D1 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES WITH CERTAIN VALUES OPTIONALLY CHOSEN BY THE USER 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 — D1

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>	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	1.05	0.83	1.33	11.68	0.44	0.81	-2.75	1.00	Note 16
N digestibility, food/fodder crops	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	0.00	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	0.09	0.07	0.07	0.08	0.11	0.10	0.08	0.05	0.07	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>	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	Note 16
N digestibility, other crop parts	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	0.00	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	0.09	0.07	0.07	0.08	0.11	0.10	0.08	0.05	0.07	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	0.02	0.07	0.06	0.05	0.10	0.09	0.06	0.08	0.06	0.14	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	0.31	7.97	0.00	0.00	-2.70		Note 34

Manure/fertilizer kind, #	None	N	Cattle manure			Pig manure				Poultry manure					Sheep manure		Goat manure		Green	Green	None	None	
	0	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	6	6	71	72	0	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

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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											22.4	22.3	1.67	3.42	1.49	2.11 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							13.3	13.2	0.13		0.13	Note 45
1-10 N leach			FIRST YEAR		0.0568		0.0346				TOTAL N AMOUNTS IN KG AND % LEACHED							64.9	64.5	1.62		0.49	Note 45
			TOTAL		0.0732		0.0451				TOTAL N AMOUNTS IN KG AND %							100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1526		0.0941	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	21	40.0	11.8	0.0	0.0	6.7	21	28.2	1.33	2.65	1.19	1.62 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	2.3	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Dairy	2				6.6	Liquid	0.0	1.28	0.0010	0.38	0.0050 Note 49
Year	N	21	0	26.4	26.4	0	100	11	0	1	19.8	21	7.4	1.7	0.0	0.0	1.4	21	5.6	0.27	0.61	0.24	0.39 Note 47
2	Vol/NH3	Cattle	NO	0.0	6.6	NON	100.00	WWH	1.000	YES	11.0	Cattle	0.67				0.0	Cattle	0.5	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	1.4	11.0	Dairy	2				1.3	Liquid	0.0	0.28	0.0010	0.08	0.0050 Note 49
Year	N	21	0	5.3	5.3	0	100	11	0	1	4.0	21	1.5	0.3	0.0	0.0	0.3	21	1.1	0.05	0.12	0.05	0.08 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.3	NON	100.00	WWH	1.000	YES	2.2	Cattle	0.67				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	0.627	0.3	2.2	Dairy	2				0.3	Liquid	0.0	0.06	0.0010	0.02	0.0050 Note 49
Year	N	21	0	1.1	1.1	0	100	1	0	1	0.8	21	0.3	0.1	0.0	0.0	0.1	21	0.2	0.01	0.02	0.01	0.02 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	SBA	1.000	YES	0.4	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	0.627	0.1	0.4	Dairy	2				0.0	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.2	0.2	0	100	10	0	1	0.2	21	0.1	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.1	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.0	0.0	0	100	119	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	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	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	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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
7	Vol/NH3	Cattle	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	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	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.83	1.30	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	3.42	2.11	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	3.42	2.11	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.83	Total including natural	4.25	2.94	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											22.3	22.2	1.99	3.76	1.50	2.12 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									12.4	12.3	0.12		0.12	Note 45
1-10 N leach			FIRST YEAR		0.0620		0.0345		TOTAL N AMOUNTS IN KG AND % LEACHED									65.8	65.5	1.65		0.49	Note 45
			TOTAL		0.0804		0.0453		TOTAL N AMOUNTS IN KG AND %									100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1683		0.0948 Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	21	40.0	11.8	0.0	0.0	6.7	22	28.2	1.59	2.90	1.19	1.61 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	1.4	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Dairy	2				6.6	Sep	0.0	1.28	0.0105	0.38	0.0050 Note 49
Year	N	22	0	27.2	27.2	0	100	11	0	1	20.4	21	7.1	1.7	0.0	0.0	1.4	22	5.4	0.33	0.70	0.25	0.41 Note 47
2	Vol/NH3	Cattle	NO	0.0	6.8	NON	100.00	WWH	1.000	YES	11.9	Cattle	0.67				0.0	Cattle	0.3	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	1.4	11.9	Dairy	2				1.4	Sep	0.0	0.30	0.0105	0.09	0.0050 Note 49
Year	N	22	0	5.2	5.2	0	100	11	0	1	3.9	21	1.4	0.3	0.0	0.0	0.3	22	1.0	0.06	0.13	0.05	0.08 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.3	NON	100.00	WWH	1.000	YES	2.3	Cattle	0.67				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	0.653	0.3	2.3	Dairy	2				0.3	Sep	0.0	0.06	0.0105	0.02	0.0050 Note 49
Year	N	22	0	1.0	1.0	0	100	1	0	1	0.8	21	0.3	0.1	0.0	0.0	0.1	22	0.2	0.01	0.03	0.01	0.01 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	SBA	1.000	YES	0.4	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	0.653	0.1	0.4	Dairy	2				0.0	Sep	0.0	0.01	0.0105	0.00	0.0050 Note 49
Year	N	22	0	0.2	0.2	0	100	10	0	1	0.1	21	0.1	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.1	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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
7	Vol/NH3	Cattle	NO	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	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	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	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.82	1.29	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	3.76	2.12	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	3.76	2.12	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.82	Total including natural	4.58	2.94	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											21.9	20.9	2.29	4.17	1.51	2.17 Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											13.2	12.6	0.13		0.13	Note 45
1-10 N leach			FIRST YEAR		0.0674	0.0346	TOTAL N AMOUNTS IN KG AND % LEACHED											69.8	66.5	1.75		0.52	Note 45
			TOTAL		0.0892	0.0463	TOTAL N AMOUNTS IN KG AND %											105.0	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1900		0.0987	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	21	40.0	11.8	0.0	0.0	6.7	23	28.2	1.83	3.15	1.19	1.61 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	1.7	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Dairy	2				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	23	0	30.7	30.7	0	100	11	0	1	23.0	21	5.5	1.3	0.0	0.0	1.6	23	4.2	0.39	0.86	0.27	0.47 Note 47
2	Vol/NH3	Cattle	NO	0.0	7.7	NON	100.00	WWH	1.000	YES	15.9	Cattle	0.67				0.0	Cattle	0.3	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	1.6	15.9	Dairy	2				1.6	Deep	0.0	0.40	0.0200	0.12	0.0050 Note 49
Year	N	23	0	4.6	4.6	0	100	11	0	1	3.5	21	0.8	0.2	0.0	0.0	0.2	23	0.6	0.06	0.13	0.04	0.07 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.2	NON	100.00	WWH	1.000	YES	2.4	Cattle	0.67				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	0.760	0.2	2.4	Dairy	2				0.2	Deep	0.0	0.06	0.0200	0.02	0.0050 Note 49
Year	N	23	0	0.7	0.7	0	100	1	0	1	0.5	21	0.1	0.0	0.0	0.0	0.0	23	0.1	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.2	NON	100.00	SBA	1.000	YES	0.4	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	0.760	0.0	0.4	Dairy	2				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	23	0	0.1	0.1	0	100	10	0	1	0.1	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	0.760	0.0	0.1	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	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	0.64	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	1.21	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	4.17	2.17	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	4.17	2.17	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	Total including natural	4.94	2.94	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											22.0	22.0	2.36	4.25	2.04	2.64	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									4.5	4.5	0.04		0.04		Note 45
1-10 N leach			FIRST YEAR		0.0678	0.0434		TOTAL N AMOUNTS IN KG AND % LEACHED									73.5	73.5	1.84		0.55		Note 45
			TOTAL		0.0909	0.0565		TOTAL N AMOUNTS IN KG AND %									100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1929		0.1199	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	21	40.0	11.8	0.0	0.0	6.7	24	28.2	1.87	3.17	1.62	2.03 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Dairy	2				6.6	Graz	0.0	1.28	0.0200	0.38	0.0200 Note 49
Year	N	24	0	28.2	28.2	0	100	11	0	1	26.2	21	5.1	1.2	0.0	0.0	1.8	24	3.9	0.43	0.93	0.36	0.53 Note 47
2	Vol/NH3	Cattle	NO	0.0	2.0	NON	100.00	WWH	1.000	YES	19.3	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	1.8	19.3	Dairy	2				1.8	Graz	0.0	0.48	0.0200	0.15	0.0200 Note 49
Year	N	24	0	3.9	3.9	0	100	11	0	1	3.6	21	0.7	0.2	0.0	0.0	0.2	24	0.5	0.06	0.13	0.05	0.07 Note 47
3	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	WWH	1.000	YES	2.7	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	0.806	0.2	2.7	Dairy	2				0.2	Graz	0.0	0.07	0.0200	0.02	0.0200 Note 49
Year	N	24	0	0.5	0.5	0	100	1	0	1	0.5	21	0.1	0.0	0.0	0.0	0.0	24	0.1	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	SBA	1.000	YES	0.4	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	0.806	0.0	0.4	Dairy	2				0.0	Graz	0.0	0.01	0.0200	0.00	0.0200 Note 49
Year	N	24	0	0.1	0.1	0	100	10	0	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
5	Vol/NH3	Cattle	NO	0.0	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	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.1	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	24	0	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	NO	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	0.806	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	0.64	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	1.16	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	4.25	2.64	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	4.25	2.64	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	Total including natural	4.98	3.38	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											21.0	20.9	1.69	3.47	1.52	2.15 Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											13.9	13.8	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0568	0.0348	TOTAL N AMOUNTS IN KG AND % LEACHED											65.7	65.3	1.64		0.49	Note 45
			TOTAL		0.0742	0.0460	TOTAL N AMOUNTS IN KG AND %											100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1654		0.1024 Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	22	40.0	10.4	0.0	0.0	6.7	21	29.6	1.33	2.65	1.20	1.63 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	2.4	0.05	0.0125	0.05	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Beef	2				6.6	Liquid	0.0	1.28	0.0010	0.38	0.0050 Note 49
Year	N	21	0	27.7	27.7	0	100	11	0	1	20.7	22	7.7	1.6	0.0	0.0	1.4	21	6.1	0.28	0.65	0.25	0.41 Note 47
2	Vol/NH3	Cattle	NO	0.0	6.9	NON	100.00	WWH	1.000	YES	11.6	Cattle	0.67				0.0	Cattle	0.5	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	1.4	11.6	Beef	2				1.4	Liquid	0.0	0.29	0.0010	0.09	0.0050 Note 49
Year	N	21	0	5.7	5.7	0	100	11	0	1	4.3	22	1.6	0.3	0.0	0.0	0.3	21	1.3	0.06	0.13	0.05	0.09 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.4	NON	100.00	WWH	1.000	YES	2.4	Cattle	0.67				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	0.627	0.3	2.4	Beef	2				0.3	Liquid	0.0	0.06	0.0010	0.02	0.0050 Note 49
Year	N	21	0	1.2	1.2	0	100	1	0	1	0.9	22	0.3	0.1	0.0	0.0	0.1	21	0.3	0.01	0.03	0.01	0.02 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	SBA	1.000	YES	0.5	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	0.627	0.1	0.5	Beef	2				0.1	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.2	0.2	0	100	10	0	1	0.2	22	0.1	0.0	0.0	0.0	0.0	21	0.1	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.1	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.1	0.1	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	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	1.000	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.0	0.0	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
7	Vol/NH3	Cattle	NO	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	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.0	0.0	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	NO	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	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	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	0.64	0.16	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.84	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	3.47	2.15	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	3.47	2.15	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.16	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.84	Total including natural	4.31	2.99	Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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											20.9	20.8	2.03	3.83	1.53	2.16 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									13.0	12.9	0.13		0.13	Note 45
1-10 N leach			FIRST YEAR		0.0624		0.0347		TOTAL N AMOUNTS IN KG AND % LEACHED									66.7	66.3	1.67		0.50	Note 45
			TOTAL		0.0819		0.0461		TOTAL N AMOUNTS IN KG AND %									100.6	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1830		0.1031	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	22	40.0	10.4	0.0	0.0	6.7	22	29.6	1.60	2.91	1.20	1.62 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	1.5	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Beef	2				6.6	Sep	0.0	1.28	0.0105	0.38	0.0050 Note 49
Year	N	22	0	28.6	28.6	0	100	11	0	1	21.4	22	7.4	1.5	0.0	0.0	1.5	22	5.9	0.34	0.73	0.26	0.43 Note 47
2	Vol/NH3	Cattle	NO	0.0	7.1	NON	100.00	WWH	1.000	YES	12.5	Cattle	0.67				0.0	Cattle	0.3	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	1.5	12.5	Beef	2				1.4	Sep	0.0	0.31	0.0105	0.09	0.0050 Note 49
Year	N	22	0	5.7	5.7	0	100	11	0	1	4.3	22	1.5	0.3	0.0	0.0	0.3	22	1.2	0.07	0.15	0.05	0.09 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.4	NON	100.00	WWH	1.000	YES	2.5	Cattle	0.67				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	0.653	0.3	2.5	Beef	2				0.3	Sep	0.0	0.06	0.0105	0.02	0.0050 Note 49
Year	N	22	0	1.1	1.1	0	100	1	0	1	0.8	22	0.3	0.1	0.0	0.0	0.1	22	0.2	0.01	0.03	0.01	0.02 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	SBA	1.000	YES	0.5	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	0.653	0.1	0.5	Beef	2				0.1	Sep	0.0	0.01	0.0105	0.00	0.0050 Note 49
Year	N	22	0	0.2	0.2	0	100	10	0	1	0.2	22	0.1	0.0	0.0	0.0	0.0	22	0.0	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.1	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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
7	Vol/NH3	Cattle	NO	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	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	0	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	NO	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	0.653	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	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.83	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	3.83	2.16 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	3.83	2.16 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.83 Total including natural	4.66	2.99 Note 51

