

# LOGISTICS IN FIELD TRIALS

ORGANIZING 1.000 TRIALS AND 25.000 GAS MEASUREMENTS

MICHAEL ERLANG-NIELSEN, TEAM MANAGER



# MARKFORSØG

Markteknologi,  
centerledelse

Markforsøg

Miljø- og  
klimateknologi

Markteknologi

Maskiner og  
digitalisering



**Hanne Justesen Bach**  
Faglig leder  
HJB +4572203385



**Michael Erlang-Nielsen**  
Sektionsleder  
MIE +4572201479



**Rikke Jensen**  
Seniorspecialist  
RJE +4572203393



**Torben Pedersen**  
Teknisk konsulent  
TEP +4572203396



**Niels Kristian Petersen**  
Teknisk konsulent  
NPE +4572201680



**Helle Marcher Rasmussen**  
Konsulent  
HELR +4572202033



**Michelle Ricafranca Ras...**  
Teknisk konsulent  
MRAS +4572201685



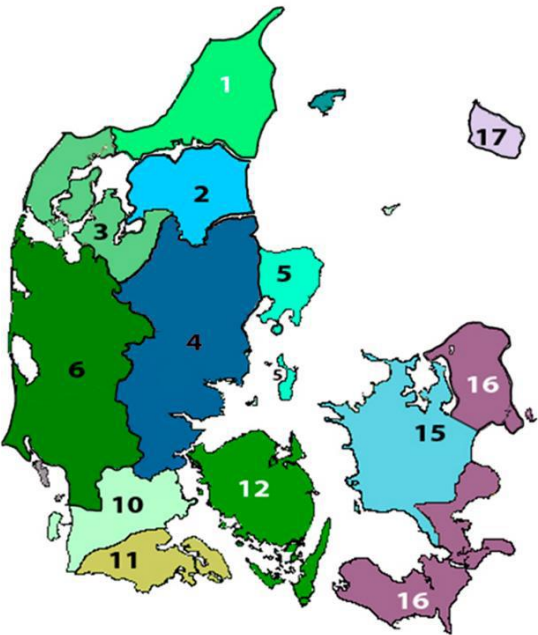
**Per Roed**  
Konsulent, tekniker  
PERO +4572203391



