



Brighton & Hove Allotment Federation

Water Use and Sustainable Allotmenting.

Mark Carroll March 2018

1. Water is our biggest cost by far

The allotment service has a deficit of approximately £35,000. Given the continuing Government cuts to Councils finances, the allotment service is under pressure to reduce this funding deficit. Ideally we should aim for a point where the allotment service is cost neutral. As long as the service is costing more to run than it receives in revenue there will be pressure to increase allotment rents.

A high proportion of current allotment expenditure (circa £30,000) relates to water usage. Reducing unnecessary water usage is therefore beneficial from a budget perspective, as well as having sustainability benefits for the wider environment and community.

2. The Basics! Wasting water

Leaky taps and hoses.

How often do you see this?



Five minutes spent fixing your hose attachment might save £5 a month in wasted water. Altogether we might be literally throwing thousands of pounds down the drain. We have to stop this. If you have a leaky hose then fix it. If you see a leaky hose, have a gentle word with the owner or report it to a site rep. This is costing us all money.

Leaks.

If you spot a leaking tap or notice a leak somewhere report it to the site rep immediately.

If you can't find the site rep, report it to the allotment officer as soon as you get home. The best way to do this is to email Allotments@brighton-hove.gov.uk with the words WATER LEAK in the subject line.

Hoses left on.

Sprinklers are banned in the rules. If you see anyone using one, please report it, sprinklers waste gallons and gallons of water. It's not against the rules (at the moment) to use a hose to water your plot but as we will see shortly watering this way is a massive waste of water. In our opinion, hoses should only really be used to fill water butts, and watering should be done by hand with a watering can.

Evaporation and Watering weeds! Use a watering can!

When you water with a hose you are sprinkling the whole surface. If this is done in the middle of the day, especially on hot days then a large amount of what you sprinkle will evaporate straight away anyway. Never use a hose in the middle of the day. If you really must, use it at dusk. Avoid daily sprinkles as this encourages shallow rooting and formation of soil crusts.

When you water indiscriminately with a hose, you are also watering weeds. You will notice that you germinate all the weed seeds in-between the rows, and then help those weeds to grow. You are making more work for yourself! The more indiscriminately you water the more weeding you'll need to do in a week or two!

Do not water like this!



Using a watering can, filled from a water butt, means you can direct your water to the actual crop you are growing, and starve the weeds in between rows. Watering by hand (with watering cans) also gets you up close and personal with your plants, this helps you observe their health and notice if any attention is required or if any pests and diseases are present. You will notice this more early if you are closer to the plants.



Do you actually need to water?

Learn to recognise signs of plant health and of drought stress. A little stress encourages the plant to grow a strong root system, reducing future drought stress. A plant that is watered too much can also grow leggy and weak. It is less able to defend itself from pests. It's better to encourage strong and healthy plants. Treat them a little bit mean!

3. Harvesting Water.

We should all be harvesting water. It is money falling out of the sky! Not only is it free, it is free from chemicals. The water that comes from the tap is chlorinated. So bear in mind that you are spraying chlorine on your plots when you water with a hose directly. Chlorine will adversely affect the natural biology of the soil. It will kill lots of the bacteria in the soil which do essential jobs in creating a healthy biome on your plot. If you grow organically, watering with chlorine will be detrimental to your success. Rain water, is pure water.

Sheds, gutters and water butts.

Those of us that have sheds have no excuse for not fitting some guttering and collecting water in a butt. I know most of us do, but I still see sheds which are not collecting water. It doesn't have to be pretty or cost a lot of money. I found some gutter in a skip and made a downpipe out of water bottles. It works fine.



This is a neat idea.