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N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											20.5	19.5	2.35	4.26	1.54	2.21 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									13.8	13.2	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0680		0.0347		TOTAL N AMOUNTS IN KG AND % LEACHED									70.9	67.3	1.77		0.53	Note 45
			TOTAL		0.0911		0.0472		TOTAL N AMOUNTS IN KG AND %									105.2	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.2072		0.1074	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	22	40.0	10.4	0.0	0.0	6.7	23	29.6	1.86	3.18	1.20	1.62 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Cattle	0.84				0.0	Cattle	1.8	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Beef	2				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	23	0	32.2	32.2	0	100	11	0	1	24.2	22	5.8	1.2	0.0	0.0	1.7	23	4.6	0.41	0.91	0.28	0.49 Note 47
2	Vol/NH3	Cattle	NO	0.0	8.1	NON	100.00	WWH	1.000	YES	16.7	Cattle	0.67				0.0	Cattle	0.3	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	1.7	16.7	Beef	2				1.6	Deep	0.0	0.42	0.0200	0.13	0.0050 Note 49
Year	N	23	0	5.0	5.0	0	100	11	0	1	3.8	22	0.9	0.2	0.0	0.0	0.3	23	0.7	0.06	0.14	0.04	0.08 Note 47
3	Vol/NH3	Cattle	NO	0.0	1.3	NON	100.00	WWH	1.000	YES	2.6	Cattle	0.67				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	0.760	0.3	2.6	Beef	2				0.3	Deep	0.0	0.06	0.0200	0.02	0.0050 Note 49
Year	N	23	0	0.8	0.8	0	100	1	0	1	0.6	22	0.1	0.0	0.0	0.0	0.0	23	0.1	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.2	NON	100.00	SBA	1.000	YES	0.4	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	0.760	0.0	0.4	Beef	2				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	23	0	0.1	0.1	0	100	10	0	1	0.1	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	0.760	0.0	0.1	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	0	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	NO	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	0.760	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	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	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	0.00	Current crops	4.26	2.21	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	4.26	2.21	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	Total including natural	5.03	2.98	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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												20.6	20.6	2.42	4.34	2.10	2.71	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										4.6	4.6	0.05		0.05		Note 45
1-10	N leach		FIRST YEAR		0.0684	0.0440		TOTAL N AMOUNTS IN KG AND % LEACHED										74.7	74.7	1.87		0.56		Note 45
			TOTAL		0.0928	0.0579		TOTAL N AMOUNTS IN KG AND %										100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.2102		0.1311	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	22	40.0	10.4	0.0	0.0	6.7	24	29.6	1.90	3.20	1.65	2.06	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Beef	2				6.6	Graz	0.0	1.28	0.0200	0.38	0.0200	Note 49
Year	N	24	0	29.6	29.6	0	100	11	0	1	27.5	22	5.3	1.1	0.0	0.0	1.9	24	4.2	0.45	0.98	0.38	0.56	Note 47
2	Vol/NH3	Cattle	NO	0.0	2.1	NON	100.00	WWH	1.000	YES	20.3	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	1.9	20.3	Beef	2				1.9	Graz	0.0	0.51	0.0200	0.15	0.0200	Note 49
Year	N	24	0	4.2	4.2	0	100	11	0	1	3.9	22	0.8	0.2	0.0	0.0	0.3	24	0.6	0.06	0.14	0.05	0.08	Note 47
3	Vol/NH3	Cattle	NO	0.0	0.3	NON	100.00	WWH	1.000	YES	2.9	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	0.806	0.3	2.9	Beef	2				0.3	Graz	0.0	0.07	0.0200	0.02	0.0200	Note 49
Year	N	24	0	0.6	0.6	0	100	1	0	1	0.6	22	0.1	0.0	0.0	0.0	0.0	24	0.1	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	SBA	1.000	YES	0.4	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	0.806	0.0	0.4	Beef	2				0.0	Graz	0.0	0.01	0.0200	0.00	0.0200	Note 49
Year	N	24	0	0.1	0.1	0	100	10	0	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
5	Vol/NH3	Cattle	NO	0.0	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	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.1	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	0	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	NO	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	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	0	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	NO	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	0.806	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	0.64	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	1.16	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	4.34	2.71	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	4.34	2.71	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	Total including natural	5.08	3.45	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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							27.6	27.6	1.56	3.19	1.37	1.94	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							11.9	11.9	0.12		0.12		Note 45
1-10	N leach		FIRST YEAR		0.0568	0.0342	TOTAL N AMOUNTS IN KG AND % LEACHED							60.5	60.5	1.51		0.45		Note 45
			TOTAL		0.0684	0.0416	TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																			0.1157		0.0703	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	32	40.0	16.7	0.0	0.0	6.7	31	23.3	1.32	2.66	1.16	1.60	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Pig	0.84				0.0	Pig	3.3	0.05	0.0125	0.05	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Pork	3				6.6	Liquid	0.0	1.28	0.0010	0.38	0.0050	Note 49
Year	N	31	0	20.0	20.0	0	100	11	0	1	15.0	32	6.0	2.5	0.0	0.0	1.0	31	3.5	0.20	0.46	0.18	0.29	Note 47
2	Vol/NH3	Pig	NO	0.0	5.0	NON	100.00	WWH	1.000	YES	8.0	Pig	0.67				0.0	Pig	0.5	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	1.0	8.0	Pork	3				1.0	Liquid	0.0	0.20	0.0010	0.06	0.0050	Note 49
Year	N	31	0	3.0	3.0	0	100	11	0	1	2.3	32	0.9	0.4	0.0	0.0	0.2	31	0.5	0.03	0.07	0.03	0.04	Note 47
3	Vol/NH3	Pig	NO	0.0	0.8	NON	100.00	WWH	1.000	YES	1.2	Pig	0.67				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	0.600	0.2	1.2	Pork	3				0.2	Liquid	0.0	0.03	0.0010	0.01	0.0050	Note 49
Year	N	31	0	0.5	0.5	0	100	1	0	1	0.3	32	0.1	0.1	0.0	0.0	0.0	31	0.1	0.00	0.01	0.00	0.01	Note 47
4	Vol/NH3	Pig	NO	0.0	0.1	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	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.2	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	0.1	0.1	0	100	10	0	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
5	Vol/NH3	Pig	NO	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	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Pig	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	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	NO	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	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	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	NO	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	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	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	NO	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	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	31	0	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	NO	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	0.600	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	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	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	0.00	Current crops	3.19	1.94	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	3.19	1.94	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.78		Total including natural	3.98	2.73	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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									27.0	26.9				1.76	3.41	1.35	1.93	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3						12.6	12.5				0.13		0.13		Note 45
1-10	N leach		FIRST YEAR		0.0609	0.0343		TOTAL N AMOUNTS IN KG AND % LEACHED						60.9	60.6				1.52		0.46		Note 45
			TOTAL		0.0729	0.0414		TOTAL N AMOUNTS IN KG AND %						100.5	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.1260		0.0715	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	32	40.0	16.7	0.0	0.0	6.7	32	23.3	1.51	2.85	1.16	1.60	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Pig	0.84				0.0	Pig	4.2	0.06	0.0125	0.06	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Pork	3				6.6	Sep	0.0	1.28	0.0105	0.38	0.0050	Note 49
Year	N	32	0	19.5	19.5	0	100	11	0	1	14.7	32	5.1	2.1	0.0	0.0	1.0	32	3.0	0.22	0.49	0.17	0.29	Note 47
2	Vol/NH3	Pig	NO	0.0	4.9	NON	100.00	WWH	1.000	YES	8.6	Pig	0.67				0.0	Pig	0.5	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	1.0	8.6	Pork	3				1.0	Sep	0.0	0.21	0.0105	0.06	0.0050	Note 49
Year	N	32	0	2.5	2.5	0	100	11	0	1	1.9	32	0.6	0.3	0.0	0.0	0.1	32	0.4	0.03	0.06	0.02	0.04	Note 47
3	Vol/NH3	Pig	NO	0.0	0.6	NON	100.00	WWH	1.000	YES	1.1	Pig	0.67				0.0	Pig	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.1	1.1	Pork	3				0.1	Sep	0.0	0.03	0.0105	0.01	0.0050	Note 49
Year	N	32	0	0.3	0.3	0	100	1	0	1	0.2	32	0.1	0.0	0.0	0.0	0.0	32	0.0	0.00	0.01	0.00	0.00	Note 47
4	Vol/NH3	Pig	NO	0.0	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	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.0	0.1	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	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
5	Vol/NH3	Pig	NO	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	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Pig	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	32	0	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	NO	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	0.653	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	0.64	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.19	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	3.41	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	3.41	1.93	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.76	Total including natural	4.16	2.69	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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								27.1	26.4				1.93	3.60	1.34	1.95	Note 45
Year N NH3			ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								14.5	14.2				0.15		0.15		Note 45
1-10 N leach			FIRST YEAR	0.0644	0.0345	TOTAL N AMOUNTS IN KG AND % LEACHED								61.0	59.5				1.52		0.46		Note 45
			TOTAL	0.0770	0.0417	TOTAL N AMOUNTS IN KG AND %								102.5	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.1330		0.0719	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	32	40.0	16.7	0.0	0.0	6.7	33	23.3	1.65	3.01	1.15	1.61	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Pork	3				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050	Note 49
Year	N	33	0	19.7	19.7	0	100	11	0	1	14.8	32	5.1	2.1	0.0	0.0	1.0	33	3.0	0.24	0.51	0.17	0.29	Note 47
2	Vol/NH3	Pig	NO	0.0	4.9	NON	100.00	WWH	1.000	YES	8.6	Pig	0.67				0.0	Pig	0.7	0.06	0.0125	0.06	0.0100	Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	1.0	8.6	Pork	3				1.0	Deep	0.0	0.22	0.0200	0.06	0.0050	Note 49
Year	N	33	0	2.5	2.5	0	100	11	0	1	1.9	32	0.7	0.3	0.0	0.0	0.1	33	0.4	0.03	0.07	0.02	0.04	Note 47
3	Vol/NH3	Pig	NO	0.0	0.6	NON	100.00	WWH	1.000	YES	1.1	Pig	0.67				0.0	Pig	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.1	1.1	Pork	3				0.1	Deep	0.0	0.03	0.0200	0.01	0.0050	Note 49
Year	N	33	0	0.3	0.3	0	100	1	0	1	0.2	32	0.1	0.0	0.0	0.0	0.0	33	0.0	0.00	0.01	0.00	0.00	Note 47
4	Vol/NH3	Pig	NO	0.0	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	0.653	0.0	0.1	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	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
5	Vol/NH3	Pig	NO	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	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Pig	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	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	NO	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	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	33	0	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	NO	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	0.653	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	0.64	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.19	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	3.60	1.95	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	3.60	1.95	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	Total including natural	4.36	2.70	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											28.2	28.2	2.19	3.93	1.89	2.43	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									4.1	4.1	0.04		0.04		Note 45
1-10 N leach			FIRST YEAR		0.0657		0.0413		TOTAL N AMOUNTS IN KG AND % LEACHED									67.7	67.7	1.69		0.51		Note 45
			TOTAL		0.0840		0.0521		TOTAL N AMOUNTS IN KG AND %									100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1393		0.0864	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	32	40.0	16.7	0.0	0.0	6.7	34	23.3	1.77	3.07	1.53	1.93	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Pork	3				6.6	Root	0.0	1.28	0.0200	0.38	0.0200	Note 49
Year	N	34	0	23.3	23.3	0	100	11	0	1	21.7	32	6.1	2.5	0.0	0.0	1.5	34	3.5	0.36	0.73	0.31	0.43	Note 47
2	Vol/NH3	Pig	NO	0.0	1.6	NON	100.00	WWH	1.000	YES	14.1	Pig	0.67				0.0	Pig	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	1.5	14.1	Pork	3				1.5	Root	0.0	0.35	0.0200	0.11	0.0200	Note 49
Year	N	34	0	3.5	3.5	0	100	11	0	1	3.3	32	0.9	0.4	0.0	0.0	0.2	34	0.5	0.05	0.11	0.05	0.06	Note 47
3	Vol/NH3	Pig	NO	0.0	0.2	NON	100.00	WWH	1.000	YES	2.1	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	0.720	0.2	2.1	Pork	3				0.2	Root	0.0	0.05	0.0200	0.02	0.0200	Note 49
Year	N	34	0	0.5	0.5	0	100	1	0	1	0.5	32	0.1	0.1	0.0	0.0	0.0	34	0.1	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Pig	NO	0.0	0.0	NON	100.00	SBA	1.000	YES	0.3	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	0.720	0.0	0.3	Pork	3				0.0	Root	0.0	0.01	0.0200	0.00	0.0200	Note 49
