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CHALLENGES DESIGNING A FIELD TRIAL

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CHALLENGES DESIGNING A FIELD TRIAL

Test of Biologicals / Biostimulants

- How do we find
  - The right experimental area?
  - The right test set-up / design?

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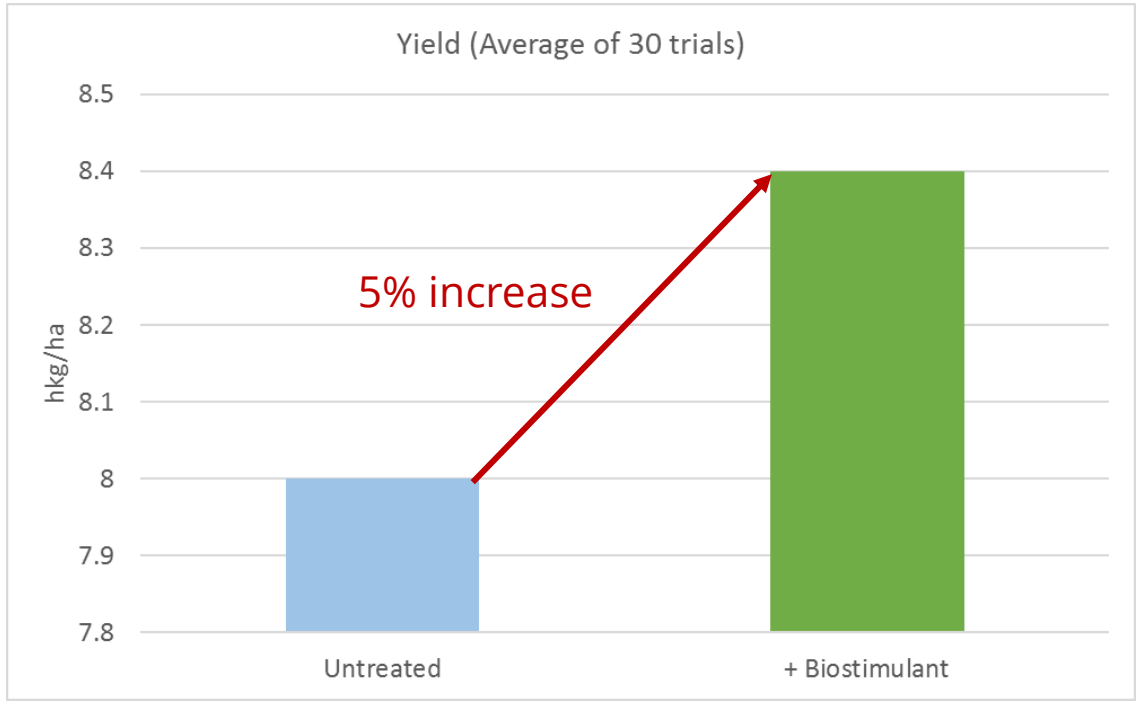
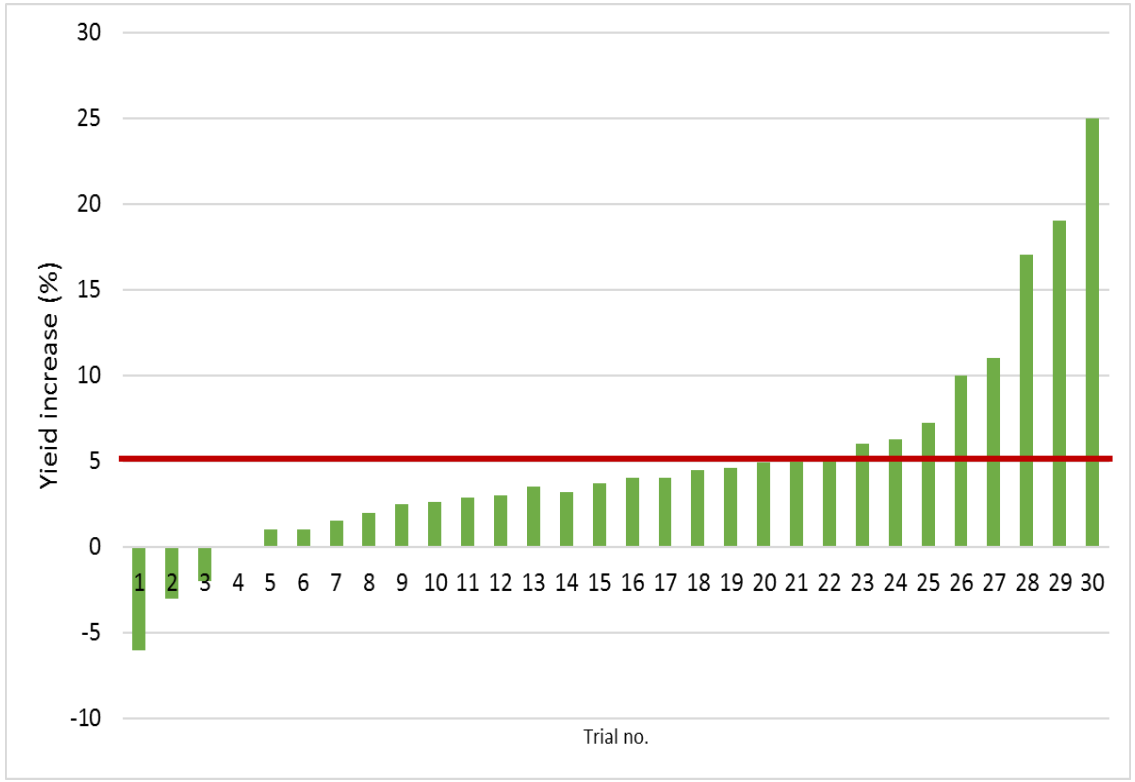
THE EXPERIMENTAL AREA

