



The National
Allotment Society

National Society of Allotment and Leisure Gardeners Ltd



Drought
Risk
and You

Advanced sustainable water collection and irrigation on allotments



The DRY project has worked with allotment holders, the National Allotment Society and commercial growers to bring together the knowledge and advice in this guide



Natural
Environment
Research Council

For introduction to this topic, it may be helpful to read the guide “Introduction to sustainable water collection and use on allotments”

Allotment sites vary but normally water is available from two sources: rainwater or mains supply. Plants can grow on either but usually prefer rainwater which is more environmentally sustainable. Some plants (like seedlings) may benefit from mains water to reduce the chance of infection.

Unfortunately, the bulk of rainfall occurs in winter and plants require water mostly over the summer. This creates a dilemma for growers: how to collect and store sufficient rainwater or use the mains supply.

Rainwater can be harvested from artificial structures (such as roofs of sheds, greenhouses or polytunnels) or the landscape (swales, terraces or French drains, runoff from paths and other



“One winter, about 5 or 6 years ago, we had very low rainfall through the winter so the ground was exceptionally dry in the spring which meant planting and sowing seeds on my allotment was a problem.”

Sarah, Frome

areas). For details, see NAS guide “Ground level water collection on allotments”. However, storage is much easier if collected above ground level as gravity feed to the container can be used.

How much water your plants require depends on soil condition, local climate, what you grow, etc. With mulching and no-dig, your plot might use around 2,000 litres per year. However, you might use over 8,000 litres per year if you grow lots of leafy crops on open soil.

To use as much collected rainwater water as possible requires significant water storage capacity. Normally you will be able to use about 80% of collected water (as some will be lost in storage due to evaporation) so extra capacity is required to compensate for losses.

You can calculate **how much water could be collected** as follows:

Annual volume of rainwater that could be collected = **Annual rainfall* x collection area x 0.8**
(precipitation)

For example, shed or greenhouse of 2 x 3m (6m² area) = 0.8m x 6m² x 0.8 = 3.84 m³
(3,840 litres)

*Annual average rainfall for your area can be obtained from the Met Office website:
www.metoffice.gov.uk/public/weather/climate



Collecting rainwater from polytunnels can be challenging. Installing timber rails (e.g. 38 x 63mm) approx. 1 metre off the ground on the inside of the polytunnel allows square section guttering to be screwed onto the outside. To ensure rainwater runs directly into the gutter, silicon sealant can be applied between the gutter and polythene sheet.

An array of IBCs or plastic barrels are often the most practical bulk storage option. Raising and interconnecting your containers is beneficial if connecting them to a drip irrigation system. To reduce the growth of algae in IBCs, they can be shaded with plants or wicker panels. Alternatively, locate them inside a shed which also reduces evaporation.



Drip irrigation (from water containers) can be tricky to set up but is very efficient at irrigating the soil above the roots.

- Link to drip irrigation system via a battery powered valve to automate watering before sunrise (to minimise evaporation).
- Most manufacturers list their pipe sizes as inside diameter. Due to the low pressure, 13mm internal diameter (16mm outside diameter) is a popular pipe size.
- Adding a filter to catch debris will reduce blockages.

“For the last 20 years, I’ve never used a drop of tap water except I often use about 2 or 3 litres when I put my small seeds in. Never ever use butt water for seed germination, it doesn’t pay. You reduce germination of them dramatically.”

Allan, Taunton



An alternative to containers on each plot is a communal (site) reservoir. This could take the form of a large water tank or pond. For safety, this should be enclosed to keep children out. It should have sufficient capacity to water all the plots. A pond may be easier to fill with rainwater, and be popular with wildlife.

Some plants may require a little watering, (often (daily), over the summer. It can be economical to automate this via a capillary watering system. Small pots are placed on capillary matting (often in large trays). The matting absorbs and holds water which can be drawn up from water held in a nearby container. Passive systems are silent and easier to maintain than pump systems.



Drip watering systems use gravity to feed water from elevated containers (e.g. a plastic bottle or bag of 2 to 5 litres capacity) to plants via plastic tubing. The flow rate is regulated by a manual valve. This is particular popular for growbag watering. The flexible setup can be easily re-arranged to accommodate different plants and layouts. Nutrients can be added to the water.

Avoid over-watering which can wash away nutrients (nitrates and phosphate).