Year	N	34	0	0.1	0.1	0	100	10	0	1	0.1	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Pig	NO	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	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Pig	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	0	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	NO	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	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	0	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	NO	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	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	0	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	NO	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	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	0	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	NO	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	0.720	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	0.64	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.19	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	3.93	2.43	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	3.93	2.43	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.76	Total including natural	4.68	3.19	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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							30.8	30.8				1.52	3.11	1.32	1.86	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			9.4	9.4				0.09		0.09		Note 45
1-10 N leach			FIRST YEAR		0.0565		0.0337				TOTAL N AMOUNTS IN KG AND % LEACHED			59.8	59.8				1.50		0.45		Note 45
			TOTAL		0.0666		0.0399				TOTAL N AMOUNTS IN KG AND %			100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.1011		0.0605	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	42	40.0	20.4	0.0	0.0	6.7	41	19.6	1.32	2.64	1.15	1.57 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	2.0	0.04	0.0125	0.04	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Meat	4				6.6	Liquid	0.0	1.28	0.0010	0.38	0.0050 Note 49
Year	N	41	0	17.6	17.6	0	100	11	0	1	13.2	42	4.6	2.3	0.0	0.0	0.9	41	2.2	0.18	0.42	0.15	0.26 Note 47
2	Vol/NH3	Poultry	NO	0.0	4.4	NON	100.00	WWH	1.000	YES	7.7	Poultry	0.67				0.0	Poultry	0.2	0.05	0.0125	0.05	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.9	7.7	Meat	4				0.9	Liquid	0.0	0.19	0.0010	0.06	0.0050 Note 49
Year	N	41	0	2.0	2.0	0	100	11	0	1	1.5	42	0.5	0.3	0.0	0.0	0.1	41	0.3	0.02	0.05	0.02	0.03 Note 47
3	Vol/NH3	Poultry	NO	0.0	0.5	NON	100.00	WWH	1.000	YES	0.9	Poultry	0.67				0.0	Poultry	0.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.1	0.9	Meat	4				0.1	Liquid	0.0	0.02	0.0010	0.01	0.0050 Note 49
Year	N	41	0	0.2	0.2	0	100	1	0	1	0.2	42	0.1	0.0	0.0	0.0	0.0	41	0.0	0.00	0.01	0.00	0.00 Note 47
4	Vol/NH3	Poultry	NO	0.0	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	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.1	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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
5	Vol/NH3	Poultry	NO	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	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	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	0.64	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	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	3.11	1.86	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	3.11	1.86	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	Total including natural	3.86	2.61	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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							30.1	30.1	1.64	3.21	1.27	1.83	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							11.7	11.7	0.12		0.12		Note 45
1-10 N leach			FIRST YEAR		0.0601		0.0340				TOTAL N AMOUNTS IN KG AND % LEACHED							58.2	58.2	1.45		0.44		Note 45
			TOTAL		0.0687		0.0391				TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1066		0.0607	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	42	40.0	20.4	0.0	0.0	6.7	42	19.6	1.46	2.81	1.13	1.59	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	4.9	0.07	0.0125	0.07	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Meat	4				6.6	Sep	0.0	1.28	0.0105	0.38	0.0050	Note 49
Year	N	42	0	14.7	14.7	0	100	11	0	1	11.0	42	3.8	1.9	0.0	0.0	0.8	42	1.9	0.16	0.36	0.13	0.22	Note 47
2	Vol/NH3	Poultry	NO	0.0	3.7	NON	100.00	WWH	1.000	YES	6.4	Poultry	0.67				0.0	Poultry	0.5	0.04	0.0125	0.04	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.8	6.4	Meat	4				0.7	Sep	0.0	0.16	0.0105	0.05	0.0050	Note 49
Year	N	42	0	1.4	1.4	0	100	11	0	1	1.1	42	0.4	0.2	0.0	0.0	0.1	42	0.2	0.02	0.03	0.01	0.02	Note 47
3	Vol/NH3	Poultry	NO	0.0	0.4	NON	100.00	WWH	1.000	YES	0.6	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	0.653	0.1	0.6	Meat	4				0.1	Sep	0.0	0.02	0.0105	0.00	0.0050	Note 49
Year	N	42	0	0.1	0.1	0	100	1	0	1	0.1	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	Poultry	NO	0.0	0.0	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	0.653	0.0	0.1	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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
5	Vol/NH3	Poultry	NO	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	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	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	0.64	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	1.14	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	3.21	1.83	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	3.21	1.83	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.72		Total including natural	3.93	2.55	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											28.9	28.9	1.68	3.26	1.22	1.79 Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							13.6	13.6	0.14		0.14	Note 45
1-10	N leach		FIRST YEAR		0.0624		0.0343				TOTAL N AMOUNTS IN KG AND % LEACHED							57.6	57.5	1.44		0.43	Note 45
			TOTAL		0.0697		0.0384				TOTAL N AMOUNTS IN KG AND %							100.2	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1125		0.0620	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	42	40.0	20.4	0.0	0.0	6.7	43	19.6	1.54	2.92	1.12	1.60 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	7.8	0.10	0.0125	0.10	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Meat	4				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	43	0	11.9	11.9	0	100	11	0	1	8.9	42	2.1	1.1	0.0	0.0	0.6	43	1.1	0.13	0.32	0.10	0.18 Note 47
2	Vol/NH3	Poultry	NO	0.0	3.0	NON	100.00	WWH	1.000	YES	6.2	Poultry	0.67				0.0	Poultry	0.4	0.03	0.0125	0.03	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.6	6.2	Meat	4				0.6	Deep	0.0	0.15	0.0200	0.05	0.0050 Note 49
Year	N	43	0	0.6	0.6	0	100	11	0	1	0.5	42	0.1	0.1	0.0	0.0	0.0	43	0.1	0.01	0.02	0.01	0.01 Note 47
3	Vol/NH3	Poultry	NO	0.0	0.2	NON	100.00	WWH	1.000	YES	0.3	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	0.760	0.0	0.3	Meat	4				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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
4	Vol/NH3	Poultry	NO	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	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	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	0.64	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	1.07	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	3.26	1.79	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	3.26	1.79	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	Total including natural	3.94	2.48	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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											30.5	30.5	2.00	3.68	1.71	2.24	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											3.7	3.7	0.04		0.04		Note 45
1-10	N leach		FIRST YEAR		0.0641	0.0397	TOTAL N AMOUNTS IN KG AND % LEACHED											65.8	65.8	1.65		0.49		Note 45
			TOTAL		0.0788	0.0479	TOTAL N AMOUNTS IN KG AND %											100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1209		0.0734	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	42	40.0	20.4	0.0	0.0	6.7	44	19.6	1.70	3.00	1.45	1.86	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Meat	4				6.6	Scrap	0.0	1.28	0.0200	0.38	0.0200	Note 49
Year	N	44	0	19.6	19.6	0	100	11	0	1	18.2	42	3.5	1.8	0.0	0.0	1.3	44	1.7	0.28	0.63	0.23	0.35	Note 47
2	Vol/NH3	Poultry	NO	0.0	1.4	NON	100.00	WWH	1.000	YES	13.4	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	0.806	1.3	13.4	Meat	4				1.2	Scrap	0.0	0.34	0.0200	0.10	0.0200	Note 49
Year	N	44	0	1.7	1.7	0	100	11	0	1	1.6	42	0.3	0.2	0.0	0.0	0.1	44	0.2	0.02	0.06	0.02	0.03	Note 47
3	Vol/NH3	Poultry	NO	0.0	0.1	NON	100.00	WWH	1.000	YES	1.2	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	0.806	0.1	1.2	Meat	4				0.1	Scrap	0.0	0.03	0.0200	0.01	0.0200	Note 49
Year	N	44	0	0.2	0.2	0	100	1	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
4	Vol/NH3	Poultry	NO	0.0	0.0	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	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.1	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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
5	Vol/NH3	Poultry	NO	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	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	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	0.64	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	1.10	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	3.68	2.24	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	2.24	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.70	Total including natural	4.39	2.94	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											20.2	20.2	1.67	3.45	1.50	2.13 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									14.2	14.2	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0570		0.0349		TOTAL N AMOUNTS IN KG AND % LEACHED									65.6	65.6	1.64		0.49	Note 45
			TOTAL		0.0739		0.0456		TOTAL N AMOUNTS IN KG AND %									100.0	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1712		0.1056 Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	43	40.0	9.6	0.0	0.0	6.7	41	30.4	1.33	2.66	1.20	1.63 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	3.0	0.05	0.0125	0.05	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Eggs	4				6.6	Liquid	0.0	1.28	0.0010	0.38	0.0050 Note 49
Year	N	41	0	27.3	27.3	0	100	11	0	1	20.5	43	7.1	1.7	0.0	0.0	1.4	41	5.4	0.28	0.65	0.25	0.41 Note 47
2	Vol/NH3	Poultry	NO	0.0	6.8	NON	100.00	WWH	1.000	YES	12.0	Poultry	0.67				0.0	Poultry	0.5	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	1.4	12.0	Eggs	4				1.4	Liquid	0.0	0.30	0.0010	0.09	0.0050 Note 49
Year	N	41	0	4.9	4.9	0	100	11	0	1	3.6	43	1.3	0.3	0.0	0.0	0.3	41	1.0	0.05	0.12	0.04	0.07 Note 47
3	Vol/NH3	Poultry	NO	0.0	1.2	NON	100.00	WWH	1.000	YES	2.1	Poultry	0.67				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	0.653	0.3	2.1	Eggs	4				0.2	Liquid	0.0	0.05	0.0010	0.02	0.0050 Note 49
Year	N	41	0	0.9	0.9	0	100	1	0	1	0.6	43	0.2	0.1	0.0	0.0	0.1	41	0.2	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Poultry	NO	0.0	0.2	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	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.1	0.4	Eggs	4				0.0	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	41	0	0.2	0.2	0	100	10	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
5	Vol/NH3	Poultry	NO	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	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.1	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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
7	Vol/NH3	Poultry	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	0	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	NO	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	0.653	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	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.82	1.28	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	3.45	2.13 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	3.45	2.13 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.15	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.82	Total including natural	4.27	2.95 Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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							19.4	19.4	1.85	3.60	1.41	2.06	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							17.8	17.8	0.18		0.18		Note 45
1-10 N leach			FIRST YEAR		0.0625	0.0354	TOTAL N AMOUNTS IN KG AND % LEACHED							62.8	62.8	1.57		0.47		Note 45
			TOTAL		0.0771	0.0441	TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																	0.1854		0.1061	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	43	40.0	9.6	0.0	0.0	6.7	42	30.4	1.54	2.92	1.17	1.66	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	7.6	0.10	0.0125	0.10	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Eggs	4				6.6	Sep	0.0	1.28	0.0105	0.38	0.0050	Note 49
Year	N	42	0	22.8	22.8	0	100	11	0	1	17.1	43	5.9	1.4	0.0	0.0	1.2	42	4.5	0.26	0.58	0.20	0.35	Note 47
2	Vol/NH3	Poultry	NO	0.0	5.7	NON	100.00	WWH	1.000	YES	10.0	Poultry	0.67				0.0	Poultry	1.1	0.07	0.0125	0.07	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	1.2	10.0	Eggs	4				1.1	Sep	0.0	0.25	0.0105	0.07	0.0050	Note 49
Year	N	42	0	3.4	3.4	0	100	11	0	1	2.5	43	0.9	0.2	0.0	0.0	0.2	42	0.7	0.04	0.09	0.03	0.05	Note 47
3	Vol/NH3	Poultry	NO	0.0	0.8	NON	100.00	WWH	1.000	YES	1.5	Poultry	0.67				0.0	Poultry	0.2	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.2	1.5	Eggs	4				0.2	Sep	0.0	0.04	0.0105	0.01	0.0050	Note 49
Year	N	42	0	0.5	0.5	0	100	1	0	1	0.4	43	0.1	0.0	0.0	0.0	0.0	42	0.1	0.01	0.01	0.00	0.01	Note 47
4	Vol/NH3	Poultry	NO	0.0	0.1	NON	100.00	SBA	1.000	YES	0.2	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	0.653	0.0	0.2	Eggs	4				0.0	Sep	0.0	0.01	0.0105	0.00	0.0050	Note 49
