of these devices in saving urban fresh water supplies.

Moisture sensors can't solve problems caused by poor design and low distribution uniformity. They must be installed within the root zone in a location with average exposure to sun and wind to work best. If the sensor were located in a zone near the lowest sprinkler head without a check valve it would not work as designed. Similarly, if it were placed along the top edge of a sloped zone, it too would not work as well. But these exceptions are easy to understand when designing a system.

Design Requirements

Two months ago, I wanted to replace a garage door with a French door at my house. I had to get a permit and meet standards set by the city. Meeting the rules cost me \$100. Yet, I don't need a permit if I wanted to install an irrigation system. Here, where I live in the Mojave Desert, water is short, yet still cheap. No agency checks residential irrigation installations for proper design or backflow installation.

Virtually all residential irrigation systems are poorly arranged zones of sprayheads. People rarely spend more than \$2 for a pop-up head. They won't even buy four-inch pop-ups because they cost more than three-inch, even though the shorter ones won't rise above tall fescue more than half the time. Tall grass blocks the water distribution, especially when heads are too low in the first place or the grass has established a thick mat.

On any given morning, I can find at least one broken head for every five yards, spouting water onto the sidewalk and down the street. Most lawns are soaked and spongy for most of the day. They ooze water when you walk across them. Landscape maintenance companies and gardeners don't complain to homeowners as long as the landscape looks good. It's not their responsibility, is it?

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Getting Serious About Water CONTINUED

Broken sprayheads don't have to be the problem they are. Devices exist to shut off flow to broken sprayheads. They cost less than \$2 each, about the same as a sprayhead. If water were priced more sensibly, such devices would be easily justified. Water is simply too cheap.

Have you ever attended one of those bleacher seminars at the hardware warehouse stores on irrigation? Not many people do, even though that's where most homeowners today buy their irrigation components. Usually you get someone from the plumbing department who spends most of the time on valves and pipe selection. Rarely do they show more than a six-station controller. Scheduling is confined to about five minutes at the end of the 30-minute session.

On the other hand, have you ever tried to find an irrigation designer or landscape architect to design a residential or small commercial irrigation system for you? Their fees are sometimes more than the cost of the labor and components to install the system. It's no different than asking an architect to design an addition to your house. It takes the same expertise and time. Why shouldn't they be paid accordingly? At least the architect has the permit process to back him up.

Finally, what distinguishes professionally designed irrigation systems from do-it-yourselfers? Three things usually tip you off. First is the use of a properly located backflow prevention device. Secondly is rotor heads as opposed to sprayheads. Finally, the professionally designed system has a decent controller with options for sensors, long-run drip zones, eight or more stations, and cycle repeat for lawn establishment.

Recently, a few landscape irrigation contractors in the West have taken the next step. They have taken over adjustment of their customers' irrigation controllers through remote control, either by telephone modem or radio. They assume the responsibility for changes in Et, proper system performance, and appropriate hydrozoning. Consequently, they have better control over the health of the plants in your landscape by matching water needs to actual weather conditions.

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Wall to wall turf on golf courses in arid regions is neither necessary for the sport nor an efficient use of irrigation



Sprayheads are wasteful in plant beds where drip irrigation could be used efficiently.

Getting Serious About Water CONTINUED

Ultimately Infrastructure

The cost of adding a second set of delivery pipes to supply recycled water for irrigation and industry is significant. You'd think water agencies would spend more serious money on conservation concepts and research before they pull out the wallet for a dual delivery system. On the other hand, fiber optic cables have been installed across this nation in the past two years with little cost resistance. Again, water is too cheap.

Television used to be free once you bought the set. Now we spend \$45 for cable each month. Of course, nearly half of us spend \$20 per month for Internet access too. The average residential water bill is less than \$20 per month. Yet the average value of a landscape is 15 percent of the cost of real estate. Our values are not in order.

The landscape industry today represents more than \$16 billion in annual expenditures, according to a Gallup poll sponsored by landscape industry associations. Of the total, irrigation constitutes \$1.5 billion. That's roughly ten percent.

