

# Maple Lodge Farms Ltd.

Norval, Ontario

*"Maple Lodge Farms is concerned about the effect that our operations have on the environment. We also want to retain our place as a low cost chicken processing plant. The idea of eliminating the use of chlorine in our odour control system was too good to pass up."*

Alan Wassens  
Engineering Manager  
Maple Lodge Farms Ltd.

## THE COMPANY

Maple Lodge Farms Ltd. is a privately owned company which was founded in 1955. The firm's plant in Norval, Ontario, is the largest in Canada, with a daily output of 275,000 birds. It is continually under pressure from its customers, which include the major fast food chains and supermarkets, to keep the cost of its product down.

As in all poultry processing plants, reducing or eliminating odour is a constant concern.

## THE CHALLENGE

Maple Lodge Farms used an odour control system that cleaned air from the plant by passing it through water scrubbers. The water was then treated with chlorine compounds to destroy the organic matter which had been removed from the air.

Engineering Manager Alan Wassens knew that better methods to control odours were being introduced in North America. He wanted his company to be among the first to install new technology if it was environmentally friendly and cost-effective.

Wassens contacted Biorem Technologies Inc. of Waterloo, Ontario, to ask about biological air filters. Biorem agreed to study the conditions at Maple Lodge Farms and make recommendations.



Maple Lodge Farms in Norval is Canada's largest chicken processing plant.

## OPPORTUNITIES

Wassens felt that the cost of the odour abatement process could be cut. The process did not always perform satisfactorily and the use of chlorine-based chemicals as scrubbing agents posed a risk to employees.

## ACTION TAKEN

With support from the Ministry of Environment and Energy, the company has installed a 50,000 CFM (85,000 cubic metre per hour) biological air filter at its plant at a cost of approximately \$900,000.

The malodorous air streams are first passed through the old scrubber vessel for humidification. The only chemical used is a small amount of caustic soda to adjust the pH of the humidifying water. After being humidified, the air stream is divided into separate flows by two fans.

Each stream is conveyed to one of two 450-square-metre filter cells located about 100 metres away. A cell is

composed of a one-metre-thick media which is populated with microbes suspended in a film of water.

A distribution system in the bottom of each filter cell ensures that the air stream is spread out evenly over the entire cell. As the air moves up through the media, the contaminants are absorbed into the water film and are then converted by the microbes into water and carbon dioxide.

## RESULTS

The new system is proving to be very effective at destroying odorous compounds in the air stream. Complaints about odour from the plant have stopped and the elimination of hazardous chlorine from the treatment process saves more than \$500,000 annually.

The filter media is expected to last from three to five years. The cost to replace it is approximately \$300,000 which means a simple payback of a little more than two years.

## REPLICATION OPPORTUNITIES

Many meat and poultry processing operations across Ontario could benefit by using biological filters to treat malodorous air streams.

## PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies doing business in Ontario may seek ministry/industry services that will help them to:

- \* use energy and water more efficiently;
- \* reduce, reuse and recycle solid waste;
- \* reduce or eliminate liquid effluent and gaseous emissions.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.



*Biological air filters at Maple Lodge Farms have proved to be very effective in eliminating odour.*

## FOR FURTHER INFORMATION, PLEASE CONTACT:

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## MINISTRY OF ENVIRONMENT AND ENERGY SERVICES

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