Year	N	42	0	0.1	0.1	0	100	10	0	1	0.1	43	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	0	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	NO	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	0.653	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	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	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	3.60	2.06	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	3.60	2.06	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.78	Total including natural	4.38	2.84	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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										18.3	18.2	1.90	3.65	1.32	1.99 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										20.5	20.4	0.20		0.20	Note 45
1-10 N leach			FIRST YEAR		0.0661		0.0359	TOTAL N AMOUNTS IN KG AND % LEACHED										61.5	61.3	1.54		0.46	Note 45
			TOTAL		0.0780		0.0426	TOTAL N AMOUNTS IN KG AND %										100.3	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1995		0.1088 Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	43	40.0	9.6	0.0	0.0	6.7	43	30.4	1.67	3.09	1.15	1.68 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Poultry	0.84				0.0	Poultry	12.1	0.14	0.0125	0.14	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Eggs	4				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	43	0	18.5	18.5	0	100	11	0	1	13.8	43	3.3	0.8	0.0	0.0	1.0	43	2.5	0.21	0.51	0.16	0.29 Note 47
2	Vol/NH3	Poultry	NO	0.0	4.6	NON	100.00	WWH	1.000	YES	9.6	Poultry	0.67				0.0	Poultry	1.0	0.06	0.0125	0.06	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	1.0	9.6	Eggs	4				0.9	Deep	0.0	0.24	0.0200	0.07	0.0050 Note 49
Year	N	43	0	1.5	1.5	0	100	11	0	1	1.1	43	0.3	0.1	0.0	0.0	0.1	43	0.2	0.02	0.04	0.01	0.02 Note 47
3	Vol/NH3	Poultry	NO	0.0	0.4	NON	100.00	WWH	1.000	YES	0.8	Poultry	0.67				0.0	Poultry	0.1	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.1	0.8	Eggs	4				0.1	Deep	0.0	0.02	0.0200	0.01	0.0050 Note 49
Year	N	43	0	0.1	0.1	0	100	1	0	1	0.1	43	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	NO	0.0	0.0	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	0.760	0.0	0.1	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	0	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	NO	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	0.760	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	0.64	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	1.12	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	3.65	1.99	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	3.65	1.99	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.71	Total including natural	4.36	2.70	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											20.1	20.1	2.44	4.37	2.12	2.73	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006					TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							4.7	4.7	0.05		0.05		Note 45
1-10 N leach			FIRST YEAR		0.0687	0.0444					TOTAL N AMOUNTS IN KG AND % LEACHED							75.2	75.2	1.88		0.56		Note 45
			TOTAL		0.0935	0.0584					TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.2170		0.1354	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	43	40.0	9.6	0.0	0.0	6.7	44	30.4	1.91	3.21	1.67	2.07	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Eggs	4				6.6	Scrap	0.0	1.28	0.0200	0.38	0.0200	Note 49
Year	N	44	0	30.4	30.4	0	100	11	0	1	28.2	43	5.5	1.3	0.0	0.0	1.9	44	4.1	0.46	1.00	0.39	0.57	Note 47
2	Vol/NH3	Poultry	NO	0.0	2.1	NON	100.00	WWH	1.000	YES	20.8	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	0.806	1.9	20.8	Eggs	4				1.9	Scrap	0.0	0.52	0.0200	0.16	0.0200	Note 49
Year	N	44	0	4.1	4.1	0	100	11	0	1	3.9	43	0.7	0.2	0.0	0.0	0.3	44	0.6	0.06	0.14	0.05	0.08	Note 47
3	Vol/NH3	Poultry	NO	0.0	0.3	NON	100.00	WWH	1.000	YES	2.8	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	0.806	0.3	2.8	Eggs	4				0.3	Scrap	0.0	0.07	0.0200	0.02	0.0200	Note 49
Year	N	44	0	0.6	0.6	0	100	1	0	1	0.5	43	0.1	0.0	0.0	0.0	0.0	44	0.1	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Poultry	NO	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	0.806	0.0	0.4	Eggs	4				0.0	Scrap	0.0	0.01	0.0200	0.00	0.0200	Note 49
Year	N	44	0	0.1	0.1	0	100	10	0	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
5	Vol/NH3	Poultry	NO	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	0.806	0.0	0.1	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Poultry	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	0	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	NO	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	0.806	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	0.64	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	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	4.37	2.73	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	4.37	2.73	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	Total including natural	5.11	3.47	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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											16.8	15.9	2.60	4.70	1.70	2.39 Note 45
Year	N NH3		ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							8.7	8.2	0.09		0.09	Note 45
1-10	N leach		FIRST YEAR		0.0693		0.0356				TOTAL N AMOUNTS IN KG AND % LEACHED							80.5	76.0	2.01		0.60	Note 45
			TOTAL		0.1007		0.0512				TOTAL N AMOUNTS IN KG AND %							105.9	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.2800		0.1426	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	51	40.0	5.7	0.0	0.0	6.7	53	34.3	1.89	3.24	1.21	1.66 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Sheep	0.84				0.0	Sheep	5.1	0.07	0.0125	0.07	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Milk/mutt	5				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	53	0	33.9	33.9	0	100	11	0	1	33.9	51	8.1	1.2	0.0	0.0	2.3	53	7.0	0.57	1.17	0.40	0.58 Note 47
2	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WWH	1.000	YES	23.4	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	0.760	2.3	23.4	Milk/mutt	5				2.3	Deep	0.0	0.59	0.0200	0.18	0.0050 Note 49
Year	N	53	0	6.9	6.9	0	100	11	0	1	6.9	51	1.7	0.2	0.0	0.0	0.5	53	1.4	0.12	0.24	0.08	0.12 Note 47
3	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WWH	1.000	YES	4.8	Sheep	0.67				0.0	Sheep	0.2	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	0.5	4.8	Milk/mutt	5				0.5	Deep	0.0	0.12	0.0200	0.04	0.0050 Note 49
Year	N	53	0	1.4	1.4	0	100	1	0	1	1.4	51	0.3	0.0	0.0	0.0	0.1	53	0.3	0.02	0.05	0.02	0.02 Note 47
4	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	SBA	1.000	YES	1.0	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	0.760	0.1	1.0	Milk/mutt	5				0.1	Deep	0.0	0.02	0.0200	0.01	0.0050 Note 49
Year	N	53	0	0.3	0.3	0	100	10	0	1	0.3	51	0.1	0.0	0.0	0.0	0.0	53	0.1	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WBA	1.000	YES	0.2	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	0.760	0.0	0.2	Milk/mutt	5				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	53	0	0.1	0.1	0	100	119	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
6	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	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	1.000	0.760	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	0	0.0	0.0	0	100	11	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
7	Vol/NH3	Sheep	NO	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	0.760	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	0	0.0	0.0	0	100	11	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
8	Vol/NH3	Sheep	NO	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	0.760	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	0	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	NO	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	0.760	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	0	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	NO	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	0.760	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	0.64	0.13	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.80	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	Current crops	4.70	2.39	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	4.70	2.39	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.13	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.80	Total including natural	5.50	3.19	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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							16.0	16.0				2.62	4.64	1.47	2.11	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		0.0704	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED							78.9	78.9				1.97		0.59		Note 45
			TOTAL		0.0994	0.0452	TOTAL N AMOUNTS IN KG AND %							100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.2894		0.1316	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	51	40.0	5.7	0.0	0.0	6.7	54	34.3	1.99	3.29	1.06	1.47	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Milk/mutt	5				6.6	Graz	0.0	1.28	0.0200	0.38	0.0000	Note 49
Year	N	54	0	34.3	34.3	0	100	11	0	1	31.9	51	6.2	0.9	0.0	0.0	2.2	54	5.3	0.53	1.14	0.35	0.55	Note 47
2	Vol/NH3	Sheep	NO	0.0	2.4	NON	100.00	WWH	1.000	YES	23.5	Sheep	0.67				0.0	Sheep	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	2.2	23.5	Milk/mutt	5				2.1	Graz	0.0	0.59	0.0200	0.18	0.0000	Note 49
Year	N	54	0	5.3	5.3	0	100	11	0	1	4.9	51	1.0	0.1	0.0	0.0	0.3	54	0.8	0.08	0.18	0.05	0.08	Note 47
3	Vol/NH3	Sheep	NO	0.0	0.4	NON	100.00	WWH	1.000	YES	3.6	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	0.806	0.3	3.6	Milk/mutt	5				0.3	Graz	0.0	0.09	0.0200	0.03	0.0000	Note 49
Year	N	54	0	0.8	0.8	0	100	1	0	1	0.8	51	0.1	0.0	0.0	0.0	0.1	54	0.1	0.01	0.03	0.01	0.01	Note 47
4	Vol/NH3	Sheep	NO	0.0	0.1	NON	100.00	SBA	1.000	YES	0.6	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	0.806	0.1	0.6	Milk/mutt	5				0.0	Graz	0.0	0.01	0.0200	0.00	0.0000	Note 49
Year	N	54	0	0.1	0.1	0	100	10	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
5	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	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	0.806	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	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Sheep	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	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	1.000	0.806	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	0	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
7	Vol/NH3	Sheep	NO	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	0.806	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	0	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	NO	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	0.806	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	0	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	NO	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	0.806	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	0	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	NO	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	0.806	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	0.64	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.19	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	4.64	2.11	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	4.64	2.11	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.76	Total including natural	5.40	2.87	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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										13.5	12.7	2.46	4.48	1.59	2.33	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								19.3	18.2	0.19		0.19		Note 45
1-10 N leach			FIRST YEAR		0.0700		0.0358		TOTAL N AMOUNTS IN KG AND % LEACHED								73.1	69.0	1.83		0.55		Note 45
			TOTAL		0.0960		0.0499		TOTAL N AMOUNTS IN KG AND %								105.9	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.3321		0.1726	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	61	40.0	3.8	0.0	0.0	6.7	63	36.2	1.92	3.27	1.21	1.67 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Goat	0.84				0.0	Goat	5.4	0.08	0.0125	0.08	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	Milk/meat	6				6.6	Deep	0.0	1.28	0.0200	0.38	0.0050 Note 49
Year	N	63	0	35.7	35.7	0	100	11	0	1	26.8	61	6.4	0.6	0.0	0.0	1.8	63	5.8	0.46	1.02	0.32	0.55 Note 47
2	Vol/NH3	Goat	NO	0.0	8.9	NON	100.00	WWH	1.000	YES	18.5	Goat	0.67				0.0	Goat	0.9	0.10	0.0125	0.10	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	1.8	18.5	Milk/meat	6				1.8	Deep	0.0	0.46	0.0200	0.14	0.0050 Note 49
Year	N	63	0	5.7	5.7	0	100	11	0	1	4.3	61	1.0	0.1	0.0	0.0	0.3	63	0.9	0.07	0.16	0.05	0.09 Note 47
3	Vol/NH3	Goat	NO	0.0	1.4	NON	100.00	WWH	1.000	YES	3.0	Goat	0.67				0.0	Goat	0.1	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	0.3	3.0	Milk/meat	6				0.3	Deep	0.0	0.07	0.0200	0.02	0.0050 Note 49
Year	N	63	0	0.9	0.9	0	100	1	0	1	0.7	61	0.2	0.0	0.0	0.0	0.1	63	0.2	0.01	0.03	0.01	0.01 Note 47
4	Vol/NH3	Goat	NO	0.0	0.2	NON	100.00	SBA	1.000	YES	0.5	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	0.760	0.1	0.5	Milk/meat	6				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	63	0	0.1	0.1	0	100	10	0	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
5	Vol/NH3	Goat	NO	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	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	0.760	0.0	0.1	Milk/meat	6				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	63	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Goat	NO	0.0	0.0	NON	100.00	WWHB	1.000	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	1.000	0.760	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	0	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	NO	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	0.760	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	0	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	NO	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	0.760	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	0	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	NO	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	0.760	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	0	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	NO	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	0.760	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	0.64	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	1.25	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	4.48	2.33	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	4.48	2.33	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.80	Total including natural	5.28	3.13	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL 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	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											14.1	14.1	2.70	4.77	1.93	2.58	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006					TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							5.2	5.2	0.05		0.05		Note 45
