

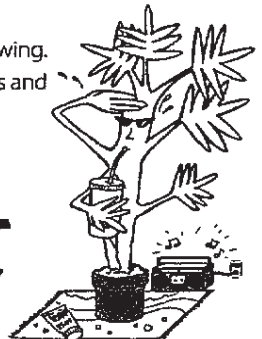
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Tropical Plant Technician

Horticultural Tips, Techniques & Ideas for the Intiorscape Technician

Hot! Hot! Hot! It's summertime and it's hot out there. Our plant friends need extra water to keep them healthy and growing. Thusly, our August issue is dedicated to the fine art of proper watering for interiorscape plants. We have pulled together bits and pieces of some of our favorite articles about watering from the 16 years of publication of *Tropical Plant Technician*.



On Management

Increasing Watering Efficiency

by Lynne Haines and Cheri Shea adapted from June/July 1998 TPT

A necessary tool to the successful technician is a mobile watering unit. A portable self-pressurized water machine has many labor and cost reduction benefits. The right type of machine will reduce the time it takes to water, prevent technician liability, eliminate water damage and help insure against over- or under-watering. Lighter weight watering machines also mean improved safety for technicians and a reduction in a company's liability to work related injury.

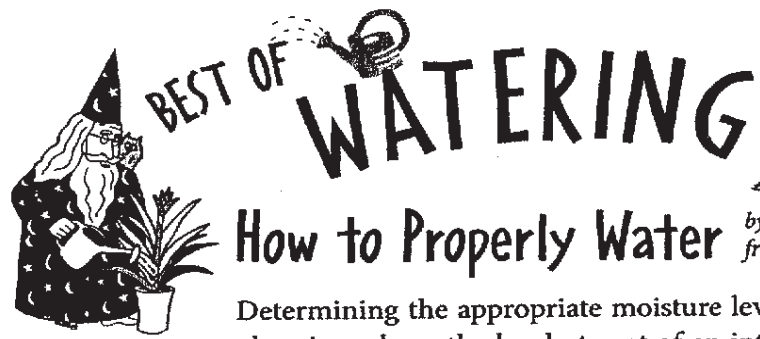
When the manual hauling of water is eliminated technicians know they are able to put their energy into providing quality service and keeping the accounts looking beautiful, not just sweating it out hauling buckets.

Some accounts do not require more than a cup of water here or there each week because the plants are centrally located and are growing in 6 to 10" pots but are quite a distance from the water source. With a mobile watering unit, you can bring the water source close to the area and fill a small watering can from the machine and take it to the plant. This saves on long trips back and forth to the tap, which wastes time and effort.

Other accounts may have lots of 8 to 17" plants scattered throughout a building. The best watering machines can be moved wherever needed to reach every plant because they are light, easy to maneuver and narrow.

Many accounts are installed with sub-irrigation systems. A well-designed mobile unit is a great boon on these accounts.

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How to Properly Water

by Virginia I. Powers from February 1999 TPT

Determining the appropriate moisture level for an interior plant is perhaps the hardest part of an interior technician's job. Proper amounts of water are vital to the overall health of container grown plants. Too little, and the plant can collapse and look wilted or "dead" to your customer. Too much and the roots will rot off and the plant will slowly die. So here is a bit of insightful reading to help you become a water wizard.

Take a close look

The first thing you always want to do as you approach a plant is to do a visual inspection of the leaves and soil. The plants are speaking loud and clear to you - you just need to listen and learn to speak plant. Here are a few simple plant phrases you need to learn:

- "I'm thirsty" Will show as oldest leaves turning banana yellow.
- "I'm too wet" Tips of leaves will look wet-brown in color.
- "I'm upset" Shedding new green leaves

By spending the time to learn the signals you are then able to use other tools available to give the proper amount of water. Learn to notice the subtle
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Tidbits

Hydretain: Modern Moisture Magic

by Virginia Powers from March 1997 TPT

As I have grown older and my back has begun to complain more, I have searched for a way to carry less water to our plant friends. I have tried a number of different water additives and have come to appreciate one type in particular, Hydretain, which is a root zone moisture manager. It comes as a concentrated liquid that is added to water.

Technically, it is a blend of humectant and hygroscopic compounds that attract and hold moisture like tiny "water magnets" within the soil. It inhibits soil moisture evaporation. It gives the benefits of both a polymer and a wetting agent. As it penetrates the planting media it acts like a magnet to water storing moisture as microscopic droplets on plant roots and on soil particle surfaces. The moisture content, which is in contact with the root cells, is absorbed into the plant through osmosis.

What I like about it is that it extends the time between waterings and, since it holds the moisture in the soil, it helps reduce plant stress, decreasing replacements. Here are some success stories.

At a restaurant with ten foot high planters of 100 6" pothos in medium high light, watering occurs every two weeks. The plants are full and gorgeous with large healthy green leaves from the pot to the ends of the three to four foot vines. Every three months they are watered with Hydretain added to the water at a 1 to 30 ratio. The need for replacements is slim, with none at all needed over the past six months.

On a windy exterior deck, flowering annuals are watered when planted with Hydretain and the need for irrigation is decreased to once every five days during the hot summer months.