- Painkillers only work on people in pain
- It has always been difficult to find the right areas with the right weed species, pests, diseases etc.
- The arrival of new biologicals / biostimulants where mode of action hardly are described, and effects vary greatly do not make it easier

TESTING BIOLOGICALS IN THE FIELD





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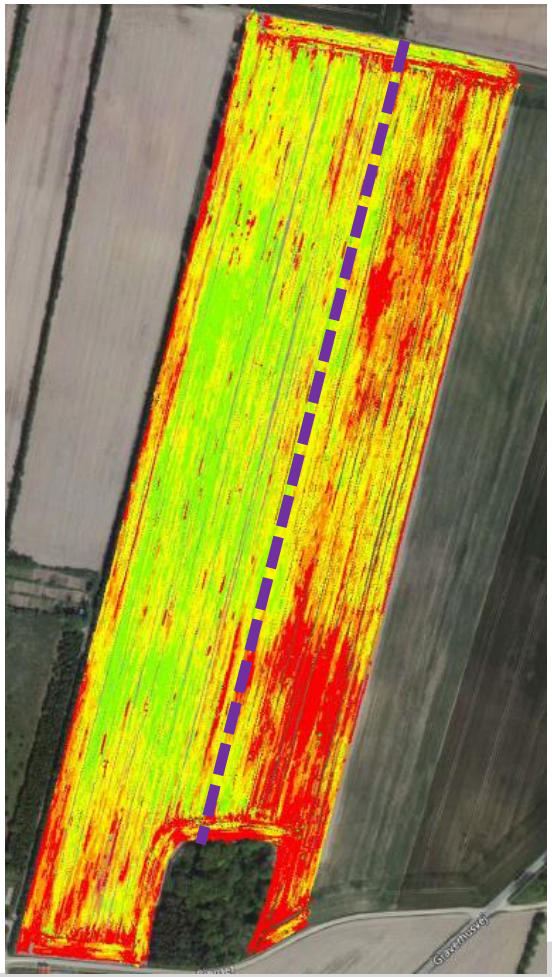
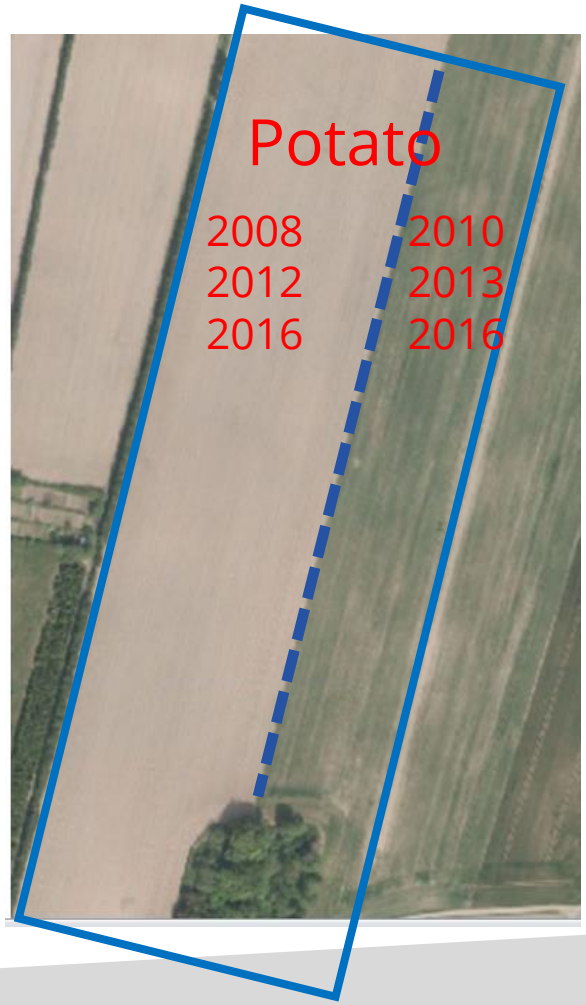
IN-FIELD VARIATION

