



CASE STUDY

Goldfields Turkeys water saving investigative study

1. Company profile

Goldfields Turkeys is a mixed poultry processor of turkeys and "Caged Layers" (C/L's) located in St Arnaud in Western Victoria. In a typical month of production, the company processes over 50,000 turkeys and over 47,000 C/L's. A significant proportion of turkeys processed are shrink wrapped and frozen as whole birds. Goldfields Turkeys also has a deboning area that can cut birds into pieces or completely debone as required.

Goldfields Turkeys is currently involved in the Victorian Government's water management action plan (waterMAP) program. As part of the program users of > 10 ML of drinking water per year are required to:

- Assess their current water use
- Identify inefficiencies and opportunities for water savings
- Prepare an action plan to implement water conservation activities
- Annually report on implementation of water conservation activities

2. waterMAP Assist

Ai Group is committed to working with member companies to encourage continuous improvement, resource efficiency, use of recycled water where possible, and reduced usage of drinking water. Ai Group's waterMAP Assist program has provided resources and funding to member companies to assist them implement initiatives contained in waterMAPs and deliver water savings in industry.

3. Project overview

Ai Group's waterMAP Assist program provided funding to enable Goldfields Turkey to conduct an investigative study to:

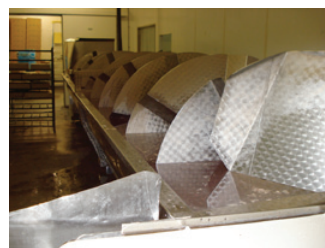
- Identify potential water saving opportunities, possible process or equipment changes to improve water efficiency, and potential reuse or recycling opportunities
- For each water saving opportunity, discuss the water and cost saving benefits, and also the constraints or barriers
- Determine estimated pay-back periods for the most feasible water saving opportunities
- Review current water management practices on-site, including whether the process is happening the way it should on paper, spillage issues, equipment leakage, how cleaning is undertaken, and comparison of current practices to best-practice for this sector

4. Water use

Figure 1 displays the major areas of drinking water use for Goldfields Turkeys. The major water uses at the site are:

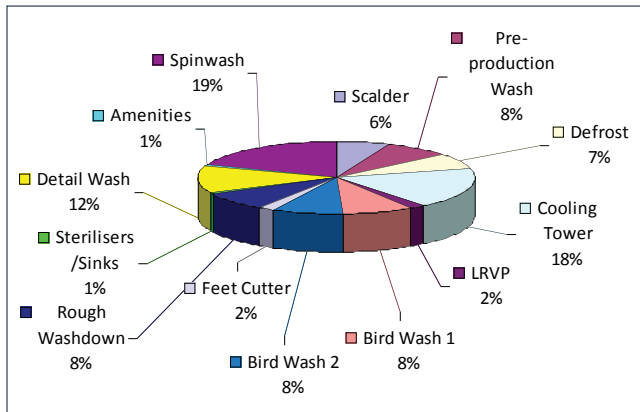
- Product washes
- Site cleaning
- Cooling tower

The average water efficiency is 47.4 L/bird and 7.3 L/kg processed ready for delivery.



PROCESS WORKERS ON THE KILL LINE FREQUENTLY USE SQUEEGEES TO REMOVE BUILD-UP OF SOILS AND SPILLAGE PRIOR TO BRIEF RINSE-DOWNS.

FIGURE 1 WATER USE BREAKDOWN



5. Key findings

The investigative study found:

- That the feet cutter wash set up was inefficient. A simple solution was identified involving the installation of water efficient shower heads in those areas to replace existing inefficient showerheads or spray bars, ensuring that the shower heads chosen can be adjusted to a variety of spray patterns to better suit the difference in bird size.
- Site cleaning uses approximately 28% of the water on-site on a daily production basis. To reduce water use it was recommended that a high pressure cleaner replace conventional hoses. This option can reduce the amount of water used in site cleaning by up to 70%.
- There exists the potential to reuse water in the production process, including reusing the overflow water from the spin washer (at the end of the line) to supply the bird

washers and feet cutters. This option required storage of the overflow from one day to the next, to ensure sufficient water is available at production start up. The set up would also require a suitable strainer to be installed to prevent blocking of the pump and spray heads, as well as extra chlorination if necessary to ensure compliance with health regulations. This option would potentially replace all water currently used by the bird wash 1 and 2 and the feet cutter (4,534 kL/yr).

- Other operational recommendations were listed for further consideration, such as:
 - Automated metered cooling tower management
 - Daily monitoring of water use and investigations of variance
 - Optimisation of chiller temperature

The potential water savings identified during the project are displayed in Table 1

6. Project benefits

The project benefits arising from this investigative study include:

- Provision of a water balance of the site and identification of key areas of water consumption
- All recommendations to improve water efficiency of the major water use areas had a very short simple payback period (1 month to 1.5 years)
- Implementation of recommendations (options 1 and 2) could potentially deliver total water savings of up to 9.4 ML/yr (over 30% reduction from total site water consumption)

TABLE 1 ESTIMATED WATER SAVINGS

Recommendation	Estimated Water Savings
Bird wash 1 (9L/min shower head)	1,007 kL/yr
Bird wash 2 (9L/min shower head)	1,007 kL/yr
Feet Cutter (5L/min shower head)	252 kL/yr
Site cleaning (pressure cleaner)	4,818 kL/yr

Further information

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Ai Group’s waterMAP Assist program, supported by the Department of Sustainability and Environment (DSE) has enabled Ai Group to work with large industrial water users to identify and implement water savings.