**Marlene Trinderup**  
Konsulent  
MATR +4572203297



# FROM IDEA TO RESULT



**SortInfo**

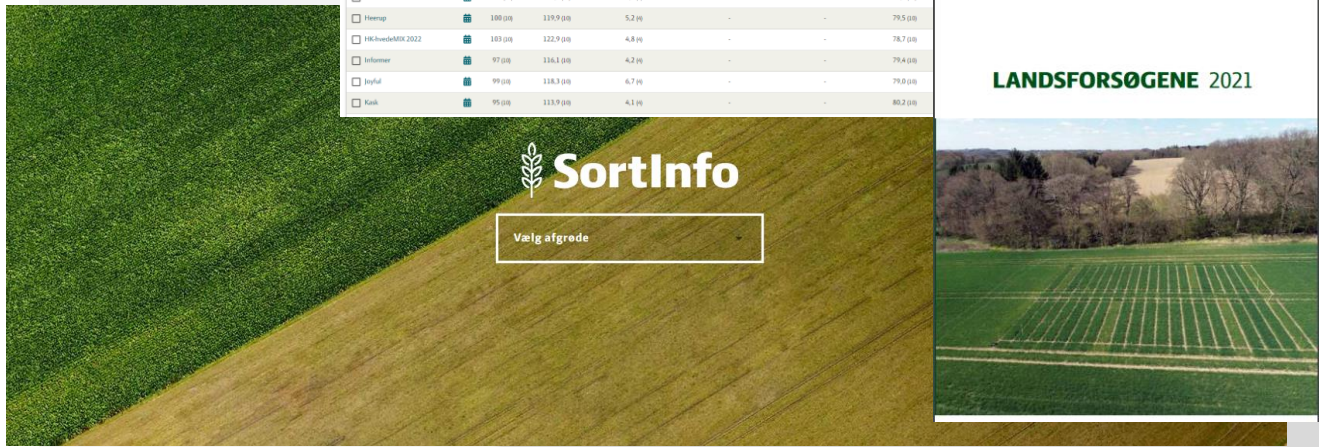
VIS KUN VÆLGT VIS DATA GRAFISK EKSPORTER TIL EXCEL TABELOPSÆTNING STOR VISNING

af-forsøg Seneste år

år	Udbytteforsøg					Sygdomme (Observationsparceller)			Dyrkningssegenskaber (Observationsparceller)		
	Kornudbytte (t/ha)	Merudb. for svampespek (t/ha)	FEv pr. hkg. 15% vand	FEv pr. hkg. 15% vand	Heltøllertvægt (kg/ha)	Meldug dækning (%)	Septoria dækning (%)	Gulrust dækning (%)	Modring (basal-fv) (t/ha)	Stålrængde (t/ha)	Layevad (t/ha)
2021	3,8	3,00	4,00	-	-	-	-	-	-	-	-
2022	3,8	3,00	4,00	-	-	-	-	-	-	-	-

Sort	1000 (t/ha)	119,6 (t/ha)	3,2 (t/ha)	115,9 (t/ha)	113,8 (t/ha)	79,0 (t/ha)
Blandingssæd	96 (t/ha)	115,4 (t/ha)	4,8 (t/ha)	-	-	81,7 (t/ha)
Bright	103 (t/ha)	123,5 (t/ha)	8,7 (t/ha)	117,6 (t/ha)	115,3 (t/ha)	76,9 (t/ha)
Champion	102 (t/ha)	122,1 (t/ha)	3,1 (t/ha)	-	-	78,3 (t/ha)
DLG Wheat Mix Star	99 (t/ha)	118,5 (t/ha)	3,9 (t/ha)	-	-	77,8 (t/ha)
Grahan	105 (t/ha)	125,5 (t/ha)	4,0 (t/ha)	-	-	78,6 (t/ha)
Guinness	100 (t/ha)	119,9 (t/ha)	5,2 (t/ha)	-	-	79,5 (t/ha)
Heemp	103 (t/ha)	122,9 (t/ha)	4,8 (t/ha)	-	-	78,7 (t/ha)
HKVedemix 2022	97 (t/ha)	116,1 (t/ha)	4,2 (t/ha)	-	-	79,4 (t/ha)
Informer	99 (t/ha)	118,3 (t/ha)	6,7 (t/ha)	-	-	79,0 (t/ha)
Jyful	95 (t/ha)	113,9 (t/ha)	4,1 (t/ha)	-	-	80,2 (t/ha)
Kask	-	-	-	-	-	-



- Seges and or DTI
- DTI:
  - Planning
  - Logistics
  - Distribution
  - Field trials
  - Contact to local sites
  - Analysis of approx. 10.000 samples
  - Analysis of > 28.000 N2O samples
  - Result validation
  - Back to Seges
- Seges:

# DISTRIBUTION



- Field trials
- Seeds
- pesticides
- fertilizer
- bags
- labels
- bottles...



