C1 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES AND WITH NORMAL IPCC N2O EMISSION VALUES | BASIC VALUES | By Jacob Bugge Version 310308, | Available at www.ppo.bugge.com See terms of use on Sheet A | C1

Note 33

Crop, fodder/food	WRS	WWH	WWB	WBA	RYE	TRI	SBA	SWH	OAT	MCC	MCW	GRO	GCR	CGR	GHP	GRP	CGR0	CONC	
Crop #	22	11	13	10	14	16	1	2	3	5	216	263	260	261	2520	252	2610	9999	Note 1
<NUE/e>	0.64	0.64	0.54	0.60	0.59	0.53	0.60	0.58	0.73	0.62	1.05	0.83	1.33	11.68	0.44	0.81	-2.75	1.00	Note 16
N digestibility, crop/crop part with N	0.84	0.67	0.68	0.66	0.62	0.65	0.65	0.67	0.64	0.62	0.63	0.78	0.80	0.80	0.66	0.78	0.80	0.87	Note 4
<NUE/e> addition before cereal	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.11	29.21	0.00	0.00	-0.81	0.00	Note 34
<NUE/e> addition from straw	0.15	0.11	0.09	0.12	0.17	0.13	0.12	0.07	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Note 34
Recalculated N norm, kg N/ha	144	157	198	147	117	141	118	118	93	140	160	309	199	21	132	132	-87		Note 14

Crop, PPO/biodiesel/bioethanol	WRB	WWHB	WWBB	WBB	RYB	TRB	SBB	SWB	OAB	MCB	
Crop #	229	119	139	109	149	169	19	29	39	59	Note 1
<NUE/e>	0.64	0.64	0.54	0.60	0.59	0.53	0.60	0.58	0.73	0.62	Note 16
N digestibility, crop part with N	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.83	Note 4
<NUE/e> addition before cereal	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Note 34
<NUE/e> addition from straw	0.15	0.11	0.09	0.12	0.17	0.13	0.12	0.07	0.13	0.00	Note 34
Recalculated N norm, kg N/ha	144	157	198	147	117	141	118	118	93	140	Note 14
<NUE/e> amounts from crop res	0.03	0.11	0.09	0.08	0.15	0.12	0.09	0.12	0.11	0.21	0.04	0.04	0.13	1.28	0.15	0.15	-0.30		Note 34
<NUE/e> amounts from N fixation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	11.96	0.00	0.00	-4.05		Note 34

Manure/fertilizer kind, #	None 0	N 1	Cattle manure 2	2	2	2	Pig manure 3	3	3	3	Poultry manure 4	4	4	4	Sheep manure 5	5	Goat manure 6	6	Green 71	Green 72	None 0	None 0	Note 35
Manure handling	None		Liquid	Separated	Deep litter	Grazing	Liquid	Separated	Deep litter	Rooting	Liquid	Separated	Deep litter	Scraping	Deep litter	Grazing	Deep litter	Grazing	high N	low N	None	None	Note 35
#	0	1	21	22	23	24	31	32	33	34	41	42	43	44	53	54	63	64	71	72	0	0	Note 35
Manure+straw, relative	1.000	1.016	1.016	1.159	1.000	1.000	1.024	1.127	1.000	1.000	1.000	1.013	1.000	1.162	1.000	1.162	1.000	1.000	1.000				Note 36
Vol/NH3 House	0.000	0.000	0.080	0.050	0.060	0.000	0.140	0.180	0.250	0.000	0.100	0.250	0.400	0.000	0.150	0.000	0.150	0.000	0.000	0.000			Note 37
Vol/NH3 Store	0.000	0.000	0.022	0.085	0.300	0.000	0.027	0.214	0.400	0.000	0.020	0.150	0.175	0.000	0.150	0.000	0.150	0.000	0.000	0.000			Note 37
% use of field store					20				70				85										Note 38
Vol/NH3 Field	0.000	0.022	0.250	0.250	0.250	0.070	0.250	0.250	0.250	0.070	0.250	0.250	0.250	0.070	0.250	0.070	0.250	0.070	0.250	0.250			Note 37
N efficiency	0.000	1.000	0.700	0.650	0.450	0.450	0.750	0.650	0.650	0.650	0.650	0.650	0.450	0.450	0.450	0.450	0.450	0.450	0.700	0.400			Note 39
N-Vol/NH3 efficiency		1.022	0.933	0.867	0.600	0.484	1.000	0.867	0.867	0.699	0.867	0.867	0.600	0.484	0.600	0.484	0.600	0.484	0.933	0.533			Note 40

Use	Kind	Waste moved	Waste in field	Cattle Dairy	Cattle Beef	Pig Pork	Poultry Meat	Poultry Eggs	Sheep Milk/mutton	Goat Milk/meat	N crop high N	N crop low N	Food/ beverage	Fuel/ other	
Kind #		-1	0	21	22	32	42	43	51	61	71	72	8	9	Note 41
Fodder to food	N eff	NON		0.264	0.227	0.418	0.510	0.241	0.142	0.096					Note 41
Fodder to food	N eff	ORG		0.264	0.146	0.269	0.328	0.272	0.142	0.096					Note 41
Fodder to food	ND eff	NON		0.351	0.310										Note 41
Fodder to food	ND eff	ORG		0.351	0.199										Note 41

Ratios of N2O-N to N according to		IPCC 1996 (current inventories)			IPCC 2006 (newest values, not yet used for inventories)			
Fertilizer/manure		N	Animal	Green	N	Animal	Green	Note 42
Handling/	Slurry and liquid manure	0	0.0010	0	0	0.0050	0	Note 42
house/store	Solid manure and deep litter	0	0.0200	0	0	0.0050	0	Note 42
Application/field		0.0125	0.0125	0.0125	0.0100	0.0100	0.0100	Note 42
Grazing cattle, rooting pigs, craping poultry		0	0.0200	0	0	0.0200	0	Note 42
Grazing, others		0	0.0200	0	0	0.0100	0	Note 42
Volatilisation/NH3		0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	Note 42
Crop residues		0	0.0000	0.0125	0	0.0000	0.0100	Note 42
N fixing crops		0	0.0000	0.0125	0	0.0000	0.0000	Note 42
Leaching		0.0250	0.0250	0.0250	0.0075	0.0075	0.0075	Note 42

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE DAIRY Note 43
AND CONTINUING WITH LIQUID CATTLE MANURE TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Amounts Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Fodder: Uses #21-61 Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	N2O-N emission IPCC 1996 Total	N2O-N emission IPCC 2006 Each	N2O-N emission IPCC 2006 Total	Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							48.1	47.6				2.02	2.95	1.92	2.38	Note 45
Year	N NH3		ACCORDING TO	IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							26.3	26.0				0.26		0.26		Note 45
1-10	N leach		FIRST YEAR	0.0195	0.0163		TOTAL N AMOUNTS IN KG AND % LEACHED							26.7	26.4				0.67		0.20		Note 45
			TOTAL	0.0344	0.0278		TOTAL N AMOUNTS IN KG AND %							101.1	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.0613		0.0495	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	21	71.3	21.0	0.0	0.0	14.5	21	50.2	1.31	1.67	1.25	1.40	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	4.0	0.06	0.0125	0.06	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Dairy	2				3.0	Liquid	0.0	0.30	0.0010	0.09	0.0050	Note 49
Year	N	21	1	47.0	45.9	0	100	11	0	1	34.5	21	20.7	4.9	0.0	0.0	3.8	21	15.8	0.49	0.88	0.46	0.68	Note 47
2	Vol/NH3	Cattle	YES	1.0	11.5	NON	100.00	WWH	1.000	YES	10.0	Cattle	0.67				0.0	Cattle	1.3	0.14	0.0125	0.14	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	3.8	10.0	Dairy	2				3.7	Liquid	0.0	0.25	0.0010	0.07	0.0050	Note 49
Year	N	21	1	14.8	14.4	0	100	11	0	1	10.8	21	6.5	1.5	0.0	0.0	1.2	21	5.0	0.15	0.28	0.15	0.21	Note 47
3	Vol/NH3	Cattle	YES	0.3	3.6	NON	100.00	WWH	1.000	YES	3.1	Cattle	0.67				0.0	Cattle	0.4	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	1.2	3.1	Dairy	2				1.2	Liquid	0.0	0.08	0.0010	0.02	0.0050	Note 49
Year	N	21	1	4.6	4.5	0	100	1	0	1	3.4	21	1.9	0.4	0.0	0.0	0.4	21	1.5	0.05	0.09	0.04	0.07	Note 47
4	Vol/NH3	Cattle	YES	0.1	1.1	NON	100.00	SBA	1.000	YES	1.1	Cattle	0.65				0.0	Cattle	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	0.4	1.1	Dairy	2				0.3	Liquid	0.0	0.03	0.0010	0.01	0.0050	Note 49
Year	N	21	1	1.4	1.3	0	100	10	0	1	1.0	21	0.6	0.1	0.0	0.0	0.1	21	0.4	0.01	0.03	0.01	0.02	Note 47
5	Vol/NH3	Cattle	YES	0.0	0.3	NON	100.00	WBA	1.000	YES	0.3	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.1	0.3	Dairy	2				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.4	0.4	0	100	22	1	1	0.3	21	0.2	0.1	0.0	0.0	0.0	21	0.1	0.00	0.01	0.00	0.01	Note 47
6	Vol/NH3	Cattle	YES	0.0	0.1	NON	100.00	WRS	1.113	YES	0.1	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.113	0.335	0.0	0.1	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.1	0.1	0	100	11	0	1	0.1	21	0.1	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.27	0.08	0.04	0.01	0.00	0.00	0.00	0.00	0.00	1.17	1.52	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.95	2.38	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.95	2.38	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.27	0.08	0.04	0.01	0.00	0.00	0.00	0.00	1.17	Total including natural	4.12	3.55	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE DAIRY Note 43
AND CONTINUING WITH SEPARATED CATTLE MANURE TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											46.7	46.2	2.60	3.55	1.87	2.35 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									26.9	26.6	0.27		0.27	Note 45
1-10 N leach			FIRST YEAR		0.0246		0.0162		TOTAL N AMOUNTS IN KG AND % LEACHED									27.5	27.2	0.69		0.21	Note 45
			TOTAL		0.0414		0.0274		TOTAL N AMOUNTS IN KG AND %									101.1	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.0761		0.0502 Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	21	71.3	21.0	0.0	0.0	14.5	22	50.2	1.76	2.11	1.25	1.39 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	2.5	0.05	0.0125	0.05	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Dairy	2				3.0	Sep	0.0	0.30	0.0105	0.09	0.0050 Note 49
Year	N	22	1	48.5	44.4	0	100	11	0	1	33.3	21	18.5	4.4	0.0	0.0	3.7	22	14.2	0.60	1.04	0.45	0.69 Note 47
2	Vol/NH3	Cattle	YES	4.1	11.1	NON	100.00	WWH	1.000	YES	11.1	Cattle	0.67				0.0	Cattle	0.7	0.16	0.0125	0.16	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	3.7	11.1	Dairy	2				3.6	Sep	0.0	0.28	0.0105	0.08	0.0050 Note 49
Year	N	22	1	13.7	12.5	0	100	11	0	1	9.4	21	5.2	1.2	0.0	0.0	1.0	22	4.0	0.17	0.29	0.13	0.19 Note 47
3	Vol/NH3	Cattle	YES	1.2	3.1	NON	100.00	WWH	1.000	YES	3.1	Cattle	0.67				0.0	Cattle	0.2	0.04	0.0125	0.04	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	1.0	3.1	Dairy	2				1.0	Sep	0.0	0.08	0.0105	0.02	0.0050 Note 49
Year	N	22	1	3.9	3.5	0	100	1	0	1	2.6	21	1.4	0.3	0.0	0.0	0.3	22	1.1	0.05	0.08	0.03	0.05 Note 47
4	Vol/NH3	Cattle	YES	0.3	0.9	NON	100.00	SBA	1.000	YES	1.0	Cattle	0.65				0.0	Cattle	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.3	1.0	Dairy	2				0.2	Sep	0.0	0.02	0.0105	0.01	0.0050 Note 49
Year	N	22	1	1.0	0.9	0	100	10	0	1	0.7	21	0.4	0.1	0.0	0.0	0.1	22	0.3	0.01	0.02	0.01	0.01 Note 47
5	Vol/NH3	Cattle	YES	0.1	0.2	NON	100.00	WBA	1.000	YES	0.3	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.1	0.3	Dairy	2				0.1	Sep	0.0	0.01	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.3	0.2	0	100	22	1	1	0.2	21	0.1	0.0	0.0	0.0	0.0	22	0.1	0.00	0.01	0.00	0.00 Note 47
6	Vol/NH3	Cattle	YES	0.0	0.1	NON	100.00	WRS	1.113	YES	0.0	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.113	0.382	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.1	0.1	0	100	11	0	1	0.1	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.24	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.11	1.44	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.55	2.35	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.55	2.35	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.24	0.07	0.03	0.01	0.00	0.00	0.00	0.00	1.11	Total including natural	4.66	3.46	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE DAIRY Note 43
AND CONTINUING WITH CATTLE DEEP LITTER TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											42.5	39.0	2.87	3.98	1.69	2.28 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									37.1	34.0	0.37		0.37	Note 45
1-10 N leach			FIRST YEAR		0.0298		0.0163		TOTAL N AMOUNTS IN KG AND % LEACHED									29.5	27.0	0.74		0.22	Note 45
			TOTAL		0.0464		0.0266		TOTAL N AMOUNTS IN KG AND %									109.0	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.0937		0.0538 Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	21	71.3	21.0	0.0	0.0	14.5	23	50.2	2.20	2.56	1.25	1.39 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	3.0	0.05	0.0125	0.05	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Dairy	2				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	23	1	54.7	38.3	0	100	11	0	1	28.7	21	11.1	2.6	0.0	0.0	3.2	23	8.5	0.56	1.18	0.37	0.74 Note 47
2	Vol/NH3	Cattle	YES	16.4	9.6	NON	100.00	WWH	1.000	YES	14.5	Cattle	0.67				0.0	Cattle	0.5	0.27	0.0125	0.27	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	3.2	14.5	Dairy	2				3.1	Deep	0.0	0.36	0.0200	0.11	0.0050 Note 49
Year	N	23	1	9.2	6.5	0	100	11	0	1	4.8	21	1.9	0.4	0.0	0.0	0.5	23	1.4	0.09	0.20	0.06	0.12 Note 47
3	Vol/NH3	Cattle	YES	2.8	1.6	NON	100.00	WWH	1.000	YES	2.4	Cattle	0.67				0.0	Cattle	0.1	0.04	0.0125	0.04	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.5	2.4	Dairy	2				0.5	Deep	0.0	0.06	0.0200	0.02	0.0050 Note 49
Year	N	23	1	1.6	1.1	0	100	1	0	1	0.8	21	0.3	0.1	0.0	0.0	0.1	23	0.2	0.02	0.03	0.01	0.02 Note 47
4	Vol/NH3	Cattle	YES	0.5	0.3	NON	100.00	SBA	1.000	YES	0.4	Cattle	0.65				0.0	Cattle	0.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.1	0.4	Dairy	2				0.1	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.2	0.2	0	100	10	0	1	0.1	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Cattle	YES	0.1	0.0	NON	100.00	WBA	1.000	YES	0.1	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.1	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	22	1	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.113	0.572	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.14	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.95	1.22	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.98	2.28	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.98	2.28	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.14	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.95	Total including natural	4.93	3.23	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE DAIRY Note 43
AND CONTINUING WITH MANURE FROM GRAZING CATTLE TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year		Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N							RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED								46.5	46.5	3.38	4.61	2.98	3.40	Note 45
Year	N NH3							ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								6.7	6.7	0.07		0.07		Note 45
1-10	N leach							FIRST YEAR	0.0302	0.0249	TOTAL N AMOUNTS IN KG AND % LEACHED								46.8	46.8	1.17		0.35		Note 45
								TOTAL	0.0538	0.0397	TOTAL N AMOUNTS IN KG AND %								100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																						0.0992		0.0731	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	21	71.3	21.0	0.0	0.0	14.5	24	50.2	2.26	2.59	2.02	2.13	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Dairy	2				3.0	Graz	0.0	0.30	0.0200	0.09	0.0200	Note 49
Year	N	24	1	50.2	50.2	0	100	11	0	1	46.7	21	14.5	3.4	0.0	0.0	5.2	24	11.1	0.87	1.58	0.75	0.99	Note 47
2	Vol/NH3	Cattle	YES	0.0	3.5	NON	100.00	WWH	1.000	YES	27.0	Cattle	0.67				0.0	Cattle	0.0	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	5.2	27.0	Dairy	2				5.1	Graz	0.0	0.68	0.0200	0.20	0.0200	Note 49
Year	N	24	1	11.1	11.1	0	100	11	0	1	10.3	21	3.2	0.8	0.0	0.0	1.1	24	2.5	0.19	0.35	0.17	0.22	Note 47
3	Vol/NH3	Cattle	YES	0.0	0.8	NON	100.00	WWH	1.000	YES	6.0	Cattle	0.67				0.0	Cattle	0.0	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	1.1	6.0	Dairy	2				1.1	Graz	0.0	0.15	0.0200	0.04	0.0200	Note 49
Year	N	24	1	2.5	2.5	0	100	1	0	1	2.3	21	0.7	0.2	0.0	0.0	0.3	24	0.5	0.04	0.08	0.04	0.05	Note 47
4	Vol/NH3	Cattle	YES	0.0	0.2	NON	100.00	SBA	1.000	YES	1.4	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.3	1.4	Dairy	2				0.2	Graz	0.0	0.03	0.0200	0.01	0.0200	Note 49
Year	N	24	1	0.5	0.5	0	100	10	0	1	0.5	21	0.1	0.0	0.0	0.0	0.1	24	0.1	0.01	0.02	0.01	0.01	Note 47
5	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.3	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.1	0.3	Dairy	2				0.0	Graz	0.0	0.01	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.1	0.1	0	100	22	1	1	0.1	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.97	1.25	Note 50

