

Table 4. Energy Content of Bio-gas from Various Animals

	Swine (per head)	Dairy (per head)	Beef (per head)	Poultry (layers) (per bird)
Design Criteria				
Animal weight (lbs)	135	1,400	800	4
Total fresh manure & urine (gal/day)	1.35	12.5	6.1	0.032
Solids content (%)				
Before dilution	10.0	15.0	15.0	25.0
After dilution	6.7	8.0	8.0	8.0
Total waste volume after dilution (gal/day)	2	24	12	0.1
Volatile solids production (VS lbs/day)	1	12	5	0.038
Digester loading rate (lbs VS/ft ³ digester/day)	0	0	0	0.125
Digester volume (ft ³ /head)	5	47	19	0.3
Retention time (days)	20	15	13	22.5
Probable VS destruction (%)	50	35	45	60
Anticipated Gas Yield				
Yield (per ft ³ digester vol- ume)	1	1	1	1
Yield (ft ³ /head/day)	4	46	28	0.29
Gross energy content (Btu/ head/day)	2,300	27,800	16,600	180
Net energy content (Btu/ head/day) (uses 35% of gross to operate digester)	1,500	18,000	10,700	110
<i>Source: Barker, James C. 2001. Methane Fuel Gas from Livestock Wastes: A Summary. North Carolina State University Cooperative Extension Service, Publication #EBAE 071-80.</i>				