

**Annex 3F. Nitrous Oxide from Agricultural Soil Management (IPCC 3C4 & 3C5)
to the Technical Support Document for the 2000-2011 California's Greenhouse Gas
Emissions Inventory**

Back to main document: http://www.arb.ca.gov/cc/inventory/doc/methods_00-11/ghg_inventory_00-11_technical_support_document.pdf

Variables Used in the Emissions Estimation Equations

Values last updated on Thursday, August 01, 2013

IPCC category = 3C4 — Aggregate Sources and Non-CO2 Emissions Sources on Land - Direct N2O Emissions from Managed Soils

Activity = Drained histosols

- Variable Name -	- Year -	- Value and Units -	- Reference -
Drained histosols	2000	39,800 ha	Compilation, see text
Drained histosols	2001	39,800 ha	Compilation, see text
Drained histosols	2002	39,800 ha	Compilation, see text
Drained histosols	2003	39,800 ha	Compilation, see text
Drained histosols	2004	39,800 ha	Compilation, see text
Drained histosols	2005	39,800 ha	Compilation, see text
Drained histosols	2006	39,800 ha	Compilation, see text
Drained histosols	2007	39,800 ha	Compilation, see text
Drained histosols	2008	39,800 ha	Compilation, see text
Drained histosols	2009	39,800 ha	Compilation, see text
Drained histosols	2010	39,800 ha	Compilation, see text
Drained histosols	2011	39,800 ha	Compilation, see text
Nitrogen emitted as N2O	2000	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2001	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2002	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2003	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2004	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2005	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2006	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2007	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2008	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2009	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2010	8,000 g / ha	IPCC, 2006e
Nitrogen emitted as N2O	2011	8,000 g / ha	IPCC, 2006e

Activity = Nitrogen applied in fertilizer - Organic fertilizers

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen applied in fertilizer - Organic fertilizers	2000	9,864 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2001	3,029 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2002	4,760 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2003	6,350 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2004	2,417 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2005	3,559 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2006	2,289 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2007	895 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2008	3,248 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2009	6,658 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2010	67 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2011	185 ton	CDFA, various years
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e

Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

Activity = Nitrogen applied in fertilizer - Synthetic fertilizers

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen applied in fertilizer - Synthetic fertilizers	2000	667,870 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2001	614,776 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2002	925,329 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2003	914,979 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2004	918,912 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2005	824,820 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2006	803,336 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2007	742,761 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2008	852,450 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2009	731,918 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2010	795,439 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2011	734,349 ton	CDFA, various years
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

Activity = Nitrogen in crop residues

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in crop residues	2000	75.76 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2001	76.16 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2002	82.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2003	80.61 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2004	96.51 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2005	76.75 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2006	76.04 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2007	81.43 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2008	91.02 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2009	84.84 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2010	83.33 Gg (thousand tonnes)	Compilation, see text
Nitrogen in crop residues	2011	85.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e

Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

Activity = Nitrogen in managed manure

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in managed manure	2000	212.29 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2001	219.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2002	228.46 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2003	233.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2004	223.75 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2005	230.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2006	237.85 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2007	238.74 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2008	234.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2009	231.72 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2010	226.05 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2011	226.12 Gg (thousand tonnes)	Compilation, see text
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

Activity = Nitrogen in unmanaged manure - Cattle, swine, poultry

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in unmanaged manure - Cattle, swine, poultry	2000	142.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2001	142.89 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2002	143.67 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2003	143.56 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2004	141.73 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2005	147.01 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2006	146.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2007	131.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2008	127.07 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2009	121.88 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2010	120.51 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2011	121.07 Gg (thousand tonnes)	Compilation, see text
Nitrogen emitted as N2O	2000	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.02 g / g	IPCC, 2006e

Nitrogen emitted as N2O	2002	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.02 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.02 g / g	IPCC, 2006e

Activity = Nitrogen in unmanaged manure - Sheep, goat, horse

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in unmanaged manure - Sheep, goat, horse	2000	24.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2001	24.76 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2002	25.77 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2003	28.43 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2004	30.73 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2005	34.03 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2006	34.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2007	33.29 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2008	32.8 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2009	33.95 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2010	34.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2011	34.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