Possible additional non IPCC N2O-N emissions	Value												Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.61	3.40	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.61	3.40	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.97	Total including natural	5.58	4.37	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE BEEF Note 43
AND CONTINUING WITH LIQUID CATTLE MANURE TO PRODUCE WINTER WHEAT FOR CATTLE BEEF Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											45.6	45.1	2.07	3.04	1.98	2.47 Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							27.9	27.6	0.28		0.28	Note 45
1-10	N leach		FIRST YEAR		0.0195		0.0165				TOTAL N AMOUNTS IN KG AND % LEACHED							27.7	27.4	0.69		0.21	Note 45
			TOTAL		0.0355		0.0287				TOTAL N AMOUNTS IN KG AND %							101.1	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.0667		0.0541	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	22	71.3	18.6	0.0	0.0	14.5	21	52.7	1.31	1.67	1.26	1.41 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	4.2	0.06	0.0125	0.06	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Beef	2				3.0	Liquid	0.0	0.30	0.0010	0.09	0.0050 Note 49
Year	N	21	1	49.3	48.2	0	100	11	0	1	36.2	22	21.7	4.5	0.0	0.0	4.0	21	17.2	0.52	0.92	0.49	0.71 Note 47
2	Vol/NH3	Cattle	YES	1.1	12.1	NON	100.00	WWH	1.000	YES	10.5	Cattle	0.67				0.0	Cattle	1.4	0.15	0.0125	0.15	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	4.0	10.5	Beef	2				3.9	Liquid	0.0	0.26	0.0010	0.08	0.0050 Note 49
Year	N	21	1	16.1	15.7	0	100	11	0	1	11.8	22	7.1	1.5	0.0	0.0	1.3	21	5.6	0.17	0.30	0.16	0.23 Note 47
3	Vol/NH3	Cattle	YES	0.4	3.9	NON	100.00	WWH	1.000	YES	3.4	Cattle	0.67				0.0	Cattle	0.4	0.05	0.0125	0.05	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	1.3	3.4	Beef	2				1.3	Liquid	0.0	0.09	0.0010	0.03	0.0050 Note 49
Year	N	21	1	5.2	5.1	0	100	1	0	1	3.8	22	2.1	0.4	0.0	0.0	0.4	21	1.7	0.05	0.10	0.05	0.08 Note 47
4	Vol/NH3	Cattle	YES	0.1	1.3	NON	100.00	SBA	1.000	YES	1.3	Cattle	0.65				0.0	Cattle	0.1	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	0.4	1.3	Beef	2				0.3	Liquid	0.0	0.03	0.0010	0.01	0.0050 Note 49
Year	N	21	1	1.6	1.6	0	100	10	0	1	1.2	22	0.7	0.1	0.0	0.0	0.1	21	0.5	0.02	0.03	0.02	0.02 Note 47
5	Vol/NH3	Cattle	YES	0.0	0.4	NON	100.00	WBA	1.000	YES	0.4	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.1	0.4	Beef	2				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.5	0.5	0	100	22	1	1	0.4	22	0.2	0.1	0.0	0.0	0.1	21	0.2	0.00	0.01	0.00	0.01 Note 47
6	Vol/NH3	Cattle	YES	0.0	0.1	NON	100.00	WRS	1.113	YES	0.1	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.113	0.335	0.1	0.1	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.2	0.2	0	100	11	0	1	0.1	22	0.1	0.0	0.0	0.0	0.0	21	0.1	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.1	0.1	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.28	0.09	0.04	0.01	0.00	0.00	0.00	0.00	0.00	1.20	1.55	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O	
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.04	2.47 Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.04	2.47 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.28	0.09	0.04	0.01	0.00	0.00	0.00	0.00	0.00	1.20 Total including natural	4.24	3.66 Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE BEEF Note 43
AND CONTINUING WITH SEPARATED CATTLE MANURE TO PRODUCE WINTER WHEAT FOR CATTLE BEEF Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Amounts Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Fodder: Uses #21-61 Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	N2O-N emission IPCC 1996 Total	N2O-N emission IPCC 2006 Each	N2O-N emission IPCC 2006 Total	Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED												44.2	43.7	2.68	3.68	1.93	2.42	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										28.4	28.1	0.28		0.28		Note 45
1-10	N leach		FIRST YEAR		0.0249	0.0164		TOTAL N AMOUNTS IN KG AND % LEACHED										28.5	28.2	0.71		0.21		Note 45
			TOTAL		0.0429	0.0283		TOTAL N AMOUNTS IN KG AND %										101.1	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.0833		0.0549	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	22	71.3	18.6	0.0	0.0	14.5	22	52.7	1.79	2.13	1.27	1.40	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	2.6	0.05	0.0125	0.05	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Beef	2				3.0	Sep	0.0	0.30	0.0105	0.09	0.0050	Note 49
Year	N	22	1	50.9	46.6	0	100	11	0	1	34.9	22	19.5	4.0	0.0	0.0	3.9	22	15.4	0.64	1.10	0.47	0.72	Note 47
2	Vol/NH3	Cattle	YES	4.3	11.6	NON	100.00	WWH	1.000	YES	11.6	Cattle	0.67				0.0	Cattle	0.8	0.17	0.0125	0.17	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	3.9	11.6	Beef	2				3.8	Sep	0.0	0.29	0.0105	0.09	0.0050	Note 49
Year	N	22	1	14.9	13.6	0	100	11	0	1	10.2	22	5.7	1.2	0.0	0.0	1.1	22	4.5	0.19	0.32	0.14	0.21	Note 47
3	Vol/NH3	Cattle	YES	1.3	3.4	NON	100.00	WWH	1.000	YES	3.4	Cattle	0.67				0.0	Cattle	0.2	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	1.1	3.4	Beef	2				1.1	Sep	0.0	0.08	0.0105	0.03	0.0050	Note 49
Year	N	22	1	4.4	4.0	0	100	1	0	1	3.0	22	1.5	0.3	0.0	0.0	0.3	22	1.2	0.05	0.09	0.04	0.06	Note 47
4	Vol/NH3	Cattle	YES	0.4	1.0	NON	100.00	SBA	1.000	YES	1.1	Cattle	0.65				0.0	Cattle	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.3	1.1	Beef	2				0.3	Sep	0.0	0.03	0.0105	0.01	0.0050	Note 49
Year	N	22	1	1.2	1.1	0	100	10	0	1	0.8	22	0.4	0.1	0.0	0.0	0.1	22	0.3	0.01	0.03	0.01	0.02	Note 47
5	Vol/NH3	Cattle	YES	0.1	0.3	NON	100.00	WBA	1.000	YES	0.3	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.1	0.3	Beef	2				0.1	Sep	0.0	0.01	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.3	0.3	0	100	22	1	1	0.2	22	0.1	0.0	0.0	0.0	0.0	22	0.1	0.00	0.01	0.00	0.00	Note 47
6	Vol/NH3	Cattle	YES	0.0	0.1	NON	100.00	WRS	1.113	YES	0.1	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.113	0.382	0.0	0.1	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.1	0.1	0	100	11	0	1	0.1	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.443	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.483	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.25	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.13	1.47	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O	
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.68	2.42 Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.68	2.42 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.25	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.13 Total including natural	4.81	3.56 Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE BEEF Note 43
AND CONTINUING WITH CATTLE DEEP LITTER TO PRODUCE WINTER WHEAT FOR CATTLE BEEF Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											40.0	36.5	2.97	4.12	1.73	2.35	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									39.1	35.7	0.39		0.39		Note 45
1-10 N leach			FIRST YEAR		0.0304		0.0164		TOTAL N AMOUNTS IN KG AND % LEACHED									30.5	27.8	0.76		0.23		Note 45
			TOTAL		0.0480		0.0274		TOTAL N AMOUNTS IN KG AND %									109.5	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1030		0.0587	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	22	71.3	18.6	0.0	0.0	14.5	23	52.7	2.25	2.61	1.26	1.41	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	3.2	0.05	0.0125	0.05	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Beef	2				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050	Note 49
Year	N	23	1	57.5	40.2	0	100	11	0	1	30.2	22	11.6	2.4	0.0	0.0	3.3	23	9.2	0.59	1.25	0.39	0.78	Note 47
2	Vol/NH3	Cattle	YES	17.2	10.1	NON	100.00	WWH	1.000	YES	15.2	Cattle	0.67				0.0	Cattle	0.6	0.28	0.0125	0.28	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	3.3	15.2	Beef	2				3.3	Deep	0.0	0.38	0.0200	0.11	0.0050	Note 49
Year	N	23	1	10.0	7.0	0	100	11	0	1	5.3	22	2.0	0.4	0.0	0.0	0.6	23	1.6	0.10	0.22	0.07	0.14	Note 47
3	Vol/NH3	Cattle	YES	3.0	1.8	NON	100.00	WWH	1.000	YES	2.7	Cattle	0.67				0.0	Cattle	0.1	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.6	2.7	Beef	2				0.6	Deep	0.0	0.07	0.0200	0.02	0.0050	Note 49
Year	N	23	1	1.8	1.2	0	100	1	0	1	0.9	22	0.3	0.1	0.0	0.0	0.1	23	0.3	0.02	0.04	0.01	0.02	Note 47
4	Vol/NH3	Cattle	YES	0.5	0.3	NON	100.00	SBA	1.000	YES	0.5	Cattle	0.65				0.0	Cattle	0.0	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.1	0.5	Beef	2				0.1	Deep	0.0	0.01	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.3	0.2	0	100	10	0	1	0.2	22	0.1	0.0	0.0	0.0	0.0	23	0.0	0.00	0.01	0.00	0.00	Note 47
5	Vol/NH3	Cattle	YES	0.1	0.1	NON	100.00	WBA	1.000	YES	0.1	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.1	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	22	1	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.113	0.572	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.614	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.642	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.96	1.24	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.12	2.35	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.12	2.35	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.96	Total including natural	5.07	3.30	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND CATTLE BEEF Note 43
AND CONTINUING WITH MANURE FROM GRAZING CATTLE TO PRODUCE WINTER WHEAT FOR CATTLE BEEF Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							44.2	44.2				3.51	4.80	3.10	3.54	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					7.0	7.0				0.07		0.07		Note 45
1-10 N leach			FIRST YEAR		0.0307		0.0254		TOTAL N AMOUNTS IN KG AND % LEACHED					48.8	48.8				1.22		0.37		Note 45
			TOTAL		0.0559		0.0413		TOTAL N AMOUNTS IN KG AND %					100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.1086		0.0801	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	22	71.3	18.6	0.0	0.0	14.5	24	52.7	2.31	2.64	2.07	2.18 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Cattle	0.84				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Beef	2				3.0	Graz	0.0	0.30	0.0200	0.09	0.0200 Note 49
Year	N	24	1	52.7	52.7	0	100	11	0	1	49.0	22	15.3	3.2	0.0	0.0	5.4	24	12.1	0.92	1.67	0.80	1.05 Note 47
2	Vol/NH3	Cattle	YES	0.0	3.7	NON	100.00	WWH	1.000	YES	28.4	Cattle	0.67				0.0	Cattle	0.0	0.04	0.0125	0.04	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	5.4	28.4	Beef	2				5.3	Graz	0.0	0.71	0.0200	0.21	0.0200 Note 49
Year	N	24	1	12.1	12.1	0	100	11	0	1	11.2	22	3.5	0.7	0.0	0.0	1.2	24	2.8	0.21	0.38	0.18	0.24 Note 47
3	Vol/NH3	Cattle	YES	0.0	0.8	NON	100.00	WWH	1.000	YES	6.5	Cattle	0.67				0.0	Cattle	0.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	1.2	6.5	Beef	2				1.2	Graz	0.0	0.16	0.0200	0.05	0.0200 Note 49
Year	N	24	1	2.8	2.8	0	100	1	0	1	2.6	22	0.7	0.1	0.0	0.0	0.3	24	0.6	0.05	0.09	0.04	0.05 Note 47
4	Vol/NH3	Cattle	YES	0.0	0.2	NON	100.00	SBA	1.000	YES	1.5	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.3	1.5	Beef	2				0.2	Graz	0.0	0.04	0.0200	0.01	0.0200 Note 49
Year	N	24	1	0.6	0.6	0	100	10	0	1	0.6	22	0.2	0.0	0.0	0.0	0.1	24	0.1	0.01	0.02	0.01	0.01 Note 47
5	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.3	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.1	0.3	Beef	2				0.0	Graz	0.0	0.01	0.0200	0.00	0.0200 Note 49
Year	N	24	1	0.1	0.1	0	100	22	1	1	0.1	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.1	Cattle	0.84				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.1	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.16	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.98	1.27	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.80	3.54	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.80	3.54	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.16	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.98	Total including natural	5.78	4.52	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND PIG PORK Note 43
AND CONTINUING WITH LIQUID PIG MANURE TO PRODUCE WINTER WHEAT FOR PIG PORK Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP					TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED						57.1	57.1				1.78	2.51	1.63	2.01	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3						22.4	22.4				0.22		0.22		Note 45
1-10 N leach			FIRST YEAR		0.0195		0.0159	TOTAL N AMOUNTS IN KG AND % LEACHED						20.5	20.5				0.51		0.15		Note 45
			TOTAL		0.0293		0.0234	TOTAL N AMOUNTS IN KG AND %						100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.0440		0.0352	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	32	71.3	29.8	0.0	0.0	14.5	31	41.5	1.30	1.68	1.19	1.36 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Pig	0.84				0.0	Pig	5.8	0.08	0.0125	0.08	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Pork	3				3.0	Liquid	0.0	0.30	0.0010	0.09	0.0050 Note 49
Year	N	31	1	35.7	34.7	0	100	11	0	1	26.0	32	16.7	7.0	0.0	0.0	2.9	31	9.7	0.37	0.64	0.34	0.50 Note 47
2	Vol/NH3	Pig	YES	1.0	8.7	NON	100.00	WWH	1.000	YES	6.4	Pig	0.67				0.0	Pig	1.4	0.11	0.0125	0.11	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.357	2.9	6.4	Pork	3				2.8	Liquid	0.0	0.16	0.0010	0.05	0.0050 Note 49
Year	N	31	1	8.4	8.2	0	100	11	0	1	6.1	32	3.9	1.6	0.0	0.0	0.7	31	2.3	0.09	0.15	0.08	0.12 Note 47
3	Vol/NH3	Pig	YES	0.2	2.0	NON	100.00	WWH	1.000	YES	1.5	Pig	0.67				0.0	Pig	0.3	0.03	0.0125	0.03	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.357	0.7	1.5	Pork	3				0.7	Liquid	0.0	0.04	0.0010	0.01	0.0050 Note 49
Year	N	31	1	2.0	1.9	0	100	1	0	1	1.4	32	0.9	0.4	0.0	0.0	0.2	31	0.5	0.02	0.04	0.02	0.03 Note 47
4	Vol/NH3	Pig	YES	0.1	0.5	NON	100.00	SBA	1.000	YES	0.4	Pig	0.65				0.0	Pig	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.403	0.2	0.4	Pork	3				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.4	0.4	0	100	10	0	1	0.3	32	0.2	0.1	0.0	0.0	0.0	31	0.1	0.00	0.01	0.00	0.01 Note 47
5	Vol/NH3	Pig	YES	0.0	0.1	NON	100.00	WBA	1.000	YES	0.1	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.1	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.1	0.1	0	100	22	1	1	0.1	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Pig	0.84				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.113	0.287	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.403	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.22	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.37	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.51	2.01	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.51	2.01	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.22	0.05	0.02	0.00	0.00	0.00	0.00	0.00	1.06	Total including natural	3.57	3.07	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND PIG PORK Note 43
AND CONTINUING WITH SEPARATED PIG MANURE TO PRODUCE WINTER WHEAT FOR PIG PORK Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED										52.7	52.2	2.02	2.81	1.50	1.93	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								28.1	27.9	0.28		0.28		Note 45
1-10 N leach			FIRST YEAR		0.0235		0.0160		TOTAL N AMOUNTS IN KG AND % LEACHED								20.2	20.0	0.50		0.15		Note 45
			TOTAL		0.0328		0.0225		TOTAL N AMOUNTS IN KG AND %								101.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0533		0.0366	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	32	71.3	29.8	0.0	0.0	14.5	32	41.5	1.62	2.01	1.19	1.37	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Pig	0.84				0.0	Pig	7.5	0.10	0.0125	0.10	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Pork	3				3.0	Sep	0.0	0.30	0.0105	0.09	0.0050	Note 49
Year	N	32	1	34.8	27.4	0	100	11	0	1	20.5	32	11.4	4.8	0.0	0.0	2.3	32	6.7	0.34	0.67	0.26	0.47	Note 47
2	Vol/NH3	Pig	YES	7.5	6.8	NON	100.00	WWH	1.000	YES	6.8	Pig	0.67				0.0	Pig	1.2	0.16	0.0125	0.16	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.443	2.3	6.8	Pork	3				2.2	Sep	0.0	0.17	0.0105	0.05	0.0050	Note 49
Year	N	32	1	5.6	4.4	0	100	11	0	1	3.3	32	1.8	0.8	0.0	0.0	0.4	32	1.1	0.05	0.11	0.04	0.07	Note 47
3	Vol/NH3	Pig	YES	1.2	1.1	NON	100.00	WWH	1.000	YES	1.1	Pig	0.67				0.0	Pig	0.2	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.443	0.4	1.1	Pork	3				0.4	Sep	0.0	0.03	0.0105	0.01	0.0050	Note 49
Year	N	32	1	0.9	0.7	0	100	1	0	1	0.5	32	0.3	0.1	0.0	0.0	0.1	32	0.2	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Pig	YES	0.2	0.2	NON	100.00	SBA	1.000	YES	0.2	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.483	0.1	0.2	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.1	0.1	0	100	10	0	1	0.1	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.0	0.0	0	100	22	1	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Pig	0.84				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.113	0.382	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.443	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.443	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.15	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.95	1.23	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.81	1.93	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.81	1.93	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.15	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	Total including natural	3.76	2.88	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND PIG PORK Note 43
AND CONTINUING WITH PIG DEEP LITTER TO PRODUCE WINTER WHEAT FOR PIG PORK Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											50.5	48.3	2.22	3.03	1.40	1.89 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									36.0	34.5	0.36		0.36	Note 45
1-10 N leach			FIRST YEAR		0.0269		0.0162		TOTAL N AMOUNTS IN KG AND % LEACHED									18.0	17.2	0.45		0.14	Note 45
			TOTAL		0.0353		0.0221		TOTAL N AMOUNTS IN KG AND %									104.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.0600		0.0375 Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	32	71.3	29.8	0.0	0.0	14.5	33	41.5	1.88	2.31	1.17	1.39 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Pig	0.84				0.0	Pig	10.4	0.13	0.0125	0.13	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Pork	3				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	33	1	35.1	21.0	0	100	11	0	1	15.8	32	8.8	3.7	0.0	0.0	1.7	33	5.1	0.30	0.63	0.20	0.44 Note 47
2	Vol/NH3	Pig	YES	14.0	5.3	NON	100.00	WWH	1.000	YES	5.2	Pig	0.67				0.0	Pig	1.3	0.21	0.0125	0.21	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.443	1.7	5.2	Pork	3				1.7	Deep	0.0	0.13	0.0200	0.04	0.0050 Note 49
Year	N	33	1	4.3	2.6	0	100	11	0	1	1.9	32	1.1	0.5	0.0	0.0	0.2	33	0.6	0.04	0.08	0.02	0.05 Note 47
3	Vol/NH3	Pig	YES	1.7	0.6	NON	100.00	WWH	1.000	YES	0.6	Pig	0.67				0.0	Pig	0.2	0.03	0.0125	0.03	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.443	0.2	0.6	Pork	3				0.2	Deep	0.0	0.02	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.5	0.3	0	100	1	0	1	0.2	32	0.1	0.1	0.0	0.0	0.0	33	0.1	0.00	0.01	0.00	0.01 Note 47
4	Vol/NH3	Pig	YES	0.2	0.1	NON	100.00	SBA	1.000	YES	0.1	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.483	0.0	0.1	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.1	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	22	1	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Pig	0.84				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.113	0.382	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.443	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.443	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.483	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	1.17	Note 50