Tonnes/ha

	110,05
	65,35
	61,05
	57,25
	53,05
	47,75
	0,00





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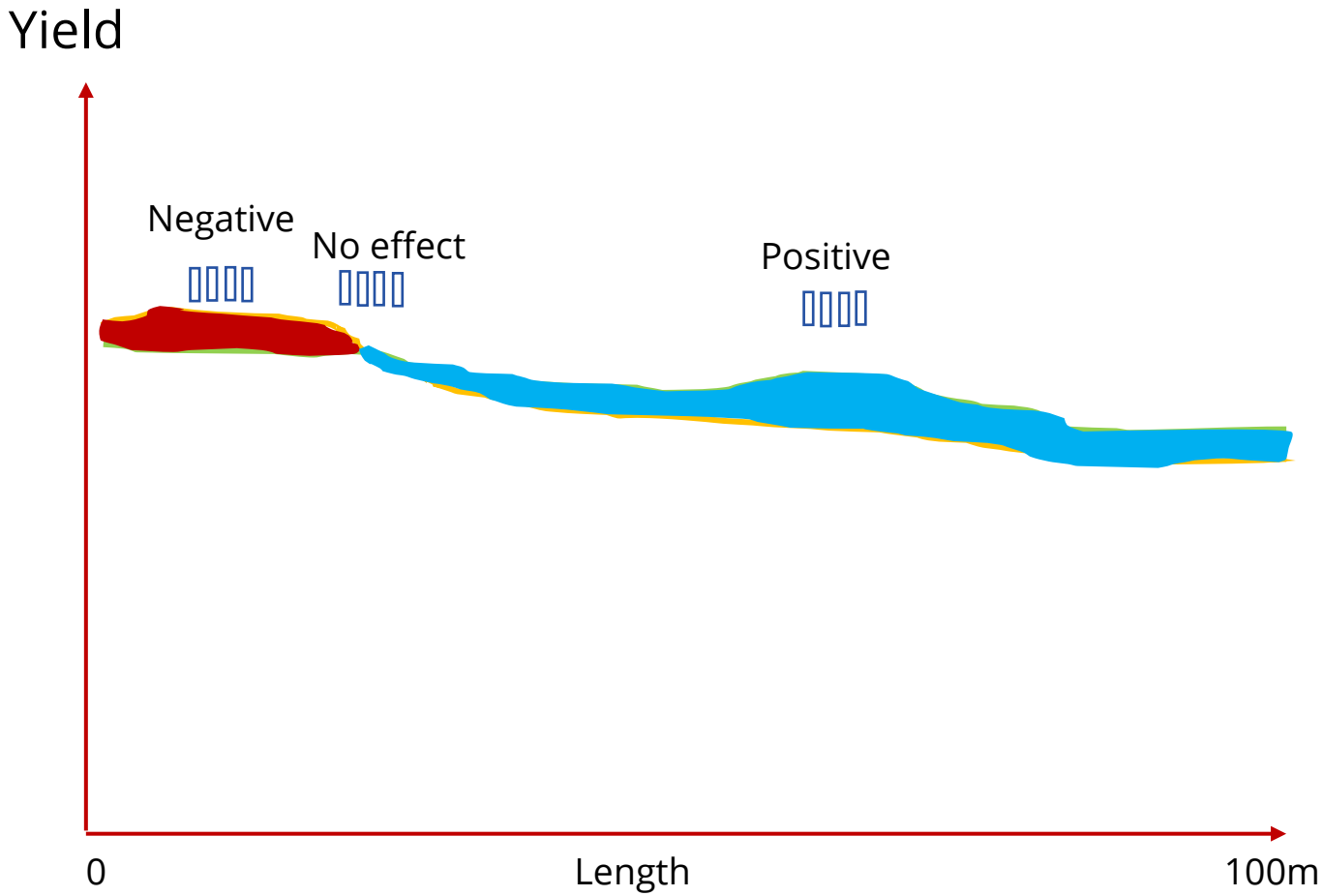
HOW CAN WE DEMONSTRATE A 5% NET YIELD