Each year more than \$3 billion in landscape plants are installed. As landscapes mature, they increase in value. The total value of installed landscapes in the U.S. is conceivably approaching the half trillion dollar point. In many ways, it is priceless. How can you put a value on the parks our kids play in?

If I were a public official in a southern or western city that depends upon growth to pay for infrastructure, I'd seriously consider development of a dual delivery system for recycled water for irrigation. Of course, the easier solution is to expect irrigation systems to be designed, installed and maintained to deliver optimum efficiency. What this means is we should require permitting, insist on and enforce standards of efficiency, penalize waste, and utilize every possible tool to improve efficiency.

If we improve irrigation efficiency by 25 percent, which we can, we can also pay for dual-delivery infrastructure, maintain our natural landscapes in cities, and not have to resort to toilet-to-tap scenarios. Jay Leno might have done us tremendous good by saying, "When you swallow it (the blended water), as it goes down your throat, it automatically does that swirling thing." Images speak louder than facts.

Modern Agriculture: The Best-Kept Secret

by Paul Schrimpf
Guest Columnist



It's getting more and more difficult to take time to smell the roses in any business these days, and this is certainly true for those of us making a living in agriculture. The buzz phrase in our office is, "operate at Internet speed," but even that seems inadequate for measuring and analyzing markets with the current pace of change.

But it's still important—maybe even more important—to step back and look around at all the industry has accomplished.

Do you take pride in what you do? I mean, not just the enjoyment of completing a job on time and under budget, or creating the perfect landscape design for that unmercifully shady—but highly visible—side of a shopping plaza. I mean, are you proud to be a part of agriculture?

Constantly struggling to achieve some stability while at the mercy of Mother Nature's whim, modern agriculture takes the best technology, knowledge, and techniques and sets out to serve the public demand—be it to supplement America's safe, affordable and abundant food supply, or to enhance the public and private spaces where people enjoy natural surroundings.

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Stand Tall and Be Proud CONTINUED

I've spent time as an editor on both sides of the agriculture "fence"—three years in the lawn and landscape industry, and two so far in what we call "production agriculture," the planting, growing, nurturing, and harvesting of food. In that short time, I've been fortunate to witness major shifts in business philosophy, the economy, and the use of technology that has changed the way urban and production agriculture companies operate.

And I can tell you, I am proud—not just to serve my readership and to get the satisfaction of putting out a quality publication—but to serve this great industry we call agriculture.

So take a step back out of your day-to-day struggle, and consider how far agriculture has come in a relatively short time period. In my humble opinion, the future is bright for all of us.

Taking Control of the Business

Agriculture has faced many challenges in recent years, but I think the most violent—and probably the most beneficial—has been a rethinking and retooling of managing the business. For example, a decade ago, most of the landscape maintenance and construction business owners knew their way around their customers' grounds, but only a select few truly grasped the business side of the industry.

But in the '90s, information began to be shared among these contractors—led by the [Associated Landscape Contractors of America](#) and its emphasis on education, push for networking and its highly progressive leadership—and many more contractors prospered.

Combine that with the recent economic boom, and the landscape contracting industry is suddenly being sought by venture capitalists as one of the top growth markets in the country. Businesses that more or less operated "seat of the pants" were broken down line item by line item for efficiency and profitability.

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Stand Tall and Be Proud CONTINUED

I found several examples of this phenomenon in my time in urban agriculture, but the most profound was a 100-plus year old nursery that did not have a formalized budgeting process until the early '90s, when the fourth generation of the family began to take over. After a long and sometimes painful process, the company developed a model for running the business that allows it to plan for growth and better react to market forces.

Production agriculture is undergoing change as well, but especially the second half of the 1990s. For many years, the ranks of the major fertilizer and chemical companies were infiltrated with folks who had grown up in the industry—children of farmers, ag-chemical/fertilizer dealership owners, or farmer-seedsmen, who brought personal experience in agriculture to their profession. Today, we see more people trained in business who are taking on agriculture leadership positions and learning the industry from the outside in. It's good and bad—less inherent knowledge, but fewer preconceived notions about doing things “the way they've always been done.”