IPCC category = 3C5 — Aggregate Sources and Non-CO2 Emissions Sources on Land - Indirect N2O Emissions from Managed Soils**Activity = Nitrogen applied in fertilizer - Organic fertilizers**

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen applied in fertilizer - Organic fertilizers	1990	3,374 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1991	2,397 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1992	3,477 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1993	1,712 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1994	4,792 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1995	4,308 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1996	3,590 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1997	1,522 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1998	1,260 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	1999	1,365 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2000	9,864 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2001	3,029 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2002	4,760 ton	CDFA, various years

Nitrogen applied in fertilizer - Organic fertilizers	2003	6,350 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2004	2,417 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2005	3,559 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2006	2,289 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2007	895 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2008	3,248 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2009	6,658 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2010	67 ton	CDFA, various years
Nitrogen applied in fertilizer - Organic fertilizers	2011	185 ton	CDFA, various years
Leached nitrogen emitted as N2O	1990	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1991	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1992	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1993	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1994	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1995	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1996	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1997	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1998	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1999	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2000	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2001	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2002	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2003	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2004	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2005	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2006	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2007	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2008	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2009	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2010	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2011	7.500E-03	IPCC, 2006e
Leaching rate	1990	0.3	IPCC, 2006e
Leaching rate	1991	0.3	IPCC, 2006e
Leaching rate	1992	0.3	IPCC, 2006e
Leaching rate	1993	0.3	IPCC, 2006e
Leaching rate	1994	0.3	IPCC, 2006e
Leaching rate	1995	0.3	IPCC, 2006e
Leaching rate	1996	0.3	IPCC, 2006e
Leaching rate	1997	0.3	IPCC, 2006e
Leaching rate	1998	0.3	IPCC, 2006e
Leaching rate	1999	0.3	IPCC, 2006e
Leaching rate	2000	0.3	IPCC, 2006e
Leaching rate	2001	0.3	IPCC, 2006e
Leaching rate	2002	0.3	IPCC, 2006e
Leaching rate	2003	0.3	IPCC, 2006e
Leaching rate	2004	0.3	IPCC, 2006e
Leaching rate	2005	0.3	IPCC, 2006e
Leaching rate	2006	0.3	IPCC, 2006e
Leaching rate	2007	0.3	IPCC, 2006e
Leaching rate	2008	0.3	IPCC, 2006e
Leaching rate	2009	0.3	IPCC, 2006e
Leaching rate	2010	0.3	IPCC, 2006e
Leaching rate	2011	0.3	IPCC, 2006e
Nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e

Nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Volatilization rate	1990	0.2 g / g	IPCC, 2006e
Volatilization rate	1991	0.2 g / g	IPCC, 2006e
Volatilization rate	1992	0.2 g / g	IPCC, 2006e
Volatilization rate	1993	0.2 g / g	IPCC, 2006e
Volatilization rate	1994	0.2 g / g	IPCC, 2006e
Volatilization rate	1995	0.2 g / g	IPCC, 2006e
Volatilization rate	1996	0.2 g / g	IPCC, 2006e
Volatilization rate	1997	0.2 g / g	IPCC, 2006e
Volatilization rate	1998	0.2 g / g	IPCC, 2006e
Volatilization rate	1999	0.2 g / g	IPCC, 2006e
Volatilization rate	2000	0.2 g / g	IPCC, 2006e
Volatilization rate	2001	0.2 g / g	IPCC, 2006e
Volatilization rate	2002	0.2 g / g	IPCC, 2006e
Volatilization rate	2003	0.2 g / g	IPCC, 2006e
Volatilization rate	2004	0.2 g / g	IPCC, 2006e

Volatilization rate	2005	0.2 g / g	IPCC, 2006e
Volatilization rate	2006	0.2 g / g	IPCC, 2006e
Volatilization rate	2007	0.2 g / g	IPCC, 2006e
Volatilization rate	2008	0.2 g / g	IPCC, 2006e
Volatilization rate	2009	0.2 g / g	IPCC, 2006e
Volatilization rate	2010	0.2 g / g	IPCC, 2006e
Volatilization rate	2011	0.2 g / g	IPCC, 2006e

