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										22.3	22.2	1.66	3.41	1.48	2.10 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006			TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3								13.7	13.7	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0568		0.0346			TOTAL N AMOUNTS IN KG AND % LEACHED								64.5	64.1	1.61		0.48	Note 45
			TOTAL		0.0729		0.0450			TOTAL N AMOUNTS IN KG AND %								100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1527		0.0943 Note 46
Year	N	1	1	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	YES	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	1	26.4	25.8	0	100	11	0	1	19.3	21	7.2	1.7	0.0	0.0	1.3	21	5.5	0.26	0.61	0.23	0.39 Note 47
2	Vol/NH3	Cattle	YES	0.6	6.4	NON	100.00	WWH	1.000	YES	10.8	Cattle	0.67				0.0	Cattle	0.4	0.07	0.0125	0.07	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	1.3	10.8	Dairy	2				1.3	Liquid	0.0	0.27	0.0010	0.08	0.0050 Note 49
Year	N	21	1	5.2	5.0	0	100	11	0	1	3.8	21	1.4	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	YES	0.1	1.3	NON	100.00	WWH	1.000	YES	2.1	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	2.1	Dairy	2				0.3	Liquid	0.0	0.05	0.0010	0.02	0.0050 Note 49
Year	N	21	1	1.0	1.0	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	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	0.82	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	3.41	2.10	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	2.10	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	4.23	2.93	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											21.9	21.8	1.95	3.70	1.47	2.09	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							14.3	14.2	0.14		0.14		Note 45
1-10 N leach			FIRST YEAR		0.0620		0.0345				TOTAL N AMOUNTS IN KG AND % LEACHED							64.3	64.0	1.61		0.48		Note 45
			TOTAL		0.0792		0.0448				TOTAL N AMOUNTS IN KG AND %							100.5	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1685		0.0954	Note 46
Year	N	1	1	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	YES	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	1	27.2	24.9	0	100	11	0	1	18.7	21	6.5	1.5	0.0	0.0	1.3	22	4.9	0.30	0.66	0.23	0.40	Note 47
2	Vol/NH3	Cattle	YES	2.3	6.2	NON	100.00	WWH	1.000	YES	10.9	Cattle	0.67				0.0	Cattle	0.2	0.09	0.0125	0.09	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	1.3	10.9	Dairy	2				1.3	Sep	0.0	0.27	0.0105	0.08	0.0050	Note 49
Year	N	22	1	4.8	4.4	0	100	11	0	1	3.3	21	1.1	0.3	0.0	0.0	0.2	22	0.9	0.05	0.12	0.04	0.07	Note 47
3	Vol/NH3	Cattle	YES	0.4	1.1	NON	100.00	WWH	1.000	YES	1.9	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.2	1.9	Dairy	2				0.2	Sep	0.0	0.05	0.0105	0.01	0.0050	Note 49
Year	N	22	1	0.8	0.8	0	100	1	0	1	0.6	21	0.2	0.0	0.0	0.0	0.0	22	0.2	0.01	0.02	0.01	0.01	Note 47
4	Vol/NH3	Cattle	YES	0.1	0.2	NON	100.00	SBA	1.000	YES	0.3	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	0.3	Dairy	2				0.0	Sep	0.0	0.01	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.1	0.1	0	100	10	0	1	0.1	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Cattle	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Dairy	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	22	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	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	0.13	0.02	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	3.70	2.09 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	3.70	2.09 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.13	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.80	Total including natural	4.50	2.89 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												20.8	19.9	2.14	3.93	1.40	2.08	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									20.4	19.5	0.20		0.20		Note 45
1-10 N leach			FIRST YEAR		0.0674	0.0346		TOTAL N AMOUNTS IN KG AND % LEACHED									63.5	60.7	1.59		0.48		Note 45
			TOTAL		0.0841	0.0446		TOTAL N AMOUNTS IN KG AND %									104.7	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1890		0.1002	Note 46
Year	N	1	1	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	YES	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	1	30.7	21.5	0	100	11	0	1	16.1	21	3.9	0.9	0.0	0.0	1.1	23	3.0	0.27	0.70	0.19	0.42	Note 47
2	Vol/NH3	Cattle	YES	9.2	5.4	NON	100.00	WWH	1.000	YES	11.1	Cattle	0.67				0.0	Cattle	0.2	0.15	0.0125	0.15	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	1.1	11.1	Dairy	2				1.1	Deep	0.0	0.28	0.0200	0.08	0.0050	Note 49
Year	N	23	1	3.2	2.3	0	100	11	0	1	1.7	21	0.4	0.1	0.0	0.0	0.1	23	0.3	0.03	0.07	0.02	0.04	Note 47
3	Vol/NH3	Cattle	YES	1.0	0.6	NON	100.00	WWH	1.000	YES	1.2	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.1	1.2	Dairy	2				0.1	Deep	0.0	0.03	0.0200	0.01	0.0050	Note 49
Year	N	23	1	0.3	0.2	0	100	1	0	1	0.2	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.01	0.00	0.00	Note 47
4	Vol/NH3	Cattle	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.1	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	0.1	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	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
5	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Dairy	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	23	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	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	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	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	Current crops	3.93	2.08	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	2.08	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	0.73	Total including natural	4.66	2.81	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Dairy	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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											20.9	20.8	1.68	3.45	1.51	2.14 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							14.4	14.3	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0568		0.0348				TOTAL N AMOUNTS IN KG AND % LEACHED							65.3	64.9	1.63		0.49	Note 45
			TOTAL		0.0739		0.0458				TOTAL N AMOUNTS IN KG AND %							100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1655		0.1026	Note 46
Year	N	1	1	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	YES	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	1	27.7	27.0	0	100	11	0	1	20.3	22	7.6	1.6	0.0	0.0	1.4	21	6.0	0.28	0.64	0.25	0.41 Note 47
2	Vol/NH3	Cattle	YES	0.6	6.8	NON	100.00	WWH	1.000	YES	11.3	Cattle	0.67				0.0	Cattle	0.5	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	1.4	11.3	Beef	2				1.4	Liquid	0.0	0.28	0.0010	0.08	0.0050 Note 49
Year	N	21	1	5.6	5.5	0	100	11	0	1	4.1	22	1.5	0.3	0.0	0.0	0.3	21	1.2	0.06	0.13	0.05	0.08 Note 47
3	Vol/NH3	Cattle	YES	0.1	1.4	NON	100.00	WWH	1.000	YES	2.3	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	0.3	2.3	Beef	2				0.3	Liquid	0.0	0.06	0.0010	0.02	0.0050 Note 49
