



# Projekt 5T

(Together To Twenty Ton in 20-20)

## - udbyttepotentialer og markvariation

Inspirationsmøde i Sakskøbinghallen

5. februar 2019

Otto Nielsen, NBR

# 5T – fase 1/2

## Fase 1

2014-2016

### Udbyttepotentialer

5 svenske + 6 danske dyrkere

## Fase 2

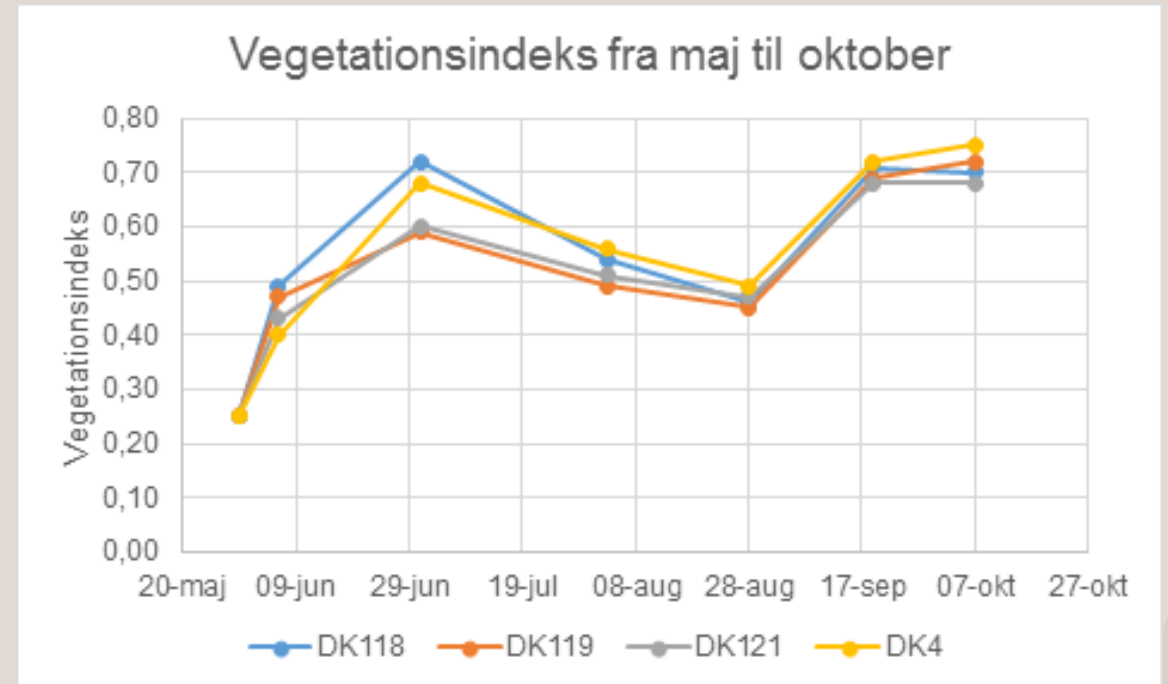
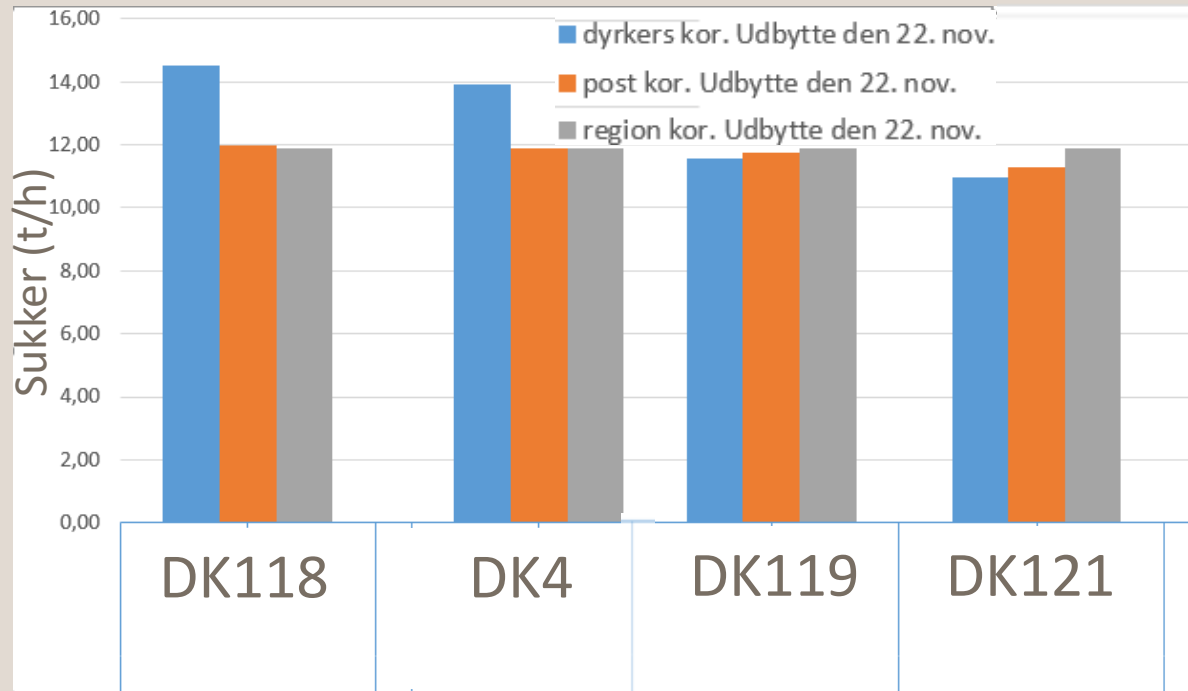
2017-2019