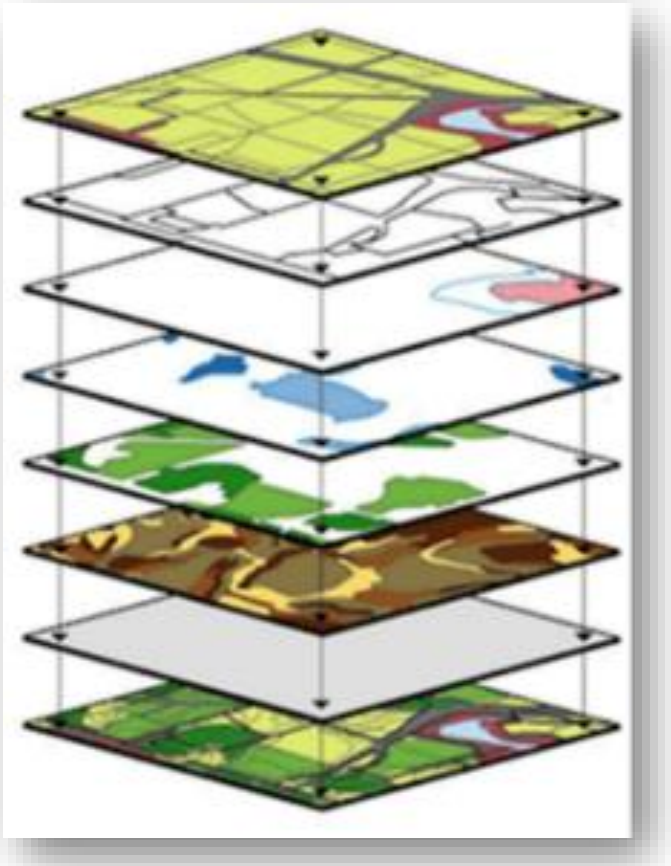
Untreated control

Treated

Where do I locate the trial?

What's the reason to posive results?

