EXAMPLE OF WHAT WE DO

- Annual revision of economically optimal N rates for Danish crops together with Seges (page 18-19 self-evaluation report). The fertilizer N quotas are implemented in the legislation and form the framework for the maximum N allowance for individual crops:

Source: http://dca.au.dk/myndighedsraadgivning/normudvalget/

Tabel 1: Kvælstofnormer for landbrugsafgrøder og grøntsager på friland

Normer til landbrugsafgrøder og grøntsager på friland (kvælstof-, fosfor- og kalium)

Kvælstofnormer og retningsgivende normer for fosfor og kalium i kg pr. ha for 2018/19
Normerne angiver total mængde kvælstof på årsbasis. For grønsager på friland, hvor der er fastsat en artsspecifik kvælstofnorm, gælder normen pr. kultur.

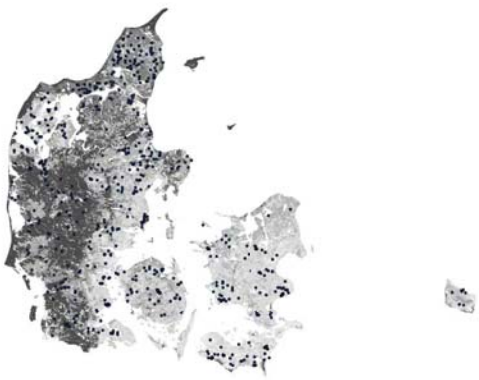
Afgrødekode	Afgrøde	Forfrugtsværdi	Indregning af forfrugtsværdi i afgrødens kvælstofnorm	Uvandet grovsand JB 1 + 3		Uvandet finsand JB 2 + 4 og 10-12		Vandet sandjord JB 1 - 4		Sandblandet lerjord JB 5 - 6		Lerjord JB 7- 9		Korektion for udbytte (Salg)	Korektion for udbytte (opfodring)	Retningsgivende normer for fosfor og kalium	
		kg N/ha	Ja/Nej	Udbyttenorm hkg/ha	Kvælstofnorm kg N/ha	Udbyttenorm hkg/ha	Kvælstofnorm kg N/ha	Udbyttenorm hkg/ha	Kvælstofnorm kg N/ha	Udbyttenorm hkg/ha	Kvælstofnorm kg N/ha	Udbyttenorm hkg/ha	Kvælstofnorm kg N/ha	kg N/hkg		kg P/ha	kg K/ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Vårsæd til modenhed				hkg/ha		hkg/ha		hkg/ha		hkg/ha		hkg/ha					
1	Vårbyg[3]	0	Ja	46 (51)	142	53 (58)	137	58 (64)	160	65 (72)	145	69 (76)	151	1,5	1,5	21	59
2	Vårhvede[3]	0	Ja	41 (45)	165	47 (52)	159	52 (57)	182	58 (64)	166	62 (68)	172	1,5	1,5	18	49
6	Vårhvede, brødhvede[3]	0	Ja	41 (45)	169	47 (52)	164	52 (57)	188	58 (64)	173	62 (68)	180	1,7	1,7	18	49
3	Vårhavre	0	Ja	44	120	51	115	56	138	57	114	60	119	1,5	1,5	23	69
4	Blanding af vårsæede kornarter[12]	0	Ja	44	120	51	115	56	138	57	114	60	119	1,5	1,5	23	69
55	Vårrug	0	Ja	44	120	51	115	56	138	57	114	60	119	1,5	1,5	23	69
8	Vårspelt	0	Ja	44	120	51	115	56	138	57	114	60	119	1,5	0	23	69
5	Majs modenhed	0	Ja	70	173	70	158	78	188	77	162	81	170	1,5	0	35	70
7	Korn + bælgsæd under 50 % bælgsæd	8	Ja	44	78	47	64	50	81	53	57	55	58	0,5	0	20	33
56	Vårtriticale	0	Ja	44	120	51	115	56	138	57	114	60	119	1,5	1,5	23	69
58	Sorghum	0	Ja		120		115		138		114		119	1,5	1,5	23	69

