

Public and environmental health considerations: Greywater use

This fact sheet has been developed as a guide to householders on the use of greywater in residential properties in South Australia. It covers public and environmental health considerations for using a permanent greywater system and the steps to follow to minimise risk.

What is greywater?

Greywater is wastewater generated from:

- Bathrooms, including showers, baths and hand basins;
- Laundries, including washing machines and troughs; and
- Kitchens, including sinks and dishwashers.

Note: Kitchen water can contain food particles, grease, oils and fats and its use is not recommended (particularly without treatment). Some greywater systems are not designed to take greywater from the kitchen.

Public and environmental health considerations

The quality of greywater can be highly variable due to factors such as number of household occupants, their age, lifestyle, health, water source and products used (such as soaps, shampoos, detergents).

Greywater may contain:

- Disease causing organisms (bacteria, viruses, protozoa) from nappies and other soiled clothing;
- Chemicals from soaps, shampoos, dyes, mouthwash, toothpaste, detergents, bleaches, disinfectants and other products (such as boron, phosphorus, sodium, ammonia and other nitrogen based compounds);

- Dirt, lint, food, hair, body cells and fats, and traces of faeces, urine, and blood.

Owners and users should clearly understand the potential risks to public health and the environmental impact of greywater that can be caused through improperly designed, installed, and maintained systems.

Public health

Greywater may contain significant levels of disease causing organisms particularly where household members are suffering from a gastrointestinal illness.

The disease causing organisms in greywater are mainly transferred through contact with greywater via:

- contaminated hands,
- inhalation of irrigation spray, and
- contact with broken skin.

Indirect methods of transfer include:

- contact with contaminated items such as toys, garden implements, grass or soil;
- transmission by pest vectors such as rats, mice, flies and cockroaches;
- transmission by family pets.

There are a number of requirements which must be followed in order to reduce the risk to public health, including:

- Untreated greywater (from a greywater diversion device) must



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only be used via subsurface irrigation. Subsurface irrigation systems reduce exposure to humans, pets and other animals which may otherwise come into contact with the untreated greywater and potentially transfer disease causing organisms;

- Specific setback distances from buildings, boundaries, wells, bores, watercourses, swimming pools and rainwater tanks are required to be met for all irrigation systems. This is to prevent contamination and transmission of disease;
- Greywater must not be used to irrigate fruit, vegetables, or areas where fruit can fall to the ground and be eaten.

Environmental considerations

Greywater may contain a number of chemical and physical contaminants which may impact on the health of plants and soils in the garden.

Use of greywater over a long period of time without proper management of the sources of contamination or the irrigation system may lead to further negative impacts, which may result in pooling and runoff.

The following points may help to minimise environmental impacts from greywater use:

- Environmentally friendly shampoos, detergents and cleaning products should be used to protect soil and plants watered with grey water;
- Products containing low levels of boron, phosphorus and salt should be used. Boron can be toxic to plants, some native plants are sensitive to phosphorous while sodium and other salts can damage soil structure;
- Washing machine rinse water has lower concentrations of detergents compared to wash water. If wash

water is used it should be diluted with rinse water;

- Bleaches and disinfectants can kill beneficial soil organisms and damage plants. Avoid using greywater containing harsh chemicals or bleaches, hair dye or paint products;
- Greywater tends to be slightly alkaline and this can be harmful to acid loving plants such as azaleas and camellias.

Resources

SA Health's [Alternative Onsite Systems](#) webpage to download the following fact sheets

- 'Manual Bucketing and Temporary Diversion of Greywater' for information on the temporary use of greywater;
- 'Installation of Permanent Onsite Domestic Greywater Systems';
- 'Draft Guidelines for Greywater System Product Approvals' for information on greywater product approvals.

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