Possible additional non IPCC N2O-N emissions	Value												Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.03	1.89	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.03	1.89	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	Total including natural	3.93	2.79	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND PIG PORK Note 43
AND CONTINUING WITH MANURE FROM ROOTING PIGS TO PRODUCE WINTER WHEAT FOR PIG PORK Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N	RATIO OF N2O-N TO N IN FIRST CROP		TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED														59.5	59.5	3.06	3.98	2.69	3.01	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3													6.0	6.0	0.06		0.06		Note 45
1-10 N leach	FIRST YEAR	0.0281	0.0228	TOTAL N AMOUNTS IN KG AND % LEACHED													34.5	34.5	0.86		0.26		Note 45
	TOTAL	0.0464	0.0351	TOTAL N AMOUNTS IN KG AND %													100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0670		0.0506	Note 46
Year N	1	1	100.0	100.0	0	100	22	1	1	97.8	32	71.3	29.8	0.0	0.0	14.5	34	41.5	2.09	2.41	1.85	1.96	Note 47
1 Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Pig	0.84				0.0	Pig	0.0	0.02	0.0125	0.02	0.0100	Note 48
N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Pork	3				3.0	Root	0.0	0.30	0.0200	0.09	0.0200	Note 49
Year N	34	1	41.5	41.5	0	100	11	0	1	38.6	32	17.3	7.2	0.0	0.0	4.3	34	10.1	0.74	1.19	0.64	0.80	Note 47
2 Vol/NH3	Pig	YES	0.0	2.9	NON	100.00	WWH	1.000	YES	17.0	Pig	0.67				0.0	Pig	0.0	0.03	0.0125	0.03	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.551	4.3	17.0	Pork	3				4.2	Root	0.0	0.42	0.0200	0.13	0.0200	Note 49
Year N	34	1	10.1	10.1	0	100	11	0	1	9.4	32	4.2	1.8	0.0	0.0	1.0	34	2.5	0.18	0.29	0.16	0.19	Note 47
3 Vol/NH3	Pig	YES	0.0	0.7	NON	100.00	WWH	1.000	YES	4.1	Pig	0.67				0.0	Pig	0.0	0.01	0.0125	0.01	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.551	1.0	4.1	Pork	3				1.0	Root	0.0	0.10	0.0200	0.03	0.0200	Note 49
Year N	34	1	2.5	2.5	0	100	1	0	1	2.3	32	1.0	0.4	0.0	0.0	0.3	34	0.6	0.04	0.07	0.04	0.05	Note 47
4 Vol/NH3	Pig	YES	0.0	0.2	NON	100.00	SBA	1.000	YES	1.1	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.583	0.3	1.1	Pork	3				0.2	Root	0.0	0.03	0.0200	0.01	0.0200	Note 49
Year N	34	1	0.6	0.6	0	100	10	0	1	0.5	32	0.2	0.1	0.0	0.0	0.1	34	0.1	0.01	0.02	0.01	0.01	Note 47
5 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.2	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.583	0.1	0.2	Pork	3				0.0	Root	0.0	0.01	0.0200	0.00	0.0200	Note 49
Year N	34	1	0.1	0.1	0	100	22	1	1	0.1	32	0.1	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
6 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Pig	0.84				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.113	0.502	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year N	34	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
7 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.551	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year N	34	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
8 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.551	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year N	34	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
9 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.583	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year N	34	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
10 Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
N leach	Root	0.699	1.000		ORG	1.00	1.000	0.583	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.18	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.01	1.31	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.98	3.01	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.98	3.01	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.18	0.04	0.01	0.00	0.00	0.00	0.00	0.00	1.01	Total including natural	5.00	4.02	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY MEAT Note 43
AND CONTINUING WITH LIQUID POULTRY MANURE TO PRODUCE WINTER WHEAT FOR POULTRY MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							61.9	61.9				1.69	2.39	1.53	1.85	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					16.6	16.6				0.17		0.17		Note 45
1-10 N leach			FIRST YEAR		0.0192		0.0154		TOTAL N AMOUNTS IN KG AND % LEACHED					21.4	21.4				0.54		0.16		Note 45
			TOTAL		0.0279		0.0216		TOTAL N AMOUNTS IN KG AND %					100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.0386		0.0299	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	42	71.3	36.4	0.0	0.0	14.5	41	34.9	1.29	1.65	1.17	1.32 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	3.5	0.06	0.0125	0.06	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Meat	4				3.0	Liquid	0.0	0.30	0.0010	0.09	0.0050 Note 49
Year	N	41	1	31.4	30.8	0	100	11	0	1	23.1	42	12.9	6.6	0.0	0.0	2.6	41	6.3	0.33	0.61	0.29	0.44 Note 47
2	Vol/NH3	Poultry	YES	0.6	7.7	NON	100.00	WWH	1.000	YES	7.7	Poultry	0.67				0.0	Poultry	0.6	0.09	0.0125	0.09	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	2.6	7.7	Meat	4				2.5	Liquid	0.0	0.19	0.0010	0.06	0.0050 Note 49
Year	N	41	1	5.7	5.6	0	100	11	0	1	4.2	42	2.3	1.2	0.0	0.0	0.5	41	1.1	0.06	0.11	0.05	0.08 Note 47
3	Vol/NH3	Poultry	YES	0.1	1.4	NON	100.00	WWH	1.000	YES	1.4	Poultry	0.67				0.0	Poultry	0.1	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	0.5	1.4	Meat	4				0.5	Liquid	0.0	0.03	0.0010	0.01	0.0050 Note 49
Year	N	41	1	1.0	1.0	0	100	1	0	1	0.8	42	0.4	0.2	0.0	0.0	0.1	41	0.2	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Poultry	YES	0.0	0.3	NON	100.00	SBA	1.000	YES	0.3	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.1	0.3	Meat	4				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.2	0.2	0	100	10	0	1	0.1	42	0.1	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	22	1	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.113	0.382	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.17	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.98	1.27	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.39	1.85	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.39	1.85	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.17	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.98	Total including natural	3.37	2.83	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY MEAT Note 43
AND CONTINUING WITH SEPARATED POULTRY MANURE TO PRODUCE WINTER WHEAT FOR POULTRY MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											58.4	58.4	1.84	2.53	1.38	1.75	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							23.2	23.2	0.23		0.23		Note 45
1-10 N leach			FIRST YEAR		0.0227		0.0157				TOTAL N AMOUNTS IN KG AND % LEACHED							18.4	18.4	0.46		0.14		Note 45
			TOTAL		0.0295		0.0204				TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.0434		0.0300	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	42	71.3	36.4	0.0	0.0	14.5	42	34.9	1.53	1.94	1.15	1.35	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	8.7	0.11	0.0125	0.11	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Meat	4				3.0	Sep	0.0	0.30	0.0105	0.09	0.0050	Note 49
Year	N	42	1	26.2	22.3	0	100	11	0	1	16.7	42	9.3	4.7	0.0	0.0	1.8	42	4.6	0.27	0.51	0.21	0.35	Note 47
2	Vol/NH3	Poultry	YES	3.9	5.6	NON	100.00	WWH	1.000	YES	5.6	Poultry	0.67				0.0	Poultry	1.1	0.11	0.0125	0.11	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	1.8	5.6	Meat	4				1.8	Sep	0.0	0.14	0.0105	0.04	0.0050	Note 49
Year	N	42	1	3.4	2.9	0	100	11	0	1	2.2	42	1.2	0.6	0.0	0.0	0.2	42	0.6	0.03	0.07	0.03	0.05	Note 47
3	Vol/NH3	Poultry	YES	0.5	0.7	NON	100.00	WWH	1.000	YES	0.7	Poultry	0.67				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.2	0.7	Meat	4				0.2	Sep	0.0	0.02	0.0105	0.01	0.0050	Note 49
Year	N	42	1	0.4	0.4	0	100	1	0	1	0.3	42	0.1	0.1	0.0	0.0	0.0	42	0.1	0.00	0.01	0.00	0.01	Note 47
4	Vol/NH3	Poultry	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.1	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.1	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.1	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	22	1	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.113	0.382	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	1.18	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.53	1.75	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.53	1.75	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.91	Total including natural	3.44	2.66	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY MEAT Note 43
AND CONTINUING WITH POULTRY DEEP LITTER TO PRODUCE WINTER WHEAT FOR POULTRY MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											55.2	55.0	1.91	2.65	1.29	1.69	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									26.0	25.9	0.26		0.26		Note 45
1-10 N leach			FIRST YEAR		0.0250	0.0160		TOTAL N AMOUNTS IN KG AND % LEACHED									19.2	19.1	0.48		0.14		Note 45
			TOTAL		0.0308	0.0197		TOTAL N AMOUNTS IN KG AND %									100.3	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0479		0.0307	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	42	71.3	36.4	0.0	0.0	14.5	43	34.9	1.68	2.14	1.12	1.37 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	14.0	0.16	0.0125	0.16	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Meat	4				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	43	1	21.2	17.5	0	100	11	0	1	13.1	42	5.1	2.6	0.0	0.0	1.5	43	2.5	0.21	0.47	0.16	0.30 Note 47
2	Vol/NH3	Poultry	YES	3.7	4.4	NON	100.00	WWH	1.000	YES	6.6	Poultry	0.67				0.0	Poultry	1.0	0.09	0.0125	0.09	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	1.5	6.6	Meat	4				1.4	Deep	0.0	0.17	0.0200	0.05	0.0050 Note 49
Year	N	43	1	1.5	1.2	0	100	11	0	1	0.9	42	0.4	0.2	0.0	0.0	0.1	43	0.2	0.02	0.03	0.01	0.02 Note 47
3	Vol/NH3	Poultry	YES	0.3	0.3	NON	100.00	WWH	1.000	YES	0.5	Poultry	0.67				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.1	0.5	Meat	4				0.1	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.1	0.1	0	100	1	0	1	0.1	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
4	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	22	1	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.113	0.572	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.09	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2.65	1.69	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2.65	1.69	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	Total including natural	3.49	2.53	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY MEAT Note 43
AND CONTINUING WITH MANURE FROM SCRAPING POULTRY TO PRODUCE WINTER WHEAT FOR POULTRY MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							61.0	61.0				2.60	3.50	2.26	2.56	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					5.0	5.0				0.05		0.05		Note 45
1-10 N leach			FIRST YEAR		0.0266		0.0213		TOTAL N AMOUNTS IN KG AND % LEACHED					33.9	33.9				0.85		0.25		Note 45
			TOTAL		0.0408		0.0299		TOTAL N AMOUNTS IN KG AND %					100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.0573		0.0420	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	42	71.3	36.4	0.0	0.0	14.5	44	34.9	1.96	2.28	1.71	1.83 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Meat	4				3.0	Scrap	0.0	0.30	0.0200	0.09	0.0200 Note 49
Year	N	44	1	34.9	34.9	0	100	11	0	1	32.5	42	10.1	5.2	0.0	0.0	3.6	44	5.0	0.55	1.04	0.47	0.63 Note 47
2	Vol/NH3	Poultry	YES	0.0	2.4	NON	100.00	WWH	1.000	YES	18.8	Poultry	0.67				0.0	Poultry	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	3.6	18.8	Meat	4				3.5	Scrap	0.0	0.47	0.0200	0.14	0.0200 Note 49
Year	N	44	1	5.0	5.0	0	100	11	0	1	4.6	42	1.4	0.7	0.0	0.0	0.5	44	0.7	0.08	0.15	0.07	0.09 Note 47
3	Vol/NH3	Poultry	YES	0.0	0.3	NON	100.00	WWH	1.000	YES	2.7	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	0.5	2.7	Meat	4				0.5	Scrap	0.0	0.07	0.0200	0.02	0.0200 Note 49
Year	N	44	1	0.7	0.7	0	100	1	0	1	0.7	42	0.2	0.1	0.0	0.0	0.1	44	0.1	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.4	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.711	0.1	0.4	Meat	4				0.1	Scrap	0.0	0.01	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.1	0.1	0	100	10	0	1	0.1	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.1	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	22	1	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	1.16	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.50	2.56	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.50	2.56	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.90	Total including natural	4.39	3.46	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY EGGS Note 43
AND CONTINUING WITH LIQUID POULTRY MANURE TO PRODUCE WINTER WHEAT FOR POULTRY EGGS Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP								TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							43.8	43.8	2.01	3.00	1.91	2.41	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							27.6	27.6	0.28		0.28		Note 45
1-10 N leach			FIRST YEAR		0.0196		0.0166				TOTAL N AMOUNTS IN KG AND % LEACHED							28.6	28.6	0.72		0.21		Note 45
			TOTAL		0.0350		0.0280				TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.0686		0.0549	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	43	71.3	17.2	0.0	0.0	14.5	41	54.1	1.31	1.69	1.26	1.43	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	5.4	0.08	0.0125	0.08	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Eggs	4				3.0	Liquid	0.0	0.30	0.0010	0.09	0.0050	Note 49
Year	N	41	1	48.7	47.7	0	100	11	0	1	35.8	43	19.9	4.8	0.0	0.0	4.0	41	15.1	0.51	0.95	0.47	0.71	Note 47
2	Vol/NH3	Poultry	YES	1.0	11.9	NON	100.00	WWH	1.000	YES	11.9	Poultry	0.67				0.0	Poultry	1.5	0.14	0.0125	0.14	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	4.0	11.9	Eggs	4				3.9	Liquid	0.0	0.30	0.0010	0.09	0.0050	Note 49
Year	N	41	1	13.6	13.3	0	100	11	0	1	10.0	43	5.6	1.3	0.0	0.0	1.1	41	4.2	0.14	0.27	0.13	0.20	Note 47
3	Vol/NH3	Poultry	YES	0.3	3.3	NON	100.00	WWH	1.000	YES	3.3	Poultry	0.67				0.0	Poultry	0.4	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	1.1	3.3	Eggs	4				1.1	Liquid	0.0	0.08	0.0010	0.02	0.0050	Note 49
Year	N	41	1	3.8	3.7	0	100	1	0	1	2.8	43	1.4	0.3	0.0	0.0	0.3	41	1.1	0.04	0.08	0.04	0.05	Note 47
4	Vol/NH3	Poultry	YES	0.1	0.9	NON	100.00	SBA	1.000	YES	1.0	Poultry	0.65				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.3	1.0	Eggs	4				0.2	Liquid	0.0	0.03	0.0010	0.01	0.0050	Note 49
Year	N	41	1	1.0	1.0	0	100	10	0	1	0.7	43	0.4	0.1	0.0	0.0	0.1	41	0.3	0.01	0.02	0.01	0.01	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.2	NON	100.00	WBA	1.000	YES	0.3	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.1	0.3	Eggs	4				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.3	0.3	0	100	22	1	1	0.2	43	0.1	0.0	0.0	0.0	0.0	41	0.1	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Poultry	YES	0.0	0.1	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.113	0.382	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.1	0.1	0	100	11	0	1	0.1	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.26	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.14	1.47	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.00	2.41	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.00	2.41	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.26	0.07	0.03	0.01	0.00	0.00	0.00	0.00	1.14	Total including natural	4.14	3.54	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY EGGS Note 43
AND CONTINUING WITH SEPARATED POULTRY MANURE TO PRODUCE WINTER WHEAT FOR POULTRY EGGS Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP					TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED						39.6	39.6	2.24	3.19	1.64	2.18	Note 45	
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3						37.6	37.6	0.38		0.38		Note 45	
1-10 N leach			FIRST YEAR		0.0250	0.0171		TOTAL N AMOUNTS IN KG AND % LEACHED						22.8	22.8	0.57		0.17		Note 45	
			TOTAL		0.0372	0.0255		TOTAL N AMOUNTS IN KG AND %						100.0	100.0					Note 45	
N2O-N/N in food/beverage/fuel/other																			0.0805		0.0552	Note 46	
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	43	71.3	17.2	0.0	0.0	14.5	42	54.1	1.69	2.14	1.22	1.47 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	13.5	0.16	0.0125	0.16	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Eggs	4				3.0	Sep	0.0	0.30	0.0105	0.09	0.0050 Note 49
Year	N	42	1	40.6	34.5	0	100	11	0	1	25.9	43	14.4	3.5	0.0	0.0	2.9	42	10.9	0.44	0.83	0.33	0.57 Note 47
2	Vol/NH3	Poultry	YES	6.1	8.6	NON	100.00	WWH	1.000	YES	8.6	Poultry	0.67				0.0	Poultry	2.7	0.17	0.0125	0.17	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	2.9	8.6	Eggs	4				2.8	Sep	0.0	0.22	0.0105	0.06	0.0050 Note 49
Year	N	42	1	8.2	7.0	0	100	11	0	1	5.2	43	2.9	0.7	0.0	0.0	0.6	42	2.2	0.09	0.17	0.07	0.12 Note 47
3	Vol/NH3	Poultry	YES	1.2	1.7	NON	100.00	WWH	1.000	YES	1.7	Poultry	0.67				0.0	Poultry	0.6	0.04	0.0125	0.04	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.6	1.7	Eggs	4				0.6	Sep	0.0	0.04	0.0105	0.01	0.0050 Note 49
Year	N	42	1	1.7	1.4	0	100	1	0	1	1.1	43	0.5	0.1	0.0	0.0	0.1	42	0.4	0.02	0.03	0.01	0.02 Note 47
4	Vol/NH3	Poultry	YES	0.2	0.4	NON	100.00	SBA	1.000	YES	0.4	Poultry	0.65				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.1	0.4	Eggs	4				0.1	Sep	0.0	0.01	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.3	0.3	0	100	10	0	1	0.2	43	0.1	0.0	0.0	0.0	0.0	42	0.1	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.1	NON	100.00	WBA	1.000	YES	0.1	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.1	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.1	0.0	0	100	22	1	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.113	0.382	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.443	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	42	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.483	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.19	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.01	1.31	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.19	2.18	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.19	2.18	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.19	0.04	0.01	0.00	0.00	0.00	0.00	0.00	1.01	Total including natural	4.20	3.19	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY EGGS Note 43
AND CONTINUING WITH POULTRY DEEP LITTER TO PRODUCE WINTER WHEAT FOR POULTRY EGGS Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											36.3	36.1	2.31	3.30	1.46	2.04 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									40.6	40.4	0.41		0.41	Note 45
1-10 N leach			FIRST YEAR		0.0285		0.0176		TOTAL N AMOUNTS IN KG AND % LEACHED									23.6	23.4	0.59		0.18	Note 45
			TOTAL		0.0385		0.0238		TOTAL N AMOUNTS IN KG AND %									100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.0909		0.0562 Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	43	71.3	17.2	0.0	0.0	14.5	43	54.1	1.91	2.45	1.18	1.51 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	21.6	0.24	0.0125	0.24	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Eggs	4				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	43	1	32.9	27.1	0	100	11	0	1	20.3	43	7.8	1.9	0.0	0.0	2.2	43	6.0	0.35	0.76	0.25	0.47 Note 47
2	Vol/NH3	Poultry	YES	5.8	6.8	NON	100.00	WWH	1.000	YES	10.3	Poultry	0.67				0.0	Poultry	2.4	0.15	0.0125	0.15	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	2.2	10.3	Eggs	4				2.2	Deep	0.0	0.26	0.0200	0.08	0.0050 Note 49
Year	N	43	1	3.6	3.0	0	100	11	0	1	2.2	43	0.9	0.2	0.0	0.0	0.2	43	0.7	0.04	0.08	0.03	0.05 Note 47
3	Vol/NH3	Poultry	YES	0.6	0.7	NON	100.00	WWH	1.000	YES	1.1	Poultry	0.67				0.0	Poultry	0.3	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.2	1.1	Eggs	4				0.2	Deep	0.0	0.03	0.0200	0.01	0.0050 Note 49
Year	N	43	1	0.4	0.3	0	100	1	0	1	0.2	43	0.1	0.0	0.0	0.0	0.0	43	0.1	0.00	0.01	0.00	0.01 Note 47
4	Vol/NH3	Poultry	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.1	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.1	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	22	1	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.113	0.572	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.614	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.642	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	1.15	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.30	2.04	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.30	2.04	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.89	Total including natural	4.19	2.93	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND POULTRY EGGS Note 43
AND CONTINUING WITH MANURE FROM SCRAPING POULTRY TO PRODUCE WINTER WHEAT FOR POULTRY EGGS Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED										43.6	43.6	3.54	4.84	3.13	3.57	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								7.0	7.0	0.07		0.07		Note 45
1-10 N leach			FIRST YEAR		0.0311		0.0258		TOTAL N AMOUNTS IN KG AND % LEACHED								49.3	49.3	1.23		0.37		Note 45
			TOTAL		0.0564		0.0416		TOTAL N AMOUNTS IN KG AND %								100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1110		0.0819	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	43	71.3	17.2	0.0	0.0	14.5	44	54.1	2.34	2.66	2.10	2.21 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Poultry	0.84				0.0	Poultry	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Eggs	4				3.0	Scrap	0.0	0.30	0.0200	0.09	0.0200 Note 49
Year	N	44	1	54.1	54.1	0	100	11	0	1	50.3	43	15.6	3.8	0.0	0.0	5.6	44	11.9	0.93	1.70	0.81	1.07 Note 47
2	Vol/NH3	Poultry	YES	0.0	3.8	NON	100.00	WWH	1.000	YES	29.1	Poultry	0.67				0.0	Poultry	0.0	0.04	0.0125	0.04	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	5.6	29.1	Eggs	4				5.4	Scrap	0.0	0.73	0.0200	0.22	0.0200 Note 49
Year	N	44	1	11.9	11.9	0	100	11	0	1	11.0	43	3.4	0.8	0.0	0.0	1.2	44	2.6	0.21	0.37	0.18	0.23 Note 47
3	Vol/NH3	Poultry	YES	0.0	0.8	NON	100.00	WWH	1.000	YES	6.4	Poultry	0.67				0.0	Poultry	0.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	1.2	6.4	Eggs	4				1.2	Scrap	0.0	0.16	0.0200	0.05	0.0200 Note 49
Year	N	44	1	2.6	2.6	0	100	1	0	1	2.4	43	0.7	0.2	0.0	0.0	0.3	44	0.5	0.04	0.08	0.04	0.05 Note 47
4	Vol/NH3	Poultry	YES	0.0	0.2	NON	100.00	SBA	1.000	YES	1.4	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.711	0.3	1.4	Eggs	4				0.2	Scrap	0.0	0.04	0.0200	0.01	0.0200 Note 49
Year	N	44	1	0.5	0.5	0	100	10	0	1	0.5	43	0.1	0.0	0.0	0.0	0.1	44	0.1	0.01	0.02	0.01	0.01 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.3	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.712	0.1	0.3	Eggs	4				0.0	Scrap	0.0	0.01	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.1	0.1	0	100	22	1	1	0.1	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.1	Poultry	0.84				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.1	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.16	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.98	1.27	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.84	3.57	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.84	3.57	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.16	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.98	Total including natural	5.82	4.55	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND SHEEP MILK/MUTTON Note 43
AND CONTINUING WITH SHEEP DEEP LITTER TO PRODUCE WINTER WHEAT FOR SHEEP MILK/MUTTON Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											39.4	35.1	4.04	5.63	2.41	3.00 Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							15.8	14.0	0.16		0.16	Note 45
1-10	N leach		FIRST YEAR		0.0316		0.0172				TOTAL N AMOUNTS IN KG AND % LEACHED							57.3	50.9	1.43		0.43	Note 45
			TOTAL		0.0656		0.0350				TOTAL N AMOUNTS IN KG AND %							112.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1427		0.0761	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	51	71.3	10.1	0.0	0.0	14.5	53	61.2	2.30	2.71	1.28	1.48 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Sheep	0.84				0.0	Sheep	9.2	0.11	0.0125	0.11	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Milk/mutt	5				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	53	1	60.4	60.4	0	100	11	0	1	60.4	51	23.3	3.3	0.0	0.0	6.7	53	20.0	1.18	1.97	0.77	1.03 Note 47
2	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	30.4	Sheep	0.67				0.0	Sheep	3.0	0.03	0.0125	0.03	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	6.7	30.4	Milk/mutt	5				6.5	Deep	0.0	0.76	0.0200	0.23	0.0050 Note 49
Year	N	53	1	19.7	19.7	0	100	11	0	1	19.7	51	7.6	1.1	0.0	0.0	2.2	53	6.5	0.38	0.64	0.25	0.34 Note 47
3	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	9.9	Sheep	0.67				0.0	Sheep	1.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	2.2	9.9	Milk/mutt	5				2.1	Deep	0.0	0.25	0.0200	0.07	0.0050 Note 49
Year	N	53	1	6.5	6.5	0	100	1	0	1	6.5	51	2.3	0.3	0.0	0.0	0.7	53	2.0	0.12	0.21	0.08	0.11 Note 47
4	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	3.4	Sheep	0.65				0.0	Sheep	0.3	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.7	3.4	Milk/mutt	5				0.6	Deep	0.0	0.08	0.0200	0.03	0.0050 Note 49
Year	N	53	1	2.0	2.0	0	100	10	0	1	2.0	51	0.7	0.1	0.0	0.0	0.2	53	0.6	0.04	0.06	0.02	0.03 Note 47
5	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	1.0	Sheep	0.66				0.0	Sheep	0.1	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.2	1.0	Milk/mutt	5				0.2	Deep	0.0	0.03	0.0200	0.01	0.0050 Note 49
Year	N	53	1	0.6	0.6	0	100	22	1	1	0.6	51	0.3	0.0	0.0	0.0	0.1	53	0.2	0.01	0.02	0.01	0.01 Note 47
6	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.3	Sheep	0.84				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.113	0.572	0.1	0.3	Milk/mutt	5				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	53	1	0.2	0.2	0	100	11	0	1	0.2	51	0.1	0.0	0.0	0.0	0.0	53	0.1	0.00	0.01	0.00	0.00 Note 47
7	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.1	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	0.0	0.1	Milk/mutt	5				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	53	1	0.1	0.1	0	100	11	0	1	0.1	51	0.0	0.0	0.0	0.0	0.0	53	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	0.0	0.0	Milk/mutt	5				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	53	1	0.0	0.0	0	100	1	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	53	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Sheep	0.65				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.0	0.0	Milk/mutt	5				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	53	1	0.0	0.0	0	100	10	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	53	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Sheep	0.66				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.0	0.0	Milk/mutt	5				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.23	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1.11	1.44	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	5.63	3.00	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	5.63	3.00	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.23	0.07	0.03	0.01	0.00	0.00	0.00	0.00	1.11	Total including natural	6.74	4.12	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND SHEEP MILK/MUTTON Note 43
AND CONTINUING WITH MANURE FROM GRAZING SHEEP TO PRODUCE WINTER WHEAT FOR SHEEP MILK/MUTTON Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Amounts Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Fodder: Uses #21-61 Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	N2O-N emission IPCC 1996 Total	N2O-N emission IPCC 2006 Each	N2O-N emission IPCC 2006 Total	Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP		TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED												36.3	36.3	3.93	5.40	1.87	2.37	Note 45
Year	N NH3		ACCORDING TO	IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										7.9	7.9	0.08		0.08		Note 45
1-10	N leach		FIRST YEAR	0.0327	0.0131		TOTAL N AMOUNTS IN KG AND % LEACHED										55.8	55.8	1.40		0.42		Note 45
			TOTAL	0.0630	0.0276		TOTAL N AMOUNTS IN KG AND %										100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1489		0.0653	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	51	71.3	10.1	0.0	0.0	14.5	54	61.2	2.48	2.81	1.02	1.13	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Sheep	0.84				0.0	Sheep	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Milk/mutt	5				3.0	Graz	0.0	0.30	0.0200	0.09	0.0000	Note 49
Year	N	54	1	61.2	61.2	0	100	11	0	1	56.9	51	17.7	2.5	0.0	0.0	6.3	54	15.2	1.09	1.96	0.65	0.94	Note 47
2	Vol/NH3	Sheep	YES	0.0	4.3	NON	100.00	WWH	1.000	YES	32.9	Sheep	0.67				0.0	Sheep	0.0	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	6.3	32.9	Milk/mutt	5				6.2	Graz	0.0	0.82	0.0200	0.25	0.0000	Note 49
Year	N	54	1	15.2	15.2	0	100	11	0	1	14.1	51	4.4	0.6	0.0	0.0	1.6	54	3.8	0.27	0.49	0.16	0.23	Note 47
3	Vol/NH3	Sheep	YES	0.0	1.1	NON	100.00	WWH	1.000	YES	8.2	Sheep	0.67				0.0	Sheep	0.0	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	1.6	8.2	Milk/mutt	5				1.5	Graz	0.0	0.20	0.0200	0.06	0.0000	Note 49
Year	N	54	1	3.8	3.8	0	100	1	0	1	3.5	51	1.0	0.1	0.0	0.0	0.4	54	0.9	0.07	0.12	0.04	0.06	Note 47
4	Vol/NH3	Sheep	YES	0.0	0.3	NON	100.00	SBA	1.000	YES	2.1	Sheep	0.65				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.4	2.1	Milk/mutt	5				0.3	Graz	0.0	0.05	0.0200	0.02	0.0000	Note 49
Year	N	54	1	0.9	0.9	0	100	10	0	1	0.8	51	0.2	0.0	0.0	0.0	0.1	54	0.2	0.01	0.03	0.01	0.01	Note 47
5	Vol/NH3	Sheep	YES	0.0	0.1	NON	100.00	WBA	1.000	YES	0.5	Sheep	0.66				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.1	0.5	Milk/mutt	5				0.1	Graz	0.0	0.01	0.0200	0.00	0.0000	Note 49
Year	N	54	1	0.2	0.2	0	100	22	1	1	0.2	51	0.1	0.0	0.0	0.0	0.0	54	0.1	0.00	0.01	0.00	0.00	Note 47
6	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.1	Sheep	0.84				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.1	Milk/mutt	5				0.0	Graz	0.0	0.00	0.0200	0.00	0.0000	Note 49
Year	N	54	1	0.1	0.1	0	100	11	0	1	0.1	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Milk/mutt	5				0.0	Graz	0.0	0.00	0.0200	0.00	0.0000	Note 49
Year	N	54	1	0.0	0.0	0	100	11	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Milk/mutt	5				0.0	Graz	0.0	0.00	0.0200	0.00	0.0000	Note 49
Year	N	54	1	0.0	0.0	0	100	1	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Sheep	0.65				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Milk/mutt	5				0.0	Graz	0.0	0.00	0.0200	0.00	0.0000	Note 49
Year	N	54	1	0.0	0.0	0	100	10	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Sheep	0.66				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Milk/mutt	5				0.0	Graz	0.0	0.00	0.0200	0.00	0.0000	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.18	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.02	1.32	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	5.40	2.37	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	5.40	2.37	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.18	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.02 Total including natural	6.42	3.39	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND GOAT MILK/MEAT Note 43
AND CONTINUING WITH GOAT DEEP LITTER TO PRODUCE WINTER WHEAT FOR GOAT MILK/MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED												29.0	26.0	3.38	4.78	1.95	2.68 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							44.1	39.6	0.44		0.44	Note 45
1-10 N leach			FIRST YEAR		0.0324		0.0175				TOTAL N AMOUNTS IN KG AND % LEACHED							38.3	34.3	0.96		0.29	Note 45
			TOTAL		0.0557		0.0313				TOTAL N AMOUNTS IN KG AND %							111.4	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1648		0.0925 Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	61	71.3	6.8	0.0	0.0	14.5	63	64.4	2.36	2.77	1.29	1.50 Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Goat	0.84				0.0	Goat	9.7	0.12	0.0125	0.12	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Milk/meat	6				3.0	Deep	0.0	0.30	0.0200	0.09	0.0050 Note 49
Year	N	63	1	63.7	54.1	0	100	11	0	1	40.6	61	15.6	1.5	0.0	0.0	4.5	63	14.1	0.80	1.57	0.52	0.93 Note 47
2	Vol/NH3	Goat	YES	9.5	13.5	NON	100.00	WWH	1.000	YES	20.4	Goat	0.67				0.0	Goat	2.1	0.25	0.0125	0.25	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	4.5	20.4	Milk/meat	6				4.4	Deep	0.0	0.51	0.0200	0.15	0.0050 Note 49
Year	N	63	1	14.0	11.9	0	100	11	0	1	8.9	61	3.4	0.3	0.0	0.0	1.0	63	3.1	0.18	0.34	0.11	0.20 Note 47
3	Vol/NH3	Goat	YES	2.1	3.0	NON	100.00	WWH	1.000	YES	4.5	Goat	0.67				0.0	Goat	0.5	0.06	0.0125	0.06	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	1.0	4.5	Milk/meat	6				1.0	Deep	0.0	0.11	0.0200	0.03	0.0050 Note 49
Year	N	63	1	3.1	2.6	0	100	1	0	1	2.0	61	0.7	0.1	0.0	0.0	0.2	63	0.6	0.04	0.08	0.02	0.04 Note 47
4	Vol/NH3	Goat	YES	0.5	0.7	NON	100.00	SBA	1.000	YES	1.0	Goat	0.65				0.0	Goat	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.2	1.0	Milk/meat	6				0.2	Deep	0.0	0.03	0.0200	0.01	0.0050 Note 49
Year	N	63	1	0.6	0.5	0	100	10	0	1	0.4	61	0.1	0.0	0.0	0.0	0.0	63	0.1	0.01	0.02	0.00	0.01 Note 47
5	Vol/NH3	Goat	YES	0.1	0.1	NON	100.00	WBA	1.000	YES	0.2	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.0	0.2	Milk/meat	6				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	63	1	0.1	0.1	0	100	22	1	1	0.1	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.0	Goat	0.84				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.113	0.572	0.0	0.0	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	63	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	0.0	0.0	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	63	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.614	0.0	0.0	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	63	1	0.0	0.0	0	100	1	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Goat	0.65				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.0	0.0	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	63	1	0.0	0.0	0	100	10	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.642	0.0	0.0	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.20	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.34	Note 50