And new ideas and business models will be needed in production agriculture, as businesses continue to deal with historic low corn and soybean prices, dropping margins on chemical and fertilizer sales, and the challenges of growing tomorrow's biotech-enhanced foods.

These changes have been a necessary part of the maturing of both sides of agriculture, and have better equipped these businesses for the challenges that will lie ahead.

A Wealth of Knowledge

Technological advances in landscape care and crop production have been stunning during the past decade. But one of the things that impressed me most over the course of time I spent covering the landscape industry was described in an earlier edition of this magazine by Helen Stone—the complete rewriting of the “rulebook” of tree care.

Thanks to tireless tree care disciples like Alex Shigo (I happily diagram the three-cut method for my uninformed neighbors) and Bonnie Appleton, and forward thinking
(continued)



Stand Tall and Be Proud CONTINUED

companies like Bartlett Tree Care, Hendricksen—the Care of Trees, and Davey Tree, much more is known, and questioned, about tree planting and care practices. Of course, Don Marx and [Plant Health Care, Inc.](#) contributed greatly to our knowledge, especially the understanding of the function of the root system.

Products for tree care have come a long way as well, allowing the use of soil-injection and trunk-injection (although this method is still controversial) as alternatives to wide-area spraying, making consumers more comfortable with insect and fungus control.

In crop production, farmers are able to reduce the use of pesticides and still maintain yields by planting crops with biotechnology-derived herbicide and insect resistance. Biotech crops have come under fire by some advocacy groups, and the U.S. public has expressed concern about them, but the benefit is measurable and, according to the EPA and FDA, pose virtually no threat to human health.

This is merely the tip of an enormous iceberg of knowledge that agriculture has cultivated through intense research and blind determination, and, it should be a source of pride for everyone in the field.

The Challenges To Come

Despite the positives, there will certainly be challenges to deal with in the coming years. How will landscape companies fare when the economy flattens or, heaven forbid, declines? In the late '80s and early '90s, many landscapers went out of business or reinvented themselves to stay afloat—whether they are better equipped to handle a downturn this time remains to be seen.

The Internet will provide excellent opportunities for improving communications with suppliers and across branch offices, but how many jobs will be lost in the distribution chain if e-commerce cuts out more of the middle man? The upside of this new business model will certainly be positive in the long run, but it won't come without some pain in the process.

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Stand Tall and Be Proud CONTINUED

Another challenge I continue to see is public perception of agriculture. As more and more Americans grow up urban, the appreciation for the expertise it takes to grow and nurture living things will continue to drop. In rural America, there is tremendous frustration with “city folk” who think food magically drops into supermarkets by some mystical process—in some ways, agriculture has done “too well” in its mission to feed Americans. Abundance is taken for granted.

This is part of why I say, take time to take pride in what you do. Tell people about it. In agriculture, we have professionally run businesses with the people, the tools, the technology, and a sense of purpose that should have the respect of everyone.

Whether it’s feeding the world, or enhancing and protecting the green spaces in it, those of us who work in and serve agriculture should be proud of its progress to date, and enthusiastic about its future and our place in it.

The Care & Nurture of Beneficial Insects


by Jim Davis, American Insectaries, Inc.

If you haven't already released beneficial insects, chances are good that you will in the future.

Beneficial insects, or more accurately beneficial organisms, provide biological control of many of the aphids, larvae, mealybugs, mites, scale, thrips, whiteflies and even weeds that attack urban landscapes. Beneficials are natural parasites or predators of the pests. Available commercially, the insects are living creatures that require special handling to assure that they are as strong as possible when they are released to begin their work. Research has shown that the sooner the beneficial insects are released, the more effective they will be in combating pests.

Issues related to the health of our insect allies begin with the supplier, the insectaries that raise the parasites and predators for commercial sale. The growers at insectaries place a strong emphasis on the condition of their products. They use the feedback of buyers, along with their own studies, to determine the best method of shipment while still maintaining economy. The biology of the beneficial insect also plays a major role in the choice of packaging technique and materials.

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A parasitic wasp, Peristenus digoneutis, prepares to lay an egg in a tarnished plant bug nymph. Photo by Scott Bauer, USDA-ARS.



