

## Emissions of Greenhouse Gases in the United States 2004

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**Table 23. U.S. Methane Emissions from the Solid Waste of Domesticated Animals, 1990 and 1996-2004**

Animal Type	1990	1996	1997	1998	1999	2000	2001	2002	2003	P2004
Thousand Metric Tons Carbon Dioxide Equivalent										
<b>Cattle</b>										
Beef Cattle.....	4,037	4,814	4,682	4,592	4,547	4,496	4,470	4,454	4,433	4,406
Dairy Cattle .....	12,717	15,992	16,829	16,970	17,092	17,430	17,746	18,014	18,185	18,267
<b>Swine</b>										
Market Swine.....	19,222	20,543	22,522	23,366	22,522	22,368	22,627	22,724	23,165	23,522
Breeding Swine.....	3,502	3,681	3,893	3,739	3,488	3,507	3,470	3,390	3,362	3,340
<b>Poultry</b>										
Layers .....	1,663	1,838	1,871	1,913	1,979	2,016	2,052	2,076	2,082	2,114
Broilers .....	1,590	2,199	2,266	2,298	2,372	2,255	2,284	2,339	2,312	2,379
<b>Other Animals</b>										
Sheep .....	115	33	31	31	28	28	27	26	25	24
Goats.....	16	16	14	12	11	11	12	10	10	10
Horses.....	624	633	636	644	636	645	652	652	652	652
<b>Total .....</b>	<b>43,486</b>	<b>49,750</b>	<b>52,744</b>	<b>53,564</b>	<b>52,676</b>	<b>52,756</b>	<b>53,340</b>	<b>53,685</b>	<b>54,226</b>	<b>54,715</b>
Thousand Metric Tons Methane										
<b>Cattle</b>										
Beef Cattle.....	176	209	204	200	198	195	194	194	193	192
Dairy Cattle .....	553	695	732	738	743	758	772	783	791	794
<b>Swine</b>										
Market Swine.....	836	893	979	1,016	979	973	984	988	1,007	1,023
Breeding Swine.....	152	160	169	163	152	152	151	147	146	145
<b>Poultry</b>										
Layers .....	72	80	81	83	86	88	89	90	91	92
Broilers .....	69	96	99	100	103	98	99	102	101	103
<b>Other Animals</b>										
Sheep .....	5	1	1	1	1	1	1	1	1	1
Goats.....	1	1	1	1	*	*	1	*	*	*
Horses.....	27	28	28	28	28	28	28	28	28	28
<b>Total .....</b>	<b>1,891</b>	<b>2,163</b>	<b>2,293</b>	<b>2,329</b>	<b>2,290</b>	<b>2,294</b>	<b>2,319</b>	<b>2,334</b>	<b>2,358</b>	<b>2,379</b>

\*Less than 500 metric tons methane.

P = preliminary data.

Notes: Data in this table are revised from the data contained in the previous EIA report, *Emissions of Greenhouse Gases in the United States 2003*, DOE/EIA-0573(2003) (Washington, DC, December 2004). Totals may not equal sum of components due to independent rounding.

Sources: Population data for horses and goats extrapolated from U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, 1982, 1987, 1992, and 1997. Population data for all other animals from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Typical animal sizes from U.S. Environmental Protection Agency, Office of Air and Radiation, *Anthropogenic Methane Emissions in the United States: Estimates for 1990, Report to Congress* (Washington, DC, April 1993), p. 6-8; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2003*, EPA-430-R-05-003 (Washington, DC, April 2005), Table M-2, web site <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterPublicationsGHGEmissionsUSEmissionsInventory2005.html>. Cattle sizes adjusted by annual slaughter weight from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Maximum methane production, and waste management systems used from L.M. Safley, M.E. Casada, et al., *Global Methane Emissions from Livestock and Poultry Manure* (Washington, DC: U.S. Environmental Protection Agency, February 1992), pp. 24-27; U.S. Environmental Protection Agency, *Cost Methodology Report for Beef and Dairy Animal Feeding Operations*, EPA-821-R-01-019 (Washington, DC, January 2001), pp.1-13-1-14; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2002*, EPA-430-R-04-003 (Washington, DC, April 2004), Table M-2. General methane conversion factors from Intergovernmental Panel on Climate Change, *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3 (Paris, France, 1997), p. 4.25, web site [www.ipcc.ch/pub/guide.htm](http://www.ipcc.ch/pub/guide.htm). State methane conversion factors for dairy cattle from U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-1998*, EPA-236-R-00-001 (Washington, DC, April 2001); and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2002*, EPA-430-R-04-003 (Washington, DC, April 2004), Table M-4.