ONFARM^{PLUS} CAN BE PART OF THE SOLUTION

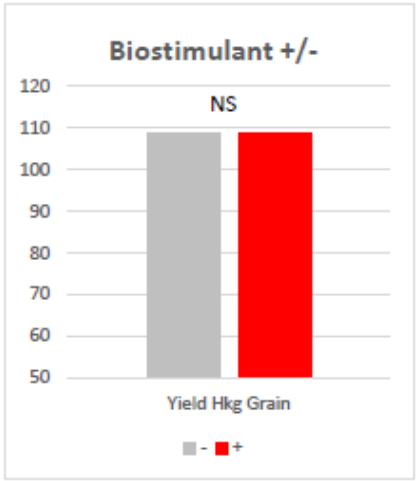


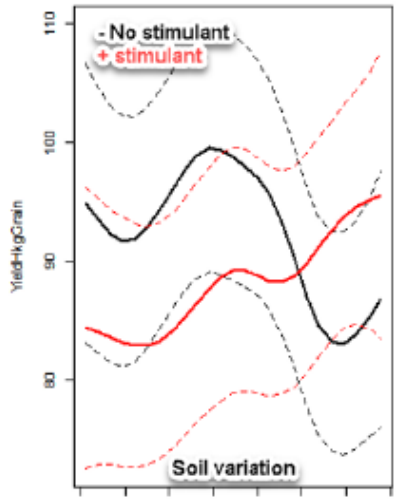
- OnFarm^{Plus} is trials where the plots are in stripes along the field
- Instead of one registration per plot, modern sensors with RTK-GPS collect data from thousands of points in the field.
- Analysis of geo-referenced layer-on-layer data requires advanced geostatistical models.
- As more and more sensors are available the future experimental work can get more explanatory variables without extra work

ONFARM^{PLUS}

Traditionel markforsøg
- Småparceller
- Lav variation
- 4-6 lokaliteter
- Gruppering af jordtype
- Klassisk statistik

OnFarm^{PLUS}
- Stribeparceller
- Variation i bonitet
- 1-2 lokaliteter
- Brug af sensormålinger
- Geostatistik





Gives you the opportynity to:

- provides experiments with increased statistical power and thus more certain conclusions.
- makes it possible to demonstrate a yield increase for a treatment depending on e.g. soilvariation or biomass

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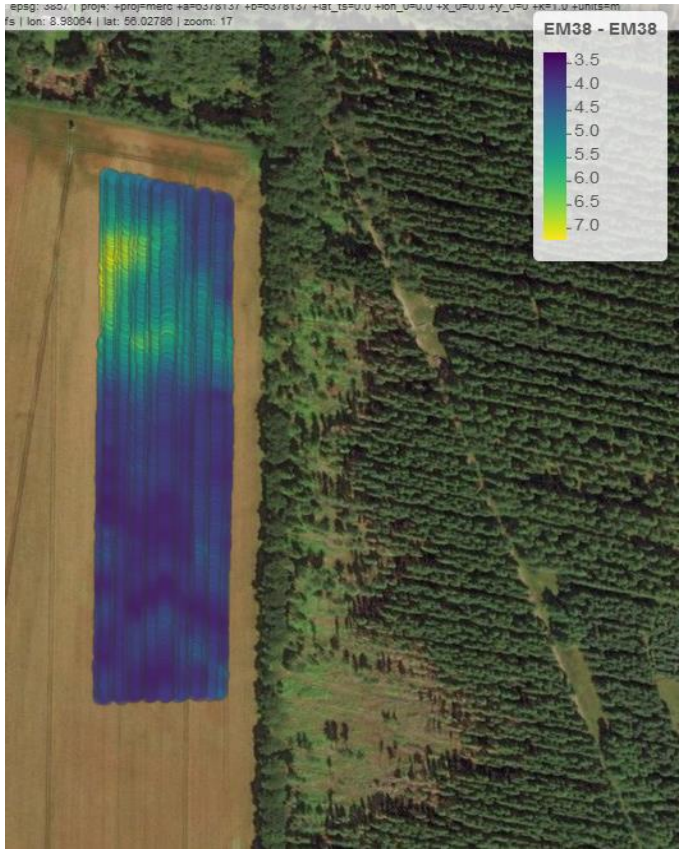
040261818-001. ONFARM^{PLUS} +/- INHIBITOR OF NITRIFICATION IN MANURE TO POTATOES (LANDSFORSØG)