Year	N	21	1	1.1	1.1	0	100	1	0	1	0.8	22	0.3	0.1	0.0	0.0	0.1	21	0.2	0.01	0.03	0.01	0.02 Note 47
4	Vol/NH3	Cattle	YES	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				0.0	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	21	1	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	YES	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	1	0.0	0.0	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	YES	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	1	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	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	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	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Beef	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	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	1.31	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.45	2.14	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	2.14	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	4.29	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 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											20.5	20.4	1.99	3.76	1.49	2.13 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									15.0	14.9	0.15		0.15	Note 45
1-10 N leach			FIRST YEAR		0.0624		0.0347		TOTAL N AMOUNTS IN KG AND % LEACHED									65.1	64.7	1.63		0.49	Note 45
			TOTAL		0.0805		0.0456		TOTAL N AMOUNTS IN KG AND %									100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1834		0.1038	Note 46
Year	N	1	1	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	YES	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	1	28.6	26.1	0	100	11	0	1	19.6	22	6.8	1.4	0.0	0.0	1.3	22	5.4	0.32	0.69	0.24	0.42 Note 47
2	Vol/NH3	Cattle	YES	2.4	6.5	NON	100.00	WWH	1.000	YES	11.5	Cattle	0.67				0.0	Cattle	0.3	0.09	0.0125	0.09	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	1.3	11.5	Beef	2				1.3	Sep	0.0	0.29	0.0105	0.09	0.0050 Note 49
Year	N	22	1	5.2	4.8	0	100	11	0	1	3.6	22	1.2	0.3	0.0	0.0	0.2	22	1.0	0.06	0.13	0.04	0.08 Note 47
3	Vol/NH3	Cattle	YES	0.4	1.2	NON	100.00	WWH	1.000	YES	2.1	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.2	2.1	Beef	2				0.2	Sep	0.0	0.05	0.0105	0.02	0.0050 Note 49
Year	N	22	1	0.9	0.9	0	100	1	0	1	0.6	22	0.2	0.0	0.0	0.0	0.1	22	0.2	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Cattle	YES	0.1	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	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.1	0.4	Beef	2				0.0	Sep	0.0	0.01	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.2	0.2	0	100	10	0	1	0.1	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Cattle	YES	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	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	0.0	0.0	Beef	2				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	22	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	22	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.016		ORG	1.00	1.000	0.653	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	0.14	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.81	1.27	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.76	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	3.76	2.13	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.14	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.81	Total including natural	4.57	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 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											19.4	18.5	2.18	4.00	1.42	2.12 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									21.4	20.4	0.21		0.21	Note 45
1-10 N leach			FIRST YEAR		0.0680		0.0347		TOTAL N AMOUNTS IN KG AND % LEACHED									64.2	61.2	1.60		0.48	Note 45
			TOTAL		0.0856		0.0453		TOTAL N AMOUNTS IN KG AND %									105.0	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.2063		0.1092	Note 46
Year	N	1	1	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	YES	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	1	32.2	22.6	0	100	11	0	1	16.9	22	4.1	0.8	0.0	0.0	1.2	23	3.2	0.29	0.73	0.20	0.44 Note 47
2	Vol/NH3	Cattle	YES	9.7	5.6	NON	100.00	WWH	1.000	YES	11.7	Cattle	0.67				0.0	Cattle	0.2	0.16	0.0125	0.16	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	1.2	11.7	Beef	2				1.1	Deep	0.0	0.29	0.0200	0.09	0.0050 Note 49
Year	N	23	1	3.5	2.5	0	100	11	0	1	1.8	22	0.4	0.1	0.0	0.0	0.1	23	0.4	0.03	0.08	0.02	0.05 Note 47
3	Vol/NH3	Cattle	YES	1.1	0.6	NON	100.00	WWH	1.000	YES	1.3	Cattle	0.67				0.0	Cattle	0.0	0.02	0.0125	0.02	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.1	1.3	Beef	2				0.1	Deep	0.0	0.03	0.0200	0.01	0.0050 Note 49
Year	N	23	1	0.4	0.3	0	100	1	0	1	0.2	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.01	0.00	0.01 Note 47
4	Vol/NH3	Cattle	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.1	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	0.1	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	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
5	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	0.0	0.0	Beef	2				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	23	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	23	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.159		ORG	1.00	1.000	0.760	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	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	1.15	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O	Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	4.00	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	4.00	2.12 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	0.73	Total including natural	4.73	2.85 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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	11	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	1	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Beef	2				0.0	Graz	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	24	1	0.0	0.0	0	100	10	0	1	0.0	22	0.0	0.0	0.0	0.0	0.0	24	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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							27.5	27.5	1.56	3.18	1.36	1.94	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							12.4	12.4	0.12		0.12		Note 45
1-10	N leach		FIRST YEAR		0.0568	0.0342	TOTAL N AMOUNTS IN KG AND % LEACHED							60.2	60.2	1.50		0.45		Note 45
			TOTAL		0.0681	0.0415	TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																	0.1158		0.0705	Note 46
Year	N	1	1	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	YES	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	1	20.0	19.5	0	100	11	0	1	14.6	32	5.8	2.4	0.0	0.0	1.0	31	3.4	0.20	0.45	0.17	0.29 Note 47
2	Vol/NH3	Pig	YES	0.5	4.9	NON	100.00	WWH	1.000	YES	7.8	Pig	0.67				0.0	Pig	0.5	0.06	0.0125	0.06	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	1.0	7.8	Pork	3				1.0	Liquid	0.0	0.19	0.0010	0.06	0.0050 Note 49
