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Emissions of Greenhouse Gases in the United States 2009

**Table 23. U.S. nitrous oxide emissions from agricultural sources, 1990-2009
 (million metric tons carbon dioxide equivalent)**

Source	1990	1995	2000	2003	2004	2005	2006	2007	2008	2009
Direct emissions (agricultural soils)										
Synthetic nitrogen fertilizers	47.5	45.8	40.7	42.9	48.5	51.7	53.5	54.6	53.3	53.3
Animal manure	27.8	29.3	26.4	25.6	25.3	25.7	25.7	25.6	25.6	24.9
Sewage sludge and other non-manure organics	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Above- and below-ground crop residues	31.2	29.6	33.8	34.0	36.3	34.8	33.3	35.7	36.3	37.2
Soil mineralization	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
<i>Direct emissions subtotal</i>	<i>109.2</i>	<i>107.6</i>	<i>103.8</i>	<i>105.3</i>	<i>113.0</i>	<i>115.0</i>	<i>115.3</i>	<i>118.8</i>	<i>118.0</i>	<i>118.2</i>
Indirect emissions (agricultural soils)										
Soil leaching and runoff	11.5	10.8	12.1	11.1	12.3	12.5	12.6	13.2	13.2	13.3
Atmospheric deposition	7.8	7.8	7.0	7.1	7.6	8.0	8.1	8.2	8.1	8.0
<i>Indirect emissions subtotal</i>	<i>19.4</i>	<i>18.6</i>	<i>19.1</i>	<i>18.2</i>	<i>19.9</i>	<i>20.5</i>	<i>20.7</i>	<i>21.5</i>	<i>21.3</i>	<i>21.4</i>
Solid waste of domesticated animals										
Cattle	15.9	16.8	16.9	16.5	16.6	16.8	17.1	17.1	16.9	16.7
Swine	1.5	1.7	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0
Poultry	1.9	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.8
Horses	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Sheep	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Goats	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
<i>Solid waste subtotal</i>	<i>19.6</i>	<i>20.6</i>	<i>20.8</i>	<i>20.5</i>	<i>20.6</i>	<i>20.8</i>	<i>21.2</i>	<i>21.3</i>	<i>21.2</i>	<i>20.8</i>
Crop residue burning	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6
Total agricultural sources	148.7	147.2	144.3	144.5	154.1	156.9	157.8	162.1	161.1	161.0

Note: Totals may not equal sum of components due to independent rounding.