

FACILITY FACT SHEET

Intermodal AD-25-2017-2 Microdigester

Facility Owner	Crooked Shed Farm
Facility Contact	L. Fletcher
Facility Address	Carnation, Washington
Telephone Number	425-328-6650
Digester Size	Intermodal, 8' x 20', 15,000 lbs. loaded weight
Annual Feedstock	Commercial Foodwaste, preconsumer and postconsumer
Annual Tons Recycled	25 tons per year with gas storage, and electric generator - for net metering
Site History	Machine no. 6; resides at a family farm that processes poultry
Impact Bioenergy sold this machine to Crooked Shed Farm to support their abattoir for processing chickens and turkeys. The system is also designed to sell renewable energy back to the power grid via net metering. The farm applied for and received a REAP grant (Rural Energy for America Program; USDA). It will enable it to have a zero waste approach by generating renewable energy and commercially valuable biofertilizer without any waste trucking at all. This project will demonstrate a new and innovative way animal processing, food, energy, water, traffic, and carbon are managed.	

Processing Equipment

Feedstock receiving and preparation tank that doses feedstock into the digester. Digester is heated and manually mixed using a hand operated mud pump with multiple suction and discharge locations. Digester chambers are partitioned to provide both CSTR and FFR digestion. Heating is automatic using a hydronic heating system. Gas is conditioned for moisture and sulfur removal and then stored in an unpressurized (0.15 psi) storage vessel. Gas is measured, pressure-regulated, and backflow prevented. A manifold is provided to a 5 KW generator inside the machine. Surplus gas burner with flame arrester and auto-igniter are integrated into the system. This system has been featured in agricultural conferences and site tours.

Process and Residence Time

Design is intended to optimize space efficiency and affordability, and to minimize moving parts (complexity and cost). Feedstock is blended, homogenized, and emulsified in a first stage metering tank. Light and heavy contaminants are removable. Dosing cycle and volume are adjustable. Digester hydraulic residence time is 30 days. Digestate discharge is automatic based on displacement method. There are two separate manifolds for gas and liquid. Sampling and condensate valves are provided in a number of locations. Maximum energy output is 15,000 BTU per hour. Maximum digestate production is 130 lbs. per day (16 gallons per day). The digestate is sold a liquid plant food.

