

Drip irrigation



What?

Drip irrigation is a method of watering which saves on water use. It is an efficient and effective watering system that simply drips water through emitters either on or below the soil surface of the root zone of plants

There are two types of emitters, they are 'inline' and 'online'

- 'inline' emitters are moulded into the dripline tubing at regular intervals
- 'online' emitters are inserted along the dripline where required

Why?

- ideal for most conditions whether on sloped or windy areas
- suits most soil and plant types
- uses flexible piping that is easily installed
- causes less erosion and soil compaction
- reduces the risk of insect and fungal disease as it only wets the soil around the roots, not the leaves
- drippers only put the water where you want it
- loses the least amount of water from wind, evaporation and run-off
- reduces transmission of pathogens
- reduces weed growth
- can be used with a backflow prevention device to apply liquid fertiliser to gardens
- saves time and money and produces higher yields and quality

How?

Before you install a drip irrigation system it is important to understand your soil and plants requirements

Soil

Soils in south west Sydney tend to be clay-based. Whilst it is hard to get water into these soils, once wet they have an excellent ability to hold water. Using drip irrigation is an effective way to water clay soils particularly the low flow drippers eg 2LPH (litres per hour). A lower application rate allows the water to move deeper into the root zone, reducing the risk of run-off or pooling. Fertile soils in typical vegetable gardens drain freely and therefore require higher flow rate drippers eg 8LPH, or more drippers closer together

Plants

Water is absorbed by the roots of a plant and transpired through its leaves. So it makes sense to water where it is needed. Different plants have different water requirements. For instance, native plants tend to need less water than exotics. Mature plants need less water than new plants. Water requirements of the plants in your garden need to be considered in the design of your drip irrigation system

Once you have worked out an adequate watering program for your garden, you will need the following for an online drip irrigation system. Online products allow you to insert drip emitters (available in 2LPH, 4LPH and 8LPH) into the irrigation pipe where you require them. The 2LPH emitters are most suited for local soil types. The alternative, inline drip irrigation system is the cheapest and easiest to install form of drip irrigation ideal for high density plantings, vegetable gardens and group plantings. Most inline products are available in 2LPH with emitters spaced at 300mm

Drip line (piping or tubing) – vary in diameter depending on the amount of water pressure required. It can be laid either above or below the soil surface or in a mulch layer

Drip emitters – attach to the dripline and apply a consistent amount of water to plants

Controllers – manage the flow of water through the drip irrigation system. It may consist of a simple tap timer to set watering times. More complex controllers can be set to water different garden zones at different times

Backflow prevention device – prevents the backflow of water drawing contaminants such as fertilisers back into the drinking water supply

Drip irrigation



Rain sensor/switches – prevents over-watering by turning off the system during wet weather

Soil moisture sensors – measure the level of moisture in the soil. If the moisture level drops below a predetermined level it overrides the irrigation controller to water the garden

Joints and connectors – such as T-joints, elbows, couplers and end caps connect the piping in the irrigation system

1. Work out the number of connectors and joints needed. Also select drip emitters according to your plants' watering requirements, eg those in sunny areas require more watering whilst those in shade need less. Note slopes and soil types will also affect watering requirements
2. Lay the dripline above ground before digging
3. Dig a trench 10cm deep for the dripline. Sandy soils may need a slightly deeper trench to hold the dripline in place
4. Connect your joints. *Tip:* heat the end of your piping to soften it and make it more flexible
5. Ensure the drip emitters are installed above ground so that they do not become clogged by dirt
6. Install the sensors and controller. Rain sensors are small, technically simple devices that require little maintenance. They are generally cheaper to buy than soil moisture sensors and can usually be installed by the home handy person
7. Backfill the trench to secure the driplines and drip emitters in place

Testing the irrigation system a few times will ensure that it is functioning correctly and that plants are adequately watered. This can be checked by digging down into the soil following a watering session

What can you do?

- **Do** mulch your garden beds to help retain moisture in your garden
- **Do** split your irrigation up into sections-irrigating plants with similar root zones together
- **Do** check water restriction requirements
- **Don't** mix drippers and sprays on the same line
- **Don't** forget to regularly flush and maintain your system. A leaking or misaligned drip irrigation system can waste a lot of water

Want to know more?

Consult your local phone directory under 'drip irrigation' or 'irrigation'
Go to www.sydneywater.com.au

Talk to your local irrigation specialist or contact your local council for further info:

Camden	4654 7777
Campbelltown	4645 4000
Liverpool	1300 36 2170
Wollondilly	4677 1100
Macarthur Centre for Sustainable Living	4647 9828