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Supplement of

High-resolution ammonia emissions inventories in China from 1980–2012

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Table S1. Parameters used in estimates of annual TAN excretion per animal for each livestock class.

Livestock class	Period ^a (day)	Excrement ^b (Kg/day/ capita)		Nitrogen contents ^c (%)		TAN content ^d (%)
		Urine	Faece	Urine	Faece	
Beef <1year	365	5.00	7.0	0.90	0.38	60
Beef >1year	365	10.00	20.0	0.90	0.38	60
Dairy cows<1year	365	5.00	7.0	0.90	0.38	60
Dairy cows>1year	365	19.00	40.0	0.90	0.38	60
Goat<1year	365	0.66	1.5	1.35	0.75	60
Goat>1year	365	0.75	2.6	1.35	0.75	50
Sheep<1year	365	0.66	1.5	1.35	0.75	60
Sheep>1year	365	0.75	2.6	1.35	0.75	50
Sow	365	5.70	2.1	0.40	0.34	70
Weaner	75	1.20	0.5	0.40	0.34	70
Fattening pig	75	3.20	1.5	0.40	0.34	70
Horse	365	6.50	15.0	1.40	0.20	60
Donkey	365	6.50	15.0	1.40	0.20	60
Mule	365	6.50	15.0	1.40	0.20	60
Camel	365	6.50	15.0	1.40	0.20	60
Laying hen	365	-	0.12	-	1.63	70
Laying duck	365	-	0.13	-	1.10	70
Laying goose	365	-	0.13	-	0.55	70
Broilers	50	-	0.09	-	1.63	70
Meat duck	55	-	0.10	-	1.10	70
Meat goose	70	-	0.10	-	0.55	70

^a Values are derived from CAU (1997); Zhou et al. (2010).

^b Values are derived from CAU (1997); MEPPRC (2001); Wang et al. (2009)

^c Values are derived from CAU (1978).

^d Values are derived from Webb and Misselbrook (2004); EEA (2013)

Table S2. The defined threshold of intensive rearing system for different livestock categories (unit is capita)*.

Beef	Dairy cow	Goat/Sheep	Pig	Laying hen	Broiler
50	100	100	500	2000	50000

* The values are derived from EOCAIY (2007); when the values exceed above threshold, they are defined as intensive system.

Table S3. Interannual emissions (Gg) of typical livestock categories from 1980 to 2012.

	Beef	Dairy cows	Goat	Sheep	Pigs	Horse	Donkey	Mule	Laying hen	Laying duck	Broilers	Meat duck
1980	1327	54	286	398	284	183	129	74	73	24	20	3
1981	1369	35	279	406	275	189	130	74	79	26	22	3
1982	1403	57	267	395	282	191	179	85	94	30	25	3
1983	1437	58	242	367	285	191	179	85	114	36	31	4
1984	1505	60	226	353	299	191	179	85	133	42	36	5
1985	1592	64	220	349	324	191	179	85	158	49	43	5
1986	1680	67	241	367	341	189	184	88	154	50	42	6
1987	1725	75	275	379	339	185	187	90	160	51	44	6
1988	1779	77	321	407	358	182	190	92	182	55	49	6
1989	1824	84	345	418	374	183	191	92	180	56	48	6
1990	1850	98	362	394	398	168	191	93	192	60	52	7
1991	1880	99	353	390	411	175	192	96	172	68	67	8
1992	1925	101	356	386	433	174	189	96	191	77	76	9
1993	2014	104	383	393	459	173	191	98	243	95	95	11
1994	2183	114	436	417	499	162	188	95	327	119	120	13
1995	2328	126	519	461	559	174	185	92	417	146	147	16
1996	2456	134	588	481	498	70	184	92	479	165	167	18
1997	2036	119	457	447	515	154	167	83	502	177	178	20
1998	2170	121	512	474	571	154	167	83	476	159	156	18
1999	2214	125	506	474	587	153	159	75	485	163	165	18
2000	2230	150	541	486	634	153	159	75	548	179	179	20
2001	2220	164	550	486	647	145	153	75	562	184	184	20
2002	2250	204	575	503	666	142	148	72	577	190	188	21
2003	2278	250	635	570	679	139	143	68	618	204	200	23
2004	2292	308	665	607	697	134	138	65	638	209	201	23
2005	2325	321	673	622	739	131	135	63	682	224	218	25
2006	2076	306	661	609	741	112	128	60	684	229	223	26
2007	1680	338	494	513	618	125	121	52	579	212	215	24
2008	1663	340	522	464	661	121	118	52	597	224	227	26
2009	1665	336	509	482	804	121	114	61	608	232	234	27
2010	1657	378	475	491	671	120	113	49	619	240	240	28
2011	1536	371	465	484	662	119	114	46	637	247	246	29
2012	1511	388	388	401	349	113	112	44	684	262	260	31

Figure captions

Figure S1. Annual populations of major livestock animals (cattle (a), sheep (b), pig (c), poultry (d)) in China from 1980 to 2012 (unit: million head); the values are derived from EOCAIY (1981-2013) and EOCAIY (1999-2013).

Figure S2. Annual production of synthetic fertilizers (categorized as urea, ABC and others (AN, AS and others)) from 1980 to 2012 in China; the values are derived from Zhang et al. (2012).