Activity = Nitrogen applied in fertilizer - Synthetic fertilizers

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen applied in fertilizer - Synthetic fertilizers	1990	563,165 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1991	456,222 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1992	494,606 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1993	587,279 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1994	511,587 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1995	669,513 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1996	634,611 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1997	509,841 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1998	542,175 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	1999	547,153 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2000	667,870 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2001	614,776 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2002	925,329 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2003	914,979 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2004	918,912 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2005	824,820 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2006	803,336 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2007	742,761 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2008	852,450 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2009	731,918 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2010	795,439 ton	CDFA, various years
Nitrogen applied in fertilizer - Synthetic fertilizers	2011	734,349 ton	CDFA, various years
Leached nitrogen emitted as N2O	1990	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1991	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1992	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1993	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1994	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1995	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1996	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1997	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1998	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1999	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2000	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2001	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2002	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2003	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2004	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2005	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2006	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2007	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2008	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2009	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2010	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2011	7.500E-03	IPCC, 2006e
Leaching rate	1990	0.3	IPCC, 2006e
Leaching rate	1991	0.3	IPCC, 2006e

Leaching rate	1992	0.3	IPCC, 2006e
Leaching rate	1993	0.3	IPCC, 2006e
Leaching rate	1994	0.3	IPCC, 2006e
Leaching rate	1995	0.3	IPCC, 2006e
Leaching rate	1996	0.3	IPCC, 2006e
Leaching rate	1997	0.3	IPCC, 2006e
Leaching rate	1998	0.3	IPCC, 2006e
Leaching rate	1999	0.3	IPCC, 2006e
Leaching rate	2000	0.3	IPCC, 2006e
Leaching rate	2001	0.3	IPCC, 2006e
Leaching rate	2002	0.3	IPCC, 2006e
Leaching rate	2003	0.3	IPCC, 2006e
Leaching rate	2004	0.3	IPCC, 2006e
Leaching rate	2005	0.3	IPCC, 2006e
Leaching rate	2006	0.3	IPCC, 2006e
Leaching rate	2007	0.3	IPCC, 2006e
Leaching rate	2008	0.3	IPCC, 2006e
Leaching rate	2009	0.3	IPCC, 2006e
Leaching rate	2010	0.3	IPCC, 2006e
Leaching rate	2011	0.3	IPCC, 2006e
Nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e

Redeposited nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Volatilization rate	1990	0.1 g / g	IPCC, 2006e
Volatilization rate	1991	0.1 g / g	IPCC, 2006e
Volatilization rate	1992	0.1 g / g	IPCC, 2006e
Volatilization rate	1993	0.1 g / g	IPCC, 2006e
Volatilization rate	1994	0.1 g / g	IPCC, 2006e
Volatilization rate	1995	0.1 g / g	IPCC, 2006e
Volatilization rate	1996	0.1 g / g	IPCC, 2006e
Volatilization rate	1997	0.1 g / g	IPCC, 2006e
Volatilization rate	1998	0.1 g / g	IPCC, 2006e
Volatilization rate	1999	0.1 g / g	IPCC, 2006e
Volatilization rate	2000	0.1 g / g	IPCC, 2006e
Volatilization rate	2001	0.1 g / g	IPCC, 2006e
Volatilization rate	2002	0.1 g / g	IPCC, 2006e
Volatilization rate	2003	0.1 g / g	IPCC, 2006e
Volatilization rate	2004	0.1 g / g	IPCC, 2006e
Volatilization rate	2005	0.1 g / g	IPCC, 2006e
Volatilization rate	2006	0.1 g / g	IPCC, 2006e
Volatilization rate	2007	0.1 g / g	IPCC, 2006e
Volatilization rate	2008	0.1 g / g	IPCC, 2006e
Volatilization rate	2009	0.1 g / g	IPCC, 2006e
Volatilization rate	2010	0.1 g / g	IPCC, 2006e
Volatilization rate	2011	0.1 g / g	IPCC, 2006e

