RAIN WATER HARVESTING

PART ONE: ESTIMATING VOLUMES

INTRODUCTION

Mains water is a costly resource. In general, in Wales, we are fortunate to have an abundant supply of rainwater. Rainwater is ideal for watering plants: by contrast, borehole water and mains water are often not ideal for plant watering. So, collection and use of rainwater is a good idea.

But, how do you know how much water you need and how do you know how much water you can collect from your roofs.

ESTIMATING WATER USAGE

If you have a water meter, it is easy to know how much water you use. But even so, it is still worth double checking the figure you read from the meter by calculating an estimate of your water usage. Thousands of litres per day can be lost to underground pipe leakages. Often, there will be no evidence of these leakages at surface level.

If you are starting from scratch and don't know how much water you might be using, the rule of thumb for a "watering" is 8mm. So, by multiplying the area of growing stock that you will be watering by this, you can estimate the total volume of water you will be using each day.

If you are already using a watering system, you can collect water from that system in a container of a known surface area and then multiply that up to your full watered area. In most cases, different watering rates will be used in different areas, so you need to collect from each of these.

ESTIMATING RAINWATER COLLECTION

To estimate how much rainfall you can collect, you need to know two things: the horizontal area from which the rain will be collected and the annual rainfall.

Remember, if the surface the rain will be collected from is on a slope (e.g. a roof) it is the **horizontal** area you need, not the actual area of the slope.

Annual rainfall figures are available from the Met Office. Historic data from their site across Wales and the borders are available on-line at http://www.metoffice.gov.uk/weather/uk/climate.html. The Met Office also provides average figures for these (and more) sites.

Multiplying the area on which you will catch rainfall by the annual rainfall amount provides an estimation of the volume of water you can potentially collect each year.

For example if you have a horizontal roof area of 150m^2 and an average annual rainfall of 1,000mm, the average rainfall that would fall on that roof would be 150m^3 (150m^2 x 1m).

Table 1: Average annual rainfall 1971 – 2000 for selected locations

Weather Station Location	Average Annual Rainfall (mm) 1971 - 2000
Valley, Anglesey	827.9
Bute Park, Cardiff	1111.7
Trawsgoed	1213.9
Aberporth	870.2
Ross on Wye	706.2
Shawbury	655.7

Source: www.metoffice.gov.uk