

DEMONSTRATION OF DAIRY MANURE REMEDIATION USING IBR TECHNOLOGY

¹C.S. Hansen and ¹C.L. Hansen

¹*Center for Profitable Uses of Agricultural Byproducts, Utah State University, College of Engineering, Logan, UT 84322; Phone: (435)797-2188; Fax: (435)797-2379.*

Abstract

This paper is a report of the performance of a new design of anaerobic bioreactor called the induced-blanket reactor or IBR. The IBR appears to treat high-solids organic matter (manure) effectively in a relatively short time without plugging. A 28 m³ (7500 gal), heated IBR has been in operation at the Caine Dairy, Utah State University's dairy farm, since summer 2000. The bioreactor, an upflow-sludge blanket type, features a method to build and maintain a sludge blanket without plugging. Up to 80% of VSS were removed from dairy manure in the IBR, with less than 10-day HRT. Biogas was collected and burned to produce hot water. Parameters for the system that will be reported include pH, temperature, influent and effluent total and soluble COD, total and volatile solids and suspended solids, TKN, and NH₃ all at different loading rates. Biogas quantity and percent methane will also be reported.

Key words: anaerobic, dairy manure, bioenergy demonstration