Possible additional non IPCC N2O-N emissions	Value												Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.78	2.68	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.78	2.68	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.20	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.03	Total including natural	5.81	3.72	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER RAPESEED FOR OIL AND GOAT MILK/MEAT Note 43
AND CONTINUING WITH MANURE FROM GRAZING GOATS TO PRODUCE WINTER WHEAT FOR GOAT MILK/MEAT Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total N			RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											32.7	32.7	4.12	5.68	2.80	3.33	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							8.3	8.3	0.08		0.08		Note 45
1-10 N leach			FIRST YEAR		0.0335		0.0207				TOTAL N AMOUNTS IN KG AND % LEACHED							59.0	59.0	1.47		0.44		Note 45
			TOTAL		0.0662		0.0388				TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1736		0.1018	Note 46
Year	N	1	1	100.0	100.0	0	100	22	1	1	97.8	61	71.3	6.8	0.0	0.0	14.5	64	64.4	2.55	2.87	1.66	1.77	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WRS	1.113	YES	12.0	Goat	0.84				0.0	Goat	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.113	0.271	14.5	12.0	Milk/meat	6				3.0	Graz	0.0	0.30	0.0200	0.09	0.0100	Note 49
Year	N	64	1	64.4	64.4	0	100	11	0	1	59.9	61	18.6	1.8	0.0	0.0	6.6	64	16.8	1.17	2.08	0.85	1.15	Note 47
2	Vol/NH3	Goat	YES	0.0	4.5	NON	100.00	WWH	1.000	YES	34.7	Goat	0.67				0.0	Goat	0.0	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	6.6	34.7	Milk/meat	6				6.5	Graz	0.0	0.87	0.0200	0.26	0.0100	Note 49
Year	N	64	1	16.8	16.8	0	100	11	0	1	15.7	61	4.9	0.5	0.0	0.0	1.7	64	4.4	0.31	0.54	0.22	0.30	Note 47
3	Vol/NH3	Goat	YES	0.0	1.2	NON	100.00	WWH	1.000	YES	9.1	Goat	0.67				0.0	Goat	0.0	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	1.7	9.1	Milk/meat	6				1.7	Graz	0.0	0.23	0.0200	0.07	0.0100	Note 49
Year	N	64	1	4.4	4.4	0	100	1	0	1	4.1	61	1.2	0.1	0.0	0.0	0.5	64	1.1	0.08	0.14	0.06	0.08	Note 47
4	Vol/NH3	Goat	YES	0.0	0.3	NON	100.00	SBA	1.000	YES	2.4	Goat	0.65				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.5	2.4	Milk/meat	6				0.4	Graz	0.0	0.06	0.0200	0.02	0.0100	Note 49
Year	N	64	1	1.1	1.1	0	100	10	0	1	1.0	61	0.3	0.0	0.0	0.0	0.1	64	0.3	0.02	0.03	0.01	0.02	Note 47
5	Vol/NH3	Goat	YES	0.0	0.1	NON	100.00	WBA	1.000	YES	0.6	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.1	0.6	Milk/meat	6				0.1	Graz	0.0	0.01	0.0200	0.00	0.0100	Note 49
Year	N	64	1	0.3	0.3	0	100	22	1	1	0.2	61	0.1	0.0	0.0	0.0	0.0	64	0.1	0.00	0.01	0.00	0.00	Note 47
6	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WRS	1.113	YES	0.1	Goat	0.84				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.113	0.655	0.0	0.1	Milk/meat	6				0.0	Graz	0.0	0.00	0.0200	0.00	0.0100	Note 49
Year	N	64	1	0.1	0.1	0	100	11	0	1	0.1	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Milk/meat	6				0.0	Graz	0.0	0.00	0.0200	0.00	0.0100	Note 49
Year	N	64	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.689	0.0	0.0	Milk/meat	6				0.0	Graz	0.0	0.00	0.0200	0.00	0.0100	Note 49
Year	N	64	1	0.0	0.0	0	100	1	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Goat	0.65				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.711	0.0	0.0	Milk/meat	6				0.0	Graz	0.0	0.00	0.0200	0.00	0.0100	Note 49
Year	N	64	1	0.0	0.0	0	100	10	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.712	0.0	0.0	Milk/meat	6				0.0	Graz	0.0	0.00	0.0200	0.00	0.0100	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.77	0.19	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.35	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	5.68	3.33	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	5.68	3.33	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.77	0.19	0.05	0.02	0.00	0.00	0.00	0.00	0.00	1.04	Total including natural	6.72	4.37	Note 51