The tarnished plant bug is reared in the lab as a factory for parasites. Photo by Scott Bauer, USDA-ARS.

Parasite and Predator TLC CONTINUED

The preferred life stages of insects for shipment are, by far, the eggs and pupae. These stages are the most resistant to damage from any source, such as extremes of temperature, humidity, chemical vapors, etc.

When you receive your shipment of beneficials, open the box and examine the insects. Note the temperature of the container that actually contains the insects, whether it is a card, cup, bag or bottle. Be aware of the smell of the container as you open it. Each insect has a distinctive smell that you will recognize over time. Changes in this smell may mean a change in the normal mortality that occurs with shipping. Or, it could be something else. If you feel there is a problem with the shipment, this is a good time to contact the insectary personnel.

Harsh conditions for beneficials are high temperature and especially low humidity. For this reason, it is best to place the insects in a cool humid place upon receipt of your order. Before placing them in a refrigerator, cool them down first and increase the relative humidity of their atmosphere (remember, all refrigerators have dehumidifiers).

You can create a “cool box” with a box that you line with wet newspapers that have sat in a refrigerator for a time. Make sure the paper is still good and damp when you line the box. The box can be whatever size is needed to fit the beneficials. All six sides of the box should be covered with the newspaper so the humidity inside is near 100 percent.

If the insects don't take up much volume and are exposed, such as a card of *Trichogramma*, they can be put in a Tupperware® container with wet newspapers from the refrigerator lining the bottom. Place a piece of wood or plastic between the paper and the insects to prevent their container from becoming wet.

If the insects come in a sealed cup or bottle, as *Thripobius* or *P. persimilis* commonly are, the humidity will still be able to enter the container, although more slowly. These containers should lose very little humidity, however, and just need to be placed in a cool box long enough to be sure the insects have metabolically adjusted to the cooler temperature.

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Thanasimus formicarius, is a predator of the pine shoot beetle, a destructive pest of pines in about 150 U.S. counties. Photo by Scott Bauer, USDA-ARS.

Parasite and Predator TLC CONTINUED

Hippodamia (ladybugs) are usually very dehydrated after shipment. They need water as soon as possible. Open the bag they arrive in and douse them with a spray of fresh water. A good rule of thumb is to spray about 3 or 4 ounces from a pint spray bottle into a 1-gallon bag of ladybugs. Drop in a couple of dripping pieces of sponge which the ladybugs can drink from. Lastly, spray one side of the bag until it is wet and set the bag in the cool box wet-side down.

After some time in the cool box, beneficial parasites and predators are ready for release, the refrigerator or longer-term storage. If they are to be released into the landscape, warm them gradually to temperatures slightly below the outside temperature while maintaining high humidity.

Release beneficials at or near sunset or sunrise when light intensities are lower. This encourages the insects to settle in and not take off on a long distance flight.

If the refrigerator is the destination for your order, be sure to provide for high humidity. Do not just place insects in the refrigerator. Store them in the cool box or plastic container inside the refrigerator at temperatures around 38 to 45 degrees F. A cold storage room at 48 degrees F. is an even better option, if you have one available.

Usually insects should not be held longer than overnight, although rain or unforeseen circumstances may require holding them longer. If this is the case, contact the insectary personnel for more guidelines.

With some simple care and handling, beneficials are easy to incorporate into your pest control program.

Biological Control Information on the Web

APHIS National Biological Control Institute—USDA Animal and Plant Health Service
www.aphis.usda.gov/nbci/nbci.html

APHIS Plant Protection Centers—USDA Animal and Plant Health Service
www.aphis.usda.gov/PPQ/bco/

(continued)



The big-eyed bug glues a whitefly to a leaf to devour later. Photo by Jack Dykinga, USDA-ARS.