In a sunny interior lobby, a seasonal flower program consisting mostly of mums and azaleas is successfully maintained on a once a week basis by using water mixed with Hydretain. The Hydretain is added to the water for the first watering of every seasonal change.

How to Water Properly...continued from page 1

signs of water stress in plants. Plants with proper moisture will have firm, turgid foliage. Leaves will feel cool to the touch and be oriented toward the light source. Plants lacking sufficient moisture feel limp, and warm to the touch as the foliage starts to droop.

Use your finger

Many technicians use their finger to judge soil moisture. This may work in small plants, but becomes increasingly more difficult when the containers are larger and the plant more potbound. The target depth where you want to judge moisture is at least one third of the way down in the container – how long is your finger? I also worry about what might be hiding in that soil. Systemic pesticides, needles, vomit and other gross trash may be lurking.

Judge by weight

Learn to judge the moisture content by the weight of the plant. This works especially well for color units, hanging baskets and smaller containers. Lift the plants on a weekly basis noting how the weight changes as the media dries out. By making the connection between weight and moisture, you can learn to use this method to figure out watering. It is not a reliable method in larger plants and those from Hawaii for they get too heavy to lift for inspection purposes.

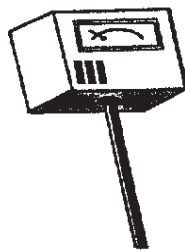
Soil probes

A popular method is a soil probe. It is a spiked tube that is inserted into the active root zone, extracting a soil sample. Since soil dries out unevenly in containerized plants the probe can be very useful a pulling samples from different soil zones. By feeling these samples you can tell how wet the soil is and decide how to water – such as a light sprinkle on top, or a full circle water around the edge.



Moisture meters

These old tools are my favorite helper in the soil moisture world. They come in a variety of sizes and styles but all work on the same principle. A metal probe which is inserted into the soil reaching the active root level, registers an electrical current produced by minerals in the water and media. The amount of current shows on a scale that relates to the moisture in the media. They work well for me and are reasonably reliable. They are seen by the client as the technician using something "technical". They also give a common language to speak to one another in your company. "I always water that *Ficus* to a 10."



Combine and conquer

It is best to not depend on only one method for all plants. Learn to use a variety of methods for different plant situations. By using a combination of the above methods along with your knowledge of plants, you too can be a water wizard.



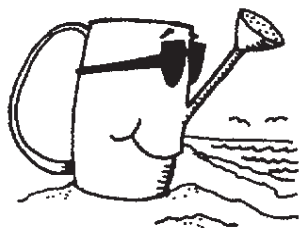
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Technical Tips

Water Tips For Summer

by Deborah Jones

adapted from June/July 2004 TPT



How do plants take up water? In nature all things want to be equal. The concentration of water to mineral in a plant's cells is less than the concentration of water to mineral in the soil water.

Water therefore moves from the soil into the plant's roots to try to bring the concentrations to equality again. This is known as osmosis. As the water moves into the roots, water moves throughout the soil by capillary action.

Most of the water a plant takes up is lost and never becomes a part of the plant. Ninety five per cent of the water a plant takes up is lost through transpiration. This is the process whereby wastewater produced during photosynthesis and other chemical reactions is lost through the leaves in vapor form. Water is also lost through wounds, nectar, and other plant secretions. Evaporation from the soil surface and water that runs right on through the pot is another way plants lose water.

Plants need water. They are composed of 80-90% water. They need water to carry nutrients in solution, hold the plant upright by turgor pressure and as part of photosynthesis.

So how do we keep the water on those plants in hot sunny locations? There are several things we can do.

Use Wetting agents

Wetting agents allow for more uniform wetting of soil particles, making it easier to re-wet soil that has dried out too much. They work by breaking down the tension of the molecules on the surface of a water droplet to form water films instead of drops.

Apply hydrogels or water polymers

These act as sponges or gelatin capsules to store water until the plant needs it. The amount of water absorbed can be 30-40 times the weight of the particles. Hydrogels and water polymers hold the water in capsules so the soil doesn't get soggy and can actually help in drainage. Roots attach to the granules and pull water out when it's needed.

Install saucers and vinyl liners

As a water reservoir, install saucers to give extra water for the plants to drink up after we leave the account. Better yet, add in a layer of absorbent cap mat in that saucer to hold a bit of extra moisture for the plant to use later.

Repot or add soil

It may be time to add soil to existing plants to help them hold more water. Start by punching down air pockets, trimming off any roots outside the grow pot and adding in fresh soil. If you are out of root space in that pot and the plant is going too dry between visits...it's time to do the messy job and pot up to the next size of pot.

Schedule extra waterings

Even when you have done all of the above, during the hottest months you may find you still need to schedule extra service visits to add more water to some of your plants, whether they are inside or out. Hotter weather and more light can simply mean more visits are required to keep the plants moist enough.

There are many ways to prevent plants suffering from too little water and subsequent damage. Act now and avoid water-stressed plants and enjoy the summer.