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N CHAIN STARTING WITH NO MANURE TO PRODUCE CLOVER GRASS WITHOUT MANURE FOR HIGH N CROP Note 43
AND CONTINUING WITH GREEN MANURE HIGH N TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year		Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED													1211	27.1	85	139	81	110	Note 45
Year	N NH3	ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											1838	41.2	18		18		Note 45
1-10	N leach	FIRST YEAR		0.0036	0.0036		TOTAL N AMOUNTS IN KG AND % LEACHED											1414	31.7	35		11		Note 45
		TOTAL		0.0340	0.0269		TOTAL N AMOUNTS IN KG AND %											4462	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1147		0.0910	Note 46
Year	N	0	1	0.0	0.0	0	100	2610	1	1	270.2	71	0.0	0.0	4089.5	0.0	0.0	71	4089.5	14.71	14.71	14.71	14.71	Note 47
1	Vol/NH3	None	YES	0.0	0.0	NON	100.00	CGR0	1.296	YES	-3819.3	N crop	0.8				1095.3	Green	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.296	-14.137	0.0	0.0	high N	71				81.4	High	0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	71	1	4089.5	4089.5	0	100	11	0	1	3067.1	21	1839.8	433.1	0.0	0.0	338.9	21	1406.7	43.78	77.34	41.29	59.30	Note 47
2	Vol/NH3	Green	YES	0.0	1022.4	NON	100.00	WWH	1.000	YES	888.4	Cattle	0.67				0.0	Cattle	112.5	11.35	0.0125	11.35	0.0100	Note 48
	N leach	High	0.933	1.000		ORG	1.00	1.000	0.400	338.9	888.4	Dairy	2				331.7	Liquid	0.0	22.21	0.0010	6.66	0.0050	Note 49
Year	N	21	1	1314.8	1285.9	0	100	11	0	1	964.4	21	578.5	136.2	0.0	0.0	106.6	21	442.3	13.77	24.61	12.98	18.94	Note 47
3	Vol/NH3	Cattle	YES	28.9	321.5	NON	100.00	WWH	1.000	YES	279.4	Cattle	0.67				0.0	Cattle	35.4	3.86	0.0125	3.86	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	106.6	279.4	Dairy	2				104.3	Liquid	0.0	6.98	0.0010	2.10	0.0050	Note 49
Year	N	21	1	413.4	404.3	0	100	1	0	1	303.3	21	168.9	38.6	0.0	0.0	35.0	21	130.3	4.25	7.93	3.97	5.92	Note 47
4	Vol/NH3	Cattle	YES	9.1	101.1	NON	100.00	SBA	1.000	YES	99.3	Cattle	0.65				0.0	Cattle	10.4	1.21	0.0125	1.21	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	35.0	99.3	Dairy	2				26.8	Liquid	0.0	2.48	0.0010	0.74	0.0050	Note 49
Year	N	21	1	121.8	119.1	0	100	10	0	1	89.4	21	49.7	11.5	0.0	0.0	10.3	21	38.2	1.24	2.33	1.16	1.73	Note 47
5	Vol/NH3	Cattle	YES	2.7	29.8	NON	100.00	WBA	1.000	YES	29.4	Cattle	0.66				0.0	Cattle	3.1	0.36	0.0125	0.36	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	10.3	29.4	Dairy	2				6.9	Liquid	0.0	0.73	0.0010	0.22	0.0050	Note 49
Year	N	21	1	35.7	34.9	0	100	2610	1	1	26.2	71	0.0	0.0	369.8	0.0	0.0	71	369.8	1.75	1.85	1.69	1.78	Note 47
6	Vol/NH3	Cattle	YES	0.8	8.7	NON	100.00	ERROR	1.296	YES	-343.6	N crop	0.8				106.1	Green	0.0	0.10	0.0125	0.10	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.296	-13.128	0.0	0.0	high N	71				7.9	High	0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	71	1	369.8	369.8	0	100	11	0	1	277.4	21	166.4	39.2	0.0	0.0	30.6	21	127.2	3.96	6.99	3.73	5.36	Note 47
7	Vol/NH3	Green	YES	0.0	92.5	NON	100.00	WWH	1.000	YES	80.3	Cattle	0.67				0.0	Cattle	10.2	1.03	0.0125	1.03	0.0100	Note 48
	N leach	High	0.933	1.000		ORG	1.00	1.000	0.400	30.6	80.3	Dairy	2				30.0	Liquid	0.0	2.01	0.0010	0.60	0.0050	Note 49
Year	N	21	1	118.9	116.3	0	100	11	0	1	87.2	21	52.3	12.3	0.0	0.0	9.6	21	40.0	1.24	2.23	1.17	1.71	Note 47
8	Vol/NH3	Cattle	YES	2.6	29.1	NON	100.00	WWH	1.000	YES	25.3	Cattle	0.67				0.0	Cattle	3.2	0.35	0.0125	0.35	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	9.6	25.3	Dairy	2				9.4	Liquid	0.0	0.63	0.0010	0.19	0.0050	Note 49
Year	N	21	1	37.4	36.6	0	100	1	0	1	27.4	21	15.3	3.5	0.0	0.0	3.2	21	11.8	0.38	0.72	0.36	0.54	Note 47
9	Vol/NH3	Cattle	YES	0.8	9.1	NON	100.00	SBA	1.000	YES	9.0	Cattle	0.65				0.0	Cattle	0.9	0.11	0.0125	0.11	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	3.2	9.0	Dairy	2				2.4	Liquid	0.0	0.22	0.0010	0.07	0.0050	Note 49
Year	N	21	1	11.0	10.8	0	100	10	0	1	8.1	21	4.5	1.0	0.0	0.0	0.9	21	3.5	0.11	0.21	0.10	0.16	Note 47
10	Vol/NH3	Cattle	YES	0.2	2.7	NON	100.00	WBA	1.000	YES	2.7	Cattle	0.66				0.0	Cattle	0.3	0.03	0.0125	0.03	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.9	2.7	Dairy	2				0.6	Liquid	0.0	0.07	0.0010	0.02	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	17.07	23.75	7.47	3.14	0.74	15.94	2.15	0.68	0.28	0.07	71.28	4.17	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	139	110	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	139	110	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	17.07	23.75	7.47	3.14	0.74	15.94	2.15	0.68	0.28	0.07	71.28	Total including natural	210	181	Note 51

