PIP.134: Collecting Paunch Contents for Composting

This project was completed under the MLA/AMPC structured summer break professional undergraduate programme. It gives successful applicants the opportunity to apply their studies on current site issues in our red meat industry.

Midfield Meats processes 5,000 head of sheep and 700 head of cattle per day from two separate plants on the same site. It is the largest meat processor in Victoria. All green and red effluent is treated on site by multistage screening and filtration prior to discharge to sewer. It owns a large property nearby where the solid that is separated off is composted. It discharges 460 megalitres of trade waste to sewer per year.

In 2004/05, Ding Tran, a chemical engineering undergraduate at Monash University was given the task of finding an engineering solution for the removal of the liquid and solid paunch contents at source and transporting them to composting along with the manure from the runners. This would reduce the load on the treatment system and reduce trade waste charges. Ding worked under the guidance of Andrew Westlake, Group Operations Manager, and an external mentor with support from MLA.

Ding measured the volume of paunch contents coming from the four paunch rooms and took samples of them for analysis at a local NATA registered laboratory. Solids, nitrogen, phosphorus, COD and pH were measured to calculate the reduction in trade waste charges that would occur if the paunch and runners contents were removed at source, and to establish their value as a compost material. Trade waste COD would drop by 25%. The water consumed during the processing of paunches and runners was measured and recommendations made to reduce this consumption.

A scheme was costed using pumps, pipes, augers and tankers to remove this material from the plant and transport it to the composting site.