

## Common Problems with Commercial Anaerobic Digester Systems in the United States

### 3 Major Design Flaws

- \* Insufficient digester heating and/or heat retention
- \* Poorly designed feedstock collection, mixing and delivery system
- \* Wrong size digester vessel, engine-generator sets, and all associated equipment for the operation

### Mechanical Failures of System Components

- \* Electrical engine-generator sets (~40 % of cost of "smaller" systems)
  - hydrogen sulfide in the gas
  - high moisture content of the gas
  - fluctuating gas quality and quantity
  - parts availability
  - unavailability of smaller engines, i.e. 25-65 kW
- \* Feedstock (usually chopper) and effluent pumps
  - rocks and miscellaneous metal/plastic inclusions
  - seal and whole pump replacements
- \* Gas cleaning, delivery and storage systems
- \* Electronic control panels and wiring
  - exposure to hydrogen sulfide, high moisture and heat
- \* Pressure relief valves

### Operational and Biological Problems

- \* Scum build-up and feedstock separation (primarily with dairy)
- \* System Start-up
- \* Foaming
- \* Changes in feedstock composition, temperature and pH
- \* Build-up of inert, inorganic solids in digester vessel
- \* Toxicity or pH shocks
- \* Microbial imbalance

### Integration of Digester with Overall Operation

- \* Need to fit into existing operational schedules and local utility constraints
- \* Requirements for equipment repair
- \* Seasonal fluctuations -- gas and effluent utilization