Year	N	31	1	2.9	2.8	0	100	11	0	1	2.1	32	0.9	0.4	0.0	0.0	0.1	31	0.5	0.03	0.07	0.03	0.04 Note 47
3	Vol/NH3	Pig	YES	0.1	0.7	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	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	0.1	1.1	Pork	3				0.1	Liquid	0.0	0.03	0.0010	0.01	0.0050 Note 49
Year	N	31	1	0.4	0.4	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	YES	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	1	0.1	0.1	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
5	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	Pork	3				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	31	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	31	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	1.000	1.000		ORG	1.00	1.000	0.600	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	1.22	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O		Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.18	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	Total anthropogenic	3.18	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	3.96	2.72	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											26.2	26.1	1.70	3.32	1.31	1.90 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									15.8	15.7	0.16		0.16	Note 45
1-10 N leach			FIRST YEAR		0.0609		0.0343		TOTAL N AMOUNTS IN KG AND % LEACHED									58.6	58.3	1.46		0.44	Note 45
			TOTAL		0.0710		0.0407		TOTAL N AMOUNTS IN KG AND %									100.5	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1268		0.0726 Note 46
Year	N	1	1	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	YES	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	1	19.5	15.4	0	100	11	0	1	11.5	32	4.0	1.7	0.0	0.0	0.8	32	2.3	0.17	0.43	0.13	0.27 Note 47
2	Vol/NH3	Pig	YES	4.2	3.8	NON	100.00	WWH	1.000	YES	6.7	Pig	0.67				0.0	Pig	0.4	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.8	6.7	Pork	3				0.8	Sep	0.0	0.17	0.0105	0.05	0.0050 Note 49
Year	N	32	1	2.0	1.5	0	100	11	0	1	1.2	32	0.4	0.2	0.0	0.0	0.1	32	0.2	0.02	0.04	0.01	0.03 Note 47
3	Vol/NH3	Pig	YES	0.4	0.4	NON	100.00	WWH	1.000	YES	0.7	Pig	0.67				0.0	Pig	0.0	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	0.7	Pork	3				0.1	Sep	0.0	0.02	0.0105	0.01	0.0050 Note 49
Year	N	32	1	0.2	0.2	0	100	1	0	1	0.1	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
4	Vol/NH3	Pig	YES	0.0	0.0	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	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	32	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	32	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	32	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050 Note 49
Year	N	32	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	32	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Sep	0.867	1.024		ORG	1.00	1.000	0.653	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	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	1.15	Note 50

Possible additional non IPCC N2O-N emissions	Value											Kind of source	Total IPCC and non IPCC N2O	Note 51
N residues emissions, ratio of N2O-N to N:	0.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Current crops	3.32	1.90 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	3.32	1.90 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	0.73	Total including natural	4.05	2.63 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	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											25.5	24.9	1.81	3.43	1.26	1.89 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006				TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3							20.2	19.8	0.20		0.20	Note 45
1-10 N leach			FIRST YEAR		0.0644		0.0345				TOTAL N AMOUNTS IN KG AND % LEACHED							56.7	55.4	1.42		0.43	Note 45
			TOTAL		0.0734		0.0404				TOTAL N AMOUNTS IN KG AND %							102.4	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																				0.1345		0.0740	Note 46
Year	N	1	1	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	YES	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	1	19.7	11.8	0	100	11	0	1	8.9	32	3.1	1.3	0.0	0.0	0.6	33	1.8	0.14	0.39	0.10	0.25 Note 47
2	Vol/NH3	Pig	YES	7.9	3.0	NON	100.00	WWH	1.000	YES	5.2	Pig	0.67				0.0	Pig	0.4	0.11	0.0125	0.11	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.6	5.2	Pork	3				0.6	Deep	0.0	0.13	0.0200	0.04	0.0050 Note 49
Year	N	33	1	1.5	0.9	0	100	11	0	1	0.7	32	0.2	0.1	0.0	0.0	0.0	33	0.1	0.01	0.03	0.01	0.02 Note 47
3	Vol/NH3	Pig	YES	0.6	0.2	NON	100.00	WWH	1.000	YES	0.4	Pig	0.67				0.0	Pig	0.0	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.4	Pork	3				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.1	0.1	0	100	1	0	1	0.1	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
4	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	0.0	0.0	Pork	3				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	33	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	33	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.867	1.127		ORG	1.00	1.000	0.653	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	1.11	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	3.43	1.89	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.43	1.89	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	Total including natural	4.14	2.59	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	1	0.0	0.0	0	100	11	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Pig	0.67				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	1	0.0	0.0	0	100	1	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Pig	0.65				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	0.0	0.0	Pork	3				0.0	Root	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	34	1	0.0	0.0	0	100	10	0	1	0.0	32	0.0	0.0	0.0	0.0	0.0	34	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Pig	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Pig	0.66				0.0	Pig	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Root	0.699	1.000		ORG	1.00	1.000	0.720	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											30.7	30.7	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							9.7	9.7	0.10		0.10		Note 45
1-10 N leach			FIRST YEAR		0.0565		0.0337				TOTAL N AMOUNTS IN KG AND % LEACHED							59.6	59.6	1.49		0.45		Note 45
			TOTAL		0.0665		0.0398				TOTAL N AMOUNTS IN KG AND %							100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1011		0.0606	Note 46
Year	N	1	1	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	YES	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	1	17.6	17.3	0	100	11	0	1	13.0	42	4.5	2.3	0.0	0.0	0.9	41	2.2	0.17	0.41	0.15	0.26	Note 47
2	Vol/NH3	Poultry	YES	0.4	4.3	NON	100.00	WWH	1.000	YES	7.6	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	7.6	Meat	4				0.9	Liquid	0.0	0.19	0.0010	0.06	0.0050	Note 49