### Markvariation

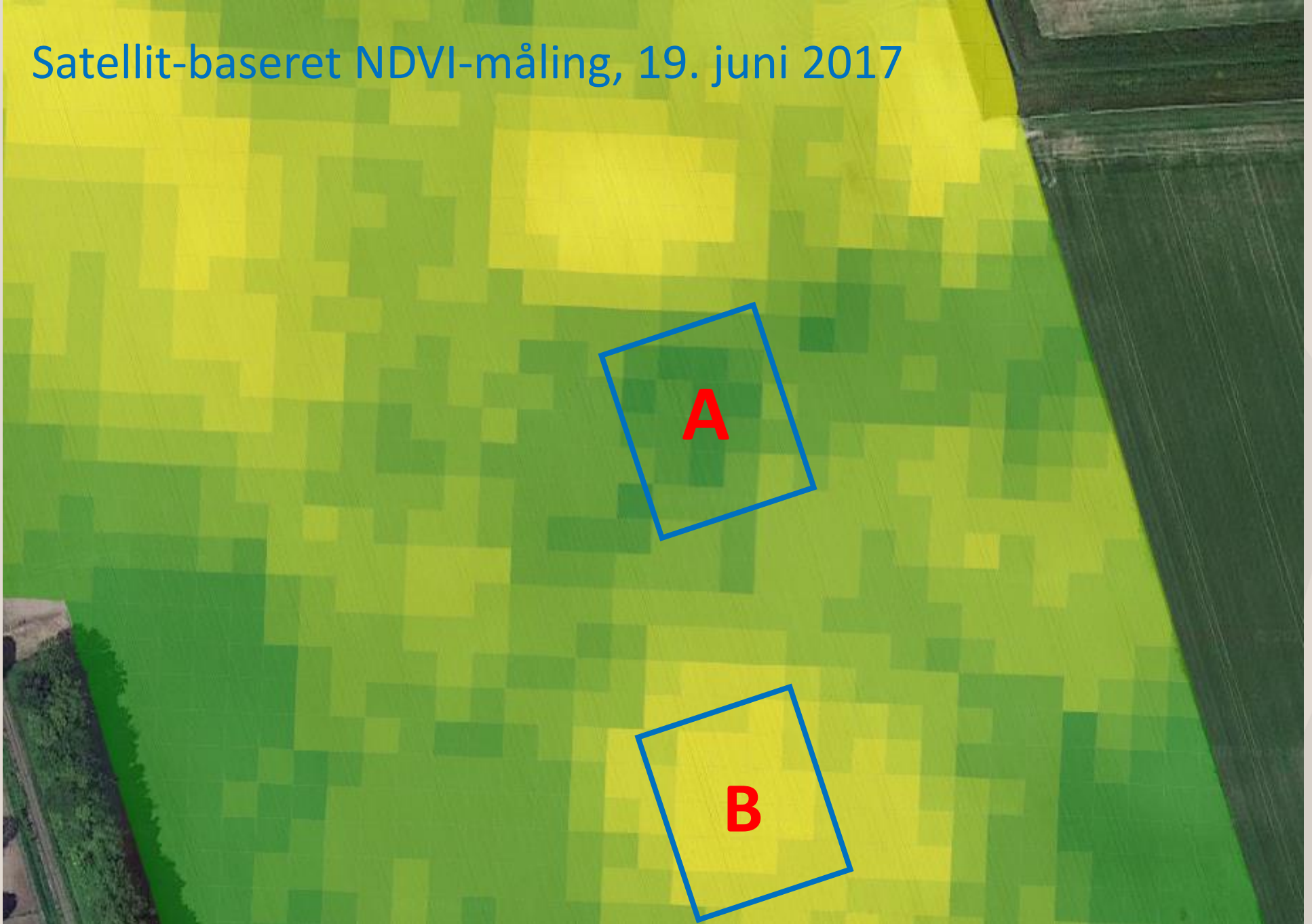
5 svenske + 4 danske + 2 finske + 4 tyske + 1 litauisk  
+ 1 polsk + 1 slovakisk

