



## **PIP.134: Waste Treatment System Audit and Improvement**

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.

Frewstal service kill 3 to 4,000 head of sheep per day on a single shift basis, having recently converted to inverted dressing. Chilled carcasses and salted skins leave site and rendering is also done off site. Their on site waste treatment ponding system discharges to irrigation in summer and to sewer in winter. They plan to retain all treated effluent in a 70 megalitre lined storage pond so all can be irrigated.

In 2004/05, Dini Agushi, a chemical engineering undergraduate at RMIT was given the task of reviewing the effectiveness of the treatment system, analysing all major waste streams and suggesting reduce and reuse strategies. He worked with the guidance of Gerard McAloon, Environmental Manager, and an external mentor with support from MLA.

Dini measured the COD and volume of flows into waste treatment at 30 min intervals throughout the processing/cleaning day and weekly COD from the outlets of the saveall, DAF, anaerobic, aerobic and maturation lagoons. The results were linked back to the plant operation. The reduction in lagoon residence time caused by major civil works was calculated. The DAF was repositioned to more effectively remove COD. The extra COD load from the blood caused by the change to inverted dressing was identified and suggestions made to overcome the problem. The sources of pollutants were identified and measured including the volume and COD of flows from sterilisers, runners room and pit blood that was not tankered off site.

Methods were suggested to redirect the effluent from the runners room and invert blood to manure handling and blood pit.