

Waste Minimisation at a Chicken Abattoir (COMP8)

Case Study 8

Hammarsdale Waste Minimisation Club

Background

COMP8 is the largest chicken processing plant in KwaZulu Natal. The Hammarsdale site employs more than 800 people and is the headquarters for the operation.

The Process

The chickens are hung by their legs onto a rail, stunned by electric shock and their heads removed. They move through the factory on these rails passing through a number of processes including removal of feathers, and feet and evisceration. The birds are then divided 75 % to 25 % for frozen and fresh produce respectively. The birds are cut as required, packaged and then either frozen if required prior to delivery.

The by-products, or rendering, plant produces poultry meal from a variety of raw materials. These include; dead chickens; blood; offal; hatchery waste; feathers; and farm mortalities. Other inputs include additives, water, energy and effluent from other parts of the factory. These inputs are screened, then hydrolysed and sterilise at high temperature. The meal is sent for drying, then screened again for large particles and then bagged for sale.

Water Use and Effluent Production

The site use 2 500 kl /d water and process 1.4 million birds per week. Approximately 18 l / bird is used and by requirements, cannot use less than 14 l /bird. Water cannot be reused for health reasons. Large quantities of water (approximately 30 % of total consumption) are used for washing in order to maintain health standards.

The effluent has a high chemical oxygen demand. The factory is investigating installing a treatment system to reduce this by a factor of 10.

Energy Use

The site is a significant user of energy and electricity costs are high, mostly due to refrigeration requirements.

Identification and Implementation of Waste Minimisation Options

As part of the Waste Minimisation Club project, a brief site survey was undertaken to identify areas for improvement. These focussed on reducing energy use. A list of these options is given in Table 1.

The status of these options is not known, although it has been reported that the company is investigating upgrading the compressed air generators.

Waste Minimisation Option
Recover flash steam from condensate for reuse
Monitor boiler blow down continuously by TDS
Replace passing valve on blow down line
Reduce boiler pressure
Implement a programme of M&T
Undertake an annual steam trap survey
Investigate compressor temperatures
Avoid part time load operation of compressors
Replace water coolers
Implement a water management programme
check for compressed air leakage
Install additional metering

Table 1: List of identified waste minimisation options

Economic Benefits

Based on the recommendations made from the site visit, potential savings in energy and water have been estimated.

Item	Potential Saving Rands / year
Energy and water	750 000

Environmental Benefits:

By implementing an effective waste minimisation programme, COMP8 could make the following savings to the environment:

- A reduction of at least 20% in water use and therefore effluent discharge
- A reduction in the COD of the effluent
- Reduced emissions to air from the boiler house

Contact Details

Further information is available from:

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