

The Environmental Protection Agency is Queensland's lead agency to promote eco-efficiency and sustainability in the agribusiness sector.



CLEANER PRODUCTION

Agribusiness

Meat processing industry

The way forward through eco-efficiency

Case study
Meat processing
industry



The company

Australian Country Choice (ACC) is one of Australia's leading integrated agri-chain businesses and one of Queensland's largest privately owned companies. Their Cannon Hill facility has capacity to process 5000 cattle a week.

ACC was the winner of the 2002 Queensland Primary Industries Environment Award and 2002 Queensland Red Meat Innovation Environment Award.

The issues

In order to meet growing consumer demands for 'clean and green' products, ACC were supported by their client, Coles Supermarkets, to certify the on-factory environmental management system to ISO 14001 standards. Sustainable agriculture programs are becoming increasingly common in the agribusiness sector, encouraging producers and processors to improve current environmental management practices.

Eco-efficiency outcomes

An eco-efficiency assessment at ACC's Cannon Hill facility has forecast potential savings of \$1.0 million before capital expenditure and reduction in:

- total water use by 37 percent
- total coal use 36 percent
- total greenhouse gas emissions by 8027 tonnes (CO₂) from reduced energy use
- wastewater by 36 percent
- biosolids by 84 percent.

This assessment has the potential to demonstrate to other companies the commercial benefits to be gained by implementing good environmental management.

Environmental management strategies

ACC have deployed a number of business tools to improve their environmental performance including

an environmental management system, life-cycle assessment regime, cleaner production methods and eco-labelling principles.

Cleaner production

A strategic Cleaner Production Implementation Plan was developed at the Cannon Hill facility to address eco-efficiency opportunities in water, energy, wastewater and waste solids management.

The strategy includes a range of simple and complex modifications which will be carried out in four-stages over 10 years.

The first stage of the strategy identifies opportunities that require minimal capital expense.



Queensland Government
Environmental Protection Agency

Examples include:

- fitting efficient spray nozzles to hoses
- reducing the water flow & pressure of water supply
- maintaining minimum flow rates
- eliminating all air leaks through regular inspection and maintenance
- using water-efficient shower roses
- recycling treated wastewater in non-food processing applications
- introducing practices that reduce heat ingress into refrigerated areas.

The second stage of the strategy requires plant alterations involving an intermediate level of capital expenditure while avoiding major process redesign.

This includes initiatives such as:

- replacement of sensor and timer controls on hand wash stations
- insulated knife sterilisers
- recycling refrigeration defrost water for non-food processing washdown applications
- installation of motor optimisers
- replacing refrigeration condensers
- converting red offal wash to sensor-operation
- recovering boiler blowdown heat for preheating boiler feed water.

Major innovations in stages three and four will require process redesign to allow for alternative sources of energy and water. Some of the innovative redesigns to operating processes include:

- rainwater harvesting for non-food processing wash down
- greater internal water recycling
- heat recovery from refrigeration compressors
- adopting solar hot water
- anaerobic digestion of wastewater and manure to produce biogas (methane) and to reduce biosolids production from the wastewater treatment system
- energy generation from biogas to supplement coal in the existing boiler.

Why adopt eco-efficiency strategies?

Identifying eco-efficiency strategies is driven by a number of factors:

- anticipated shifts in the regulatory framework
- market access opportunities
- risk reduction
- resource savings - more with less
- cost competitiveness and profitability
- comparative advantage
- performance standardisation internationally
- changing consumer expectations
- stakeholder/investor expectations.

These issues are equally relevant to, and increasingly recognised by industry stakeholders in Queensland, and throughout the world.

Eco-efficiency models can be used as a tool to respond to local and international trends and realise the economic benefits of improved environmental performance. They demonstrate the resource productivity gains, value creation opportunities and competitive advantage that can accrue from responsible environmental management.

ACC are investigating state of the art methods and technologies that have the potential to deliver further CO₂ reductions, convert organic waste streams and produce biogas for energy generation.

Environmental Management System (EMS)

ACC achieved ISO 14001 certification for the Cannon Hill facility in August 2001. The company's EMS is an essential tool in the implementation of eco-efficiency principles and disciplines at the site. The EMS provides a mechanism for ACC to establish objectives and targets, recognise environmental measures required, monitor improvements and assess progress. The EMS covers water, energy, waste, emissions, noise and land management issues.

ACC has made a commitment to extend their EMS to deliver integrated farm, feedlot and factory ISO 14001 certification.

Life cycle assessment (LCA)

Life-cycle assessment is being considered for through-chain farm, feedlot and factory operations. 'Down chain' logistics and retail could also be incorporated. The aim is to identify and quantify where ACC has the greatest environmental impact and to develop strategies to offset these impacts under the EMS. That is, to minimise the 'environmental footprint'.

Eco-labelling

ACC is currently assessing the benefits of eco-labelling products as a marketing strategy and as a means to enter new markets.

For more information on Agribusiness

call (07) 3225 1999

visit www.epa.qld.gov.au/sustainable_industries

email sustainable.industries@epa.qld.gov.au



Queensland Government
Environmental Protection Agency