Year	N	41	1	2.0	1.9	0	100	11	0	1	1.5	42	0.5	0.3	0.0	0.0	0.1	41	0.2	0.02	0.05	0.02	0.03	Note 47
3	Vol/NH3	Poultry	YES	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	1	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	YES	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	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	41	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	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	0.09	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		
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	3.11	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	Total anthropogenic	3.11	1.86	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	0.74	Total including natural	3.85	2.60	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	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											29.6	29.6	1.61	3.17	1.25	1.81	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											13.3	13.3	0.13		0.13		Note 45
1-10	N leach		FIRST YEAR		0.0601	0.0340	TOTAL N AMOUNTS IN KG AND % LEACHED											57.0	57.0	1.43		0.43		Note 45
			TOTAL		0.0678	0.0388	TOTAL N AMOUNTS IN KG AND %											100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1069		0.0611		Note 46
Year	N	1	1	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	YES	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	1	14.7	12.5	0	100	11	0	1	9.4	42	3.2	1.7	0.0	0.0	0.6	42	1.6	0.14	0.33	0.11	0.21	Note 47
2	Vol/NH3	Poultry	YES	2.2	3.1	NON	100.00	WWH	1.000	YES	5.5	Poultry	0.67				0.0	Poultry	0.4	0.06	0.0125	0.06	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.6	5.5	Meat	4				0.6	Sep	0.0	0.14	0.0105	0.04	0.0050	Note 49
Year	N	42	1	1.2	1.0	0	100	11	0	1	0.8	42	0.3	0.1	0.0	0.0	0.1	42	0.1	0.01	0.03	0.01	0.02	Note 47
3	Vol/NH3	Poultry	YES	0.2	0.3	NON	100.00	WWH	1.000	YES	0.4	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	0.4	Meat	4				0.1	Sep	0.0	0.01	0.0105	0.00	0.0050	Note 49
Year	N	42	1	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	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Meat	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	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	0.07	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	3.17	1.81	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	3.17	1.81	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	3.88	2.52	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	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											28.6	28.6	1.65	3.22	1.21	1.78	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3											15.2	15.1	0.15		0.15		Note 45
1-10	N leach		FIRST YEAR		0.0624	0.0343	TOTAL N AMOUNTS IN KG AND % LEACHED											56.4	56.3	1.41		0.42		Note 45
			TOTAL		0.0688	0.0381	TOTAL N AMOUNTS IN KG AND %											100.2	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.1124		0.0622	Note 46
Year	N	1	1	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	YES	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	1	11.9	9.8	0	100	11	0	1	7.4	42	1.8	0.9	0.0	0.0	0.5	43	0.9	0.11	0.29	0.08	0.17	Note 47
2	Vol/NH3	Poultry	YES	2.1	2.5	NON	100.00	WWH	1.000	YES	5.1	Poultry	0.67				0.0	Poultry	0.3	0.05	0.0125	0.05	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.5	5.1	Meat	4				0.5	Deep	0.0	0.13	0.0200	0.04	0.0050	Note 49
Year	N	43	1	0.5	0.4	0	100	11	0	1	0.3	42	0.1	0.0	0.0	0.0	0.0	43	0.0	0.00	0.01	0.00	0.01	Note 47
3	Vol/NH3	Poultry	YES	0.1	0.1	NON	100.00	WWH	1.000	YES	0.2	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	0.2	Meat	4				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050	Note 49
Year	N	43	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	43	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	43	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Meat	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050	Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	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	0.67	1.06	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	3.22	1.78	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	3.22	1.78	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	0.67	Total including natural	3.89	2.45	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 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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	1	0.0	0.0	0	100	1	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Meat	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200	Note 49
Year	N	44	1	0.0	0.0	0	100	10	0	1	0.0	42	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	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							20.1	20.1				1.66	3.44	1.49	2.13	Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3					14.6	14.6				0.15		0.15		Note 45
1-10 N leach			FIRST YEAR		0.0570		0.0349		TOTAL N AMOUNTS IN KG AND % LEACHED					65.3	65.3				1.63		0.49		Note 45
			TOTAL		0.0736		0.0455		TOTAL N AMOUNTS IN KG AND %					100.0	100.0								Note 45
N2O-N/N in food/beverage/fuel/other																				0.1714		0.1059	Note 46
Year	N	1	1	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	YES	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	1	27.3	26.8	0	100	11	0	1	20.1	43	7.0	1.7	0.0	0.0	1.4	41	5.3	0.27	0.64	0.24	0.41 Note 47
2	Vol/NH3	Poultry	YES	0.5	6.7	NON	100.00	WWH	1.000	YES	11.7	Poultry	0.67				0.0	Poultry	0.5	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	1.4	11.7	Eggs	4				1.4	Liquid	0.0	0.29	0.0010	0.09	0.0050 Note 49
Year	N	41	1	4.8	4.7	0	100	11	0	1	3.5	43	1.2	0.3	0.0	0.0	0.2	41	0.9	0.05	0.11	0.04	0.07 Note 47
3	Vol/NH3	Poultry	YES	0.1	1.2	NON	100.00	WWH	1.000	YES	2.0	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	0.2	2.0	Eggs	4				0.2	Liquid	0.0	0.05	0.0010	0.02	0.0050 Note 49
Year	N	41	1	0.8	0.8	0	100	1	0	1	0.6	43	0.2	0.1	0.0	0.0	0.0	41	0.2	0.01	0.02	0.01	0.01 Note 47
4	Vol/NH3	Poultry	YES	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	0.0	0.4	Eggs	4				0.0	Liquid	0.0	0.01	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.1	0.1	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	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	41	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	41	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.867	1.000		ORG	1.00	1.000	0.653	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	0.14	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.81	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	3.44	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	3.44	2.13	Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.14	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.81	Total including natural	4.25	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 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										18.9	18.9	1.80	3.52	1.37	2.03	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										20.3	20.3	0.20		0.20		Note 45