1-10	N leach		FIRST YEAR		0.0712	0.0391					TOTAL N AMOUNTS IN KG AND % LEACHED							80.7	80.7	2.02		0.61		Note 45
			TOTAL		0.1022	0.0553					TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.3390		0.1835		Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	61	40.0	3.8	0.0	0.0	6.7	64	36.2	2.03	3.33	1.42	1.83	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	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	1.000	0.591	6.7	51.1	Milk/meat	6				6.6	Graz	0.0	1.28	0.0200	0.38	0.0100	Note 49
Year	N	64	0	36.2	36.2	0	100	11	0	1	33.6	61	6.5	0.6	0.0	0.0	2.3	64	5.9	0.57	1.21	0.42	0.63	Note 47
2	Vol/NH3	Goat	NO	0.0	2.5	NON	100.00	WWH	1.000	YES	24.8	Goat	0.67				0.0	Goat	0.0	0.03	0.0125	0.03	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	2.3	24.8	Milk/meat	6				2.3	Graz	0.0	0.62	0.0200	0.19	0.0100	Note 49
Year	N	64	0	5.9	5.9	0	100	11	0	1	5.5	61	1.1	0.1	0.0	0.0	0.4	64	1.0	0.09	0.20	0.07	0.10	Note 47
3	Vol/NH3	Goat	NO	0.0	0.4	NON	100.00	WWH	1.000	YES	4.0	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	0.806	0.4	4.0	Milk/meat	6				0.4	Graz	0.0	0.10	0.0200	0.03	0.0100	Note 49
Year	N	64	0	1.0	1.0	0	100	1	0	1	0.9	61	0.2	0.0	0.0	0.0	0.1	64	0.2	0.01	0.03	0.01	0.02	Note 47
4	Vol/NH3	Goat	NO	0.0	0.1	NON	100.00	SBA	1.000	YES	0.6	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	0.806	0.1	0.6	Milk/meat	6				0.1	Graz	0.0	0.02	0.0200	0.00	0.0100	Note 49
Year	N	64	0	0.2	0.2	0	100	10	0	1	0.1	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.01	0.00	0.00	Note 47
5	Vol/NH3	Goat	NO	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	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	0.806	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	0	0.0	0.0	0	100	119	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
6	Vol/NH3	Goat	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	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	1.000	0.806	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	0	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
7	Vol/NH3	Goat	NO	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	0.806	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	0	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	NO	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	0.806	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	0	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	NO	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	0.806	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	0	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	NO	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	0.806	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	0.64	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	1.21	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	4.77	2.58	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	4.77	2.58	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.77	Total including natural	5.54	3.35	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND 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						12.6	12.6	1.81	3.77	1.52	2.21 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006					TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3						15.6	15.5	0.16		0.16	Note 45
1-10 N leach			FIRST YEAR		0.0557		0.0314					TOTAL N AMOUNTS IN KG AND % LEACHED						72.0	71.9	1.80		0.54	Note 45
			TOTAL		0.0807		0.0473					TOTAL N AMOUNTS IN KG AND %						100.2	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.2990		0.1754 Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	71	0.0	0.0	40.0	0.0	6.7	71	40.0	1.30	2.60	1.06	1.47 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	N crop	0.84				0.0	Green	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	high N	71				6.6	High	0.0	1.28	0.0000	0.38	0.0000 Note 49
Year	N	71	0	40.0	40.0	0	100	11	0	1	30.0	21	11.2	2.6	0.0	0.0	2.1	21	8.6	0.41	0.93	0.36	0.60 Note 47
2	Vol/NH3	Green	NO	0.0	10.0	NON	100.00	WWH	1.000	YES	16.7	Cattle	0.67				0.0	Cattle	0.7	0.11	0.0125	0.11	0.0100 Note 48
	N leach	High	0.933	1.000		ORG	1.00	1.000	0.627	2.1	16.7	Dairy	2				2.0	Liquid	0.0	0.42	0.0010	0.13	0.0050 Note 49
Year	N	21	0	8.0	8.0	0	100	11	0	1	6.0	21	2.2	0.5	0.0	0.0	0.4	21	1.7	0.08	0.19	0.07	0.12 Note 47
3	Vol/NH3	Cattle	NO	0.0	2.0	NON	100.00	WWH	1.000	YES	3.3	Cattle	0.67				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	0.627	0.4	3.3	Dairy	2				0.4	Liquid	0.0	0.08	0.0010	0.03	0.0050 Note 49
Year	N	21	0	1.6	1.6	0	100	1	0	1	1.2	21	0.4	0.1	0.0	0.0	0.1	21	0.3	0.02	0.04	0.01	0.02 Note 47
4	Vol/NH3	Cattle	NO	0.0	0.4	NON	100.00	SBA	1.000	YES	0.7	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	0.627	0.1	0.7	Dairy	2				0.1	Liquid	0.0	0.02	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.3	0.3	0	100	10	0	1	0.2	21	0.1	0.0	0.0	0.0	0.0	21	0.1	0.00	0.01	0.00	0.00 Note 47
5	Vol/NH3	Cattle	NO	0.0	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	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.1	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	0.1	0.1	0	100	119	0	1	0.0	71	0.0	0.0	0.0	0.0	0.0	71	0.0	0.00	0.00	0.00	0.00 Note 47
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	N crop	0.84				0.0	Green	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	high N	71				0.0	High	0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	71	0	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
7	Vol/NH3	Green	NO	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	High	0.933	1.000		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	0	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	NO	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	0.627	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	0.64	0.23	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.93	1.46	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	3.77	2.21	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	3.77	2.21	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.23	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.93	Total including natural	4.70	3.14	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND 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												11.0	11.0	1.77	3.78	1.46	2.16	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										14.1	14.1	0.14		0.14		Note 45
1-10 N leach			FIRST YEAR		0.0557	0.0314		TOTAL N AMOUNTS IN KG AND % LEACHED										75.0	74.9	1.87		0.56		Note 45
			TOTAL		0.0810	0.0463		TOTAL N AMOUNTS IN KG AND %										100.1	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.3449		0.1972	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	72	0.0	0.0	40.0	0.0	6.7	72	40.0	1.30	2.60	1.06	1.47	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	N crop	0.84				0.0	Green	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach		1.022	1.000		ORG	1.00	1.000	0.591	6.7	51.1	low N	72				6.6	Low	0.0	1.28	0.0000	0.38	0.0000	Note 49
Year	N	72	0	40.0	40.0	0	100	11	0	1	30.0	21	6.4	1.5	0.0	0.0	2.1	21	4.9	0.40	1.05	0.35	0.61	Note 47
2	Vol/NH3	Green	NO	0.0	10.0	NON	100.00	WWH	1.000	YES	21.5	Cattle	0.67				0.0	Cattle	0.4	0.10	0.0125	0.10	0.0100	Note 48
	N leach	Low	0.533	1.000		ORG	1.00	1.000	0.787	2.1	21.5	Dairy	2				2.0	Liquid	0.0	0.54	0.0010	0.16	0.0050	Note 49
Year	N	21	0	4.6	4.6	0	100	11	0	1	3.4	21	1.3	0.3	0.0	0.0	0.2	21	1.0	0.05	0.11	0.04	0.07	Note 47
3	Vol/NH3	Cattle	NO	0.0	1.1	NON	100.00	WWH	1.000	YES	1.9	Cattle	0.67				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	0.627	0.2	1.9	Dairy	2				0.2	Liquid	0.0	0.05	0.0010	0.01	0.0050	Note 49
Year	N	21	0	0.9	0.9	0	100	1	0	1	0.7	21	0.3	0.1	0.0	0.0	0.1	21	0.2	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Cattle	NO	0.0	0.2	NON	100.00	SBA	1.000	YES	0.4	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	0.627	0.1	0.4	Dairy	2				0.0	Liquid	0.0	0.01	0.0010	0.00	0.0050	Note 49
Year	N	21	0	0.2	0.2	0	100	10	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
5	Vol/NH3	Cattle	NO	0.0	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	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.1	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	0	0.0	0.0	0	100	119	0	1	0.0	72	0.0	0.0	0.0	0.0	0.0	72	0.0	0.00	0.00	0.00	0.00	Note 47
6	Vol/NH3	Cattle	NO	0.0	0.0	NON	100.00	WWHB	1.000	YES	0.0	N crop	0.84				0.0	Green	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	low N	72				0.0	Low	0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	72	0	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
7	Vol/NH3	Green	NO	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	Low	0.533	1.000		ORG	1.00	1.000	0.787	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	0	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	NO	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	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	0	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	NO	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	0.627	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	0.64	0.13	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.80	1.26	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	3.78	2.16	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	3.78	2.16	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.13	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.80	Total including natural	4.59	2.97	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND 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										46.7	46.7	1.30	2.60	1.06	1.47	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		0.0557		0.0314		TOTAL N AMOUNTS IN KG AND % LEACHED								51.1	51.1	1.28		0.38		Note 45
			TOTAL		0.0557		0.0314		TOTAL N AMOUNTS IN KG AND %								100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0557		0.0314	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	8	0.0	0.0	0.0	40.0	6.7	0	0.0	1.30	2.60	1.06	1.47 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Food/	0.84				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	0.591	6.7	51.1	beverage	8				6.6		0.0	1.28	0.0000	0.38	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	119	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.84				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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	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	NO	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	0.600	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	2.60	1.47	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	2.60	1.47	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	3.24	2.10	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND FUEL Note 43
AND CONTINUING WITH NO MANURE TO PRODUCE NOTHING FOR FUEL 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	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							46.7				46.7	1.30	2.60	1.06	1.47	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		0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED							51.1				51.1	1.28		0.38		Note 45
			TOTAL		0.0557	0.0314	TOTAL N AMOUNTS IN KG AND %							100.0				100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.0557		0.0314	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	9	0.0	0.0	0.0	0.0	46.7	0	0.0	1.30	2.60	1.06	1.47	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Fuel/	0.84				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	0.591	6.7	51.1	other	9				6.6		0.0	1.28	0.0000	0.38	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	119	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.84				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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	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	NO	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	0.600	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	2.60	1.47	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	2.60	1.47	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	3.24	2.10	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND WASTE DUMPED ELSEWHERE WITHOUT LEACHING Note 43
AND CONTINUING WITH NO MANURE TO PRODUCE NOTHING FOR WASTE, DUMPED ELSEWHERE 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	46.7	1.30	2.60	1.06	1.47	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		0.0557	0.0314						TOTAL N AMOUNTS IN KG AND % LEACHED						51.1	51.1	1.28		0.38		Note 45
			TOTAL		0.0557	0.0314						TOTAL N AMOUNTS IN KG AND %						100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.3871		0.2179	Note 46
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	-1	0.0	0.0	0.0	0.0	6.7	0	0.0	1.30	2.60	1.06	1.47	Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Waste	0.84				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	0.591	6.7	51.1	moved	0				6.6		0.0	1.28	0.0000	0.38	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	1	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	10	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	119	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	0.84				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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	1	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	0	0.0	0.0	0	100	10	0	1	0.0	-1	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	moved	0				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	2.60	1.47	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	2.60	1.47	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	3.24	2.10	Note 51

