The Danish aquatic environment plan focuses on reducing societies nitrogen discharge to the aquatic environment. Farming is one of the biggest contributors this to discharge, which is why it is useful to have an overview of the nitrogen balance in Danish farming, which is given here. The data presented refers to production of nitrogen from different types of Danish csh crop farms in 2000. For process description, data collection and treatment etc. please look at the processes for each farm type (Here).

The nitrogen balance data precented is divided in to three tables:

<u>Table 1</u>: Characteristics and area-based average of cash crop farms in Denmark

Table 2: Farm gate Nitrogen turnover and loss at cash crop farms in Denmark

<u>Table 3:</u> Field Nitrogen turnover at cash crop farms in Denmark

Table 1: Characteristics and area-based average of cash crop farms in Denmark

Soil type			amy (cla						
, , , , , , , , , , , , , , , , , , ,	Sugar		, , , , ,	.,,			San	<u> </u>	
Farmtype	beet	Seed	Cereal	Org.	Rest	Potatoes	Cereal	Org.	Rest
Data									
Number of farms in									
dataset	88	63	53	30	38	62	350	107	91
Area reprecented by									
farm type (1000ha)	156	170	135	9	47	112	159	42	92
Herd balance									
Dairy per farm (cows									
farm ⁻¹)	6	1	0	0	13	9	61	0	21
LSU ¹⁾ per farm (LSU									
farm ⁻¹)	33	23	3	16	61	35	99	12	75
Area									
Total farm area (ha									
farm ⁻¹)	78	105	68	31	38	94	68	39	41
Crop rotation(% of farm area)									
Permanent grass	1	1	1	7	15	2	9	8	8
Set-aside	7	7	7	4	3	9	6	8	7
Cearal for harvest	59	55	72	43	56	48	29	53	49
Maize/whole crop silage	1	0	0	7	7	3	27	9	11
Grass/clover in rotation	1	0	2	10	9	3	22	9	13
Production									

Cearal yield (hkg ha ⁻¹)	75	74	66	40	60	49	52	33	51
Milk yield (kg ECM cow									
¹ year ⁻¹)	7243	6918	0	0	7330	7565	0	0	7242

¹⁾ Livestock units (LSU), DK definition: 0.85 LSU=1 dairy cow on 7,500 l milk year⁻¹

Table 2: Farm gate nitrogen turnover and loss at cash crop farms in Denmark(kg N ha⁻¹ year⁻¹)

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Soil type		Lo	amy (cla	y)			San	dy	
	Sugar								
Farmtype	beet	Seed	Cereal	Org.	Rest	Potatoes	Cereal	Org.	Rest
Farm gate balance									
Mineral fertilizer	109	121	136	0	105	114	113	0	76
Organic fertilizer &									
living animals ³⁾	10	9	16	41	12	20	16	41	9
Supplement feed	34	16	3	29	178	23	1	12	258
Straw for bedding ³⁾	-4	-5	-5	0	0	-4	-7	0	0
Fixation	3	5	5	26	13	8	6	32	19
Precipation	16	16	16	16	16	16	16	16	16
Total input	168	160	169	112	324	177	145	99	378
•									
Milk	-3	-1	0	0	-13	-4	0	0	-20
Meat	-19	-13		-19	-81	-16	-1	-9	
Cash crops	-76	-72	-90	-25	-24		-66		
Total output	-98	-86		-42	-118			-35	
•									
Farm N-balance	70	74	77	69	206	107	78	64	228
N loss, stable and									
storage	-8	-4	-1	-7	-32	-6	0	-4	-49
Field N balance	62	70	-76	62	174	101	77	60	179
Field N-effiency ⁴⁾	64%	58%	57%	43%	38%	46%	50%	48%	38%
N loss, field									
Fertilization, spreading	-7	-6	-6	-5	-14	-8	-5	-6	-14
Crops	-5	-5		-2	-4				-4
Denitrifiation	-17	-15		-20	-35			-8	-16
Leaching ⁵⁾	-34	-44		-34	-121			-45	-144

³⁾ Net import = import-export of manure, straw and living animals 4) N-eff = output/input

Table 3: Field Nitrogen turnover at cash crop farms in Denmark (kg N ha-1 year-1)

Soil type	Loamy (clay)					Sandy			
Farmtype	Sugar beet	Seed	Cereal	Org.	Rest	Potatoes	Cereal	Org.	Rest
Input									

²⁾ N-eff = output of animals products/input of feed

⁵⁾ Leaching = field N balance +/ soil-N changes - N loss (fertilization+crops+denitrification)

Mineral fertilizer	110	119	134	0	104	114	112	O	75
Imported organic fertilizer ⁶⁾	6	7	16	38	0	16	16	39	О
Produced manure	37	18	5			34	3	29	180
Fixation	3	5	5	26	13	8	6	32	19
Precipitation	16	16	16	16	16	16	16	16	16
Total input	172	165	176	110	280	188	153	116	290
Output									
Cash crop	-28	-17	-13	-6	-4	-28	-8	-2	-5
Grain	-47	-56	-77	-17	-19	-21		-24	-12
Grain for feed ⁷⁾	-24	-14	-1	-11	-35			-6	-29
Straw harvested	-5	-6	-6	-1	0	-6	-7	-2	-11
Straw mulched ⁸⁾ (Not in output)	-9	-13	-10	-7	3	-3	-6	-5	2
Roughage for feed ⁷⁾	-4	-2	-4	-12	-48	-14	-2	-22	-54
Roughage not utilized									
by own herd	0	0	-1	-19	0	0		-9	0
Total output	-110	-95	-100	-48	-106	-87	-76	-56	-111
Output without rougheag ⁹⁾	-105	-93	-96	-36	-58	-73	-74	-34	-57
Field N balance	62	70	76	62	174	101	77	60	179
Field N-effcciency ⁴⁾	64%	58%	57%	43%	38%	46%	50%	48%	38%

⁴⁾ N-eff = output/input

Administrative information

Data URL: http://www.lcafood.dk/processes/agriculture/dairyfarms.html

Version no.: 1.00

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Contact:

Data entry: Transformed into this format by Rikke Frederiksen, DIAS

Data completed: HTML format: October 2004.

References

⁶⁾ Average include not precented farms with more than 2.3 LSU ha⁻¹
7) Used for feed for own herd

⁸⁾ Straw left on field, not included in balance

¹⁹⁾ Output without roughage, sum of output from cash crops, cereals and straw