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N CHAIN STARTING WITH NO MANURE TO PRODUCE CLOVER GRASS WITHOUT MANURE FOR LOW N CROP Note 43
AND CONTINUING WITH GREEN MANURE LOW N TO PRODUCE WINTER WHEAT FOR CATTLE DAIRY Note 43

Year		Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED													820	19.1	73	138	67	97	Note 45
Year	N NH3	ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											1474	34.3	15		15		Note 45
1-10	N leach	FIRST YEAR		0.0036	0.0036		TOTAL N AMOUNTS IN KG AND % LEACHED											2009	46.7	50		15		Note 45
		TOTAL		0.0337	0.0237		TOTAL N AMOUNTS IN KG AND %											4303	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1679		0.1181	Note 46
Year	N	0	1	0.0	0.0	0	100	2610	1	1	270.2	72	0.0	0.0	4089.5	0.0	0.0	72	4089.5	14.71	14.71	14.71	14.71	Note 47
1	Vol/NH3	None	YES	0.0	0.0	NON	100.00	CGR0	1.296	YES	-3819.3	N crop	0.8				1095.3	Green	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.296	-14.137	0.0	0.0	low N	72				81.4	Low	0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	72	1	4089.5	4089.5	0	100	11	0	1	3067.1	21	1051.3	247.5	0.0	0.0	338.9	21	803.8	43.23	96.01	38.52	61.96	Note 47
2	Vol/NH3	Green	YES	0.0	1022.4	NON	100.00	WWH	1.000	YES	1676.9	Cattle	0.67				0.0	Cattle	64.3	10.87	0.0125	10.87	0.0100	Note 48
	N leach	Low	0.533	1.000		ORG	1.00	1.000	0.657	338.9	1676.9	Dairy	2				331.7	Liquid	0.0	41.92	0.0010	12.58	0.0050	Note 49
Year	N	21	1	751.3	734.8	0	100	11	0	1	551.1	21	330.6	77.8	0.0	0.0	60.9	21	252.8	7.87	14.06	7.42	10.82	Note 47
3	Vol/NH3	Cattle	YES	16.5	183.7	NON	100.00	WWH	1.000	YES	159.6	Cattle	0.67				0.0	Cattle	20.2	2.20	0.0125	2.20	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	60.9	159.6	Dairy	2				59.6	Liquid	0.0	3.99	0.0010	1.20	0.0050	Note 49
Year	N	21	1	236.3	231.1	0	100	1	0	1	173.3	21	96.5	22.0	0.0	0.0	20.0	21	74.5	2.43	4.53	2.27	3.38	Note 47
4	Vol/NH3	Cattle	YES	5.2	57.8	NON	100.00	SBA	1.000	YES	56.8	Cattle	0.65				0.0	Cattle	6.0	0.69	0.0125	0.69	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	20.0	56.8	Dairy	2				15.3	Liquid	0.0	1.42	0.0010	0.43	0.0050	Note 49
Year	N	21	1	69.6	68.1	0	100	10	0	1	51.1	21	28.4	6.6	0.0	0.0	5.9	21	21.8	0.71	1.33	0.66	0.99	Note 47
5	Vol/NH3	Cattle	YES	1.5	17.0	NON	100.00	WBA	1.000	YES	16.8	Cattle	0.66				0.0	Cattle	1.7	0.20	0.0125	0.20	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	5.9	16.8	Dairy	2				3.9	Liquid	0.0	0.42	0.0010	0.13	0.0050	Note 49
Year	N	21	1	20.4	19.9	0	100	2610	1	1	15.0	72	0.0	0.0	211.3	0.0	0.0	72	211.3	1.00	1.06	0.96	1.02	Note 47
6	Vol/NH3	Cattle	YES	0.4	5.0	NON	100.00	ERROR	1.296	YES	-196.4	N crop	0.8				60.6	Green	0.0	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.296	-13.128	0.0	0.0	low N	72				4.5	Low	0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	72	1	211.3	211.3	0	100	11	0	1	158.5	21	54.3	12.8	0.0	0.0	17.5	21	41.5	2.23	4.96	1.99	3.20	Note 47
7	Vol/NH3	Green	YES	0.0	52.8	NON	100.00	WWH	1.000	YES	86.6	Cattle	0.67				0.0	Cattle	3.3	0.56	0.0125	0.56	0.0100	Note 48
	N leach	Low	0.533	1.000		ORG	1.00	1.000	0.657	17.5	86.6	Dairy	2				17.1	Liquid	0.0	2.17	0.0010	0.65	0.0050	Note 49
Year	N	21	1	38.8	38.0	0	100	11	0	1	28.5	21	17.1	4.0	0.0	0.0	3.1	21	13.1	0.41	0.73	0.38	0.56	Note 47
8	Vol/NH3	Cattle	YES	0.9	9.5	NON	100.00	WWH	1.000	YES	8.2	Cattle	0.67				0.0	Cattle	1.0	0.11	0.0125	0.11	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	3.1	8.2	Dairy	2				3.1	Liquid	0.0	0.21	0.0010	0.06	0.0050	Note 49
Year	N	21	1	12.2	11.9	0	100	1	0	1	9.0	21	5.0	1.1	0.0	0.0	1.0	21	3.8	0.13	0.23	0.12	0.17	Note 47
9	Vol/NH3	Cattle	YES	0.3	3.0	NON	100.00	SBA	1.000	YES	2.9	Cattle	0.65				0.0	Cattle	0.3	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.443	1.0	2.9	Dairy	2				0.8	Liquid	0.0	0.07	0.0010	0.02	0.0050	Note 49
Year	N	21	1	3.6	3.5	0	100	10	0	1	2.6	21	1.5	0.3	0.0	0.0	0.3	21	1.1	0.04	0.07	0.03	0.05	Note 47
10	Vol/NH3	Cattle	YES	0.1	0.9	NON	100.00	WBA	1.000	YES	0.9	Cattle	0.66				0.0	Cattle	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.444	0.3	0.9	Dairy	2				0.2	Liquid	0.0	0.02	0.0010	0.01	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	17.07	13.57	4.27	1.79	0.42	15.94	0.70	0.22	0.09	0.02	54.10	3.17	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	138	97	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	138	97	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	17.07	13.57	4.27	1.79	0.42	15.94	0.70	0.22	0.09	0.02	54.10 Total including natural	192	151	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR FOOD Note 43
AND CONTINUING WITH NO MANURE TO PRODUCE NOTHING FOR FOOD Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP					TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED						75.1	75.1		1.35	1.94	1.11	1.30	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			2.2	2.2			0.02		0.02		Note 45
1-10	N leach		FIRST YEAR		0.0259		0.0174				TOTAL N AMOUNTS IN KG AND % LEACHED			22.7	22.7			0.57		0.17		Note 45
			TOTAL		0.0259		0.0174				TOTAL N AMOUNTS IN KG AND %			100.0	100.0							Note 45
N2O-N/N in food/beverage/fuel/other																			0.0259		0.0174		Note 46
Year	N	1	1	100.0	100.0	0	100	11	0	1	97.8	8	0.0	0.0	0.0	64.3	10.8	0	0.0	1.35	1.94	1.11	1.30	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WWH	1.000	YES	22.7	Food/	0.67				0.0	NONE	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.343	10.8	22.7	beverage	8				10.6		0.0	0.57	0.0000	0.17	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
2	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
3	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.403	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.403	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	1.00	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	1.94	1.30	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	1.94	1.30	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	Total including natural	2.58	1.94	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR FUEL Note 43
AND CONTINUING WITH NO MANURE TO PRODUCE NOTHING FOR FUEL Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	Total	N2O-N emission IPCC 2006 Each	Total	Note 44 Note 44 Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							75.1	75.1				1.35	1.94	1.11	1.30	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			2.2	2.2				0.02		0.02		Note 45
1-10	N leach		FIRST YEAR		0.0259		0.0174				TOTAL N AMOUNTS IN KG AND % LEACHED			22.7	22.7				0.57		0.17		Note 45
			TOTAL		0.0259		0.0174				TOTAL N AMOUNTS IN KG AND %			100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.0259		0.0174	Note 46
Year	N	1	1	100.0	100.0	0	100	11	0	1	97.8	9	0.0	0.0	0.0	0.0	75.1	0	0.0	1.35	1.94	1.11	1.30	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	WWH	1.000	YES	22.7	Fuel/	0.67				0.0	NONE	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.343	10.8	22.7	other	9				10.6		0.0	0.57	0.0000	0.17	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
2	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
3	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.403	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.403	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.404	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	1.00	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	1.94	1.30	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	1.94	1.30	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	Total including natural	2.58	1.94	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE CLOVER GRASS FOR CATTLE DAIRY Note 43
AND CONTINUING WITH LIQUID CATTLE MANURE TO PRODUCE CLOVER GRASS FOR CATTLE DAIRY Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Amounts Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Fodder: Uses #21-61 Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	N2O-N emission IPCC 1996 Total	N2O-N emission IPCC 2006 Each	N2O-N emission IPCC 2006 Total	Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED											42854	46.1	1464	2239	1659	2113	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											31724	34.2	317		317		Note 45
1-10	N leach		FIRST YEAR		0.0162	0.0186	TOTAL N AMOUNTS IN KG AND % LEACHED											18282	19.7	457		137		Note 45
			TOTAL		1.9161	1.8085	TOTAL N AMOUNTS IN KG AND %											92859	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0522		0.0493		Note 46
Year	N	1	1	100.0	100.0	0	100	261	0	1	97.8	21	1168.3	329.7	0.0	0.0	0.0	21	838.7	18.18	18.87	21.02	21.71	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	CGR	1.000	YES	-1070.5	Cattle	0.8				1169.8	Cattle	67.1	0.69	0.0125	0.69	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	-10.946	0.0	0.0	Dairy	2				125.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	783.9	766.7	0	100	261	1	1	575.0	21	21947.3	6192.7	0.0	0.0	0.0	21	15754.7	116.84	131.53	173.38	188.07	Note 47
2	Vol/NH3	Cattle	YES	17.2	191.7	NON	100.00	CGR	3.500	YES	-21372.3	Cattle	0.8				6877.8	Cattle	1260.4	14.69	0.0125	14.69	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	3.500	-37.169	0.0	0.0	Dairy	2				734.9	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	14726.2	14402.2	0	100	11	0	1	10801.7	21	6479.4	1525.4	0.0	0.0	1193.6	21	4953.9	154.18	275.61	145.41	212.08	Note 47
3	Vol/NH3	Cattle	YES	324.0	3600.6	NON	100.00	WWH	1.000	YES	3128.7	Cattle	0.67				0.0	Cattle	396.3	43.21	0.0125	43.21	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	1193.6	3128.7	Dairy	2				1168.3	Liquid	0.0	78.22	0.0010	23.47	0.0050	Note 49
Year	N	21	1	4630.5	4528.7	0	100	11	0	1	3396.5	21	2037.4	479.7	0.0	0.0	375.3	21	1557.7	48.48	86.66	45.72	66.69	Note 47
4	Vol/NH3	Cattle	YES	101.9	1132.2	NON	100.00	WWH	1.000	YES	983.8	Cattle	0.67				0.0	Cattle	124.6	13.59	0.0125	13.59	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	375.3	983.8	Dairy	2				367.4	Liquid	0.0	24.59	0.0010	7.38	0.0050	Note 49
Year	N	21	1	1456.0	1424.0	0	100	11	0	1	1068.0	21	640.6	150.8	0.0	0.0	118.0	21	489.8	15.24	27.25	14.38	20.97	Note 47
5	Vol/NH3	Cattle	YES	32.0	356.0	NON	100.00	WWH	1.000	YES	309.3	Cattle	0.67				0.0	Cattle	39.2	4.27	0.0125	4.27	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	118.0	309.3	Dairy	2				115.5	Liquid	0.0	7.73	0.0010	2.32	0.0050	Note 49
Year	N	21	1	457.8	447.8	0	100	261	0	1	335.8	21	3662.0	1033.3	0.0	0.0	0.0	21	2628.7	62.19	65.52	71.03	74.35	Note 47
6	Vol/NH3	Cattle	YES	10.1	111.9	NON	100.00	CGR	1.000	YES	-3326.1	Cattle	0.8				4016.9	Cattle	210.3	3.32	0.0125	3.32	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	-9.904	0.0	0.0	Dairy	2				429.2	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	2457.1	2403.0	0	100	261	1	1	1802.3	21	68791.6	19410.3	0.0	0.0	0.0	21	49381.3	366.22	412.27	543.44	589.49	Note 47
7	Vol/NH3	Cattle	YES	54.1	600.8	NON	100.00	CGR	3.500	YES	-66989.3	Cattle	0.8				21557.6	Cattle	3950.5	46.05	0.0125	46.05	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	3.500	-37.169	0.0	0.0	Dairy	2				2303.4	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	46157.7	45142.2	0	100	11	0	1	33856.6	21	20308.9	4781.3	0.0	0.0	3741.2	21	15527.6	483.27	863.86	455.77	664.75	Note 47
8	Vol/NH3	Cattle	YES	1015.5	11285.5	NON	100.00	WWH	1.000	YES	9806.6	Cattle	0.67				0.0	Cattle	1242.2	135.43	0.0125	135.43	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	3741.2	9806.6	Dairy	2				3661.8	Liquid	0.0	245.16	0.0010	73.55	0.0050	Note 49
Year	N	21	1	14514.0	14194.6	0	100	11	0	1	10646.0	21	6386.0	1503.4	0.0	0.0	1176.4	21	4882.5	151.96	271.64	143.31	209.03	Note 47
9	Vol/NH3	Cattle	YES	319.3	3548.7	NON	100.00	WWH	1.000	YES	3083.6	Cattle	0.67				0.0	Cattle	390.6	42.59	0.0125	42.59	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	1176.4	3083.6	Dairy	2				1151.4	Liquid	0.0	77.09	0.0010	23.13	0.0050	Note 49
Year	N	21	1	4563.8	4463.4	0	100	11	0	1	3347.6	21	2008.0	472.7	0.0	0.0	369.9	21	1535.3	47.78	85.41	45.06	65.73	Note 47
10	Vol/NH3	Cattle	YES	100.4	1115.9	NON	100.00	WWH	1.000	YES	969.6	Cattle	0.67				0.0	Cattle	122.8	13.39	0.0125	13.39	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	369.9	969.6	Dairy	2				362.1	Liquid	0.0	24.24	0.0010	7.27	0.0050	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	4.88	119.49	83.64	26.30	8.27	19.94	374.54	262.16	82.43	25.92	1007.57	206.55	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	2239	2113	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	2239	2113	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	4.88	119.49	83.64	26.30	8.27	19.94	374.54	262.16	82.43	25.92	1007.57	Total including natural	3246	3120	Note 51

