

Ideas that hold water for your dairy business

Do you know how much water you use daily within your dairy operation? And what this might amount to over a year? You might be surprised at the answer!

With drier conditions, less runoff and less reliable springs, creeks and ground water, it is wise to have a good idea of your farm's water usage and consider how this can be reduced.

How much water do you use to wash teats, wash out the vat, the plant, pit and platform? How much drinkable water do you use to wash the yard? How much is used by the plate cooler? Are you collecting rain water off shedding and diverting it for use around the dairy?

The 'Water Use in Dairy Sheds' 2005 and 2008 reports written by Scott McDonald at DPI Kyabram has highlighted that water use in dairies can vary from as little as 1,000 litres per day to over 150,000 litres per day.

This report compared water usage of over 1,200 dairy shed operations including figures collected by the DPI Gippsland Nutrient Team in their dairy farm visits. It highlighted the massive range of water use with no two dairies being the same.

Larger dairy sheds have the potential to use in excess of 13 megalitres (ML) of water over the year.

Cup and platform sprays in rotary sheds can potentially account for a significant percentage of total water use.

Some larger rotaries that are less water efficient have recorded annual consumption over 45ML while the most efficient herringbone could be as low as 2ML per year.

How do you estimate how much water you are using?

For a rough estimate of overall use, and if your dairy water is sourced from a tank, check the size of the tank and estimate how much of it you use per milking or per day. If the water is pumped to the dairy, you can estimate by multiplying the flow rate of the pump by the amount of time it is operating.

For a more accurate estimate and to identify scope for reductions, look at each use individually.

For vat wash use, check the manufacturer's specifications.

For plant rinse the general rule of thumb is 5-8 litres per cluster per cycle per milking or check the volume of water in barrels used.

Older plate cooler systems generally operate at a ratio of 3:1 of water to milk, while the ratio is 2:1 for the industrial size plate coolers.

For a flood wash, you need to check the capacity of the tank which is commonly around 17,000 litres and the proportion of this used per wash.

How to calculate water use

Calculating water use for hose yard washing can be done using a stop watch and a large bucket.

Time how long it takes to fill the bucket (a) and then divide the time by the volume of the bucket (b). This will give you a 'litres per second' rate of water use (c).

Then multiply this by 60 to give 'litres used per minute' (d) flow rate.

Next multiply the flow rate (d) by the time you spend hosing the yard and platform (e). This will give you an approximation of the litres of water (f) you are using to clean the yard and platform.

The answer may be anything from 2,000 and 10,000 litres per day.

(a) ___seconds (to fill bucket) X (b) ___ litres (volume of bucket) = (c)___ litres/sec rate of water use

(c) X 60 = (d) _____ litres / minute flow rate

(d) X (e) _____ time taken to hose yard (in minutes) = (f) _____ total litres water used to wash yard

As flow rates can vary significantly, for increased accuracy measure all hoses used. For example, a 1.5 inch hose can vary between 130 litres/minute and 190 litres/minute.

Ideas to consider on water use reduction

Once you have estimated the water usage around the dairy, there are a range of ways to reduce it if required. Are you taking advantage of re-use options? Is your equipment a high water user? Are you strict with water use procedures?

For example: Do you calculate floodwash water requirements for your yard rather than assuming you need to dump the whole tank capacity? Do you pre-scrape yards to breakdown manure pats prior to floodwash which can make a real difference to water needed? Do you recycle your second pond effluent for yard washing?

Need more information or help?

Dairy Australia has produced an InfoSheet titled *Water in the Dairy* as part of the *Efficient Dairy Layout and Design* series. This highlights the potential to reduce, re-use and recycle water including examples of installing a cooling tower and tank to recycle plate cooler water, and using a hydrant yard wash system to save water and time!

The Dairy Australia website has a comprehensive series of notes on water savings in dairies called *Dairy Water, a valued resource*. These include reducing the time cows spend on the yard, recycling water for other dairy processes and reusing detergent wash.

The notes outline each option and include a rating on the potential water savings and the level of cost and effort involved, as well as links to further information or case study examples.

Dairy Australia also distributed FarmSmarts – Water to all farms in 2006-07, a great little book full of examples from farmers efficiently using our scarce water resources, including efficient irrigation and effluent management.

To help you estimate water use on your farm and demonstrate options to reduce, re-use and recycle water in the dairy, farm days will be held in the Yarram and Wonthaggi areas in September. See this month's *HNGC Coming Events* for more details.

These farm days follow the successful *Water Information Sessions* in Yarram and Leongatha, where Southern Rural Water outlined the licensing arrangements for farm dams and bores and the management of our surface and groundwater resources. Fact sheets are available from Southern Rural Water's website www.srw.com.au or call 1300 139 510 for more information.

To access the Dairy Australia water savings tips go to www.dairyaustralia.com.au select Farm, then select *Saving Water in Dairies*. For the FarmSmarts - Water publication contact Dairy Australia on 03 9694 3777.

For information on managing effluent on a dairy farm contact the Gippsland Nutrient Team at DPI Ellinbank on 5624 2222.

You might have some water saving ideas which could be shared with other farmers. If so we'd be interested in hearing from you, please contact Julie Williams, Gippsland Dairy Extension Team, DPI Ellinbank on 5624 2285 or Email: Julie.williams@dpi.vic.gov.au

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