D2 N CHAIN CALCULATIONS SHEET D: N CHAINS PARTLY BASED UPON DANISH VALUES CALCULATIONS By Jacob Bugge Available at www.ppo.bugge.com D2

N CHAIN STARTING WITH N FERTILIZER TO PRODUCE WINTER WHEAT FOR BIOETHANOL AND WASTE DUMPED IN FIELD AND LOST TO LEACH Note 43
AND CONTINUING WITH NO MANURE TO PRODUCE NOTHING FOR WASTE DUMPED IN FIELD 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						6.7	6.7	1.30	3.60	1.06	1.77	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		0.0771	0.0378		TOTAL N AMOUNTS IN KG AND % LEACHED						91.1	91.1	2.28		0.68		Note 45			
			TOTAL		0.0771	0.0378		TOTAL N AMOUNTS IN KG AND %						100.0	100.0					Note 45			
N2O-N/N in food/beverage/fuel/other																			0.5358		0.2625	Note 46	
Year	N	1	0	100.0	100.0	0	100	119	0	1	97.8	0	0.0	0.0	0.0	0.0	6.7	0	40.0	1.30	3.60	1.06	1.77 Note 47
1	Vol/NH3	N	NO	0.0	2.2	NON	100.00	WWHB	1.000	YES	51.1	Waste	0.84				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	0.591	6.7	51.1	in field	0				6.6		40.0	2.28	0.0000	0.68	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	1	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	10	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	119	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	0.84				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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	11	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	1	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	0	0.0	0.0	0	100	10	0	1	0.0	0	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	NO	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Waste	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	0.600	0.0	0.0	in field	0				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	3.60	1.77	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	3.60	1.77	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	4.24	2.40	Note 51