Activity = Nitrogen in managed manure

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in managed manure	1990	186.93 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1991	184.69 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1992	185.14 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1993	185.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1994	193.1 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1995	198.16 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1996	200.93 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1997	208.58 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1998	201.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	1999	204.65 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2000	212.29 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2001	219.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2002	228.46 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2003	233.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2004	223.75 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2005	230.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2006	237.85 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2007	238.74 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2008	234.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2009	231.72 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2010	226.05 Gg (thousand tonnes)	Compilation, see text
Nitrogen in managed manure	2011	226.12 Gg (thousand tonnes)	Compilation, see text
Leached nitrogen emitted as N2O	1990	7.500E-03	IPCC, 2006e

Leached nitrogen emitted as N2O	1991	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1992	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1993	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1994	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1995	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1996	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1997	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1998	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1999	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2000	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2001	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2002	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2003	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2004	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2005	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2006	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2007	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2008	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2009	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2010	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2011	7.500E-03	IPCC, 2006e

Leaching rate	1990	0.3	IPCC, 2006e
Leaching rate	1991	0.3	IPCC, 2006e
Leaching rate	1992	0.3	IPCC, 2006e
Leaching rate	1993	0.3	IPCC, 2006e
Leaching rate	1994	0.3	IPCC, 2006e
Leaching rate	1995	0.3	IPCC, 2006e
Leaching rate	1996	0.3	IPCC, 2006e
Leaching rate	1997	0.3	IPCC, 2006e
Leaching rate	1998	0.3	IPCC, 2006e
Leaching rate	1999	0.3	IPCC, 2006e
Leaching rate	2000	0.3	IPCC, 2006e
Leaching rate	2001	0.3	IPCC, 2006e
Leaching rate	2002	0.3	IPCC, 2006e
Leaching rate	2003	0.3	IPCC, 2006e
Leaching rate	2004	0.3	IPCC, 2006e
Leaching rate	2005	0.3	IPCC, 2006e
Leaching rate	2006	0.3	IPCC, 2006e
Leaching rate	2007	0.3	IPCC, 2006e
Leaching rate	2008	0.3	IPCC, 2006e
Leaching rate	2009	0.3	IPCC, 2006e
Leaching rate	2010	0.3	IPCC, 2006e
Leaching rate	2011	0.3	IPCC, 2006e

Nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e

Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Volatilization rate	1990	0.2 g / g	IPCC, 2006e
Volatilization rate	1991	0.2 g / g	IPCC, 2006e
Volatilization rate	1992	0.2 g / g	IPCC, 2006e
Volatilization rate	1993	0.2 g / g	IPCC, 2006e
Volatilization rate	1994	0.2 g / g	IPCC, 2006e
Volatilization rate	1995	0.2 g / g	IPCC, 2006e
Volatilization rate	1996	0.2 g / g	IPCC, 2006e
Volatilization rate	1997	0.2 g / g	IPCC, 2006e
Volatilization rate	1998	0.2 g / g	IPCC, 2006e
Volatilization rate	1999	0.2 g / g	IPCC, 2006e
Volatilization rate	2000	0.2 g / g	IPCC, 2006e
Volatilization rate	2001	0.2 g / g	IPCC, 2006e
Volatilization rate	2002	0.2 g / g	IPCC, 2006e
Volatilization rate	2003	0.2 g / g	IPCC, 2006e
Volatilization rate	2004	0.2 g / g	IPCC, 2006e
Volatilization rate	2005	0.2 g / g	IPCC, 2006e
Volatilization rate	2006	0.2 g / g	IPCC, 2006e
Volatilization rate	2007	0.2 g / g	IPCC, 2006e
Volatilization rate	2008	0.2 g / g	IPCC, 2006e
Volatilization rate	2009	0.2 g / g	IPCC, 2006e
Volatilization rate	2010	0.2 g / g	IPCC, 2006e
Volatilization rate	2011	0.2 g / g	IPCC, 2006e