Formål:

- At undersøge, om anvendelsen af nitrifikationshæmmer (NH) i gylle påvirker knoldudbytte i kartofler

OnFarm^{Plus} forsøg med sensordata:

- EM38
- Flowhøst
- GPS

Model:

$$\text{Udbytte} \sim f(x, y) + f(\text{EM38}, \text{LF1})$$

geografi

synergieffekt af NH og EM38

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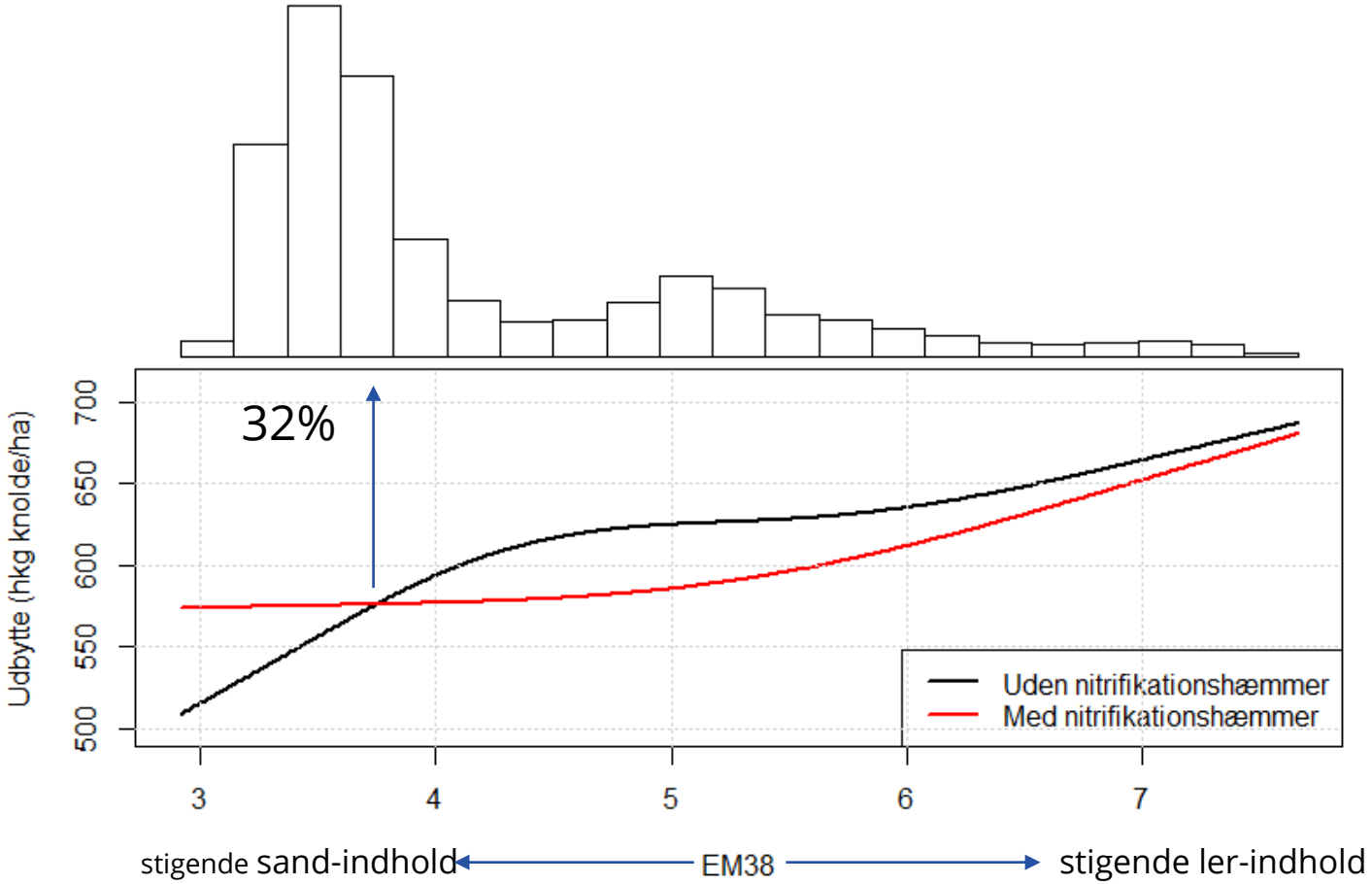
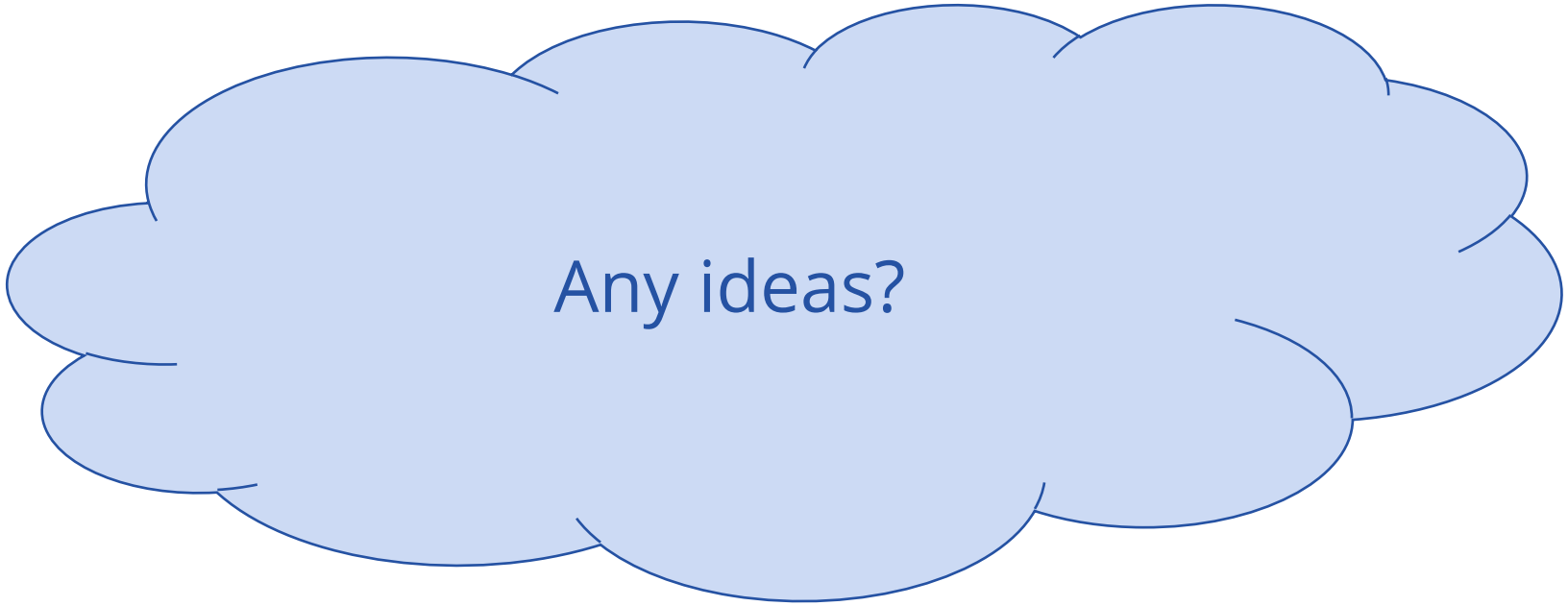


Analyzed as a traditional field trial there was no significant differences shown

- A significant interaction between inhibitor and EM38 was shown! ($p < 0.001$)
- For a sandy soil (EM38 < 3.7) the inhibitor results in a higher yield.
- 32% of the area had EM38 < 3.7.
- In the intire field the inhibitor had a yield increase at -0,02 hkg/ha (break-even).
- In a sandy field (EM38 < 3.7) a yield increase is expected

OTHER WAYS TO TEST BIOSTIMULANTS?



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THANK YOU
FOR YOUR ATTENTION