Water From Down Under...A Case For Subirrigation

by Virginia I. Powers adapted from February 1998 TPT

Most of us "grew-up" watering plants from above, by sprinkling water like a gentle rain, with gravity pulling it down through the root zone. Even as we learned about the dangers of overwatering indoor plants, with rotted roots from stagnant water standing in the decorative container, we continue to believe that we need to give it just a splash on that top soil.

Subirrigation works by having a reservoir for water under the plant. Unlike top-watering methods that rely on our ability to constantly monitor the moisture content of the growing media, subirrigation systems deliver water to the roots, as the plants need it. There are two basic

types of subirrigation systems that are regularly used by interiorscapers. One is a capillary action system. The other is a vacuum system.

Capillary action

Capillary action is the vertical and lateral movement of water as a continuous column into the micropores of the root media. Like our own human capillary veins, pores in the growing media act as a network of interconnecting tunnels to move water and nutrients through the plant.

The water molecule has an electrical charge that helps pull it upward through the media and into the plant root system. One end of

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On Management...

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Using the flexible wand available with some machines, water can be injected at maximum speed, filling the reservoirs of these wonderful devices with ease. Having the force behind the water when it is injected pushes out the air and eliminates the need to wait or to "burp" the irrigation system. When hand watering these systems with a watering can or low-pressure unit, inaccurate water level readings often result from trapped air. This prevents proper filling and can lead to under-watering large accounts that are not visited frequently. OUCH!

Interiorscapers today

Lighter weight watering machines mean improved safety for technicians and a reduction in a company's liability to work related injury.

Subirrigation...continued from page 3

the molecule is a negative charge, and the other is positive. And as they say, opposites attract. The polarity of the water molecule gives it two important qualities, adhesion and cohesion. The adhesive nature of the water molecule moves water up the sides of the pore space. Water's cohesive nature pulls other water molecules up the capillary spaces.

Vacuum system

The vacuum system uses a moisture sensor with is placed into the center or the root zone. When the soil starts to dry, moisture is drawn from the tip of the sensor. The sensor opens, allowing a bit of air to pass into the tube and breaks the vacuum. Water from the reservoir will then flow into the growing media by capillary action. When the soil becomes moist, the sensor absorbs moisture, blocking airflow and sealing the system against overwatering the plant.

Trust building

It is a difficult mental transition to switch to using a subirrigation system. Whichever type of system you use, you have to learn to trust the system and become skilled at adding water in a new and different way. Once you adapt, you will save labor, time and have reduced replacements.



Customer Service

H₂O O.D.

by Virginia I. Powers
from April 1997 TPT

"Ahem...more water...please!"

What is the correct way to water a *Ficus*? How often have you asked yourself that question? The answer is, there is NO ONE correct way. And that answer is indeed the challenge that is presented to you everyday of the week, *Ficus* by *Ficus*, pothos by pothos. Each plant is in itself unique due to a wide variety of circumstances. These include; the soil type, the root mass, foliage mass, how long the plant has been in the interiorscape, how much fertilizer is in the soil, whether or not it has insects, how low of light is it surviving in, how drafty the location is, and on and on.

The correct way to water interior plants will always be a question of how much water to apply. There are three things that you can have control over to help you ensure happy, healthy plants. The first is container size. The second is to keep the plant as dry as possible between waterings. And the third factor is to apply water in such a way as to guarantee that the plant will need more water by your next visit. These rules apply whether you are on sub-irrigation or surface watering.



Pot size

This is hopefully the easiest one to control. Keep your plants in as small a pot as possible and let it grow to maximum root capacity within the container. This helps the plant dry out adequately between waterings. This doesn't mean never repot, or never add soil. Just do so when the plant is getting tight in its shoes, not before. If you water a plant all the way through and it dries out 'to the point of wilting' before your next visit it needs more soil or a bigger pot. Best is to let it dry down just to the point of wilting which lessens the danger of overwatering. It also makes it grow faster and healthier.

O.K...So how much H₂O

If a plant, other than a cactus or a ponytail palm, is stationed in a sunny, bright window, it will need water every visit. Sometimes the plant will require a good soaking with water coming through to the saucer. Other times it will require less. Plants in high light are easier to water, for they are generally healthier and can survive overwatering better. They are more forgiving of our errors in judgment. In high light, a *Ficus* can be left with standing water in the saucer and not drop green leaves due to soggy roots.

In minimum light, other conditions prevail. Minimum light maintenance is at least 10 times more exacting than high light maintenance. Splash and dash maintenance does not work here. Counting to 12 as you water, because "that is what all my other *Ficus* need" is also a drastic mistake. To service a *Ficus* in low light levels, it is critically important to *never* over water, *never* overlook insects and *never* over fertilize. Success of a minimum light plant depends on the skill of the technician, plus the health of the plant when it was installed. When you approach a plant in minimal light use all your senses to read its signals. Look at its leaves. Is green new growth dropping? Smell the soil. Does it smell sour? Reach your hand down and feel in the saucer. Is it moist? These are all signs of too much water. With a *Ficus* in low light, try to visualize that you are attempting to moisten only the top third of the soilmass. Sprinkle the water on lightly. If you water enough to drain out the bottom of the pot, the roots will be far too wet and damage will occur.