

# Green Cleaning™ Systems

low temperature ♦ re-use ♦ energy efficient

## Fact Sheet #3. Frequently asked questions

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### What are Green Cleaning™ systems?

Green Cleaning™ systems are milking machine wash systems that operate at low temperatures, re-use the cleaning solutions and are energy efficient. They are quite different from the conventional wash systems seen currently on most Australian dairy farms.

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### Can I wash my vat with a Green Cleaning™ system?

Although the Green Cleaning™ process may eventually be applied to clean vats, current Green Cleaning™ systems are only designed to wash milking machines.

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### What are the cost savings from a Green Cleaning™ system?

The savings will depend on your particular situation: your current wash regime, the type of Green Cleaning™ system to be installed and the size of your dairy. Visit [www.agvetprojects.com.au/greencleaning](http://www.agvetprojects.com.au/greencleaning) and look for the 'economics calculator' to get an indication of the cost savings you could achieve, or ask your local dairy equipment or dairy detergent supplier.



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## Isn't sanitizing with hot water cheaper than using a chemical sanitizer?

Not necessarily. Using hot water (~85°C) to sanitise is still cheaper in conventional wash systems where the sanitizer is only used once before being discarded. In re-use systems, chemical sanitizing can be 30-80% cheaper than using hot water. To compare the cost differences for your dairy visit [www.agvetprojects.com.au/greencleaning](http://www.agvetprojects.com.au/greencleaning) and look for the 'sanitizer calculator'.

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## How much energy will a Green Cleaning™ system save?

This will depend on your current energy use and the characteristics of the Green Cleaning™ system you install. The Green Cleaning™ system still requires the alkali wash solution to be heated to around 45-50°C, but this can be achieved by using solar or waste heat streams from the dairy.

Data collected from Green Cleaning™ installations on existing farms in Victoria show the electricity used for heating water can be reduced by between 50 and 85% (around 60-90 kWh per day). Additional savings are possible if the stored alkali is heated using renewable energy (i.e. solar or from heat recovery from the refrigeration system).

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## How much does a Green Cleaning™ system cost?

The price of these systems varies between suppliers. They are more expensive than conventional automatic wash systems but offer huge savings in operating costs. Current models range from \$25,000 to \$45,000 installed.

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## Are there special tax considerations for Green Cleaning™ systems?

Green Cleaning™ systems are treated by the ATO in a similar way to other capital equipment purchases. They are usually depreciated by small businesses (annual turnover of less than \$2m) in a general pool (15% in the year of purchase and by 30% thereafter). Larger businesses depreciate capital items over the effective life of the asset, assumed to be 10 years for Green Cleaning systems. The operating costs of the systems are tax deductible, in line with general farm operating expenses. Financing costs are also generally deductible, but this will vary with the type of finance product. Financing costs and taxation considerations such as depreciation have been excluded from the [Economics Calculator](#) as they depend on the specific financial circumstances of each dairy business. Your accountant should be consulted to work through the implications for your business prior to committing to purchase a system.

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## Can I finance a Green Cleaning™ system?

Currently none of the companies manufacturing Green Cleaning™ systems offer finance. General discussions with commercial lenders and banks have revealed they would treat finance applications for purchasing a system similarly to applications to finance assets that are unrecoverable (ie tertiary assets). As such, lending would generally be restricted to existing customers using another asset as security (such as an existing mortgage over land).

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## How often do I need to change the re-used cleaning solutions?

This depends on the chemicals used, the quality of the water and how the system is set up. Small losses of solutions are inevitable after each use so the tanks need topping up every day or two. This constant replenishment seems to keep the solutions within operating limits, avoiding the periodical need to completely refill the tanks.

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## Is there a build up in the cleaning solution tanks?

No. The system uses good quality (rain) water, special chemical detergents and employs thorough rinsing and drainage. Consequently, the farms currently using the system are not seeing the build-up of 'sludge' at the bottom of the tanks. A film of surfactant developed on the surface of the stored liquid after several months on one farm. This issue was addressed by the chemical manufacturer.

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## Do you need to periodically do a hot wash or "bomb" clean?

No. Additional cleaning and/or sanitizing measures are not required if the cleaning system is set up correctly. An effective cleaning system relies on the right chemicals used at the right temperature and concentration, in suitable quality water, being delivered into a correctly maintained and functioning milking machine. Poor dairy hygiene occurs when one or more of these elements is compromised.