Parasite and Predator TLC CONTINUED

Auburn's Biological Control Institute (BCI)—Auburn University

www.ag.auburn.edu/bci/

Cornell's Biological Control Home Page—Cornell University

www.nysaes.cornell.edu:80/ent/biocontrol/index.html

NEB Guide—Biological Control of Insect and Mite Pests—University of Nebraska Cooperative Extension www.ianr.unl.edu/pubs/Insects/g1251.htm

North Carolina's National IPM Network (North Carolina State University)

<http://ipmwww.ncsu.edu>

North Carolina State BioControl Contents—North Carolina State University

<http://ipmwww.ncsu.edu/biocontrol/biocontrol.html>

Purdue's Biological Control Laboratory—University of Purdue Cooperative Extension

www.entm.purdue.edu/entomology/research/bclab

University of California IPM Home Page—University of California at Davis

www.ipm.ucdavis.edu

Source of Web Site List: Charles D. Hunter, "Suppliers of Beneficial Organisms in North America," California Environmental Protection Agency, Department of Pesticide Regulation. 1997 Edition.

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Matching Irrigation to Weather

By Bruce F. Shank, Editor

Long-term weather forecasts this summer aren't bright for thirsty landscapes. One forecast pins rainfall (like Pin the Tail on the Donkey) at its lowest since the summer of 1955. We have replaced the word "prediction" with "forecast," because even the most knowledgeable person can't nail down nature's game plan.

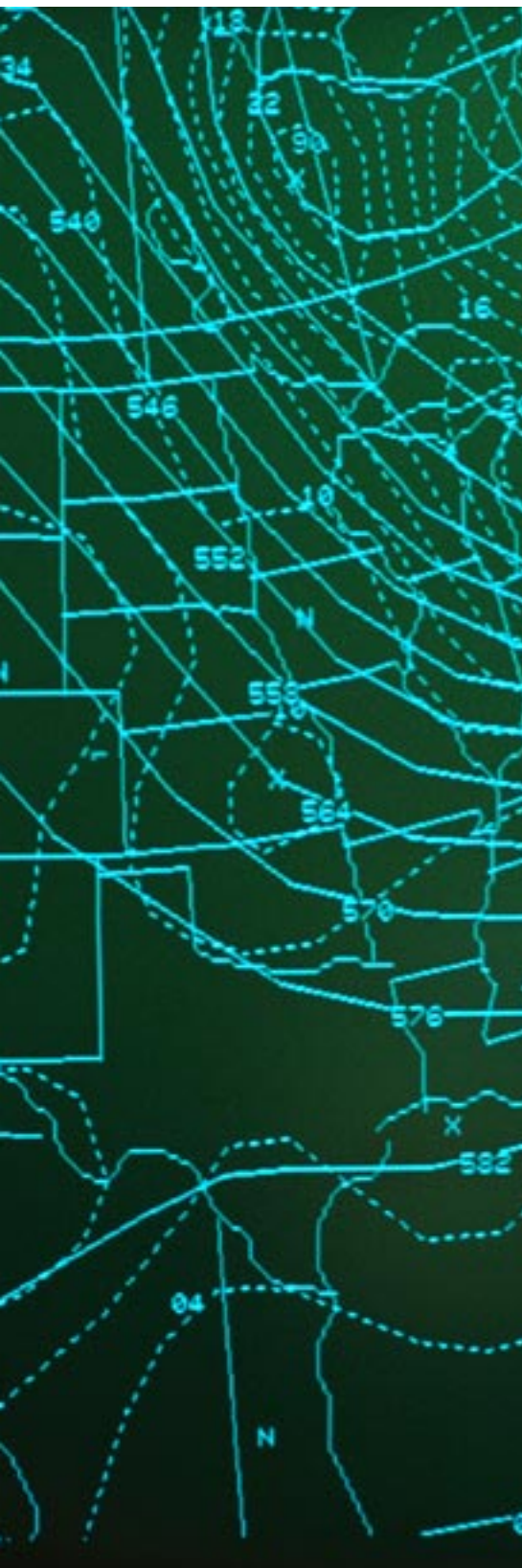
When the largest landscape contractor in the world decides to install weather stations on its accounts, it's a sign that we are done with predicting and forecasting. Environmental Care, Inc. (ECI) has connected some of its customers' irrigation controllers with weather stations. The results are in. There is no longer any doubt that 35 percent water savings is achievable.

"We are realizing a three-year payback on our Water Wise installations," says Michael Schmidt, irrigation specialist with ECI. "It's a proven commodity."