+ cirka 30 danske og 30 svenske (5T+)

# Kan vi forklare forskellene i tilvækst og udbytte?



## Satellit-baseret NDVI-måling, 19. juni 2017





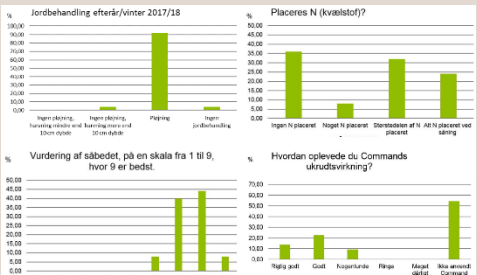
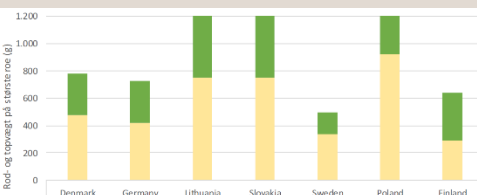
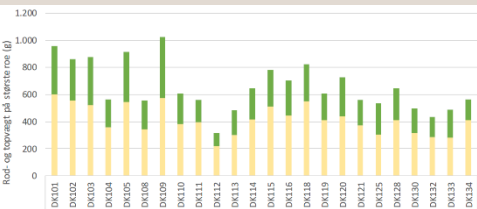
3 feltbesøg i alle marker

Maj-juni: Opgravning af 4 x 10 roer i A og B (fotografering+vurdering)

Juli: Udtagning af 40 blade i A + B til bladanalyser

Oktober: Jordprøvetagning til standard-jordanalyser (pH, K, P, Ca, Mg, humus)

3-6 spørgeskemaer

[illegible]

## NDVI håndholdt/satellit

### Udbytter

# Jordanalyser

Sædskifte  
Efterafgrøder  
Kalkning  
Jordbearbejdning  
Gødskning  
Plantebeskyttelse  
Såning