C2 N CHAIN CALCULATIONS SHEET C: N CHAINS BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com C2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE CLOVER GRASS FOR CATTLE DAIRY Note 43
AND CONTINUING WITH LIQUID CATTLE MANURE TO PRODUCE CLOVER GRASS FOR CATTLE DAIRY Note 43

Year	Fertlizer/manure # Name	Store 1/0	Amounts Store	Amounts Field	Or-ganic 1/0	Nnorm propor tion, %	Crop # Name	Cereal benefit 1/0	Straw used 1/0	Crop use & leach	Use # Name	Fodder: Uses #21-61 Fed	Fodder: Uses #21-61 Food	N crop #71/ #72	Food/ bev #8	Fuel/ other #9	Manure handling # Name	Final N a-mounts	N2O-N emission IPCC 1996 Each	N2O-N emission IPCC 1996 Total	N2O-N emission IPCC 2006 Each	N2O-N emission IPCC 2006 Total	Note 44
Total	N		RATIO OF N2O-N TO N IN FIRST CROP				TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED							14195	62.3		285	417	317	395	Note 45
Year	N NH3		ACCORDING TO	IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							5463	24.0		55		55		Note 45
1-10	N leach		FIRST YEAR	0.0162	0.0186		TOTAL N AMOUNTS IN KG AND % LEACHED							3129	13.7		78		23		Note 45
			TOTAL	0.3573	0.3382		TOTAL N AMOUNTS IN KG AND %							22787	100.0						Note 45
N2O-N/N in food/beverage/fuel/other																			0.0294		0.0278		Note 46
Year	N	1	1	100.0	100.0	0	100	261	0	1	97.8	21	1168.3	329.7	0.0	0.0	0.0	21	838.7	18.18	18.87	21.02	21.71	Note 47
1	Vol/NH3	N	YES	0.0	2.2	NON	100.00	CGR	1.000	YES	-1070.5	Cattle	0.8				1169.8	Cattle	67.1	0.69	0.0125	0.69	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	-10.946	0.0	0.0	Dairy	2				125.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	783.9	766.7	0	100	261	1	1	575.0	21	21947.3	6192.7	0.0	0.0	0.0	21	15754.7	116.84	131.53	173.38	188.07	Note 47
2	Vol/NH3	Cattle	YES	17.2	191.7	NON	100.00	CGR	3.500	YES	-21372.3	Cattle	0.8				6877.8	Cattle	1260.4	14.69	0.0125	14.69	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	3.500	-37.169	0.0	0.0	Dairy	2				734.9	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	14726.2	14402.2	0	100	11	0	1	10801.7	8	0.0	0.0	0.0	6479.4	1193.6	0	0.0	149.62	267.09	122.62	185.33	Note 47
3	Vol/NH3	Cattle	YES	324.0	3600.6	NON	100.00	WWH	1.000	YES	3128.7	Food/	0.67				0.0	NONE	0.0	39.25	0.0125	39.25	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	1193.6	3128.7	beverage	8				1168.3		0.0	78.22	0.0000	23.47	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	261	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Cattle	0.8				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	-10.683	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	261	1	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	CGR	3.500	YES	0.0	Cattle	0.8				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	3.500	-37.169	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.400	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.357	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total	Total/year 1	
Area with crop, ha	4.88	119.49	83.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	208.01	42.64	Note 50

Possible additional non IPCC N2O-N emissions	Value												Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	417	395	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	417	395	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	4.88	119.49	83.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	208.01	Total including natural	626	603	Note 51

SUMMARY CATTLE DAIRY

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE DAIRY					Note 43
AND CONTINUING WITH	LIQUID CATTLE MANURE			TO PRODUCE	WINTER WHEAT FOR		CATTLE DAIRY					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			48.13	47.62	2.02	2.95	1.92	2.38 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			26.26	25.98	0.26		0.26	Note 45
1-10 N leach	FIRST YEAR	0.0195	0.0163	TOTAL N AMOUNTS IN KG AND % LEACHED			26.68	26.40	0.67		0.20	Note 45
	TOTAL	0.0344	0.0278	TOTAL N AMOUNTS IN KG AND %			101.08	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0613		0.0495 Note 46
							Total/year 1					
Area with crop, ha							1.17	1.52				Note 50
Natural background emissions, kg N2O-N/ha:							1.17			4.12		3.55 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE DAIRY					Note 43
AND CONTINUING WITH	SEPARATED CATTLE MANURE			TO PRODUCE	WINTER WHEAT FOR		CATTLE DAIRY					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			46.70	46.21	2.60	3.55	1.87	2.35 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			26.85	26.57	0.27		0.27	Note 45
1-10 N leach	FIRST YEAR	0.0246	0.0162	TOTAL N AMOUNTS IN KG AND % LEACHED			27.51	27.23	0.69		0.21	Note 45
	TOTAL	0.0414	0.0274	TOTAL N AMOUNTS IN KG AND %			101.06	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0761		0.0502 Note 46
							Total/year 1					
Area with crop, ha							1.11	1.44				Note 50
Natural background emissions, kg N2O-N/ha:							1.11			4.66		3.46 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE DAIRY					Note 43
AND CONTINUING WITH	CATTLE DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR		CATTLE DAIRY					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			42.48	38.96	2.87	3.98	1.69	2.28 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			37.09	34.02	0.37		0.37	Note 45
1-10 N leach	FIRST YEAR	0.0298	0.0163	TOTAL N AMOUNTS IN KG AND % LEACHED			29.46	27.02	0.74		0.22	Note 45
	TOTAL	0.0464	0.0266	TOTAL N AMOUNTS IN KG AND %			109.03	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0937		0.0538 Note 46
							Total/year 1					
Area with crop, ha							0.95	1.22				Note 50
Natural background emissions, kg N2O-N/ha:							0.95			4.93		3.23 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE DAIRY					Note 43
AND CONTINUING WITH	MANURE FROM GRAZING CATTLE			TO PRODUCE	WINTER WHEAT FOR		CATTLE DAIRY					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			46.54	46.54	3.38	4.61	2.98	3.40 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			6.71	6.71	0.07		0.07	Note 45
1-10 N leach	FIRST YEAR	0.0302	0.0249	TOTAL N AMOUNTS IN KG AND % LEACHED			46.75	46.75	1.17		0.35	Note 45
	TOTAL	0.0538	0.0397	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0992		0.0731 Note 46
							Total/year 1					
Area with crop, ha							0.97	1.25				Note 50
Natural background emissions, kg N2O-N/ha:							0.97			5.58		4.37 Note 51

SUMMARY CATTLE BEEF

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE BEEF					Note 43
AND CONTINUING WITH	LIQUID CATTLE MANURE			TO PRODUCE	WINTER WHEAT FOR		CATTLE BEEF					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			45.60	45.08	2.07	3.04	1.98	2.47 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			27.87	27.56	0.28		0.28	Note 45
1-10 N leach	FIRST YEAR	0.0195	0.0165	TOTAL N AMOUNTS IN KG AND % LEACHED			27.67	27.36	0.69		0.21	Note 45
	TOTAL	0.0355	0.0287	TOTAL N AMOUNTS IN KG AND %			101.15	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0667		0.0541 Note 46
							Total/year 1					
Area with crop, ha							1.20	1.55				Note 50
Natural background emissions, kg N2O-N/ha:							1.20			4.24		3.66 Note 51

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE BEEF					Note 43
AND CONTINUING WITH	SEPARATED CATTLE MANURE			TO PRODUCE	WINTER WHEAT FOR		CATTLE BEEF					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			44.17	43.68	2.68	3.68	1.93	2.42 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			28.44	28.12	0.28		0.28	Note 45
1-10 N leach	FIRST YEAR	0.0249	0.0164	TOTAL N AMOUNTS IN KG AND % LEACHED			28.52	28.20	0.71		0.21	Note 45
	TOTAL	0.0429	0.0283	TOTAL N AMOUNTS IN KG AND %			101.13	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0833		0.0549 Note 46
							Total/year 1					
Area with crop, ha							1.13	1.47				Note 50
Natural background emissions, kg N2O-N/ha:							0.95			4.81		3.56 Note 51

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE BEEF					Note 43
AND CONTINUING WITH	CATTLE DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR		CATTLE BEEF					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			40.00	36.51	2.97	4.12	1.73	2.35 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			39.09	35.68	0.39		0.39	Note 45
1-10 N leach	FIRST YEAR	0.0304	0.0164	TOTAL N AMOUNTS IN KG AND % LEACHED			30.46	27.81	0.76		0.23	Note 45
	TOTAL	0.0480	0.0274	TOTAL N AMOUNTS IN KG AND %			109.55	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1030		0.0587 Note 46
							Total/year 1					
Area with crop, ha							0.96	1.24				Note 50
Natural background emissions, kg N2O-N/ha:							0.96			5.07		3.30 Note 51

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		CATTLE BEEF					Note 43
AND CONTINUING WITH	MANURE FROM GRAZING CATTLE			TO PRODUCE	WINTER WHEAT FOR		CATTLE BEEF					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			44.17	44.17	3.51	4.80	3.10	3.54 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			6.98	6.98	0.07		0.07	Note 45
1-10 N leach	FIRST YEAR	0.0307	0.0254	TOTAL N AMOUNTS IN KG AND % LEACHED			48.85	48.85	1.22		0.37	Note 45
	TOTAL	0.0559	0.0413	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1086		0.0801 Note 46
							Total/year 1					
Area with crop, ha							0.98	1.27				Note 50
Natural background emissions, kg N2O-N/ha:							0.98			5.78		4.52 Note 51

SUMMARY PIG PORK

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			PIG PORK					Note 43
AND CONTINUING WITH	LIQUID PIG MANURE			TO PRODUCE	WINTER WHEAT FOR			PIG PORK					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				57.15	57.15	1.78	2.51	1.63	2.01 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				22.37	22.37	0.22		0.22	Note 45
1-10 N leach	FIRST YEAR	0.0195	0.0159	TOTAL N AMOUNTS IN KG AND % LEACHED				20.48	20.48	0.51		0.15	Note 45
	TOTAL	0.0293	0.0234	TOTAL N AMOUNTS IN KG AND %				100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.0440		0.0352 Note 46
									Total/year 1				
Area with crop, ha								1.06	1.37				Note 50
Natural background emissions, kg N2O-N/ha:								1.06			3.57		3.07 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			PIG PORK					Note 43
AND CONTINUING WITH	SEPARATED PIG MANURE			TO PRODUCE	WINTER WHEAT FOR			PIG PORK					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				52.67	52.16	2.02	2.81	1.50	1.93 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				28.12	27.85	0.28		0.28	Note 45
1-10 N leach	FIRST YEAR	0.0235	0.0160	TOTAL N AMOUNTS IN KG AND % LEACHED				20.18	19.99	0.50		0.15	Note 45
	TOTAL	0.0328	0.0225	TOTAL N AMOUNTS IN KG AND %				100.97	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.0533		0.0366 Note 46
									Total/year 1				
Area with crop, ha								0.95	1.23				Note 50
Natural background emissions, kg N2O-N/ha:								0.95			3.76		2.88 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			PIG PORK					Note 43
AND CONTINUING WITH	PIG DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR			PIG PORK					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				50.46	48.28	2.22	3.03	1.40	1.89 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				36.03	34.47	0.36		0.36	Note 45
1-10 N leach	FIRST YEAR	0.0269	0.0162	TOTAL N AMOUNTS IN KG AND % LEACHED				18.02	17.24	0.45		0.14	Note 45
	TOTAL	0.0353	0.0221	TOTAL N AMOUNTS IN KG AND %				104.51	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.0600		0.0375 Note 46
									Total/year 1				
Area with crop, ha								0.90	1.17				Note 50
Natural background emissions, kg N2O-N/ha:								0.90			3.93		2.79 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			PIG PORK					Note 43
AND CONTINUING WITH	MANURE FROM ROOTING PIGS			TO PRODUCE	WINTER WHEAT FOR			PIG PORK					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				59.45	59.45	3.06	3.98	2.69	3.01 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				6.03	6.03	0.06		0.06	Note 45
1-10 N leach	FIRST YEAR	0.0281	0.0228	TOTAL N AMOUNTS IN KG AND % LEACHED				34.52	34.52	0.86		0.26	Note 45
	TOTAL	0.0464	0.0351	TOTAL N AMOUNTS IN KG AND %				100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.0670		0.0506 Note 46
									Total/year 1				
Area with crop, ha								1.01	1.31				Note 50
Natural background emissions, kg N2O-N/ha:								1.01			5.00		4.02 Note 51

SUMMARY POULTRY MEAT

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND				POULTRY MEAT			Note 43
AND CONTINUING WITH	LIQUID POULTRY MANURE			TO PRODUCE	WINTER WHEAT FOR				POULTRY MEAT			Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED					61.95	61.95	1.69	2.39	1.53	1.85	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					16.62	16.62	0.17		0.17		Note 45
1-10 N leach	FIRST YEAR	0.0192	0.0154	TOTAL N AMOUNTS IN KG AND % LEACHED					21.43	21.43	0.54		0.16		Note 45
	TOTAL	0.0279	0.0216	TOTAL N AMOUNTS IN KG AND %					100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other												0.0386		0.0299	Note 46
									Total/year 1						
Area with crop, ha									0.98	1.27					Note 50
Natural background emissions, kg N2O-N/ha:									0.98			3.37		2.83	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND				POULTRY MEAT						Note 43
AND CONTINUING WITH	SEPARATED POULTRY MANURE			TO PRODUCE	WINTER WHEAT FOR				POULTRY MEAT						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED					58.41	58.41	1.84	2.53	1.38	1.75	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					23.16	23.16	0.23		0.23		Note 45
1-10 N leach	FIRST YEAR	0.0227	0.0157	TOTAL N AMOUNTS IN KG AND % LEACHED					18.42	18.42	0.46		0.14		Note 45
	TOTAL	0.0295	0.0204	TOTAL N AMOUNTS IN KG AND %					100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other												0.0434		0.0300	Note 46
									Total/year 1						
Area with crop, ha									0.91	1.18					Note 50
Natural background emissions, kg N2O-N/ha:									0.91			3.44		2.66	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND				POULTRY MEAT						Note 43
AND CONTINUING WITH	POULTRY DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR				POULTRY MEAT						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED					55.18	55.02	1.91	2.65	1.29	1.69	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					25.96	25.88	0.26		0.26		Note 45
1-10 N leach	FIRST YEAR	0.0250	0.0160	TOTAL N AMOUNTS IN KG AND % LEACHED					19.16	19.10	0.48		0.14		Note 45
	TOTAL	0.0308	0.0197	TOTAL N AMOUNTS IN KG AND %					100.29	100.00					Note 45
N2O-N/N in food/beverage/fuel/other												0.0479		0.0307	Note 46
									Total/year 1						
Area with crop, ha									0.84	1.09					Note 50
Natural background emissions, kg N2O-N/ha:									0.84			3.49		2.53	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND				POULTRY MEAT						Note 43
AND CONTINUING WITH	MANURE FROM SCRAPING POULTRY			TO PRODUCE	WINTER WHEAT FOR				POULTRY MEAT						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED					61.02	61.02	2.60	3.50	2.26	2.56	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					5.05	5.05	0.05		0.05		Note 45
1-10 N leach	FIRST YEAR	0.0266	0.0213	TOTAL N AMOUNTS IN KG AND % LEACHED					33.93	33.93	0.85		0.25		Note 45
	TOTAL	0.0408	0.0299	TOTAL N AMOUNTS IN KG AND %					100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other												0.0573		0.0420	Note 46
Area with crop, ha	Total/year 1								0.90	1.16					Note 50
Natural background emissions, kg N2O-N/ha:									0.90			4.39		3.46	Note 51