Burning Water

We waste a third of the water we apply to landscapes each year in the United States simply because we don't factor in weather. Ten million acre feet of water are being withdrawn from our limited fresh water sources every growing season, often without reasonable justification.

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You Can Cut Water Use CONTINUED

Water is simply too cheap in many areas. Farmers can sell their water allocations to municipalities today and make more profit than they could by using the water to produce a crop. The average golf course consumes enough water to supply 8,000 people. At that rate, the water used by the country's 16,000 golf courses is enough to supply half of the households in United States.

Common sense and science tell us that plants need more water when temperature and day length increase. From solstice to solstice, plant water requirements change constantly. Unless we adjust irrigation schedules, we either stress plants or waste water, or both. Some stress can actually benefit plants. They have an ability to respond to heat and drought, especially when they are in native regions.

Plants don't have to be picture-perfect every day of the year. Many of our landscape plants can survive for extended periods of time when only two thirds of the moisture they lose to evapotranspiration is replaced. At these levels, plants are not permanently harmed and the overall value of the landscape is preserved. So, there is room for compromise during extended periods of drought.

You Do the Math

"Many irrigation systems apply water at 150 percent of ET and that's wasteful," says John Addink, who holds a doctorate in irrigation engineering and is chairman of A-G Sod in Riverside, CA. "Weather responsive scheduling combined with more efficient runtimes that deliver closer to the 100 percent ET point can save a tremendous amount of water."

ET is calculated using sunlight intensity, wind, humidity, temperature and a water use factor specific to the type of plant. Desert plants have a lower ET than tropical plants under the same weather conditions

Addink draws a graph of a typical, bell-shaped ET curve. Then he draws lines to show how much water is applied when schedules are adjusted monthly, or every few months. It looks like a set of steps going up and down the bell curve. All the area

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You Can Cut Water Use CONTINUED

above the curve is wasted water. “The closer you keep your irrigation system to the curve, the more water you save and there is much to be saved,” Addink says.

This type of savings is most important in the desert Southwest where rainfall is rare during the summer. But, there is another area of savings that greatly affects the Southeast, the transition zone, and the North. It is irrigation during a rain event.

Smart Systems

ECI has installed systems now in Florida, North Carolina, Arizona and California. Its weather station is set to shut off irrigation when rainfall meets the scheduled “need” for that day. Need can be established for each zone, and ECI arranges irrigation zones according to plants of similar water needs. Hydrozoning adds to the efficiency of any irrigation system.

“The controller has the intelligence to compare the type of plant and its exposure to conditions at the site,” ECI’s Schmidt says. “It is not a ‘dumb’ satellite controlled by a remote central. It makes decisions and changes the schedule as needed. Because we can access the controllers by a telephone hookup, we can gather feedback from our controllers so we can learn more about specific plant water needs.”

The price tag for the ECI weather station is \$150. For this amount of money, ECI customers save between 25 to 40 percent on their water bills.

ECI’s work shows that conservation technology exists now, and its price is very reasonable considering alternatives. At least two other systems by other companies are in the final stages of development that increase irrigation efficiency to a similar degree. Their price tags are higher, but controllers are included. Certainly, rain switches, moisture sensors, and more sophisticated weather stations are widely available now.

ECI has no plans to market its Water Wise System, Schmidt says. “We aren’t in competition with manufacturers. We buy more than \$40 million in irrigation

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You Can Cut Water Use CONTINUED

components every year and have no intention of becoming a manufacturer. We created the Water Wise System to provide a service that our customers want. We wanted to set the pace, not stay even with it.”

Valley Crest Landscaping, the original nucleus of ECI, has been installing irrigation in Southern California for more than 50 years. “We had to improvise all the time with irrigation back then,” says Burt Sperber, ECI chairman. So it’s no surprise that his company is the first to break through with a viable and affordable solution to a major irrigation problem—water waste.

While ECI is not competing with manufacturers, the company has shown what technology can produce today. Keep your eyes on the market. Equally cost-effective systems will appear in the near future. The next couple of years water management should be very interesting.

