Case Study
Orege North America

JWC Environmental grinders clear the way for dairy sludge conditioning and a biogas revenue stream

Orege North America is a subsidiary of Orege SA, a French company that offers a proprietary technology that makes sludge thickening and dewatering operations more efficient. Using compressed air and pressure, Orege's SLG® technology alters the rheological properties of sludge, impacting its structure, viscosity, and how it mixes with polymers.

SLG has traditionally been used to improve the dewatering process for municipal wastewater treatment plants. Orege's largest SLG equipment processes sludge at 500 gallons per minute through a 1.5-inch pipe. Ensuring a consistent flow is crucial. Municipal plants' headworks and upstream screening systems remove foreign objects from the sludge, so clogs are not an issue.

However, in industrial and agricultural applications, that's not the case. Orege recently began deploying their containerized solution to dairy farms because SLG technology boosts the biomethanogenic potential of sludge. Anaerobic digesters can generate more biogas from conditioned sludge, providing an additional revenue stream for dairy farmers.

"Dairy sludge is very different from municipal sludge," explained Eddie Johnson, CEO of Orege North America. "It's much more concentrated, and its profile changes throughout the year, depending on how the farmers keep the cows cool. And then there are the things that get in the manure pit when they flush the barn, like hoof blocks, hoof pieces, horns, and ear tags. These conditions prompted us to look into adding a grinder to our process."

Problem

Foreign objects in dairy sludge disrupt the conditioning process, impacting biogas production

Solution

Monster Industrial 3-HYDRO in-line, dual-shafted grinder

Getting off to a messy start

The first step in Orege's process is air injection. "The injector is built like a venturi," said Johnson. "For the dairy application, the inside diameter of the pipe is an inch and a half. We need to make sure nothing in the sludge is too big to pass through that pipe."

After deploying a containerized solution to a dairy farm in Wisconsin, Johnson visited the site to ensure everything was ready. "We were running the system, and it came to a dead stop. There was no more flow, and the pressure in the feed sludge pipe had gotten really high before it shut off. The injector was clogged."

JWC Environmental®
A Sulzer Brand

MONSTER INDUSTRIAL

“We’ve put some pretty tough stuff through it, and it doesn’t cause maintenance headaches.”

Eddie Johnson, CEO of Orege North America.

After dismantling the injector — and getting a sludge shower in the process — Johnson found half of a hoof block stuck in the pipe. “I immediately called JWC and said, ‘I need a grinder STAT.’ And they got me one in three weeks.”

Monster Industrial grinders to the rescue

Johnson was familiar with JWC Environmental (JWC) and Muffin Monster grinders from his work in the municipal wastewater business. The mechanical features of the JWC grinder sold him on the Monster Industrial 3-HYDRO in-line, dual-shafted grinder. “I liked the stacked tooth grinding system and that it didn’t have rock traps or a grinding disc. I felt the stacked tooth cutters were better for what we would be dealing with.”

Also of value was the reject feature. If the 3-HYDRO cannot grind something, it sends an alert that something is wrong. “To my knowledge, it’s only gotten stuck on one hoof block,” said Johnson. “And this one was a completely intact block made of really hard plastic. I’m pretty sure if the grinder had more horsepower, it would have chewed right through it. But for everything else, the 5-horsepower motor we specified is plenty.”

Serviceability and easy maintenance are also incredibly important to Orege. “It’s very easy to maintain the machine, and it doesn’t require a lot of service,” stated Johnson. “We’ve put some pretty tough stuff through it, and it doesn’t cause maintenance headaches.” Service techs visit the systems to perform health and wellness checks every quarter, and the systems run 24/7. Should cutters need replacing, technicians can remove the entire cutter cartridge from the grinder housing without dismantling the system.

Goodbye costly downtime

Sludge is pumped from the manure pit into the grinder, then to the SLG and back into the pit. The number of recirculations per hour depends on the amount of sludge the farm sends to the digester. In this case, four loops occur every hour.

At another one of Orege’s customers, sludge is pumped from the pit to a holding tank, then into the grinder and SLG machine. Conditioned sludge returns to the holding tank, where the circulation loop occurs.

The operation is continuous in both cases, ensuring repeated conditioning before digestion. “We need to have machines that are robust enough to continue operations 24 hours a day, seven days a week,” said Johnson. “Having the grinder in line to protect that equipment helps our predictability and operational consistency.”

Orege’s biogas contracts are long-term deals. Johnson continued, “We’re talking 10 to 15 years. Farmers don’t want maintenance headaches, so when biogas developers specify our equipment as part of a farm, they need to know it will be serviceable.”

Biogas products can generate a quarter of a million dollars in additional revenue annually. “The gas increase stops the moment conditioning stops,” Johnson stated. Keeping the system running by preventing blockages helps maximize revenue generation.

A continuing partnership with JWC

Orege’s experience with JWC has been positive. “It’s been great, absolutely zero complaints,” Johnson said. “My customer service manager knows exactly what we need. We issue a PO, and it goes right through. JWC has never missed a delivery date. When they tell me it’s going to be here, it’s here. I wish everybody were like that.”

Johnson has already purchased four 3-HYDRO grinders. Two are used in SLG systems at dairy farms, while the other two have been added to Orege’s rental fleet for use with belt filter presses that clean digesters and lagoons. “I’m probably going to buy a couple more for our rental equipment that is used by service providers who perform digester and lagoon cleanups,” said Johnson. “We see the value in protecting our equipment by specifying JWC Environmental grinders and providing them to our clients performing these cleanup services, so they can maximize their uptime and improve their profitability.”

For any inquiries please contact

800.331.2277

jwce.com

JWC Orege North America cs en 10.2025,