# FROM CHAOS TO ORDER



# UNIQUE ID BARCODES

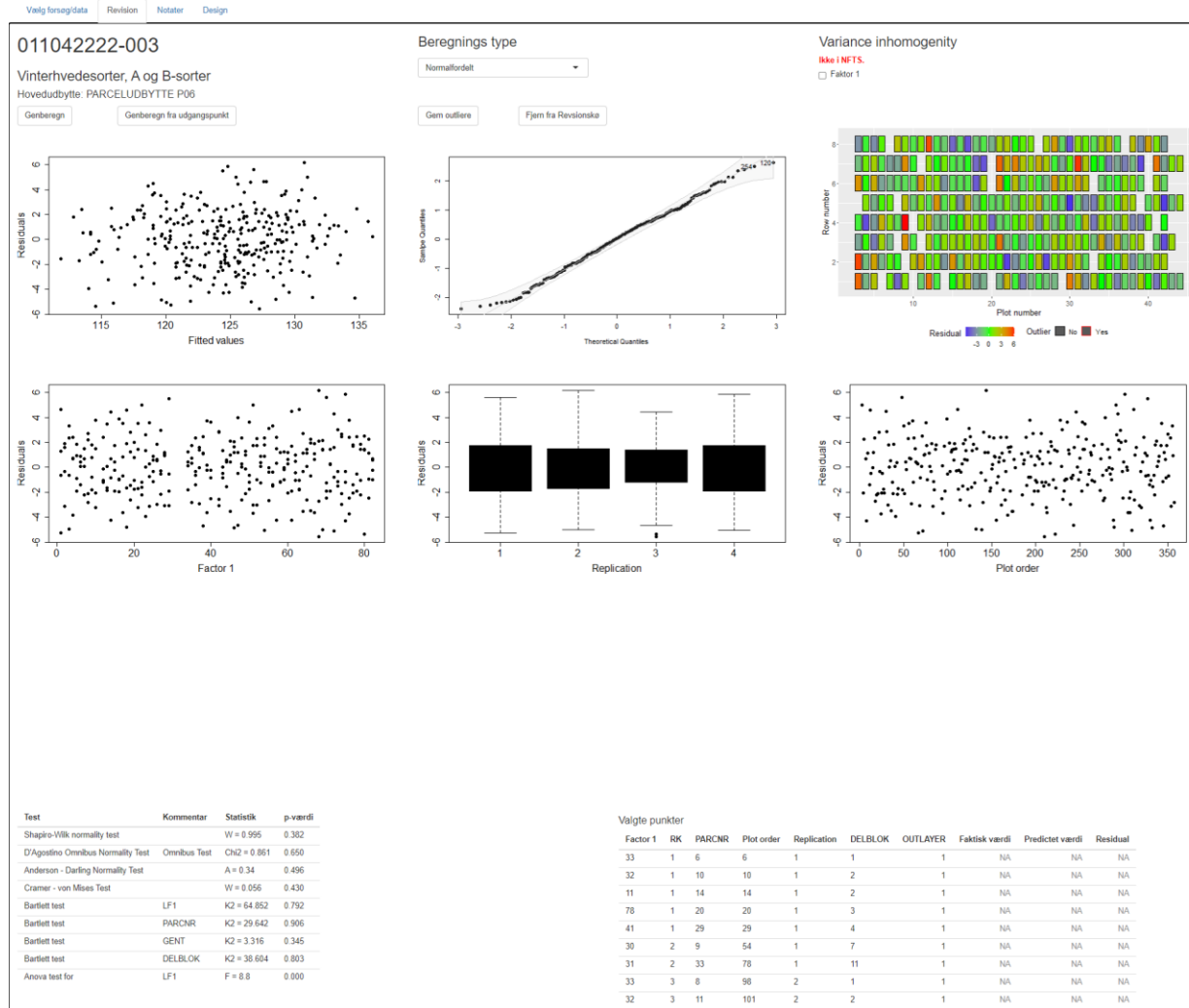


- Seed bags
- Soil samples
- Plant material
- Water samples
- Harvest samples
- N2O samples

Generated whit every single trial



# DATA VALIDATION



# > 28.000 N<sub>2</sub>O SAMPLES

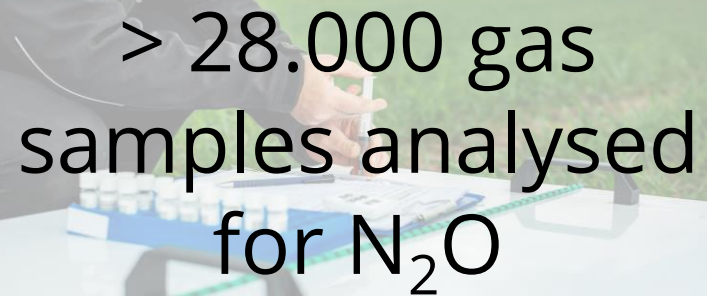




# N<sub>2</sub>O EMISSIONS FROM FIELDS



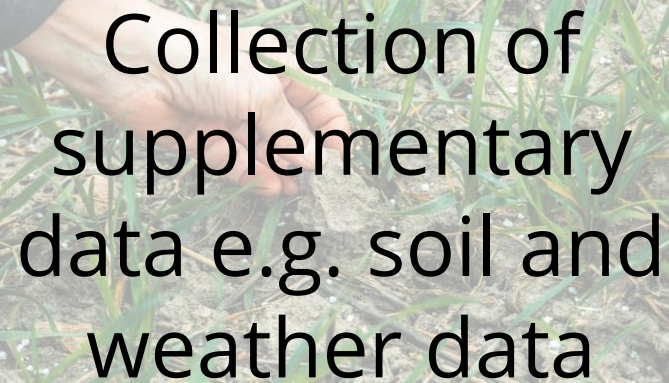
Approx. 20 field trials and demonstrations in 2022