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## Is milk quality compromised?

No. During normal operation excellent milk quality is maintained. However, operators need to keep an eye on things to make sure the system is operating normally. Some models have inbuilt alarms which help monitor automated cleaning cycles.

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## Is my milking machine suitable for a Green Cleaning™ system?

A Green Cleaning™ system will work with most milking machines. Consideration must be given to how a Green Cleaning™ system will interface with existing equipment in dairies that are highly automated. Consult your dairy equipment supplier to explore how this may be achieved.

Milking machines must drain well for chemical re-use systems to operate effectively. Poor drainage will result in cross contamination of wash solutions and greater wastage of water and chemicals.

Milking machines that have hygiene issues when washed with conventional 'hot wash' systems are unlikely to be good candidates for Green Cleaning™. Underlying cleaning issues need to be sorted out prior to changing them over.

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## Can I use my existing chemicals in a Green Cleaning™ system?

Many of the dairy cleansers and sanitisers on the market today are not designed to work at low temperatures or in re-use systems. The chemical manufacturer should be able to tell you whether the chemicals you currently use are suitable, and/or suggest suitable alternatives.

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## How much room does a Green Cleaning™ system require?

This will depend on the type of system being installed. Typically there are three large tanks for storing the cleaning solutions (you may only use one on your current wash system) plus additional valves and pipes. Additional consideration must also be given to any (optional) associated equipment being installed such as solar hot water systems and heat recovery units.

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## Can I adapt my existing wash system for Green Cleaning™?

It really depends on what your wash system can do now and how many of the Green Cleaning™ features you wish to adopt. Consult your dairy equipment supplier to explore what is possible.

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## Do I need to make changes to my farm's Food Safety Plan?

Every farm's Food Safety Plan (QA program) needs to include a documented procedure for milking machine cleaning. The operating characteristics of the system used on the farm are available from the wash equipment and chemical supplier and should be included in the farm's Food Safety Plan.

The farm's Food Safety Plan (QA program) may need to be amended to allow specific chemicals to be used in Green Cleaning™ systems. This applies to the 'off-label' use of registered chemicals and the use of 'un-registered' chemicals, even though this use might be allowed under a permit issued by the Australian Pesticides and Veterinary Medicines Authority.

The supplier of the chemical can give you more information about the chemical being used, and your milk factory representative can help you apply for a change to your Food Safety Plan if it is needed. Dairy Food Safety Victoria regulates farm Food Safety Plans and it is a simple matter to apply to them for a change. There is no cost and forms are available from the chemical provider.

Farmers are advised to ensure their milk company representative is comfortable that the regulatory requirements have been met prior to purchasing and commissioning their Green Cleaning™ system.

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## Who supplies Green Cleaning™ systems?

Commercial systems offering low temperature, re-use and energy efficient cleaning are now available from many of the main dairy equipment and chemical suppliers in Australia (see below). They will vary in the way they operate, and in the features and savings they offer. Contact your dairy equipment or dairy detergent supplier for more information or visit [www.agvetprojects.com.au/greencleaning](http://www.agvetprojects.com.au/greencleaning).

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## Where can I get more information?

Contact your local milking machine equipment or dairy detergent supplier for more information. The companies that have been involved in the Green Cleaning project are:

[Cleantec – A division of EcoLab](#)

[GEA Farm Technologies \(formally Westfalia Surge\)](#)

[Dairymaster](#)

[Milka-Ware](#)

[Daviesway/DASCO](#)

[Tasman Chemicals](#)

DeLaval

Also refer to the following fact sheets about Green Cleaning™.

Green Cleaning™ Fact Sheet #1. What are Green Cleaning™ systems?

Green Cleaning™ Fact Sheet #2. Green Cleaning™ systems – a closer look

Green Cleaning™ Fact Sheet #4. Economics of Green Cleaning™ systems

Green Cleaning™ Fact Sheet #5. Summary report – On farm trial

Green Cleaning™ Fact Sheet #6. The total costs of milking machine cleaning

Further information is available at [www.agvetprojects.com.au/greencleaning](http://www.agvetprojects.com.au/greencleaning).

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