

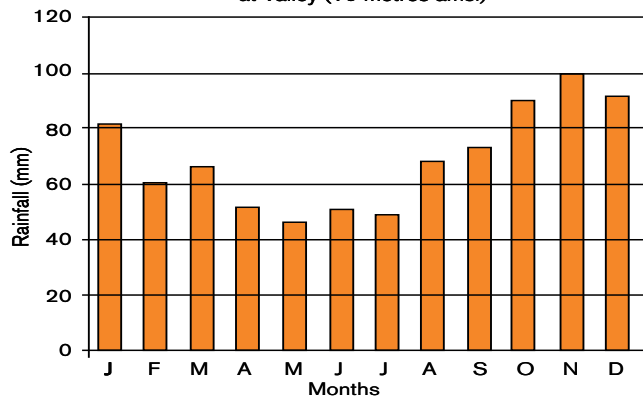


# Rain water harvesting

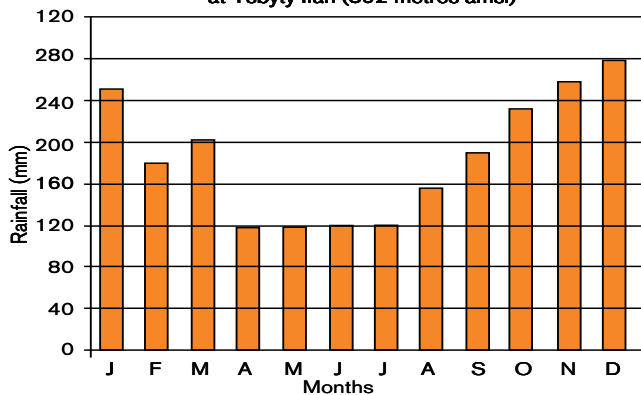
## The basics

Rain water is a cheap and valuable resource especially for farms that rely on mains water as their primary water source. Getting sufficient usable clean water depends highly on the roof area available and the ability to channel clean rain water away from other run-off. For every square meter of roof area you possess, you can expect to yield somewhere between 0.75m<sup>3</sup> to 2.2m<sup>3</sup> of water per annum. Having sufficient storage is also a key issue. In some cases water purification and filtering can be used to 'up-grade' water to drinking standard.

Mean monthly rainfall (1971-2000) at Valley (10 metres amsl)



Mean monthly rainfall (1971-2000) at Ysbyty Ifan (392 metres amsl)



Graphs taken from:  
<http://www.metoffice.gov.uk/climate/uk/wll/print.html>  
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## CASE STUDY



Rhys Lougher of Ty Tanglwyst Farm, Bridgend, collects rain water from the roof of his cubicle building in a number of second hand 1m<sup>3</sup> IBC plastic collection tanks.

The system is used for collecting and storing water for general purpose needs, including at times washing down the yard. Setting up the system cost approximately £250.

Rhys said: "It's a cheap and simple way to reduce mains water consumption and as an inexpensive solution, I am very happy with it."

## In practice

In Wales rainfall can be quite variable from farm to farm depending on the topology of the land area.

Untreated water from roofs can be used for high volume washing and stock drinking. It's recommended that water should be filtered and treated for anything that requires clean, drinking standard water, such as circulation cleaning or domestic use. The main filter types are UV treatment or sand beds.



*Intermediate bulk container (IBC)*

A large tank is required to store the water. Second-hand Intermediate Bulk Container (IBC) or plastic tanks used for foodstuffs can be utilised or a commercial tank can be purchased. This storage allows rainwater to be used for a few days after it has rained.

If the storage vessel could be located in such a way as to be used as a header tank, then a gravity-fed system could be utilised for volume washing for example, saving on both mains water and electricity. The storage tank however, would need to be large enough to generate the required pressure.

## Next steps for rainwater harvesting:

- Find out your local rainfall data available from the Met Office:  
<http://www.metoffice.gov.uk/climate/uk/stationdata>
- Calculate roof areas suitable for rain water collection
- Work out how much water you could save
- Consider what is an acceptable financial return on investment
- Work out the maximum you can afford to spend to achieve your target return or payback period
- Work out your store size and project costs

## The bottom line

With a 100 cow dairy unit and a water requirement of 100 litres per cow per day, water consumption would be around 3,650m<sup>3</sup> per year. Collecting water from a 50m x 30m roof top would yield 1,350m<sup>3</sup> per year (assuming 10% evaporation loss) and a rainfall of 1,000mm per year. This would result in savings of approximately £1,755 in water charges at current mains water rates.



**For more information on rain water harvesting please contact:**

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