About Planthealthcare.com Online Magazine

PlantHealthCare.com Online Magazine is posted at www.planthealthcare.com for professionals who produce, design and maintain plant material in the arbor, landscape architecture/design, landscape maintenance, nursery/greenhouse, and parks and recreation industries. Published as an educational service by Plant Health Care, Inc., the PlantHealthCare.com Online Magazine is designed to engage, educate and inform professionals about new technologies that promote the health of plants, specifically those that create “sustainable” landscapes that cost less, provide more value and last longer. The magazine also seeks to open discussion about issues that impact the many businesses that serve the plant health industry.

Meet Your Editors

Bruce F. Shank Editor

Bruce Shank is owner of BioCOM, a horticultural communications company based in Palmdale, CA. He is the editor of *Irrigation Business & Technology*, managing editor of *TurfGrass Trends*, and former editor of *Landscape & Irrigation*, *Landscape Management* and *sportsTURF* magazines. He was graduated by the University of Missouri—Columbia with a degree in agricultural journalism in 1973. He is a past president of the American Society of Business Press Editors and a member of the Turf & Ornamental Communicators Association.

Felicia L. Gillham Managing Editor

Felicia Gillham is owner of Gillham & Associates Marketing Communications, a San Diego, CA firm she established in 1989 to service the needs of turf and ornamental, agricultural and biotechnology companies. Articles written by Gillham on behalf of her clients have appeared in more than 100 Green Industry and farm trade publications. She is a 1980 graduate of the University of Missouri—Columbia with a degree in agricultural journalism. Gillham is a member of the Turf & Ornamental Communicators Association, American Agricultural Editor's Association and the National Association of Farm Broadcasters.

Meet Your Editors

Paul Schrimpf Guest Columnist

Paul Schrimpf has seen both sides...of agriculture and horticulture. Since June 1998, he has served as senior editor of *Farm Chemicals* magazine, published by Meister Publishing Co. in suburban Cleveland, OH. Founded as *The American Fertilizer* in 1892, *Farm Chemicals* serves the professional ag-chemical, seed and fertilizer distribution market in North America.

Immediately prior to his agricultural turn, Schrimpf served for three years as managing editor of *Lawn & Landscape* magazine at GIE Publishing Co., as well as editor of the company's *T & O Service Tech*.

Schrimpf also has served as a freelance writer for a number of northeast Ohio consumer publications while he worked for six years as associate director of the Cleveland Home & Flower Show. As associate director, Schrimpf says he watched Cleveland's top landscapers erect \$50,000+ landscapes in less than 10 working days. "I learned what it REALLY means to put in a full day's work," Schrimpf says.

A native of Ohio, Schrimpf is proud of his state, which he calls the "Cradle of Turfgrass Research." Schrimpf received a bachelor's degree in communication from Cleveland State University. He and his wife of 11 years, Natalie, and their two children live in Lakewood, OH.

Meet Your Editors

Jim Davis American Insectaries, Inc.

Jim Davis, president of American Insectaries, Inc., was born and raised in Ohio. He attended Oberlin College, where he received his Bachelor Degree in Biology in 1979. In 1982, he began the Masters Program in Pest Management at the University of California—Riverside. During his studies there, he was the research assistant for Dr. Jodie Holt, associate professor of Plant Science, where Davis performed experiments on the biology and control of the weed *Oxalis corniculata*.

Upon graduation in 1984, Davis worked for the USDA-ARS Boyden Lab on the UCR Campus. Here he was introduced to insect mass-rearing while he shared the responsibility for importation, quarantine and mass-production of beneficial insects for control of sweet-potato whitefly (*Bemisia tabaci*).

This experience led Jim to be hired to run the Corona division of Foothill Ag Research, Inc., a commercial insectary that rears beneficial insects for citrus and avocados, principally *Aphytis melinus*, *Thripobius semiluteus*, and the predaceous decollate snail (*Ruminia decollata*). After four years as insectary manager, the insectary changed hands and Davis went into business for himself.

Davis founded American Insectaries, Inc. in 1990. The company rears *Delphastus pusilus*, a coccinellid predator of whiteflies, and *Encarsia luteola*, a parasitic wasp of the silverleaf whitefly (*Bemisia argentifolii*). Davis also consults for a wide variety of growers in San Diego County on their pest control practices.