Source: https://lbst.dk/fileadmin/user_upload/NaturErhverv/Filer/Landbrug/Vejledning_om_goedsknings-_og_harmoniregler_2018_2019_1version.pdf

FERTILIZER N QUOTAS FOR DANISH CROPS

EXAMPLE OF WHAT WE DO

- Annual revision of economically optimal N rates for Danish crops together with Seges
- Based on nitrogen fertilizer response trials,
  e.g. 20 per year for winter wheat in the period 1992-2018 covering Denmark



MY BACKGROUND

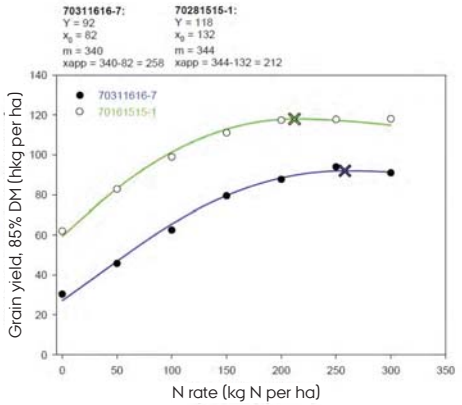
- PhD student at Aarhus University, Department of Agroecology:
  1st of September 2014 - present*
  * I am combining the Master's thesis and PhD (4+4 PhD programme)
- On-going duty work in relation to public sector service with special focus on determination of fertilizer N quotas
- Research assistant at Aarhus University, Department of Agroecology working on a special task within public sector consultancy (Fertilizer N quotas for crops):
  1st of October 2017 - 1st of April 2018

PUBLIC SECTOR CONSULTANCY AND RESEARCH – A CAREER DIRECTION

- Solving the specific task can go hand in hand with research:
  - We developed a new N-REsponsMOdel (NREMO)
  - Huge publication potential both in relation to the model and in relation to the unique datasets we have
  - I have enjoyed working on public sector consultancy since your research comes into play

EXAMPLE OF WHAT WE DO

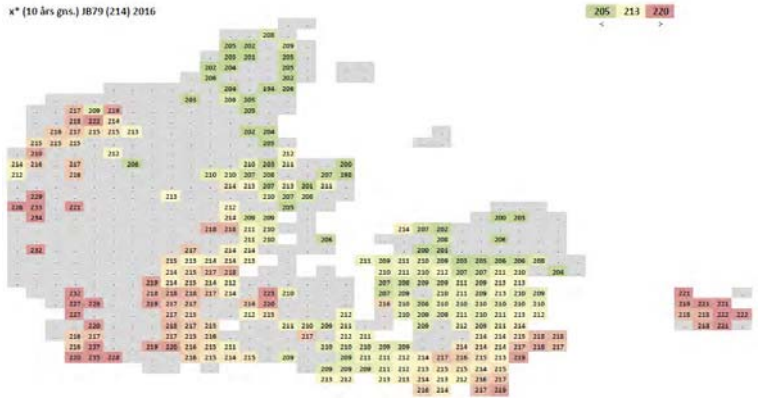
- Annual revision of economically optimal N rates for Danish crops together with Seges
- Based on nitrogen fertilizer response trials,
  e.g. 20 per year for winter wheat in the period 1992-2018 covering Denmark
- Two examples:



AARHUS UNIVERSITY

QUALITY ASSURANCE OF THE EXISTING SYSTEM USED TO DETERMINE ECONOMICALLY OPTIMAL N RATES

- <u>From nitrogen response trials to generalisations re. fertilizer N quotas</u>
  - Developing a new model to explain economically optimal N rates based on a range of explanatory parameters
  - Possibility to go from soil type-dependent economically optimal N rates (i.e. 5 classes) to geographically distributed N quotas; example for winter wheat:



Source: https://static-curis.ku.dk/portal/files/212952173/IFRO_Rapport_281.pdf