1-10 N leach			FIRST YEAR		0.0625	0.0354	TOTAL N AMOUNTS IN KG AND % LEACHED										60.8	60.8	1.52		0.46		Note 45
			TOTAL		0.0754	0.0434	TOTAL N AMOUNTS IN KG AND %										100.0	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.1864		0.1074	Note 46
Year	N	1	1	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	YES	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	1	22.8	19.4	0	100	11	0	1	14.5	43	5.0	1.2	0.0	0.0	1.0	42	3.8	0.22	0.53	0.17	0.33	Note 47
2	Vol/NH3	Poultry	YES	3.4	4.8	NON	100.00	WWH	1.000	YES	8.5	Poultry	0.67				0.0	Poultry	1.0	0.09	0.0125	0.09	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	1.0	8.5	Eggs	4				1.0	Sep	0.0	0.21	0.0105	0.06	0.0050	Note 49
Year	N	42	1	2.9	2.4	0	100	11	0	1	1.8	43	0.6	0.2	0.0	0.0	0.1	42	0.5	0.03	0.07	0.02	0.04	Note 47
3	Vol/NH3	Poultry	YES	0.4	0.6	NON	100.00	WWH	1.000	YES	1.1	Poultry	0.67				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.1	1.1	Eggs	4				0.1	Sep	0.0	0.03	0.0105	0.01	0.0050	Note 49
Year	N	42	1	0.4	0.3	0	100	1	0	1	0.2	43	0.1	0.0	0.0	0.0	0.0	42	0.1	0.00	0.01	0.00	0.01	Note 47
4	Vol/NH3	Poultry	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.1	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.1	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	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
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	0.0	0.0	Eggs	4				0.0	Sep	0.0	0.00	0.0105	0.00	0.0050	Note 49
Year	N	42	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	42	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Sep	0.867	1.000		ORG	1.00	1.000	0.653	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	0.10	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	3.52	2.03	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	3.52	2.03	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	0.76	Total including natural	4.28	2.79	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										17.9	17.9	1.86	3.58	1.29	1.97 Note 45
Year N NH3			ACCORDING TO		IPCC 1996		IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										22.8	22.7	0.23		0.23	Note 45
1-10 N leach			FIRST YEAR		0.0661		0.0359	TOTAL N AMOUNTS IN KG AND % LEACHED										59.5	59.4	1.49		0.45	Note 45
			TOTAL		0.0765		0.0421	TOTAL N AMOUNTS IN KG AND %										100.3	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.1996		0.1097 Note 46
Year	N	1	1	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	YES	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	1	18.5	15.2	0	100	11	0	1	11.4	43	2.7	0.7	0.0	0.0	0.8	43	2.1	0.18	0.45	0.13	0.27 Note 47
2	Vol/NH3	Poultry	YES	3.2	3.8	NON	100.00	WWH	1.000	YES	7.9	Poultry	0.67				0.0	Poultry	0.8	0.08	0.0125	0.08	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.8	7.9	Eggs	4				0.8	Deep	0.0	0.20	0.0200	0.06	0.0050 Note 49
Year	N	43	1	1.3	1.0	0	100	11	0	1	0.8	43	0.2	0.0	0.0	0.0	0.1	43	0.1	0.01	0.03	0.01	0.02 Note 47
3	Vol/NH3	Poultry	YES	0.2	0.3	NON	100.00	WWH	1.000	YES	0.5	Poultry	0.67				0.0	Poultry	0.1	0.01	0.0125	0.01	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.1	0.5	Eggs	4				0.1	Deep	0.0	0.01	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.1	0.1	0	100	1	0	1	0.1	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	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	0.0	0.0	Eggs	4				0.0	Deep	0.0	0.00	0.0200	0.00	0.0050 Note 49
Year	N	43	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	43	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.013		ORG	1.00	1.000	0.760	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	0.06	0.00	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	3.58	1.97 Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	3.58	1.97 Note 51
Natural background emissions, kg N2O-N/ha:	1.00	0.64	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	Total including natural	4.27	2.66 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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.4	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.4	Eggs	4				0.0	Scrap	0.0	0.01	0.0200	0.00	0.0200 Note 49
Year	N	44	1	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	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.1	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.1	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	11	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Poultry	0.67				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	1	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Poultry	0.65				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	0.0	0.0	Eggs	4				0.0	Scrap	0.0	0.00	0.0200	0.00	0.0200 Note 49
Year	N	44	1	0.0	0.0	0	100	10	0	1	0.0	43	0.0	0.0	0.0	0.0	0.0	44	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Poultry	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Poultry	0.66				0.0	Poultry	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Scrap	0.484	1.000		ORG	1.00	1.000	0.806	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	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	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	0.74	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	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	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	0.0	0.0	0	100	1	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	53	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Sheep	0.65				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	0.0	0.0	0	100	10	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	53	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Sheep	0.66				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	11	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Sheep	0.67				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	1	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Sheep	0.65				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	10	0	1	0.0	51	0.0	0.0	0.0	0.0	0.0	54	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Sheep	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Sheep	0.66				0.0	Sheep	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	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	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	0.00	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											13.0	12.3	2.37	4.34	1.52	2.28	Note 45
Year N NH3			ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3									23.5	22.2	0.23		0.23		Note 45
1-10 N leach			FIRST YEAR		0.0700	0.0358		TOTAL N AMOUNTS IN KG AND % LEACHED									69.3	65.5	1.73		0.52		Note 45
			TOTAL		0.0928	0.0488		TOTAL N AMOUNTS IN KG AND %									105.8	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																				0.3337		0.1754	Note 46