SUMMARY CATTLE DAIRY

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			22.41	22.29	1.67	3.42	1.49	2.11	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.26	13.19	0.13		0.13		Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0346	TOTAL N AMOUNTS IN KG AND % LEACHED			64.85	64.52	1.62		0.49		Note 45
	TOTAL	0.0732	0.0451	TOTAL N AMOUNTS IN KG AND %			100.52	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.1526		0.0941	Note 46
							Total/year 1						
Area with crop, ha						0.83	1.30						Note 50
Natural background emissions, kg N2O-N/ha:						0.83				4.25		2.94	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			22.34	22.22	1.99	3.76	1.50	2.12	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			12.36	12.30	0.12		0.12		Note 45
1-10 N leach	FIRST YEAR	0.0620	0.0345	TOTAL N AMOUNTS IN KG AND % LEACHED			65.83	65.48	1.65		0.49		Note 45
	TOTAL	0.0804	0.0453	TOTAL N AMOUNTS IN KG AND %			100.53	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.1683		0.0948	Note 46
							Total/year 1						
Area with crop, ha						0.82	1.29						Note 50
Natural background emissions, kg N2O-N/ha:						0.82				4.58		2.94	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			21.93	20.90	2.29	4.17	1.51	2.17	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.22	12.60	0.13		0.13		Note 45
1-10 N leach	FIRST YEAR	0.0674	0.0346	TOTAL N AMOUNTS IN KG AND % LEACHED			69.80	66.50	1.75		0.52		Note 45
	TOTAL	0.0892	0.0463	TOTAL N AMOUNTS IN KG AND %			104.96	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.1900		0.0987	Note 46
							Total/year 1						
Area with crop, ha						0.77	1.21						Note 50
Natural background emissions, kg N2O-N/ha:						0.77				4.94		2.94	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			22.01	22.01	2.36	4.25	2.04	2.64	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			4.49	4.49	0.04		0.04		Note 45
1-10 N leach	FIRST YEAR	0.0678	0.0434	TOTAL N AMOUNTS IN KG AND % LEACHED			73.50	73.50	1.84		0.55		Note 45
	TOTAL	0.0909	0.0565	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.1929		0.1199	Note 46
							Total/year 1						
Area with crop, ha						0.74	1.16						Note 50
Natural background emissions, kg N2O-N/ha:						0.74				4.98		3.38	Note 51

SUMMARY CATTLE BEEF

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.97	20.86	1.69	3.47	1.52	2.15 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.91	13.83	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0348	TOTAL N AMOUNTS IN KG AND % LEACHED			65.67	65.31	1.64		0.49	Note 45
	TOTAL	0.0742	0.0460	TOTAL N AMOUNTS IN KG AND %			100.55	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1654		0.1024 Note 46
							Total/year 1					
Area with crop, ha						0.84	1.32					Note 50
Natural background emissions, kg N2O-N/ha:						0.84				4.31		2.99 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.91	20.79	2.03	3.83	1.53	2.16 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			12.96	12.89	0.13		0.13	Note 45
1-10 N leach	FIRST YEAR	0.0624	0.0347	TOTAL N AMOUNTS IN KG AND % LEACHED			66.69	66.32	1.67		0.50	Note 45
	TOTAL	0.0819	0.0461	TOTAL N AMOUNTS IN KG AND %			100.56	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1830		0.1031 Note 46
							Total/year 1					
Area with crop, ha						0.83	1.31					Note 50
Natural background emissions, kg N2O-N/ha:						0.77				4.66		2.99 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.54	19.52	2.35	4.26	1.54	2.21 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.84	13.16	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0680	0.0347	TOTAL N AMOUNTS IN KG AND % LEACHED			70.85	67.33	1.77		0.53	Note 45
	TOTAL	0.0911	0.0472	TOTAL N AMOUNTS IN KG AND %			105.24	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.2072		0.1074 Note 46
							Total/year 1					
Area with crop, ha						0.78	1.23					Note 50
Natural background emissions, kg N2O-N/ha:						0.78				5.03		2.98 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.64	20.64	2.42	4.34	2.10	2.71 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			4.62	4.62	0.05		0.05	Note 45
1-10 N leach	FIRST YEAR	0.0684	0.0440	TOTAL N AMOUNTS IN KG AND % LEACHED			74.75	74.75	1.87		0.56	Note 45
	TOTAL	0.0928	0.0579	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.2102		0.1311 Note 46
							Total/year 1					
Area with crop, ha						0.74	1.16					Note 50
Natural background emissions, kg N2O-N/ha:						0.74				5.08		3.45 Note 51

SUMMARY PIG PORK

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			27.62	27.62	1.56	3.19	1.37	1.94 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			11.92	11.92	0.12		0.12	Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0342	TOTAL N AMOUNTS IN KG AND % LEACHED			60.46	60.46	1.51		0.45	Note 45
	TOTAL	0.0684	0.0416	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1157		0.0703 Note 46
								Total/year 1				
Area with crop, ha							0.78	1.23				Note 50
Natural background emissions, kg N2O-N/ha:							0.78			3.98		2.73 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			27.04	26.90	1.76	3.41	1.35	1.93 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			12.60	12.53	0.13		0.13	Note 45
1-10 N leach	FIRST YEAR	0.0609	0.0343	TOTAL N AMOUNTS IN KG AND % LEACHED			60.89	60.57	1.52		0.46	Note 45
	TOTAL	0.0729	0.0414	TOTAL N AMOUNTS IN KG AND %			100.52	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1260		0.0715 Note 46
								Total/year 1				
Area with crop, ha							0.76	1.19				Note 50
Natural background emissions, kg N2O-N/ha:							0.76			4.16		2.69 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			27.06	26.39	1.93	3.60	1.34	1.95 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.51	14.15	0.15		0.15	Note 45
1-10 N leach	FIRST YEAR	0.0644	0.0345	TOTAL N AMOUNTS IN KG AND % LEACHED			60.96	59.45	1.52		0.46	Note 45
	TOTAL	0.0770	0.0417	TOTAL N AMOUNTS IN KG AND %			102.54	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1330		0.0719 Note 46
								Total/year 1				
Area with crop, ha							0.76	1.19				Note 50
Natural background emissions, kg N2O-N/ha:							0.76			4.36		2.70 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			28.19	28.19	2.19	3.93	1.89	2.43 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			4.12	4.12	0.04		0.04	Note 45
1-10 N leach	FIRST YEAR	0.0657	0.0413	TOTAL N AMOUNTS IN KG AND % LEACHED			67.69	67.69	1.69		0.51	Note 45
	TOTAL	0.0840	0.0521	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1393		0.0864 Note 46
								Total/year 1				
Area with crop, ha							0.76	1.19				Note 50
Natural background emissions, kg N2O-N/ha:							0.76			4.68		3.19 Note 51

SUMMARY POULTRY MEAT

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			30.80	30.80	1.52	3.11	1.32	1.86 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			9.39	9.39	0.09		0.09	Note 45
1-10 N leach	FIRST YEAR	0.0565	0.0337	TOTAL N AMOUNTS IN KG AND % LEACHED			59.81	59.81	1.50		0.45	Note 45
	TOTAL	0.0666	0.0399	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1011		0.0605 Note 46
							Total/year 1					
Area with crop, ha						0.74	1.17					Note 50
Natural background emissions, kg N2O-N/ha:						0.74				3.86		2.61 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			30.12	30.12	1.64	3.21	1.27	1.83 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			11.68	11.68	0.12		0.12	Note 45
1-10 N leach	FIRST YEAR	0.0601	0.0340	TOTAL N AMOUNTS IN KG AND % LEACHED			58.20	58.20	1.45		0.44	Note 45
	TOTAL	0.0687	0.0391	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1066		0.0607 Note 46
							Total/year 1					
Area with crop, ha						0.72	1.14					Note 50
Natural background emissions, kg N2O-N/ha:						0.72				3.93		2.55 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			28.93	28.88	1.68	3.26	1.22	1.79 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.63	13.61	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0624	0.0343	TOTAL N AMOUNTS IN KG AND % LEACHED			57.60	57.51	1.44		0.43	Note 45
	TOTAL	0.0697	0.0384	TOTAL N AMOUNTS IN KG AND %			100.16	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1125		0.0620 Note 46
							Total/year 1					
Area with crop, ha						0.68	1.07					Note 50
Natural background emissions, kg N2O-N/ha:						0.68				3.94		2.48 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			30.48	30.48	2.00	3.68	1.71	2.24 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			3.70	3.70	0.04		0.04	Note 45
1-10 N leach	FIRST YEAR	0.0641	0.0397	TOTAL N AMOUNTS IN KG AND % LEACHED			65.82	65.82	1.65		0.49	Note 45
	TOTAL	0.0788	0.0479	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1209		0.0734 Note 46
Area with crop, ha	Total/year 1					0.70	1.10					Note 50
Natural background emissions, kg N2O-N/ha:						0.70				4.39		2.94 Note 51

