



# How much water do I need/use on farm?

Funded by Dairy Australia and your dairy service levy



On a dairy farm water is used for stock, cleaning the dairy plant, cooling cows and for growing forage.

## How much water do you need on your farm?

Have you ever taken stock of water use on your farm or considered your water risks? (This document will not cover irrigation water implications, for irrigation information go to [www.srw.com.au](http://www.srw.com.au) or [www.dpi.vic.gov.au](http://www.dpi.vic.gov.au) and search 'irrigation').

**a. Why assess your farm water needs?** Seasonal conditions differ every year. To manage a dairy operation effectively it is important to understand your water requirements. As a farm system changes, so too will its water needs.

### b. How much water do you use?

#### i. Stock drinking water

"Stock drinking water requirements for a grazing animal will vary according to weather, water quality, nature and quality of feed, age of animal, condition of animal and even social behaviour. Summer water requirement is usually 125% of the average daily requirement. Winter requirement is usually 75% of average daily requirements." <http://new.dpi.vic.gov.au/notes/soil-and-water/water-availability/ag0000-how-much-water-do-i-need>

Stock: Cattle	Annual average drinking water requirement (Litres/Animal/Year)
Dairy Cows, Dry	29,200
Dairy Cows, Milking	54,750
Weaners (250-300kg)	18,250

Ref: <http://new.dpi.vic.gov.au/notes/soil-and-water/water-availability/ag0000-how-much-water-do-i-need>

For example: A 300 cow herd with 75 replacement heifers (75 rising 1 year olds and 75 rising 2 year olds) would require approximately  
**300 x 54,750L = 16,425,000 L/year = 16.425 ML/year**  
**2 x 75 x 18,250L = 2,727,500 L/year = 2.74 ML/year**  
**Approximate farm total = 19.17 ML/year**

#### ii. Dairy Shed

When quantifying your water use in the dairy shed all the activities that use water must be identified and mapped. Be careful not to include water that is recycled twice. Activities may include milk cooling, washing platforms and clusters, washing milking machines and vats, activities in the pit that use water and yard washing.



To estimate water used, you will have to time each activity (best done at mid lactation) and then work out the water flow rates used. To calculate water flow rates time how long it takes to fill a bucket of known volume, for example a 10 litre bucket that takes 30 seconds to fill, the flow rate is 20 L/min. You can then calculate how much water is used per activity and multiply it out to estimate annual water use.

The volume of water used in the dairy can also be estimated using the proportion of water from a water tank of known volume.

DPI has prepared a tool to help you estimate water use in your dairy shed. The following web address will take you to one of those tools or contact your local DPI office for a copy.

[http://new.dpi.vic.gov.au/\\_data/asset/s/pdf\\_file/0018/36162/Dairy-shed-water.pdf](http://new.dpi.vic.gov.au/_data/asset/s/pdf_file/0018/36162/Dairy-shed-water.pdf)



information sheet

### iii. Additional Water Requirements

It is a good idea to include some incidental water use such as washing the 4-wheel motorbike or tractor or using sprinklers in the yard for cooling cows. Estimate your flow rates for the water source used. Then estimate how long the different water using activities take over a year and include this number in your estimation of total water use on farm for the year.

#### c. Where does your water come from?

##### i. Rainwater

Rainwater refers to water stored in a tank for later use. The following equation helps calculate the amount of rainwater that can be potentially caught.

However, if tanks are not big enough some of the water can be lost. The amount of runoff from a roof may be calculated from the following relationship;

$$YR = R \times A \times 0.95$$

**Where YR** = Annual yield from roof (litre)

**R** = Annual rainfall (millimetre)

**A** = Area of roof (square metre)

If the average annual rainfall is 600 millimetres and the roof area is 250 square metres, then **YR** = 600 x 250 x 0.95 = 142,500 L

Evaporation directly from the roof surface at the start of rain will reduce the potential yield, as will splash and overtopping of the collection plumbing. The factor of 0.95 assumes that approximately 95% of rain falling on the roof can be channelled into a storage tank.

Ref: <http://new.dpi.vic.gov.au/agriculture/dairy/water-use-dairies2/shed-water2>

##### ii. Bore

A bore allows access to underground water reserves. When sinking a bore it is important to use a licensed driller and contact your local water licensing authority to apply for a bore construction license. If using the bore for something other than stock and domestic you must also have a ground water license, this includes water used in the dairy.

For more information go to the Southern Rural Water website.  
[http://www.srw.com.au/Page/page.asp?Page\\_Id=197&h=1](http://www.srw.com.au/Page/page.asp?Page_Id=197&h=1)

For information about ground water aquifers and where they are go to <http://www.srw.com.au> and search for 'groundwater maps'.

##### iii. Town Water

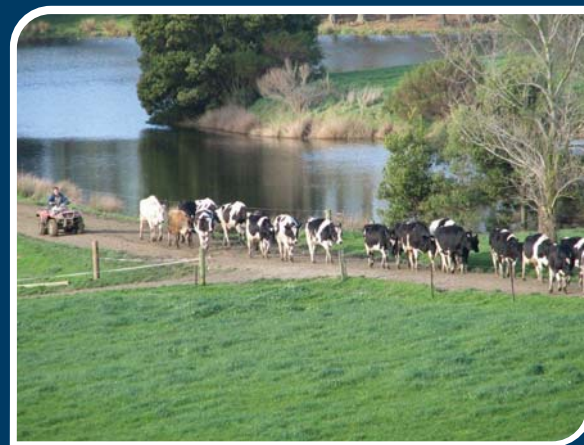
Some farms have access to town water supply. This water is bought from the local water authority for the going rate and can be a very expensive source of water.

##### iv. Waterways

Some farms have direct access to waterways on their property. Waterways include rivers, creeks, streams, watercourses and other natural channels where water regularly flows continuously or not. The right to use the water for stock and domestic is allowed if the user has access to the waterway by a public road, public reserve or occupies land through which the water flows. The waterway banks and bed are Crown land. If the user occupies the adjacent land they also have the right to use the water for stock and domestic.

##### v. Field Run Off

Field run off can be caught and stored in a dam. There are a number of things to consider when catching field runoff. The catchment area needs to be large enough to fill the dam, runoff is difficult to estimate and is dependent on rainfall amount, rainfall type, soil type, vegetative cover and land slope.



The Department of Primary Industries has a number of information sheets to assist with building dams and consideration, all of these can be found at

<http://new.dpi.vic.gov.au/notes/soil-and-water/water-availability/ag0000-how-much-water-do-i-need>

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