Year	N	1	1	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	YES	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	1	35.7	30.4	0	100	11	0	1	22.8	61	5.5	0.5	0.0	0.0	1.6	63	4.9	0.39	0.92	0.27	0.52	Note 47
2	Vol/NH3	Goat	YES	5.4	7.6	NON	100.00	WWH	1.000	YES	15.7	Goat	0.67				0.0	Goat	0.7	0.14	0.0125	0.14	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	1.6	15.7	Milk/meat	6				1.5	Deep	0.0	0.39	0.0200	0.12	0.0050	Note 49
Year	N	63	1	4.9	4.1	0	100	11	0	1	3.1	61	0.7	0.1	0.0	0.0	0.2	63	0.7	0.05	0.13	0.04	0.07	Note 47
3	Vol/NH3	Goat	YES	0.7	1.0	NON	100.00	WWH	1.000	YES	2.2	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	0.2	2.2	Milk/meat	6				0.2	Deep	0.0	0.05	0.0200	0.02	0.0050	Note 49
Year	N	63	1	0.7	0.6	0	100	1	0	1	0.4	61	0.1	0.0	0.0	0.0	0.0	63	0.1	0.01	0.02	0.00	0.01	Note 47
4	Vol/NH3	Goat	YES	0.1	0.1	NON	100.00	SBA	1.000	YES	0.3	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	0.3	Milk/meat	6				0.0	Deep	0.0	0.01	0.0200	0.00	0.0050	Note 49
Year	N	63	1	0.1	0.1	0	100	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	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	0.0	0.0	0	100	1	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Goat	0.65				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	1	0.0	0.0	0	100	10	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	63	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Deep	0.600	1.162		ORG	1.00	1.000	0.760	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	0.11	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	4.34	2.28	Note 51
Increased soil N emissions, kg N2O-N/ha:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Total anthropogenic	4.34	2.28	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	5.10	3.05	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 #	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	11	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Goat	0.67				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	1	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Goat	0.65				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	1	0.0	0.0	0	100	10	0	1	0.0	61	0.0	0.0	0.0	0.0	0.0	64	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Goat	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Goat	0.66				0.0	Goat	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Graz	0.484	1.000		ORG	1.00	1.000	0.806	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	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										12.6	12.6	1.81	3.77	1.51	2.21	Note 45
Year	N NH3		ACCORDING TO		IPCC 1996	IPCC 2006		TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3										15.7	15.7	0.16		0.16		Note 45
1-10	N leach		FIRST YEAR		0.0557	0.0314		TOTAL N AMOUNTS IN KG AND % LEACHED										71.9	71.8	1.80		0.54		Note 45
			TOTAL		0.0806	0.0473		TOTAL N AMOUNTS IN KG AND %										100.2	100.0					Note 45
N2O-N/N in food/beverage/fuel/other																					0.2995		0.1757	Note 46
Year	N	1	1	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	YES	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	1	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	YES	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	1	8.0	7.8	0	100	11	0	1	5.9	21	2.2	0.5	0.0	0.0	0.4	21	1.7	0.08	0.18	0.07	0.12	Note 47
3	Vol/NH3	Cattle	YES	0.2	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	0.02	0.0050	Note 49
Year	N	21	1	1.6	1.5	0	100	1	0	1	1.1	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	YES	0.0	0.4	NON	100.00	SBA	1.000	YES	0.6	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	0.6	Dairy	2				0.1	Liquid	0.0	0.02	0.0010	0.00	0.0050	Note 49
Year	N	21	1	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	Green	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050	Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	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		
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	0.00	0.93 Total including natural	4.69	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	10.9	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								14.2	14.2	0.14		0.14	Note 45
1-10 N leach			FIRST YEAR		0.0557		0.0314				TOTAL N AMOUNTS IN KG AND % LEACHED								74.9	74.9	1.87		0.56	Note 45
			TOTAL		0.0809		0.0463				TOTAL N AMOUNTS IN KG AND %								100.1	100.0				Note 45
N2O-N/N in food/beverage/fuel/other																					0.3453		0.1975 Note 46
Year	N	1	1	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	YES	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	1	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	YES	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	1	4.6	4.5	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	YES	0.1	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	1	0.9	0.9	0	100	1	0	1	0.7	21	0.2	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	YES	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	1	0.2	0.2	0	100	10	0	1	0.1	21	0.0	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	YES	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	Green	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	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	1	0.0	0.0	0	100	11	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WWH	1.000	YES	0.0	Cattle	0.67				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	1	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	SBA	1.000	YES	0.0	Cattle	0.65				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	0.0	0.0	Dairy	2				0.0	Liquid	0.0	0.00	0.0010	0.00	0.0050 Note 49
Year	N	21	1	0.0	0.0	0	100	10	0	1	0.0	21	0.0	0.0	0.0	0.0	0.0	21	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	Cattle	YES	0.0	0.0	NON	100.00	WBA	1.000	YES	0.0	Cattle	0.66				0.0	Cattle	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach	Liquid	0.933	1.016		ORG	1.00	1.000	0.627	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		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	3.78	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	4.58	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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
2	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
3	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
4	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
5	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
7	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
8	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
9	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	beverage	8				0.0		0.0	0.00	0.0000	0.00	0.0000 Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00 Note 47