Activity = Nitrogen in unmanaged manure - Cattle, swine, poultry

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in unmanaged manure - Cattle, swine, poultry	1990	148.33 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1991	142.05 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1992	143.35 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1993	142.69 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1994	145.61 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1995	146.09 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1996	143.44 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1997	142.79 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1998	142.75 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	1999	144.69 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2000	142.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2001	142.89 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2002	143.67 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2003	143.56 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2004	141.73 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2005	147.01 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2006	146.37 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2007	131.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2008	127.07 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2009	121.88 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2010	120.51 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Cattle, swine, poultry	2011	121.07 Gg (thousand tonnes)	Compilation, see text
Leached nitrogen emitted as N2O	1990	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1991	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1992	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1993	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1994	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1995	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1996	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1997	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1998	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1999	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2000	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2001	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2002	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2003	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2004	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2005	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2006	7.500E-03	IPCC, 2006e

Leached nitrogen emitted as N2O	2007	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2008	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2009	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2010	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2011	7.500E-03	IPCC, 2006e
Leaching rate	1990	0.3	IPCC, 2006e
Leaching rate	1991	0.3	IPCC, 2006e
Leaching rate	1992	0.3	IPCC, 2006e
Leaching rate	1993	0.3	IPCC, 2006e
Leaching rate	1994	0.3	IPCC, 2006e
Leaching rate	1995	0.3	IPCC, 2006e
Leaching rate	1996	0.3	IPCC, 2006e
Leaching rate	1997	0.3	IPCC, 2006e
Leaching rate	1998	0.3	IPCC, 2006e
Leaching rate	1999	0.3	IPCC, 2006e
Leaching rate	2000	0.3	IPCC, 2006e
Leaching rate	2001	0.3	IPCC, 2006e
Leaching rate	2002	0.3	IPCC, 2006e
Leaching rate	2003	0.3	IPCC, 2006e
Leaching rate	2004	0.3	IPCC, 2006e
Leaching rate	2005	0.3	IPCC, 2006e
Leaching rate	2006	0.3	IPCC, 2006e
Leaching rate	2007	0.3	IPCC, 2006e
Leaching rate	2008	0.3	IPCC, 2006e
Leaching rate	2009	0.3	IPCC, 2006e
Leaching rate	2010	0.3	IPCC, 2006e
Leaching rate	2011	0.3	IPCC, 2006e
Nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e

Redeposited nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e
Volatilization rate	1990	0.2 g / g	IPCC, 2006e
Volatilization rate	1991	0.2 g / g	IPCC, 2006e
Volatilization rate	1992	0.2 g / g	IPCC, 2006e
Volatilization rate	1993	0.2 g / g	IPCC, 2006e
Volatilization rate	1994	0.2 g / g	IPCC, 2006e
Volatilization rate	1995	0.2 g / g	IPCC, 2006e
Volatilization rate	1996	0.2 g / g	IPCC, 2006e
Volatilization rate	1997	0.2 g / g	IPCC, 2006e
Volatilization rate	1998	0.2 g / g	IPCC, 2006e
Volatilization rate	1999	0.2 g / g	IPCC, 2006e
Volatilization rate	2000	0.2 g / g	IPCC, 2006e
Volatilization rate	2001	0.2 g / g	IPCC, 2006e
Volatilization rate	2002	0.2 g / g	IPCC, 2006e
Volatilization rate	2003	0.2 g / g	IPCC, 2006e
Volatilization rate	2004	0.2 g / g	IPCC, 2006e
Volatilization rate	2005	0.2 g / g	IPCC, 2006e
Volatilization rate	2006	0.2 g / g	IPCC, 2006e
Volatilization rate	2007	0.2 g / g	IPCC, 2006e
Volatilization rate	2008	0.2 g / g	IPCC, 2006e
Volatilization rate	2009	0.2 g / g	IPCC, 2006e
Volatilization rate	2010	0.2 g / g	IPCC, 2006e
Volatilization rate	2011	0.2 g / g	IPCC, 2006e

Activity = Nitrogen in unmanaged manure - Sheep, goat, horse

- Variable Name -	- Year -	- Value and Units -	- Reference -
Nitrogen in unmanaged manure - Sheep, goat, horse	1990	28.26 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1991	28.52 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1992	28.38 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1993	27.39 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1994	28.86 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1995	27.95 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1996	26.72 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1997	26.1 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1998	25.4 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	1999	24.91 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2000	24.47 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2001	24.76 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2002	25.77 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2003	28.43 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2004	30.73 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2005	34.03 Gg (thousand tonnes)	Compilation, see text

