



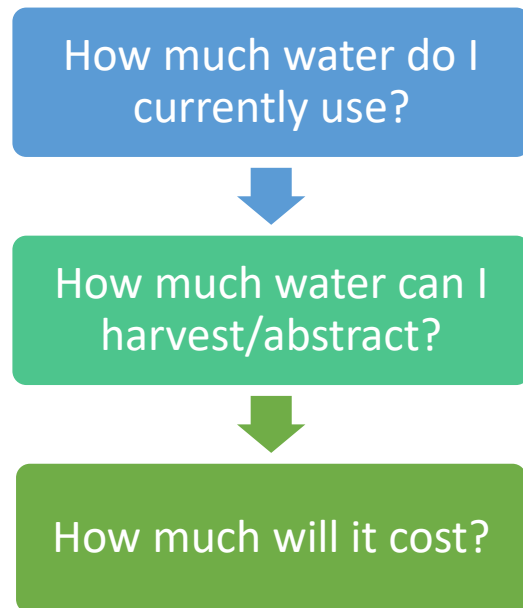
Alternative water sources for horticulture

Water is one of the most basic requirements for plants, essential in photosynthesis and integral for all functions. Fortunately, Wales is blessed with an abundant supply of water but many plants still need watering. As climate change creates wetter winters and drier summers and the population expands, the pressure on water supplies grows. So is it time to look at alternative water sources to mains?



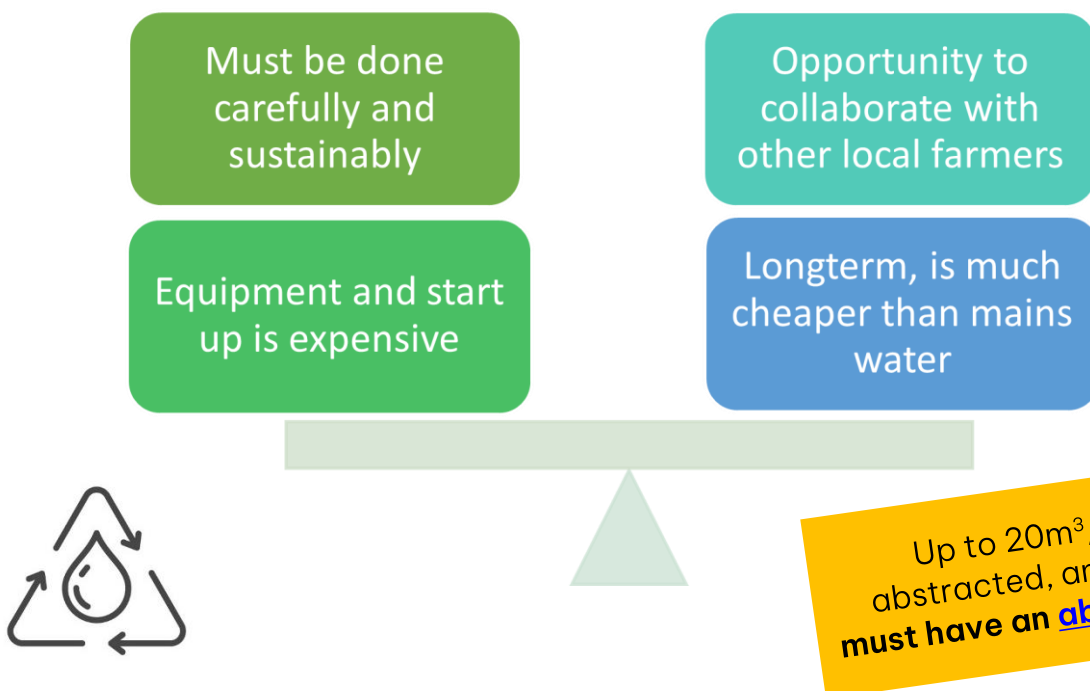
Should I move away from mains?

A mains water supply is convenient but is usually also the most expensive option... Consider:



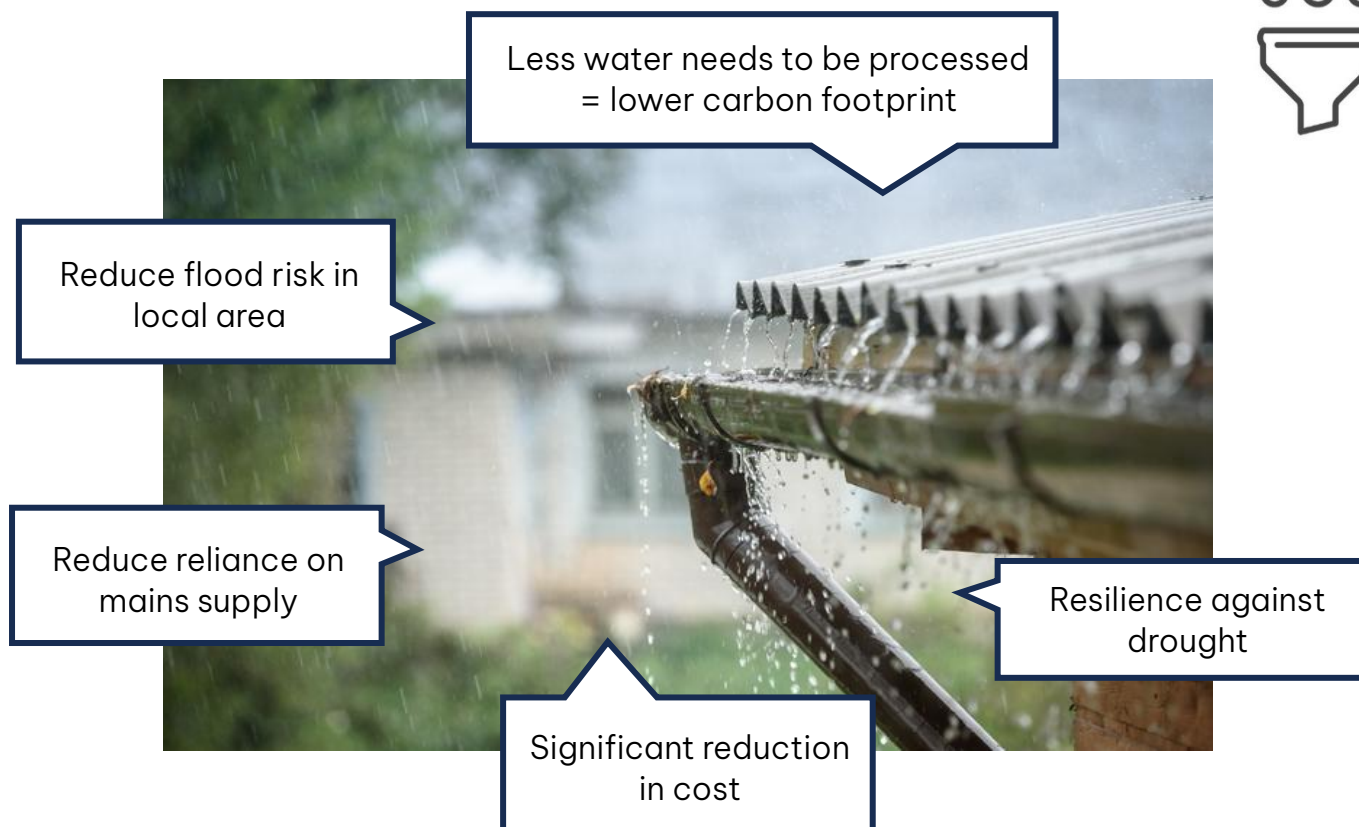
Water abstraction

Water may be abstracted (extracted) from ponds, streams, rivers, springs, wells, boreholes and other inland bodies of water. Some water sources will be more reliable than others and it is important to identify if they are at risk of drying up under prolonged drought conditions.



Rainwater harvesting

Rainwater harvesting is a simple but effective system that makes use of Wales' wet weather. Rainwater is collected from roofs and flat surfaces and can be used in situations where non-potable water would be suitable. For plants under cover in glasshouses and polytunnels, these can make excellent collection areas, feeding water back to the plants below. It can be difficult to collect adequate amounts for large-scale businesses, this issue may be addressed by using good-sized storage tanks and supplementing with water from the mains supply.



There are a few options when it comes to harvesting systems:

1. **Direct/direct pumped** – water is collected, stored and pumped directly to the point of use.
2. **Gravity only** – the water is stored in an elevated position and gravity takes it to the point of use.
3. **Indirect or combination** – Water is pumped from the main tank to a header after which it is gravity-fed.



Each system has its own advantages and disadvantages:

DIRECT FED		GRAVITY FED	
Advantages	Disadvantages	Advantages	Disadvantages
No header tank required	More energy intensive	Better energy efficiency	An elevated space is required to install the tank
Pressurised supply	Pump maintenance can be costly	No pump maintenance	Tank installation at elevation can be difficult
			Pressure may be inadequate



Filtration and contaminants

Additional filtration and treatment units may be added to the system –this may be a simple filter to remove pieces of debris or chemical treatment. **To use rainwater on edible plants, water may need to be treated.**

Water quality should be tested to ensure that pollutants fall below a safe level and that it is free of pathogens. There is a low risk of contamination by:

- Bird faeces
- Environmental pollutants
- Vegetation
- Water should not be collected from asbestos or lead roofs.

The risk of contamination may be increased following storms or very heavy rain. Standards for water quality used in crop irrigation are set out by WHO, but retailers and assurance schemes will have their own. In general, harvested rainwater is suitable for use in root zone watering but not for overhead irrigation systems on salad and fruits.

Water storage

Water is usually stored in one or more tanks but a storage pond or reservoir could also be used. Having a reservoir of water offers security and adaptability as it can be drawn upon according to demand – collecting water during heavy rainfall and using it during dry periods. This can greatly reduce the risks associated with drought which are becoming more common as a result of climate change.

The size of the storage vessel and the number needed will depend entirely on:

- a) How much water you need
- b) Your capacity for collection
- c) Available space.



The optimum size tank will hold **at least 48 hours' worth of water**. Whilst a storage tank should be large enough to cater to the business needs it also shouldn't be so large that water has the opportunity to go stagnant.

Useful resources

[NRW Abstraction license](#)

[Environment Agency: Rainwater as a resource](#)

[AHDB: Water storage & management for horticulture](#)

[AHDB: Sources of irrigation water for horticulture](#)