10	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Food/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100 Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	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	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											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	1	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
2	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
3	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
4	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
5	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	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	YES	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	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
7	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	11	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
8	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.67				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	1	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
9	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.65				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	0.0	0.0	other	9				0.0		0.0	0.00	0.0000	0.00	0.0000	Note 49
Year	N	0	1	0.0	0.0	0	100	10	0	1	0.0	9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.00	0.00	0.00	0.00	Note 47
10	Vol/NH3	None	YES	0.0	0.0	NON	100.00	NO	1.000	YES	0.0	Fuel/	0.66				0.0	NONE	0.0	0.00	0.0125	0.00	0.0100	Note 48
	N leach		1.000	1.000		ORG	1.00	1.000	0.600	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	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									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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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	1	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	YES	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			22.30	22.19	1.66	3.41	1.48	2.10 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.74	13.67	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0346	TOTAL N AMOUNTS IN KG AND % LEACHED			64.48	64.14	1.61		0.48	Note 45
	TOTAL	0.0729	0.0450	TOTAL N AMOUNTS IN KG AND %			100.52	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1527		0.0943 Note 46
							Total/year 1					
Area with crop, ha						0.82	1.30					Note 50
Natural background emissions, kg N2O-N/ha:						0.82				4.23		2.93 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			21.94	21.83	1.95	3.70	1.47	2.09 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.27	14.19	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0620	0.0345	TOTAL N AMOUNTS IN KG AND % LEACHED			64.31	63.98	1.61		0.48	Note 45
	TOTAL	0.0792	0.0448	TOTAL N AMOUNTS IN KG AND %			100.52	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1685		0.0954 Note 46
							Total/year 1					
Area with crop, ha						0.80	1.26					Note 50
Natural background emissions, kg N2O-N/ha:						0.80				4.50		2.89 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			20.79	19.86	2.14	3.93	1.40	2.08 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			20.39	19.47	0.20		0.20	Note 45
1-10 N leach	FIRST YEAR	0.0674	0.0346	TOTAL N AMOUNTS IN KG AND % LEACHED			63.53	60.67	1.59		0.48	Note 45
	TOTAL	0.0841	0.0446	TOTAL N AMOUNTS IN KG AND %			104.71	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1890		0.1002 Note 46
							Total/year 1					
Area with crop, ha						0.73	1.14					Note 50
Natural background emissions, kg N2O-N/ha:						0.73				4.66		2.81 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			20.87	20.75	1.68	3.45	1.51	2.14 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.42	14.34	0.14		0.14	Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0348	TOTAL N AMOUNTS IN KG AND % LEACHED			65.26	64.91	1.63		0.49	Note 45
	TOTAL	0.0739	0.0458	TOTAL N AMOUNTS IN KG AND %			100.55	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1655		0.1026 Note 46
							Total/year 1					
Area with crop, ha						0.84	1.31					Note 50
Natural background emissions, kg N2O-N/ha:						0.84				4.29		2.98 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			20.51	20.40	1.99	3.76	1.49	2.13 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.96	14.88	0.15		0.15	Note 45
1-10 N leach	FIRST YEAR	0.0624	0.0347	TOTAL N AMOUNTS IN KG AND % LEACHED			65.07	64.72	1.63		0.49	Note 45
	TOTAL	0.0805	0.0456	TOTAL N AMOUNTS IN KG AND %			100.55	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1834		0.1038 Note 46
							Total/year 1					
Area with crop, ha						0.81	1.27					Note 50
Natural background emissions, kg N2O-N/ha:						0.73				4.57		2.94 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			19.39	18.47	2.18	4.00	1.42	2.12 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			21.37	20.36	0.21		0.21	Note 45
1-10 N leach	FIRST YEAR	0.0680	0.0347	TOTAL N AMOUNTS IN KG AND % LEACHED			64.20	61.16	1.60		0.48	Note 45
	TOTAL	0.0856	0.0453	TOTAL N AMOUNTS IN KG AND %			104.96	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.2063		0.1092 Note 46
							Total/year 1					
Area with crop, ha						0.73	1.15					Note 50
Natural background emissions, kg N2O-N/ha:						0.73				4.73		2.85 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			27.49	27.49	1.56	3.18	1.36	1.94 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			12.35	12.35	0.12		0.12	Note 45
1-10 N leach	FIRST YEAR	0.0568	0.0342	TOTAL N AMOUNTS IN KG AND % LEACHED			60.16	60.16	1.50		0.45	Note 45
	TOTAL	0.0681	0.0415	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1158		0.0705 Note 46
								Total/year 1				
Area with crop, ha							0.78	1.22				Note 50
Natural background emissions, kg N2O-N/ha:							0.78			3.96		2.72 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			26.18	26.05	1.70	3.32	1.31	1.90 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			15.77	15.69	0.16		0.16	Note 45
1-10 N leach	FIRST YEAR	0.0609	0.0343	TOTAL N AMOUNTS IN KG AND % LEACHED			58.56	58.26	1.46		0.44	Note 45
	TOTAL	0.0710	0.0407	TOTAL N AMOUNTS IN KG AND %			100.51	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1268		0.0726 Note 46
								Total/year 1				
Area with crop, ha							0.73	1.15				Note 50
Natural background emissions, kg N2O-N/ha:							0.73			4.05		2.63 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			25.50	24.90	1.81	3.43	1.26	1.89 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			20.23	19.75	0.20		0.20	Note 45
1-10 N leach	FIRST YEAR	0.0644	0.0345	TOTAL N AMOUNTS IN KG AND % LEACHED			56.68	55.35	1.42		0.43	Note 45
	TOTAL	0.0734	0.0404	TOTAL N AMOUNTS IN KG AND %			102.40	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1345		0.0740 Note 46
								Total/year 1				
Area with crop, ha							0.71	1.11				Note 50
Natural background emissions, kg N2O-N/ha:							0.71			4.14		2.59 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			30.71	30.71	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			9.67	9.67	0.10		0.10	Note 45