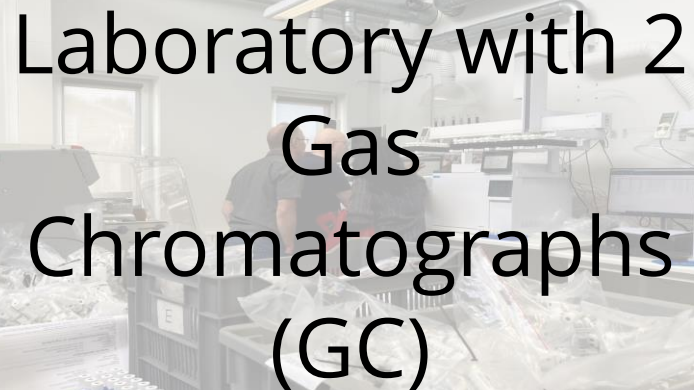
> 28.000 gas samples analysed for N<sub>2</sub>O



Static chamber method



Collection of supplementary data e.g. soil and weather data



Laboratory with 2 Gas Chromatographs (GC)

EmissionPlatform.Web Home Upload GC data Privacy Forsøgsplanlægning AgroTech! Sign out

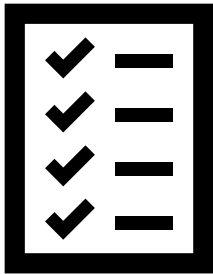
Welcome To EmissionPlatform

Add trial

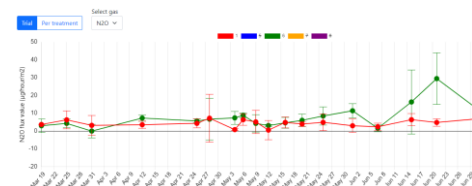
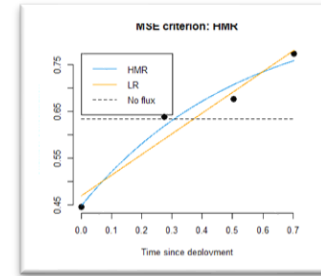
Id	Name	Location	Year
2	070752222001	LFE 11	2022
3	070752222002	LFE 1	2022
4	070812222001	LFE 6	2022
5	070812222002	LFE 6	2022
6	070702222001	LFE 15	2022
7	070702222002	LFE 16	2022
9	070702222003	LFE 18	2022
10	070712222001	LFE 15	2022
11	070712222002	LFE 16	2022
12	070712222003	LFE 18	2022

Emission Platform

# EMISSION INFRASTRUCTURE



Time	CO2	CH4	N2O	CO	H2	NO	NO2	SO2	Temperature	Humidity	Pressure
14:00	18.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	65.00	1013.25
14:05	18.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	65.00	1013.25
14:10	18.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	65.00	1013.25
14:15	18.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	65.00	1013.25



## Preparation and planning:

- Treatments
- Gas sampling strategy
- Sample ID

## Collection of emission data:

- Continuous automatic measurements
- Gas sampling from static flux chambers and GC-analysis

## Data handling:

- Combining data from different sources
- Sorting and filtering
- Quality control

## Flux calculation and statistical analysis:

- HMR/Linear
- Supporting tables and graphs
- Static analysis of treatments

## Output and results:

- Documentation of treatment effect
- Reporting

[www.agroemissionplatform.dti.dk](http://www.agroemissionplatform.dti.dk)



# THANK YOU FOR YOUR ATTENTION

**Michael Erlang-Nielsen**  
Team Manager  
Food and Production  
+45 72 20 14 79  
mie@dti.dk



**TEKNOLOGISK  
INSTITUT**