

DIGESTER TYPE PERFORMANCE COMPARISON

DAIRY MANURE (ONLY) EXAMPLE



	COVERED LAGOON	COMPLETE MIX	LINEAR VORTEX™	COMMENTS
Design generation	1 st	2 nd	3 rd	Assumes all designs are periodically updated
Plant longevity (average), years	5-10	15	20 - 30	Steel tanks & flexible membranes degrade faster than concrete
Design shorthand	Plug-Flow	Mixed / CSTR	Mixed Plug-Flow	DVO's 2- Stage MPF combines the best aspects from older generation designs
Biogas output "per milking cow" (avg), ft ³ /day	50	85	115	DVO's system produces 105-130 ft3 "per cow," +2 times "covered lagoon" AD
Processes 100% of the dairy manure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Covered lagoon systems MUST bypass dairy solids (this is not a "feature")
Performance is not "seasonal"	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Covered lagoon performance varies widely & is dependent upon the weather
Lowest cost per installed kW	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A key indicator reflecting a positive "Return on Investment"
Flush, Scrape & Vac -collection dairies served	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Every modern dairy design is represented by DVO farmers
Processes more dairy waste than any other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DVO is (by far) the largest biogas company in North America
Animal bedding quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Greatly influences herd health and milk quality
NO composting of solids is needed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bypassed solids from Covered Lagoons must be separately composted
Pathogen destruction (e-coli, salmonella etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Harmful bacteria that causes mastitis and other problems for cattle, and human
Odor and weed-seed destruction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Complete digestion = more effective odor, vector & weed seed control
Methane emissions avoided "per cow"	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DVO avoids the CH4 from solids composting, & unspent liquid that bypass AD
GHG impacts overall avoided	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Composting emits some CH4, and also creates N2O (310x worse than CO2!)
Renewable power generated "per cow"	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	More biogas "per-cow" = more power generated "per cow" too
Positive carbon footprint	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Higher operating efficiency/kW generated, longevity & thorough digestion
Digester is certified " Newtrient Recognized "	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	By independent dairy organization "Newtrient, LLC"
Optional " Ammonia Recovery " step	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"AR" is a proven method to greatly reduce ammonia emissions from lagoons
Optional " Phosphorus Recovery " step	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"PR" offers a proven method to remove 80-95% of Phos from manure slurries
Suitable for Co-generation (i.e. food wastes)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Active mixing is required for most offsite organics