SUMMARY POULTRY EGGS

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		POULTRY EGGS					Note 43
AND CONTINUING WITH	LIQUID POULTRY MANURE			TO PRODUCE	WINTER WHEAT FOR		POULTRY EGGS					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			43.79	43.79	2.01	3.00	1.91	2.41 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			27.58	27.58	0.28		0.28	Note 45
1-10 N leach	FIRST YEAR	0.0196	0.0166	TOTAL N AMOUNTS IN KG AND % LEACHED			28.62	28.62	0.72		0.21	Note 45
	TOTAL	0.0350	0.0280	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0686		0.0549 Note 46
							Total/year 1					
Area with crop, ha							1.14	1.47				Note 50
Natural background emissions, kg N2O-N/ha:							1.14			4.14		3.54 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		POULTRY EGGS					Note 43
AND CONTINUING WITH	SEPARATED POULTRY MANURE			TO PRODUCE	WINTER WHEAT FOR		POULTRY EGGS					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			39.59	39.59	2.24	3.19	1.64	2.18 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			37.57	37.57	0.38		0.38	Note 45
1-10 N leach	FIRST YEAR	0.0250	0.0171	TOTAL N AMOUNTS IN KG AND % LEACHED			22.84	22.84	0.57		0.17	Note 45
	TOTAL	0.0372	0.0255	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0805		0.0552 Note 46
							Total/year 1					
Area with crop, ha							1.01	1.31				Note 50
Natural background emissions, kg N2O-N/ha:							1.01			4.20		3.19 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		POULTRY EGGS					Note 43
AND CONTINUING WITH	POULTRY DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR		POULTRY EGGS					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			36.31	36.14	2.31	3.30	1.46	2.04 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			40.61	40.42	0.41		0.41	Note 45
1-10 N leach	FIRST YEAR	0.0285	0.0176	TOTAL N AMOUNTS IN KG AND % LEACHED			23.55	23.44	0.59		0.18	Note 45
	TOTAL	0.0385	0.0238	TOTAL N AMOUNTS IN KG AND %			100.47	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.0909		0.0562 Note 46
							Total/year 1					
Area with crop, ha							0.89	1.15				Note 50
Natural background emissions, kg N2O-N/ha:							0.89			4.19		2.93 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND		POULTRY EGGS					Note 43
AND CONTINUING WITH	MANURE FROM SCRAPING POULTRY			TO PRODUCE	WINTER WHEAT FOR		POULTRY EGGS					Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			43.61	43.61	3.54	4.84	3.13	3.57 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			7.05	7.05	0.07		0.07	Note 45
1-10 N leach	FIRST YEAR	0.0311	0.0258	TOTAL N AMOUNTS IN KG AND % LEACHED			49.34	49.34	1.23		0.37	Note 45
	TOTAL	0.0564	0.0416	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1110		0.0819 Note 46
							Total/year 1					
Area with crop, ha							0.98	1.27				Note 50
Natural background emissions, kg N2O-N/ha:							0.98			5.82		4.55 Note 51

SUMMARY SHEEP AND GOATS

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			SHEEP MILK/MUTTON				Note 43
AND CONTINUING WITH	SHEEP DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR			SHEEP MILK/MUTTON				Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				39.43	35.05	4.04	5.63	2.41	3.00	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				15.79	14.04	0.16		0.16		Note 45
1-10 N leach	FIRST YEAR	0.0316	0.0172	TOTAL N AMOUNTS IN KG AND % LEACHED				57.26	50.91	1.43		0.43		Note 45
	TOTAL	0.0656	0.0350	TOTAL N AMOUNTS IN KG AND %				112.47	100.00					Note 45
N2O-N/N in food/beverage/fuel/other											0.1427		0.0761	Note 46
									Total/year 1					
Area with crop, ha								1.11	1.44					Note 50
Natural background emissions, kg N2O-N/ha:								1.11			6.74		4.12	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			SHEEP MILK/MUTTON						Note 43
AND CONTINUING WITH	MANURE FROM GRAZING SHEEP			TO PRODUCE	WINTER WHEAT FOR			SHEEP MILK/MUTTON						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				36.31	36.31	3.93	5.40	1.87	2.37	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				7.89	7.89	0.08		0.08		Note 45
1-10 N leach	FIRST YEAR	0.0327	0.0131	TOTAL N AMOUNTS IN KG AND % LEACHED				55.81	55.81	1.40		0.42		Note 45
	TOTAL	0.0630	0.0276	TOTAL N AMOUNTS IN KG AND %				100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other											0.1489		0.0653	Note 46
									Total/year 1					
Area with crop, ha								1.02	1.32					Note 50
Natural background emissions, kg N2O-N/ha:								1.02			6.42		3.39	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			GOAT MILK/MEAT						Note 43
AND CONTINUING WITH	GOAT DEEP LITTER			TO PRODUCE	WINTER WHEAT FOR			GOAT MILK/MEAT						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				29.00	26.04	3.38	4.78	1.95	2.68	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				44.11	39.61	0.44		0.44		Note 45
1-10 N leach	FIRST YEAR	0.0324	0.0175	TOTAL N AMOUNTS IN KG AND % LEACHED				38.25	34.35	0.96		0.29		Note 45
	TOTAL	0.0557	0.0313	TOTAL N AMOUNTS IN KG AND %				111.36	100.00					Note 45
N2O-N/N in food/beverage/fuel/other											0.1648		0.0925	Note 46
									Total/year 1					
Area with crop, ha								1.03	1.34					Note 50
Natural background emissions, kg N2O-N/ha:								1.03			5.81		3.72	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER RAPESEED FOR OIL AND			GOAT MILK/MEAT						Note 43
AND CONTINUING WITH	MANURE FROM GRAZING GOATS			TO PRODUCE	WINTER WHEAT FOR			GOAT MILK/MEAT						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED				32.72	32.72	4.12	5.68	2.80	3.33	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				8.30	8.30	0.08		0.08		Note 45
1-10 N leach	FIRST YEAR	0.0335	0.0207	TOTAL N AMOUNTS IN KG AND % LEACHED				58.98	58.98	1.47		0.44		Note 45
	TOTAL	0.0662	0.0388	TOTAL N AMOUNTS IN KG AND %				100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other											0.1736		0.1018	Note 46
									Total/year 1					
Area with crop, ha								1.04	1.35					Note 50
Natural background emissions, kg N2O-N/ha:								1.04			6.72		4.37	Note 51

SUMMARY N FIXATION FOR N CROP

N CHAIN STARTING WITH	NO MANURE			TO PRODUCE	CLOVER GRASS WITHOUT MANURE FOR	HIGH N CROP						Note 43
AND CONTINUING WITH	GREEN MANURE HIGH N			TO PRODUCE	WINTER WHEAT FOR	CATTLE DAIRY						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED		1211	27.13	85	139	81	110	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3		1838	41.19	18		18		Note 45
1-10 N leach	FIRST YEAR	0.0036	0.0036	TOTAL N AMOUNTS IN KG AND % LEACHED		1414	31.68	35		11		Note 45
	TOTAL	0.0340	0.0269	TOTAL N AMOUNTS IN KG AND %		4462	100.00					Note 45
N2O-N/N in food/beverage/fuel/other									0.1147		0.0910	Note 46
							Total/year 1					
Area with crop, ha						71.28	4.17					Note 50
Natural background emissions, kg N2O-N/ha:						71.28			210		181	Note 51
N amount in reference crop year 2 after use of N crop as green manure, kg						1839.82						Note 47
N amount in reference crop year 1 after synthetic N fertilizer, kg						71.29						Note 47
Relative value of green manure, %						2580.69						

N CHAIN STARTING WITH	NO MANURE			TO PRODUCE	CLOVER GRASS WITHOUT MANURE FOR	LOW N CROP						Note 43
AND CONTINUING WITH	GREEN MANURE LOW N			TO PRODUCE	WINTER WHEAT FOR	CATTLE DAIRY						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED		820	19.06	73	138	67	97	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3		1474	34.26	15		15		Note 45
1-10 N leach	FIRST YEAR	0.0036	0.0036	TOTAL N AMOUNTS IN KG AND % LEACHED		2009	46.69	50		15		Note 45
	TOTAL	0.0337	0.0237	TOTAL N AMOUNTS IN KG AND %		4303	100.00					Note 45
N2O-N/N in food/beverage/fuel/other									0.1679		0.1181	Note 46
							Total/year 1					
Area with crop, ha						54.10	3.17					Note 50
Natural background emissions, kg N2O-N/ha:						54.10			192		151	Note 51
N amount in reference crop year 2 after use of N crop as green manure, kg						1051.32						Note 47
N amount in reference crop year 1 after synthetic N fertilizer, kg						71.29						Note 47
Relative value of green manure, %						1474.68						

SUMMARY FOOD, FUEL, AND N+N FIXATION FOR FODDER AND FOOD

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR		FOOD						Note 43
AND CONTINUING WITH	NO MANURE			TO PRODUCE	NOTHING FOR		FOOD						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			75.08	75.08	1.35	1.94	1.11	1.30	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			2.20	2.20	0.02		0.02		Note 45
1-10 N leach	FIRST YEAR	0.0259	0.0174	TOTAL N AMOUNTS IN KG AND % LEACHED			22.72	22.72	0.57		0.17		Note 45
	TOTAL	0.0259	0.0174	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0259		0.0174	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				2.58		1.94	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR		FUEL						Note 43
AND CONTINUING WITH	NO MANURE			TO PRODUCE	NOTHING FOR		FUEL						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			75.08	75.08	1.35	1.94	1.11	1.30	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			2.20	2.20	0.02		0.02		Note 45
1-10 N leach	FIRST YEAR	0.0259	0.0174	TOTAL N AMOUNTS IN KG AND % LEACHED			22.72	22.72	0.57		0.17		Note 45
	TOTAL	0.0259	0.0174	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0259		0.0174	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				2.58		1.94	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	CLOVER GRASS FOR		CATTLE DAIRY						Note 43
AND CONTINUING WITH	LIQUID CATTLE MANURE			TO PRODUCE	CLOVER GRASS FOR		CATTLE DAIRY						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			42854	46.15	1464	2239	1659	2113	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			31724	34.16	317		317		Note 45
1-10 N leach	FIRST YEAR	0.0162	0.0186	TOTAL N AMOUNTS IN KG AND % LEACHED			18282	19.69	457		137		Note 45
	TOTAL	1.9161	1.8085	TOTAL N AMOUNTS IN KG AND %			92859	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0522		0.0493	Note 46
							Total/year 1						
Area with crop, ha						1007.57	206.55						Note 50
Natural background emissions, kg N2O-N/ha:						1007.57				3246		3120	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	CLOVER GRASS FOR		CATTLE DAIRY						Note 43
AND CONTINUING WITH	LIQUID CATTLE MANURE			TO PRODUCE	CLOVER GRASS FOR		CATTLE DAIRY						Note 43
Total N	RATIO OF N2O-N TO N IN FIRST CROP			TOTAL N AMOUNTS IN KG AND % ENDING AS FOOD/FUEL/OTHER/REMOVED			14195	62.30	285	417	317	395	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			5463	23.97	55		55		Note 45
1-10 N leach	FIRST YEAR	0.0162	0.0186	TOTAL N AMOUNTS IN KG AND % LEACHED			3129	13.73	78		23		Note 45
	TOTAL	0.3573	0.3382	TOTAL N AMOUNTS IN KG AND %			22787	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0294		0.0278	Note 46
							Total/year 1						
Area with crop, ha						208.01	42.64						Note 50
Natural background emissions, kg N2O-N/ha:						208.01				626		603	Note 51

SUMMARY CATTLE

RATIO OF N2O-N TO N IN FIRST CROP ACCORDING TO	IPCC 1996 MIN	IPCC 1996 MAX	IPCC 2006 MIN	IPCC 2006 MAX
FIRST YEAR	0.0195	0.0307	0.0162	0.0254
TOTAL	0.0344	0.0559	0.0266	0.0413

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
2.95	4.80	2.28	3.54

	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
N2O-N/N in food/beverage/fuel/other					0.0613	0.1086	0.0495	0.0801
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.95	1.20	0.95	1.27	4.12	5.78	3.23	4.52

SUMMARY PIGS

RATIO OF N2O-N TO N IN FIRST CROP ACCORDING TO	IPCC 1996 MIN	IPCC 1996 MAX	IPCC 2006 MIN	IPCC 2006 MAX
FIRST YEAR	0.0195	0.0281	0.0159	0.0228
TOTAL	0.0293	0.0464	0.0221	0.0351

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
2.51	3.98	1.89	3.01

	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
N2O-N/N in food/beverage/fuel/other					0.0440	0.0670	0.0352	0.0506
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.90	1.06	0.90	1.06	3.57	5.00	2.79	4.02

SUMMARY POULTRY

RATIO OF N2O-N TO N IN FIRST CROP ACCORDING TO	IPCC 1996 MIN	IPCC 1996 MAX	IPCC 2006 MIN	IPCC 2006 MAX
FIRST YEAR	0.0192	0.0311	0.0154	0.0258
TOTAL	0.0279	0.0564	0.0197	0.0416

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
2.39	4.84	1.69	3.57

	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
N2O-N/N in food/beverage/fuel/other					0.0386	0.1110	0.0299	0.0819
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.84	1.14	0.84	1.14	3.37	5.82	2.53	4.55

SUMMARY SHEEP AND GOATS

RATIO OF N2O-N TO N IN FIRST CROP ACCORDING TO	IPCC 1996 MIN	IPCC 1996 MAX	IPCC 2006 MIN	IPCC 2006 MAX
FIRST YEAR	0.0316	0.0335	0.0131	0.0207
TOTAL	0.0557	0.0662	0.0276	0.0388

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
4.78	5.68	2.37	3.33

	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
N2O-N/N in food/beverage/fuel/other					0.1427	0.1736	0.0653	0.1018
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	1.02	1.11	1.02	1.11	5.81	6.74	3.39	4.37

SUMMARY FODDER

RATIO OF N2O-N TO N IN FIRST CROP ACCORDING TO	IPCC 1996 MIN	IPCC 1996 MAX	IPCC 2006 MIN	IPCC 2006 MAX
FIRST YEAR	0.0192	0.0335	0.0131	0.0258
TOTAL	0.0279	0.0662	0.0197	0.0416

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
2.39	5.68	1.69	3.57

	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
N2O-N/N in food/beverage/fuel/other					0.0386	0.1736	0.0299	0.1018
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.84	1.20	0.84	1.27	3.37	6.74	2.53	4.55