

Oberon's Value Proposition to Food Processors

Introduction

Oberon's production is to be co-located at wastewater treatment sites of food processing plants, where the necessary add-on infrastructure can be easily appended to existing facilities. Oberon has demonstrated that a wide variety of facilities are suitable for the Oberon process including those designed for beer brewers, potato processors, corn millers, sugar refiners, and citrate generators. In fact, any processing facility using fruit-, vegetable-, or grain-derived inputs and with high levels of BOD in their wastewater represents a potential candidate site. The co-location of Oberon's production at existing wastewater treatment sites allows Oberon to use carbohydrates and other organic material in the wastewater stream to produce ProFloc™. Oberon offers compelling reasons for food processors to install its process at their sites, including both quantitative and qualitative benefits as described below.

Financial Benefits

Implementation of Oberon's process increases the efficiency and capacity of the wastewater treatment facility. As a result, the food processor benefits from:

1. **Avoided capital costs:** manufacturers may avoid incurring capital expenses between \$10M and \$20M projects related to increasing treatment capacity, anaerobic pretreatment, and additional unit processes for nutrient removal.
2. **Eliminated disposal costs:** depending upon location and disposal strategy, manufacturers may eliminate between \$600,000 and \$2M per year costs to dispose of waste "sludge" from wastewater recovery operations. By converting the wastewater treatment plant into a biological reactor that produces ProFloc™, a renewable protein source for animal feeds is generated in place of waste.
3. **Realized energy savings:** wastewater treatment operations can achieve savings in excess of \$300,000 annually on avoided electrical. Oberon operates at lower cellular concentration than seen in typical aeration basins; as a result, energy costs may be reduced by as much as 50% in the form of electricity needed to supply blower air to the basins.
4. **Shifted chemical and O&M expenses:** facilities may see better than \$200,000 per year in avoided costs related to dewatering. Treatment facilities often blend waste "sludge" with polymers, bulking agents, or wastes in order to dewater it prior to disposal. Depending upon dewatering technology in current operation, Oberon may seek to modify the dewatering approach – and consequently to take on a portion of the expense for dewatering chemicals. In such cases, the facility may also realize O&M savings for de-commissioned equipment.
5. **Annual rent revenue –** In addition to paying for incremental costs to incorporate its process, Oberon also pays rent for space occupied at the facility.

Environmental and Public Relations Benefits

Processors can leverage the Oberon process to improve visibility for achieving larger sustainability goals. In so doing,

1. The environmental agencies responsible for sludge disposal are no longer relevant to a facility employing Oberon's technology
2. Public relations are improved as sludge is no longer being spread, incinerated, or land-filled
3. Sustainability objectives are more easily met:
"We aim to ensure that we utilize our waste resources to the greatest extent possible. Technology and innovative partnerships have a crucial role to play as we work towards becoming a zero-waste operation; advances such as this new development [Oberon's process] show that there are innumerable ways in which our waste can be made useful for others."
MillerCoors CEO Leo Kiely (Aquafeed.com; July 2010)
4. The processor can better position itself as a "green" company, making effective use of input commodities while protecting existing natural resources such as threatened marine resources and global climate change.

Operational Benefits

Oberon's process turns the paradigm for typical biological wastewater treatment on its head. Rather than viewing food and beverage wastewater as an environmental liability, Oberon views the feed-grade carbon in this water as yet another by-product of food production. Consequently, this carbon is used to generate microbial protein in the form of ProFloc™, even while treating wastewater to meet rigorous environmental standards – resulting in the following benefits:

1. Improved treatment: because the cells are removed more quickly from the system, the treatment system cleans the water more effectively because it is dedicated to wastewater treatment without competing requirements to digest cells – and in so doing to release increased levels of carbon dioxide.
2. More efficient treatment operation producing cleaner water: Oberon's process leads to lower nutrient levels in the treated water and easier compliance with environmental regulations – both current AND future.