1-10 N leach	FIRST YEAR	0.0565	0.0337	TOTAL N AMOUNTS IN KG AND % LEACHED			59.61	59.61	1.49		0.45	Note 45
	TOTAL	0.0665	0.0398	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1011		0.0606 Note 46
							Total/year 1					
Area with crop, ha							0.74	1.17				Note 50
Natural background emissions, kg N2O-N/ha:							0.74			3.85		2.60 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			29.63	29.63	1.61	3.17	1.25	1.81 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			13.33	13.33	0.13		0.13	Note 45
1-10 N leach	FIRST YEAR	0.0601	0.0340	TOTAL N AMOUNTS IN KG AND % LEACHED			57.04	57.04	1.43		0.43	Note 45
	TOTAL	0.0678	0.0388	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1069		0.0611 Note 46
							Total/year 1					
Area with crop, ha							0.71	1.12				Note 50
Natural background emissions, kg N2O-N/ha:							0.71			3.88		2.52 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			28.60	28.55	1.65	3.22	1.21	1.78 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			15.15	15.13	0.15		0.15	Note 45
1-10 N leach	FIRST YEAR	0.0624	0.0343	TOTAL N AMOUNTS IN KG AND % LEACHED			56.40	56.31	1.41		0.42	Note 45
	TOTAL	0.0688	0.0381	TOTAL N AMOUNTS IN KG AND %			100.16	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1124		0.0622 Note 46
							Total/year 1					
Area with crop, ha							0.67	1.06				Note 50
Natural background emissions, kg N2O-N/ha:							0.67			3.89		2.45 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			20.08	20.08	1.66	3.44	1.49	2.13 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			14.64	14.64	0.15		0.15	Note 45
1-10 N leach	FIRST YEAR	0.0570	0.0349	TOTAL N AMOUNTS IN KG AND % LEACHED			65.28	65.28	1.63		0.49	Note 45
	TOTAL	0.0736	0.0455	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1714		0.1059 Note 46
							Total/year 1					
Area with crop, ha							0.81	1.28				Note 50
Natural background emissions, kg N2O-N/ha:							0.81			4.25		2.94 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			18.90	18.90	1.80	3.52	1.37	2.03 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			20.32	20.32	0.20		0.20	Note 45
1-10 N leach	FIRST YEAR	0.0625	0.0354	TOTAL N AMOUNTS IN KG AND % LEACHED			60.78	60.78	1.52		0.46	Note 45
	TOTAL	0.0754	0.0434	TOTAL N AMOUNTS IN KG AND %			100.00	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1864		0.1074 Note 46
							Total/year 1					
Area with crop, ha							0.76	1.19				Note 50
Natural background emissions, kg N2O-N/ha:							0.76			4.28		2.79 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			17.92	17.87	1.86	3.58	1.29	1.97 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			22.79	22.73	0.23		0.23	Note 45
1-10 N leach	FIRST YEAR	0.0661	0.0359	TOTAL N AMOUNTS IN KG AND % LEACHED			59.55	59.40	1.49		0.45	Note 45
	TOTAL	0.0765	0.0421	TOTAL N AMOUNTS IN KG AND %			100.25	100.00				Note 45
N2O-N/N in food/beverage/fuel/other										0.1996		0.1097 Note 46
							Total/year 1					
Area with crop, ha							0.70	1.10				Note 50
Natural background emissions, kg N2O-N/ha:							0.70			4.27		2.66 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				12.99	12.28	2.37	4.34	1.52	2.28 Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3				23.48	22.20	0.23		0.23	Note 45
1-10 N leach	FIRST YEAR	0.0700	0.0358	TOTAL N AMOUNTS IN KG AND % LEACHED				69.30	65.52	1.73		0.52	Note 45
	TOTAL	0.0928	0.0488	TOTAL N AMOUNTS IN KG AND %				105.77	100.00				Note 45
N2O-N/N in food/beverage/fuel/other											0.3337		0.1754 Note 46
								Total/year 1					
Area with crop, ha								0.77	1.21				Note 50
Natural background emissions, kg N2O-N/ha:								0.77			5.10		3.05 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			12.58	12.56	1.81	3.77	1.51	2.21	Note 45
Year N NH3	ACCORDING TO	IPCC 1996	IPCC 2006	TOTAL N AMOUNTS IN KG AND % VOLATILISATION/NH3			15.71	15.68	0.16		0.16		Note 45
1-10 N leach	FIRST YEAR	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			71.88	71.76	1.80		0.54		Note 45
	TOTAL	0.0806	0.0473	TOTAL N AMOUNTS IN KG AND %			100.16	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.2995		0.1757	Note 46
							Total/year 1						
Area with crop, ha						0.93	1.46						Note 50
Natural background emissions, kg N2O-N/ha:						0.93				4.69		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			10.95	10.94	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			14.20	14.19	0.14		0.14		Note 45
1-10 N leach	FIRST YEAR	0.0557	0.0314	TOTAL N AMOUNTS IN KG AND % LEACHED			74.93	74.87	1.87		0.56		Note 45
	TOTAL	0.0809	0.0463	TOTAL N AMOUNTS IN KG AND %			100.09	100.00					Note 45
N2O-N/N in food/beverage/fuel/other										0.3453		0.1975	Note 46
							Total/year 1						
Area with crop, ha						0.80	1.26						Note 50
Natural background emissions, kg N2O-N/ha:						0.80				4.58		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	0.0729	0.0928	0.0446	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
3.41	4.34	2.08	2.71

	N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
N2O-N/N in food/beverage/fuel/other	0.1527	0.2102	0.0943	0.1311

	MIN	MAX	MIN	MAX				
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.73	0.84	0.73	1.16	4.23	5.08	2.81	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	0.0681	0.0840	0.0404	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
3.18	3.93	1.89	2.43

	N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
N2O-N/N in food/beverage/fuel/other	0.1158	0.1393	0.0705	0.0864

	MIN	MAX	MIN	MAX				
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.71	0.78	0.71	0.78	3.96	4.68	2.59	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	0.0665	0.0935	0.0381	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	1.78	2.73

	N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
N2O-N/N in food/beverage/fuel/other	0.1011	0.2170	0.0606	0.1354

	MIN	MAX	MIN	MAX				
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.67	0.81	0.67	0.81	3.85	5.11	2.45	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	0.0928	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
4.34	4.77	2.11	2.58

	N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
N2O-N/N in food/beverage/fuel/other	0.2800	0.3390	0.1316	0.1835

	MIN	MAX	MIN	MAX				
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.76	0.80	0.76	0.80	5.10	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	0.0665	0.1022	0.0381	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	1.78	2.73

	N2O-N emission IPCC 1996 MIN	N2O-N emission IPCC 1996 MAX	N2O-N emission IPCC 2006 MIN	N2O-N emission IPCC 2006 MAX
N2O-N/N in food/beverage/fuel/other	0.1011	0.3390	0.0606	0.1835

	MIN	MAX	MIN	MAX				
Natural background emissions in kg N2O-N/ha, area with crop in ha, and total emissions in kg N2O-N/ha:	0.67	0.84	0.67	1.16	3.85	5.54	2.45	3.47