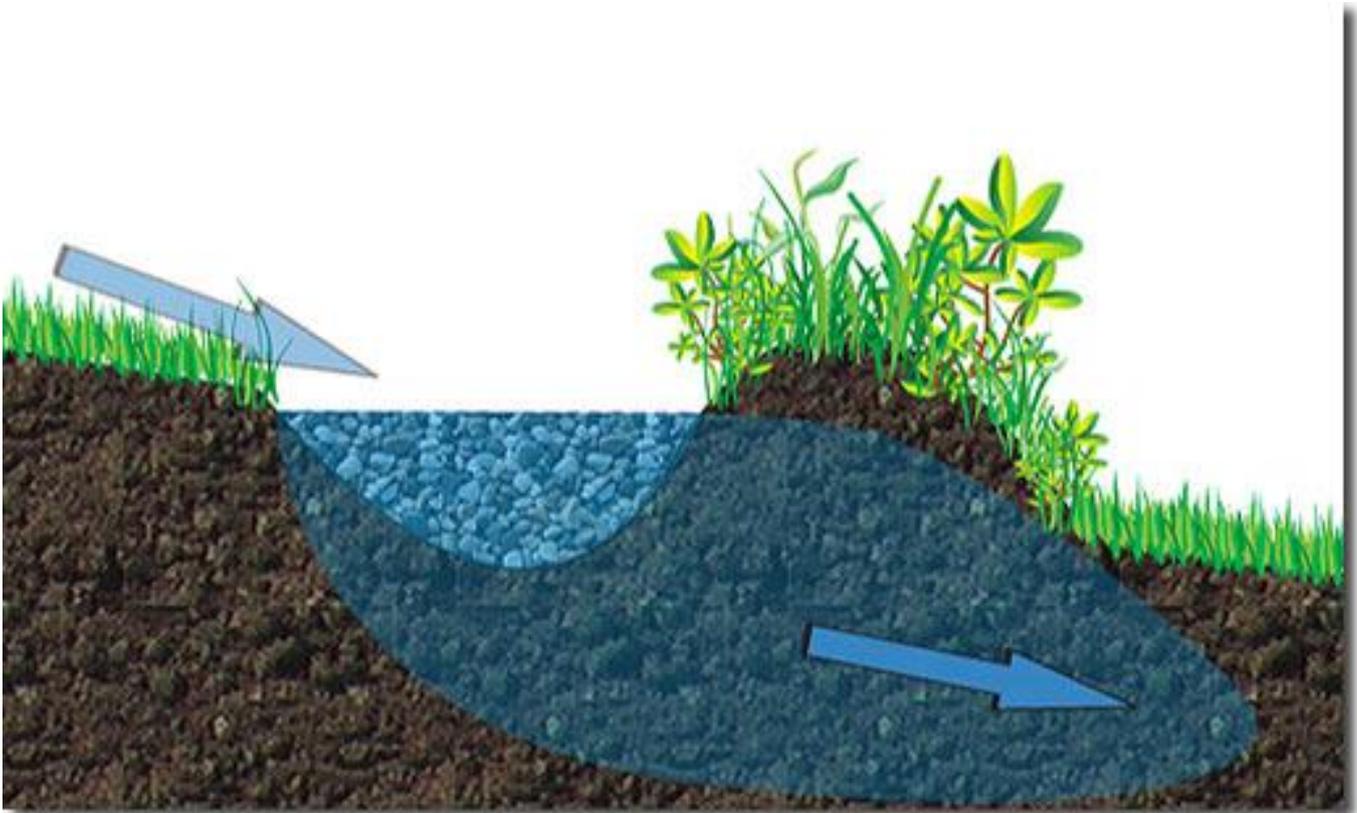
Water butts can be expensive, but you often see these blue plastic barrels on ebay for about a tenner. You can easily saw the top off with a standard wood saw and they make an ideal water butt. BHAf are investigating buying these in bulk to supply to plot holders at cost price. Avoid water butts with taps; they take too long to fill up watering cans. Open-topped butts eg dustbins enable much quicker watering by simply dunking the cans to fill.



4. Swales

A swale is a shallow level trench on contour, meaning that the bottom of the swale is the same altitude all along its length. This is important because the function of the swale is to pacify and hold water, and not to transport water. As it rains, the swale fills and begins to seep into the soil.

Water is held long enough in the swale for it to seep into the soil below the crop.