Nitrogen in unmanaged manure - Sheep, goat, horse	2006	34.11 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2007	33.29 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2008	32.8 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2009	33.95 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2010	34.13 Gg (thousand tonnes)	Compilation, see text
Nitrogen in unmanaged manure - Sheep, goat, horse	2011	34.47 Gg (thousand tonnes)	Compilation, see text
Leached nitrogen emitted as N2O	1990	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1991	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1992	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1993	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1994	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1995	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1996	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1997	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1998	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	1999	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2000	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2001	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2002	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2003	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2004	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2005	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2006	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2007	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2008	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2009	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2010	7.500E-03	IPCC, 2006e
Leached nitrogen emitted as N2O	2011	7.500E-03	IPCC, 2006e
Leaching rate	1990	0.3	IPCC, 2006e
Leaching rate	1991	0.3	IPCC, 2006e
Leaching rate	1992	0.3	IPCC, 2006e
Leaching rate	1993	0.3	IPCC, 2006e
Leaching rate	1994	0.3	IPCC, 2006e
Leaching rate	1995	0.3	IPCC, 2006e
Leaching rate	1996	0.3	IPCC, 2006e
Leaching rate	1997	0.3	IPCC, 2006e
Leaching rate	1998	0.3	IPCC, 2006e
Leaching rate	1999	0.3	IPCC, 2006e
Leaching rate	2000	0.3	IPCC, 2006e
Leaching rate	2001	0.3	IPCC, 2006e
Leaching rate	2002	0.3	IPCC, 2006e
Leaching rate	2003	0.3	IPCC, 2006e
Leaching rate	2004	0.3	IPCC, 2006e
Leaching rate	2005	0.3	IPCC, 2006e
Leaching rate	2006	0.3	IPCC, 2006e
Leaching rate	2007	0.3	IPCC, 2006e
Leaching rate	2008	0.3	IPCC, 2006e
Leaching rate	2009	0.3	IPCC, 2006e
Leaching rate	2010	0.3	IPCC, 2006e
Leaching rate	2011	0.3	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1990	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1991	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1992	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1993	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1994	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1995	0.01 g / g	IPCC, 2006e

Redeposited nitrogen emitted as N2O	1996	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1997	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1998	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	1999	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2000	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2001	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2002	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2003	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2004	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2005	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2006	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2007	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2008	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2009	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2010	0.01 g / g	IPCC, 2006e
Redeposited nitrogen emitted as N2O	2011	0.01 g / g	IPCC, 2006e

Volatilization rate	1990	0.2 g / g	IPCC, 2006e
Volatilization rate	1991	0.2 g / g	IPCC, 2006e
Volatilization rate	1992	0.2 g / g	IPCC, 2006e
Volatilization rate	1993	0.2 g / g	IPCC, 2006e
Volatilization rate	1994	0.2 g / g	IPCC, 2006e
Volatilization rate	1995	0.2 g / g	IPCC, 2006e
Volatilization rate	1996	0.2 g / g	IPCC, 2006e
Volatilization rate	1997	0.2 g / g	IPCC, 2006e
Volatilization rate	1998	0.2 g / g	IPCC, 2006e
Volatilization rate	1999	0.2 g / g	IPCC, 2006e
Volatilization rate	2000	0.2 g / g	IPCC, 2006e
Volatilization rate	2001	0.2 g / g	IPCC, 2006e
Volatilization rate	2002	0.2 g / g	IPCC, 2006e
Volatilization rate	2003	0.2 g / g	IPCC, 2006e
Volatilization rate	2004	0.2 g / g	IPCC, 2006e
Volatilization rate	2005	0.2 g / g	IPCC, 2006e
Volatilization rate	2006	0.2 g / g	IPCC, 2006e
Volatilization rate	2007	0.2 g / g	IPCC, 2006e
Volatilization rate	2008	0.2 g / g	IPCC, 2006e
Volatilization rate	2009	0.2 g / g	IPCC, 2006e
Volatilization rate	2010	0.2 g / g	IPCC, 2006e
Volatilization rate	2011	0.2 g / g	IPCC, 2006e
