



Senior Organic
GARDENERS



Eco-friendly Watering to save time, labour, soil nutrients, and water

By Rob Danforth

Eco-friendly Watering

All plants need water but what slackens the thirst of one plant can drown another. Herbs (e.g. sage, rosemary, thyme) need cycles of wet and dry. Vines (e.g. squash, pumpkin, tomatoes, cucumbers) need constantly moist soil that never dries out – but no swimming!

Unfortunately, more plants die from drowning than from thirst. A thirsty plant goes flaccid – the stalks and leaves droop because there is no water inside them to firm up the stalks and leaves. Some gardeners, out of guilt or panic, grab the watering can or hose, and flood the plants – remember, most land vegetables and herbs don't swim so be sure there is adequate drainage! Usually, much to everyone's relief, the flaccid plant refills with water and the stalks and leaves stand tall and firm. Drowning is more insidious as the leaves slowly begin to turn yellow, but the plant looks as if any number of problems are possible. Too much water leads to stunted growth, squash and cucumber without flowers, carrots with beards, peas like ball bearings... and some very sad looking plants!



To save in-ground plants from flooding, try the hill and furrow method. The "furrow" is a groove in the top of the hill – a groove to hold water rather than letting water run down the sides of the hill into the walkways and weed paths. Now plants are above possible floods, and the grooves help with funneling water to the plant's roots.

If you see yellow leaves (eventually curl and go brown) first finger check the soil or potting mix 2 inches down. If it is swampy stop watering and let it dry. You may have to remove mulch or covers on pot or plot to allow evaporation. A swampy pot should be emptied, and new mix added to reduce the moisture.

For healthy plants, water as needed, not as scheduled. Water the roots only, not the leaves, not the weeds, and definitely not the whole garden. Water twice each watering! The first opens the dry soil making it more water receptive, and the second is the deep watering plants need. Target watering is best to save water. We water our plots and containers by watering can to target the roots and to check each plant for problems.

Watering at dawn is best. Avoid watering in full sun when evaporation is strongest and water is wasted. Watering at dusk is okay if the garden is well aerated so the breezes will reduce humidity. A night that is too humid can produce some rather interesting looking fungus in unusual colours and shapes in both pot and plot — not a particularly happy find!



Tomato root watering in Sorrento, Italy



Rain barrel/planter and a remote, hose filled, water barrel

Water quality

Rain water is best; tap water is fine when it warms up to the outside temperature and it has a chance to off-gas the water treatment chemicals (e.g. chlorine or fluoride) that are added for our protection. Plants do not benefit from these chemicals.

Caution: ditch water may have impurities like road salt, oil, and gasoline. If you do not have a rain barrel connected to eavestrough, then a large container of tap water which you keep filled can be allowed to lay about long enough to off-gas and warm up. A cover or screen can keep mosquitos from egg laying.

Water Meters

A water meter can be purchased but a finger check is handy, fast, inexpensive, and reliable. Check 2 inches down as the top may look dry but there may be moisture lurking just below the surface. Plants growing out of your compost (e.g. tomatoes, squash, cucumber, sunflower) are good water meters which will remind you to keep the compost moist (all composts need moisture to work). If the plants wilt, add water to the composter!

Meters for moisture & pH; container + wine bottle on a low-flow terracotta spike



Use a watering can, or bubbler, to reduce watering times, water consumption, & water loss to evaporation. A water wand also works as long as you keep it low down so as not to wet the leaves.

Tip: roots only watering allows a gardener to inspect each plant for damage by insects, wind, disease, animals, or people. This saves water, reduces time spent, and catches problems before they become major issues.

Aerate (loosen) the soil in containers whenever it becomes dense and/or pulling away from the sides since top watering and rainfall condenses the soil a little each time. Loosening the soil makes for better water and air penetration. I aerate all containers once every 2 weeks, and recommend a 2 prong Jekyll weed fork as the best tool for the task. Recycled chop sticks also work well.

Containers that drain onto ground or into saucers, must drain properly at each watering – look for some water to flow out the bottom. If you can, save the “soil tea” that runs out the bottom as it is full of nutrients and should be diluted (50/50) and reused next watering. Container soil works like a tea bag and top watering/rainfall leaches plant food out of the soil.

Self-watering containers will reduce watering & water monitoring, but make sure water runs out the bottom or out the overflow hole a little when you water, so you know the drain or overflow system is working properly. Some self-watering pots have a filler hole/overflow hole on the side, but many have only a spigot like a hollow golf tee or drinking straw in the bottom of the container that works like the overflow drain hole in a bathroom sink or tub. Roots can plug the drainage exit and the plants will slowly drown (yellow leaves, starting with lower ones first, will tell the tale).



Water wand with shower head to soften the stream & Bubbler to break up the stream

Absentee Watering For Containers

There are various low-flow terracotta or plastic plugs for containers that can fit 2 litre pop bottles or wine bottles and release water slowly as the container needs it. There are also ornate glass balls on stems for watering or terracotta syphons which use a water filled bucket of any size you choose; the position of the bucket (above, on the level, or below the plant) determines the rate of water flow. I used two syphons and one bucket to keep an indoor tomato going while we were on a winter holiday.



Left: Hill and furrow; Right: Watering the furrow only

Automated Absentee Watering for Pots & Plots

For both pots and plots, you can purchase an automatic watering system (see on-line for models and stores). However, remember that not all plants need the same amount of water. You will need a system with lines that offer various flow rates. I have seen a single flow rate watering system that served 10 large pots – three pots went swampy (plants drowned), and one pot got no water since the line plugged.

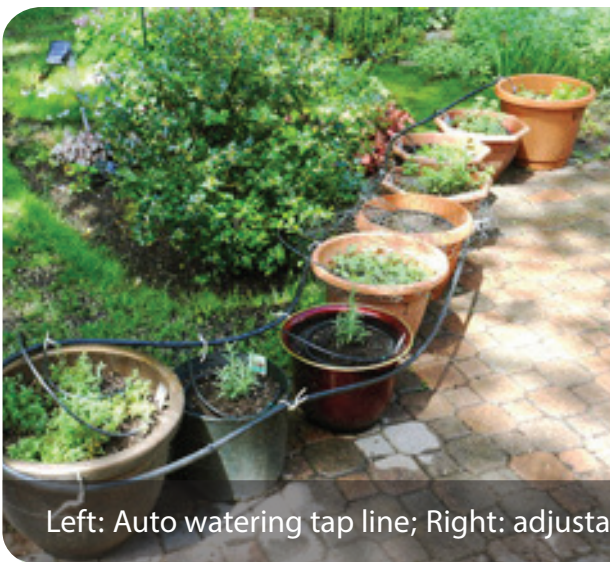
Also, if the hose bursts or a fitting loosens, the running tap could waste a lot of water while you are away. Of course, there are more elaborate systems with moisture gauges and underground pipes to water large areas. These underground lines have to be “blown out” in the fall with compressed air by a technician or an installer to remove the water (done every year in Montreal Botanical gardens, in the Gloucester Allotment Gardens, and in my neighbour’s backyard) to protect the pipes from freezing and bursting.

Also, the location of the pipes needs to be well marked so you do not drive a shovel through them in spring while gardening and be careful while planting that the plants do not grow up and block the water from reaching the desired areas.

Being water wise saves time, labour, water, plant nutrients, money, and mishaps.



Drip plugs and 2-litre bottles



Left: Auto watering tap line; Right: adjustable flow tap line