Stops run off/ Delivers water to roots

Swales are a fancy name for what is basically a shallow trench for catching water as it flows downhill. Many of our plots are on slopes, and water, including rain water can run downhill away from where it is needed. A shallow trench stops run off, catches the water and allows it to seep slowly to the plant roots where it is needed. Scraping a shallow trench just on the uphill side of your row of vegetables will mean more water getting delivered to the roots of your crops. Scrape furrows between rows of crops, and shallow wells around larger individual plants (a draw hoe is ideal for this)

5. Mulch

A mulch is just a covering of matter to protect the surface of the soil. It conserves water by stopping evaporation. It also protects the top centimetre of soil. Nature does not like bare soil, and nature quickly covers bare soil whenever possible. For a start the sun's UV rays are harmful to the bacteria and organisms that live in the top centimetre of soil. It kills them off. These organisms are essential for a healthy functioning soil. You will notice that any bare soil becomes very dry, dusty and dead after a few weeks of being exposed to the sun. A healthy soil is protected from UV and kept damp by mulch. If you inspect soil which has been under mulch you will find it fluffy and healthy and full of worms!



Mulch moderates soil temperature, thus promoting greater root development. Roots prefer to be cool in summer and warm in winter. This is possible under a year-round blanket of mulch.



Mulching prevents compaction by reducing soil crusting during natural rainfall or irrigation. Falling drops of water can pound the upper 1/4 inch of soil into a tight, brick-like mass that retards necessary air and water movement to the root zone.

Most weed seeds require light to germinate so thick mulch layer shades them and reduces weed problems by 90 percent or more. Any plant material that is free of weed seed and not diseased is suitable for mulch. Weed-free hay or straw, leaves, grass clippings, compost, etc., are all great. Fresh grass clippings are fine for use around well-established plants, but cure them for a week or so before placing them around young seedlings



Mulching is a top priority for a healthy garden. It does so much work that it's hard to oversell the importance. Proper mulch maintains the integrity of the soil beneath it, protecting the earth from drying out under the sun and/or washing away when the rains come and/or blowing away in the wind. It creates water retention, **mulched gardens credited with requiring as little as ten percent of the watering that other gardens do!** Mulching prevents weeds, provides habitats for useful insects and microorganisms, and moderates soil temperatures. The right type even feeds the soil as it decomposes. In other words, it's a good idea.

- A barrier to weeds – to kill or suppress existing weeds, and to prevent seed from germinating and colonising.
- To prevent soil erosion by wind and rain
- To reduce water evaporation from the soil
- To clear an area of lawn or weeds, ready for cultivation
- To add organic matter



Fig 2. Mulching around plants is an excellent way to conserve soil moisture and encourage vigorous plant growth

Conserves water, stops evaporation

Mulch can be made from many things, but the easiest to use is and most plentifully available are the wood chippings that are frequently deposited at allotment sites by tree surgeons. Now there is one thing to be careful of. If wood chippings are actually dug into the soil then they will take Nitrogen from the soil as part of their decomposition. This means they will take Nitrogen that your plants need. So it is important not to actually dig in a mulch made from wood chippings. It should be placed on the surface and pulled back to make way for seeds or seedlings. Mulch will also suppress weeds! Mulched beds hardly need digging at all, and nutrients and feed can be placed on the surface for worms to work into the soil. If you do need to dig a bed that has been mulched, then scrape back the mulch prior to digging and then push it back on top after.

Eventually the mulch will break down into great compost, and then you do not need to worry about it at all.



Fig. 4. Straw mulch ^[8].

6. Plastic Water bottle use

Plastic bottles can be used for some interesting mini greenhouse techniques, including self watering mechanisms.



Lot of us use plastic bottle as mini cloches, but how many think of using them upside down, partly buried next to crops, in order to direct water straight to the root. This works especially well with thirsty plants like tomatoes. They can also be used to 'drip' water plants, but leaving the top on the bottle and making some holes in it. You can experiment, but I have found that just using them to make sure all the water from a watering can gets right down to the roots is worthwhile in itself.

Drip bottle irrigation Grow vegetables with 10 times less water with "Solar Drip Irrigation." This is a clever idea which eliminates completely the evaporation losses. The water in the bottle gradually evaporates during the day; it condenses on the larger bottle and drips down to the soil. A few of these in between plants will make sure you have a moist soil even on the hottest days. Together with a layer of mulch you will have a system that can use up to 90% less water than spraying with a hose for the same amount of crop!



Keep experimenting, do some Googling for 'Permaculture techniques for water savings' to get inspired. With a concerted effort I think it will be possible to radically reduce our water bill. That will be especially good for us, as it means we will be able to keep our rents low. But it is also good for our wider downland environment which suffers from water shortages anyway.

Thanks to Simon Powell and Mark Carroll for these tips