SUMMARY POULTRY EGGS

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.17	20.17	1.67	3.45	1.50	2.13 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.20	14.20	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0570	0.0349	TOTAL N AMOUNTS IN KG AND % LEACHED			65.63	65.63	1.64		0.49	Note 45
	TOTAL	0.0739	0.0456	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1712		0.1056 Note 46
							Total/year 1					
Area with crop, ha							0.82	1.28				Note 50
Natural background emissions, kg N2O-N/ha:							0.82			4.27		2.95 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			19.42	19.42	1.85	3.60	1.41	2.06 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			17.79	17.79	0.18		0.18	Note 45
1-10 N leach	FIRST YEAR	0.0625	0.0354	TOTAL N AMOUNTS IN KG AND % LEACHED			62.79	62.79	1.57		0.47	Note 45
	TOTAL	0.0771	0.0441	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1854		0.1061 Note 46
							Total/year 1					
Area with crop, ha							0.78	1.23				Note 50
Natural background emissions, kg N2O-N/ha:							0.78			4.38		2.84 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			18.28	18.23	1.90	3.65	1.32	1.99 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			20.47	20.42	0.20		0.20	Note 45
1-10 N leach	FIRST YEAR	0.0661	0.0359	TOTAL N AMOUNTS IN KG AND % LEACHED			61.51	61.35	1.54		0.46	Note 45
	TOTAL	0.0780	0.0426	TOTAL N AMOUNTS IN KG AND %			100.26	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1995		0.1088 Note 46
							Total/year 1					
Area with crop, ha							0.71	1.12				Note 50
Natural background emissions, kg N2O-N/ha:							0.71			4.36		2.70 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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			20.15	20.15	2.44	4.37	2.12	2.73 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			4.66	4.66	0.05		0.05	Note 45
1-10 N leach	FIRST YEAR	0.0687	0.0444	TOTAL N AMOUNTS IN KG AND % LEACHED			75.19	75.19	1.88		0.56	Note 45
	TOTAL	0.0935	0.0584	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.2170		0.1354 Note 46
							Total/year 1					
Area with crop, ha							0.74	1.17				Note 50
Natural background emissions, kg N2O-N/ha:							0.74			5.11		3.47 Note 51

SUMMARY SHEEP AND GOATS

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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				16.80	15.86	2.60	4.70	1.70	2.39 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				8.66	8.18	0.09		0.09	Note 45
1-10 N leach	FIRST YEAR	0.0693	0.0356	TOTAL N AMOUNTS IN KG AND % LEACHED				80.47	75.97	2.01		0.60	Note 45
	TOTAL	0.1007	0.0512	TOTAL N AMOUNTS IN KG AND %				105.93	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.2800		0.1426 Note 46
								Total/year 1					
Area with crop, ha								0.80	1.25				Note 50
Natural background emissions, kg N2O-N/ha:								0.80			5.50		3.19 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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				16.05	16.05	2.62	4.64	1.47	2.11 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				5.04	5.04	0.05		0.05	Note 45
1-10 N leach	FIRST YEAR	0.0704	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED				78.91	78.91	1.97		0.59	Note 45
	TOTAL	0.0994	0.0452	TOTAL N AMOUNTS IN KG AND %				100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.2894		0.1316 Note 46
								Total/year 1					
Area with crop, ha								0.76	1.19				Note 50
Natural background emissions, kg N2O-N/ha:								0.76			5.40		2.87 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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				13.50	12.75	2.46	4.48	1.59	2.33 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				19.30	18.22	0.19		0.19	Note 45
1-10 N leach	FIRST YEAR	0.0700	0.0358	TOTAL N AMOUNTS IN KG AND % LEACHED				73.13	69.03	1.83		0.55	Note 45
	TOTAL	0.0960	0.0499	TOTAL N AMOUNTS IN KG AND %				105.93	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.3321		0.1726 Note 46
								Total/year 1					
Area with crop, ha								0.80	1.25				Note 50
Natural background emissions, kg N2O-N/ha:								0.80			5.28		3.13 Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL 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				14.08	14.08	2.70	4.77	1.93	2.58 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				5.22	5.22	0.05		0.05	Note 45
1-10 N leach	FIRST YEAR	0.0712	0.0391	TOTAL N AMOUNTS IN KG AND % LEACHED				80.69	80.69	2.02		0.61	Note 45
	TOTAL	0.1022	0.0553	TOTAL N AMOUNTS IN KG AND %				100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.3390		0.1835 Note 46
								Total/year 1					
Area with crop, ha								0.77	1.21				Note 50
Natural background emissions, kg N2O-N/ha:								0.77			5.54		3.35 Note 51

SUMMARY N CROP

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		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			12.61	12.59	1.81	3.77	1.52	2.21	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			15.56	15.54	0.16		0.16		Note 45
1-10 N leach	FIRST YEAR	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			71.99	71.88	1.80		0.54		Note 45
	TOTAL	0.0807	0.0473	TOTAL N AMOUNTS IN KG AND %			100.16	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.2990		0.1754	Note 46
							Total/year 1						
Area with crop, ha						0.93	1.46						Note 50
Natural background emissions, kg N2O-N/ha:						0.93				4.70		3.14	Note 51

N amount in reference crop year 2 after use of N crop as green manure, kg	11.20	Note 47
N amount in reference crop year 1 after synthetic N fertilizer, kg	40.00	Note 47
Relative value of green manure, %	28.00	

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		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			10.97	10.96	1.77	3.78	1.46	2.16	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.12	14.11	0.14		0.14		Note 45
1-10 N leach	FIRST YEAR	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			75.00	74.93	1.87		0.56		Note 45
	TOTAL	0.0810	0.0463	TOTAL N AMOUNTS IN KG AND %			100.09	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.3449		0.1972	Note 46
							Total/year 1						
Area with crop, ha						0.80	1.26						Note 50
Natural background emissions, kg N2O-N/ha:						0.80				4.59		2.97	Note 51

N amount in reference crop year 2 after use of N crop as green manure, kg	6.40	Note 47
N amount in reference crop year 1 after synthetic N fertilizer, kg	40.00	Note 47
Relative value of green manure, %	16.00	

SUMMARY FOOD, FUEL, AND WASTE

N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		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			46.73	46.73	1.30	2.60	1.06	1.47	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	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			51.07	51.07	1.28		0.38		Note 45
	TOTAL	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0557		0.0314	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				3.24		2.10	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		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			46.73	46.73	1.30	2.60	1.06	1.47	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	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			51.07	51.07	1.28		0.38		Note 45
	TOTAL	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.0557		0.0314	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				3.24		2.10	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		WASTE DUMPED ELSEWHERE WITHOUT LEACHING						Note 43
AND CONTINUING WITH	NO MANURE			TO PRODUCE	NOTHING FOR		WASTE, DUMPED ELSEWHERE						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			46.73	46.73	1.30	2.60	1.06	1.47	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	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			51.07	51.07	1.28		0.38		Note 45
	TOTAL	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.3871		0.2179	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				3.24		2.10	Note 51
N CHAIN STARTING WITH	N FERTILIZER			TO PRODUCE	WINTER WHEAT FOR BIOETHANOL AND		WASTE DUMPED IN FIELD AND LOST TO LEACH						Note 43
AND CONTINUING WITH	NO MANURE			TO PRODUCE	NOTHING FOR		WASTE DUMPED IN FIELD						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			6.73	6.73	1.30	3.60	1.06	1.77	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	0.0771	0.0378	TOTAL N AMOUNTS IN KG AND % LEACHED			91.07	91.07	2.28		0.68		Note 45
	TOTAL	0.0771	0.0378	TOTAL N AMOUNTS IN KG AND %			100.00	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.5358		0.2625	Note 46
							Total/year 1						
Area with crop, ha						0.64	1.00						Note 50
Natural background emissions, kg N2O-N/ha:						0.64				4.24		2.40	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	0.0568	0.0684	0.0345	0.0440
TOTAL	0.0732	0.0928	0.0451	0.0579

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
3.42	4.34	2.11	2.71

N2O-N/N in food/beverage/fuel/other	MIN	MAX	MIN	MAX
	0.1526	0.2102	0.0941	0.1311

Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	0.74	0.84	0.74	1.16	4.25	5.08	2.94	3.45

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	0.0568	0.0657	0.0342	0.0413
TOTAL	0.0684	0.0840	0.0414	0.0521

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
3.19	3.93	1.93	2.43

N2O-N/N in food/beverage/fuel/other	MIN	MAX	MIN	MAX
	0.1157	0.1393	0.0703	0.0864

Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	0.76	0.78	0.76	0.78	3.98	4.68	2.69	3.19

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	0.0565	0.0687	0.0337	0.0444
TOTAL	0.0666	0.0935	0.0384	0.0584

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
3.11	4.37	1.79	2.73

N2O-N/N in food/beverage/fuel/other	MIN	MAX	MIN	MAX
	0.1011	0.2170	0.0605	0.1354

Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	0.68	0.82	0.68	0.82	3.86	5.11	2.48	3.47

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	0.0693	0.0712	0.0314	0.0391
TOTAL	0.0960	0.1022	0.0452	0.0553

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
4.48	4.77	2.11	2.58

N2O-N/N in food/beverage/fuel/other	MIN	MAX	MIN	MAX
	0.2800	0.3390	0.1316	0.1835

Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	0.76	0.80	0.76	0.80	5.28	5.54	2.87	3.35

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	0.0565	0.0712	0.0314	0.0444
TOTAL	0.0666	0.1022	0.0384	0.0584

N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
3.11	4.77	1.79	2.73

N2O-N/N in food/beverage/fuel/other	MIN	MAX	MIN	MAX
	0.1011	0.3390	0.0605	0.1835

Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	0.68	0.84	0.68	1.16	3.86	5.54	2.48	3.47