Davis has been a licensed Pest Control Adviser and an active field scout since 1984. His professional focus has been concentrated on the use of beneficial insects and designing IPM programs for citrus, avocados, vegetables, cut flowers, turf, ornamentals and nursery production.

Davis has assisted the local farming community by serving as an executive board member for the California Agricultural Production Consultants Association (CAPCA) for seven years and for nine years on the CAPCA Statewide Research IPM Committee. He also served as vice president of the San Diego Chapter of California Certified Organic Farmers (CCOF) during 1992 and 1993.

Calendar of Industry Events

May

5-11

American Society of Golf Course Architects Annual Meeting, Ireland.
(312) 372-7090.

9-11

Using Conservation Buffers in Urbanizing Landscapes National Conference, Nebraska
City, NE (402) 474-5655

17-18

Tree and Shrub Fertilizer Conference, Akron, OH. (440) 632-5299.

18

Recycled Water for Turf and Landscape Irrigation, Davis, CA. (800) 752-0881.

June

14

Scouting for Pests and Problems of Woody Ornamentals in the Landscape, Pittsfield,
MA. (413) 545-0895

15-16

Warm-Season Turfgrass Research Tour, Maricopa, AZ. (520) 783-2050.

21

University of Massachusetts Turf Research Field Day, South Deerfield.
(413) 545-3066.

21

Scouting for Pests and Problems of Woody Ornamentals in the Landscape, Pittsfield,
MA. (413) 545-0895

22-25

Outdoor Power Equipment Institute Annual Meeting, Napa, CA (703) 549-7600.

26-29

Southern Forest Nursery Association Conference, Mobile, AL. (334) 898-7013.

Calendar of Industry Events

CONTINUED

July

Tennessee Nurserymen's Association Trade Show, Nashville, TN. (615) 476-3951.

11-16

American Nursery and Landscape Association Annual Convention, British Columbia, Canada. (202) 789-2900.

13-16

American Landscape Contractors Association Summer Leadership Meeting, San Diego, CA. (800) 395-2522.

19-21

Turfgrass Producers Intl. Conference and Expo, Spokane, WA. (800) 405-8873.

22-24

International Lawn, Garden and Power Equipment Expo, Louisville, KY. (800) 558-8767.

24-25

Professional Lawn Care Association of America Legislative Day on the Hill, Washington, DC. (800) 458-3466.

26

Massachusetts Nursery and Landscape Association Summer Meeting, Boyleston. (413) 369-4731.

31

Kansas and Missouri Joint Landscape and Nursery Summer Meeting and Trade Show, Kansas City, MO. (816) 233-1481.

August

4-6

Southern Nurseryman's Association Conference and Trade Show, Atlanta, GA. (770) 953-3311.

8-9

Iowa and Nebraska Nursery & Landscape Association Joint Field Day, Shenandoah, IA. (816) 233-1481.

Calendar of Industry Events

CONTINUED

August, continued

15

Cornell University Field Day, Ithaca, NY. (607) 255-1792.

16-19

Golf Course Builders Association of America Summer Meeting, Louisville, KY. (919) 942-8922.

18-21

Texas Association of Nurserymen Nursery and Landscape Exposition, Houston. (512) 280-5182.

23

Michigan Turfgrass Field Day, Lansing, MI. (517) 321-1660

24-27

Ornamentals Northwest Seminar and Farwest Show, Portland, OR. (800) 342-6401.

September

15-16

Tennessee Nursery & Landscape Association Trade Show, Nashville, TN. (615) 889-1000.

21-23

Florida Nursery and Allied Trade Show, Orlando. (407) 295-2994.

October

13-14

Plant Biology Workshop, Plant Health Care, Inc. Education Center, Frogmore, SC.

November

3-4

Plant Biology Workshop, Plant Health Care, Inc. Education Center, Frogmore, SC.

4-7

Green Industry Expo, Indianapolis, IN. (770) 973-2019.

12-14

International Irrigation Show, Phoenix, AZ. (703) 573-3551.