

The Porto Protocol

More than just a commitment.

Case Study

The Family Coppola – *Energy and Cost Savings in Upgrading Wastewater Treatment Technology*

Treatment of winemaking process water is paramount for its re-use as vineyard irrigation water in drought-stricken Northern California. While traditional, surface mounted wastewater aerators are an effective treatment method, they consume a significant amount of costly energy to operate. We explored several different waste water treatment technologies and selected fine bubble diffuser technology to replace our surface mount aerators. This project was a considerable investment, but we have seen a significant reduction of energy use to treat waste water, even during the intensive months of use during harvest.



Example of Inefficient Surface Mount Aerator

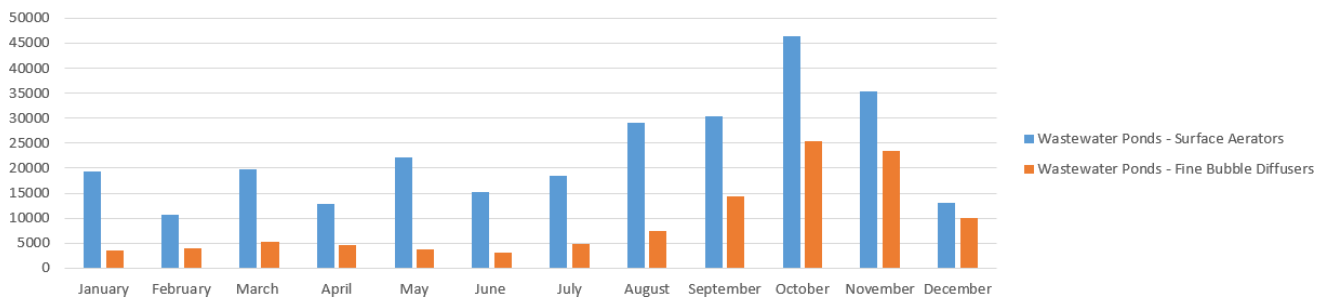
The project was completed in several different steps. First, the existing facultative wastewater ponds were drained, graded into two treatment pond basins and lined. Next, fine bubble diffuser equipment was laid out close to the bottom of the lined ponds and a blower was installed to supply these lines with air. A SCADA system was installed to maximize operational control of the ponds, as well as real-time pH and Dissolved Oxygen sensors. The ponds were filled with process water, and treatment began. Once water is in the ponds for the engineered detention time, it is tested to ensure compliance with California's strict regulatory requirements. Then, it is discharged and reused in the surrounding vineyards as irrigation.



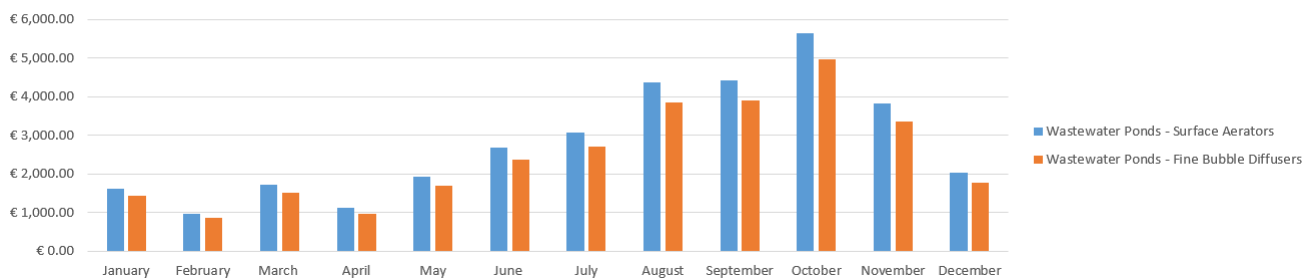
Fine Bubble Diffuser Aerated Wastewater Treatment Technology Installed in Pond

The installation of the Fine Bubble Differ Aerated Wastewater Treatment system has significantly decreased our wastewater treatment energy use and costs as seen in tables below:

Energy Use (kWh) Comparison of Surface Aerators to Fine Bubble Diffusers in Wastewater Treatment Ponds



Energy Cost (Euro) Comparison of Surface Aerators to Fine Bubble Diffusers in Wastewater Treatment Pond



Not only did our energy use drop by nearly 50% each month after installation, this technology also led to excellent wastewater treatment quality and made it possible to double the winery's handling capacity during the peak crushing season.