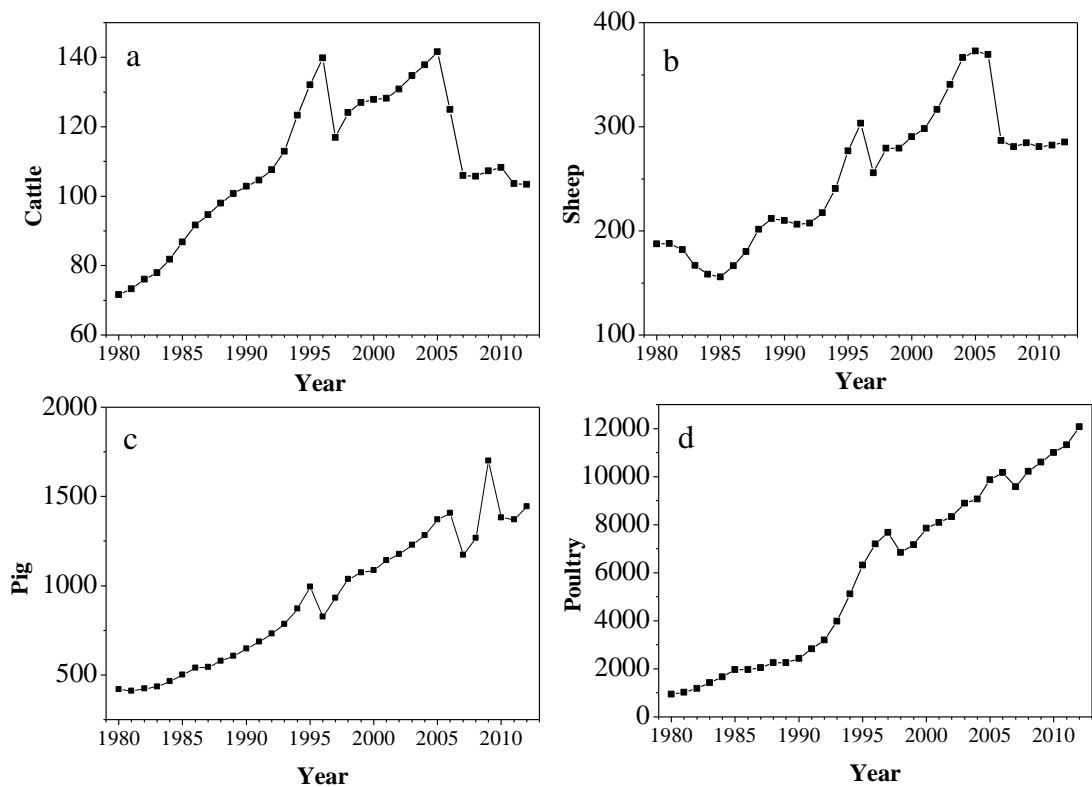


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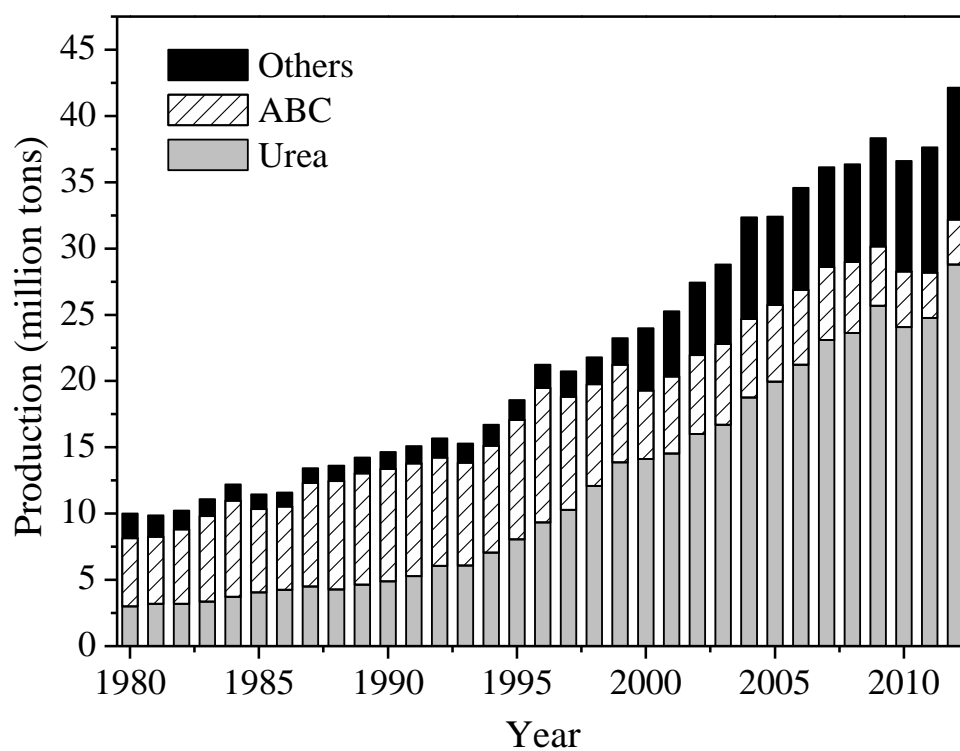


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