

# Aerobic Digestion/Composting

## FEEDSTOCK CLASSIFICATION

Manures, lignocellulosic biomass, starches and sugars

## FEEDSTOCK EXAMPLES

- [alfalfa](#)
- [inedible offal](#)
- [manure \(dairy\)](#)
- [manure \(poultry\)](#)
- [manure \(swine\)](#)
- [municipal solid waste](#)
- [pomace scraps and spoilage \(fruit & vegetable processing\)](#)
- [sawdust](#)
- [sugar crops](#)
- [wastewater \(fruit & vegetable processing\)](#)
- [waste wood chips](#)
- [whey](#)
- [wood chips](#)

## FEEDSTOCK RESTRICTIONS

Must be organic

## PROCESS DESCRIPTION

Organic waste is collected in lagoons, where naturally occurring bacteria use oxygen to convert the waste to carbon dioxide, water and more bacteria. Dilution water is needed at start-up of the lagoon, and a steady, daily supply of manure is required to maintain digestion. Aerobic bacteria are sensitive to the lack of oxygen, and mechanical aerators are used in aerated lagoons to ensure constant mixing of the manure.<sup>1</sup>

## PRIMARY BIOBASED PRODUCTS

[Fertilizer](#)

## PROCESS BYPRODUCTS

Odor reduction (for manure; aerobic lagoons have comparatively little odor)

## MAJOR EQUIPMENT

Mechanical mixer, lagoon. The lagoons required for aerobic digestion are smaller than those needed for [anaerobic digestion](#).

## ENERGY REQUIRED

Constant mixing requires large energy demand, and aerator/mixers require regular maintenance

## CAPITAL AND OPERATING COST

A 675-cow farm in Clymer, NY, reports spending \$77,000 on mixers and pumps and \$45,000 on liquid storage.<sup>2</sup>

## COMMERCIALIZATION STATUS

Established

## COMMERCIAL SUPPLIERS

Aerobic digesters are widely available. Some representative suppliers are listed.

J-Star Industries, 801 Janesville Ave, Fort Atkinson, WI 53538, Telephone: 920-563-5521

Knight Manufacturing Corporation, 1501 W 7th Ave., Brodhead, WI 53520, Telephone: 608-897-2131

Patz Sales, Inc., P.O. Box 7, Pound, WI 54161, Telephone: 920-897-2251.

## REFERENCES

<sup>1</sup> Veenhuizen, Michael A., Eckert, Donald J., Elder, Kevin, Johnson, Jay, Lyon, William F., Mancl, Karen M., and Schnitkey, Gary, Editors. 1992. "Ohio Livestock Manure And Wastewater Management Guide Bulletin 604: Treatment of Livestock Manure."

[http://ohioline.osu.edu/b604/b604\\_24.html](http://ohioline.osu.edu/b604/b604_24.html) (16 April 2004)

<sup>2</sup> Mathews, Ted. Case Study Co-digestion. National AGSTAR Conference Speaker, St. Louis, MO, March 25, 2004.

Wisconsin Department of Agriculture and Trade & Consumer Protection , Division of Marketing. 2002. Market Wisconsin: Export Directory and Food Buyers Guide, Livestock, Agriculture & Ag Equipment, Forestry, Biotechnology Products, Madison, WI.

[http://datcp.state.wi.us/mktg/business/marketing/international/products/pdf/export\\_directory.pdf](http://datcp.state.wi.us/mktg/business/marketing/international/products/pdf/export_directory.pdf) (16 April 2004)