DK4 A  
1. juni 2018





DK4 A  
14. juni





DK4 B  
1. juni 2018





DK4 B  
14. juni





DK118 A  
14. juni





DK118 A  
14. juni





DK118 B  
14. juni





DK118 B  
14. juni





DK119 A  
14. juni





DK119 A  
14. juni





DK119 B  
14. juni





DK119 B  
14. juni





DK121 A  
21. juni





DK121 A  
21. juni





DK121 B  
21. juni





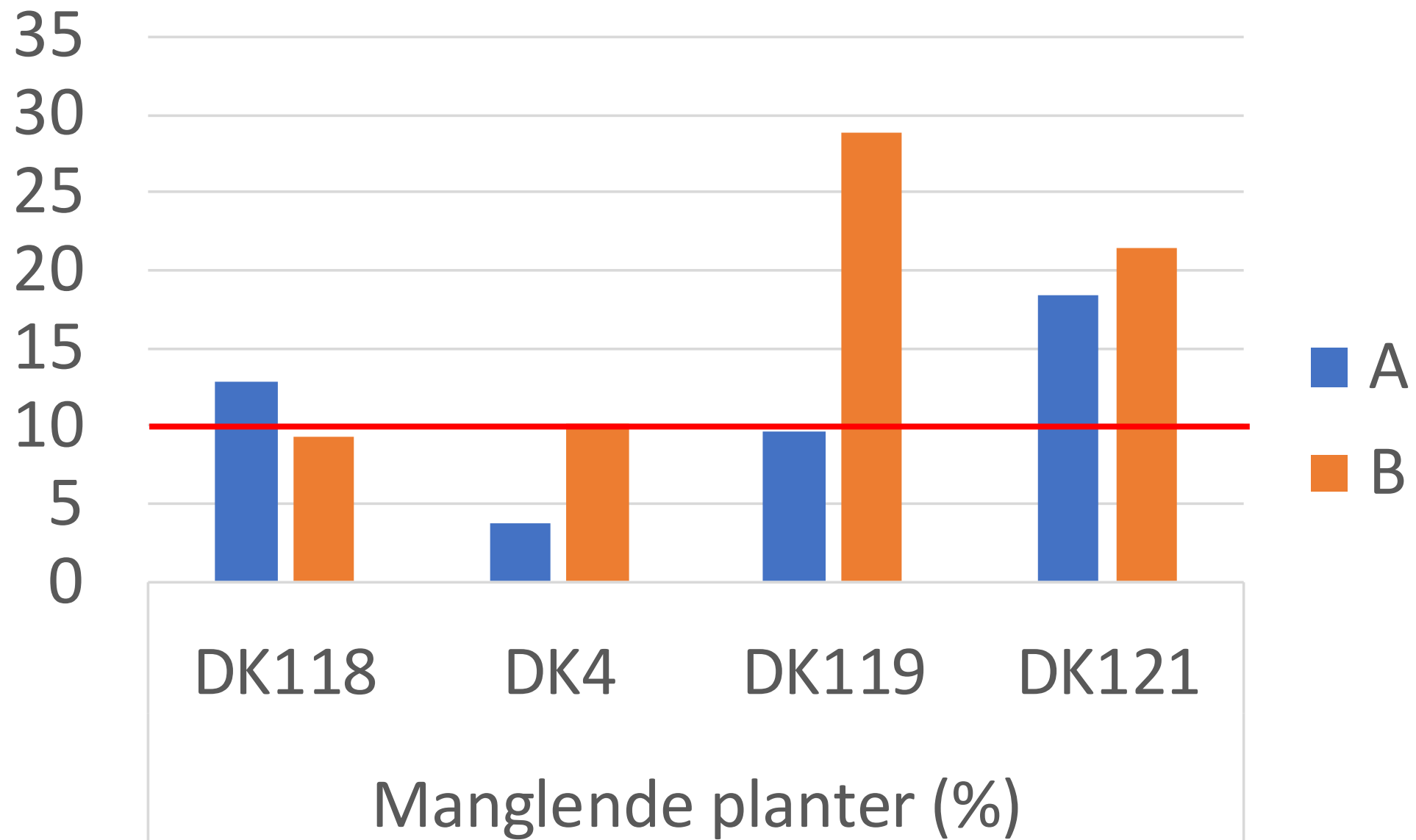
DK121 B  
21. juni









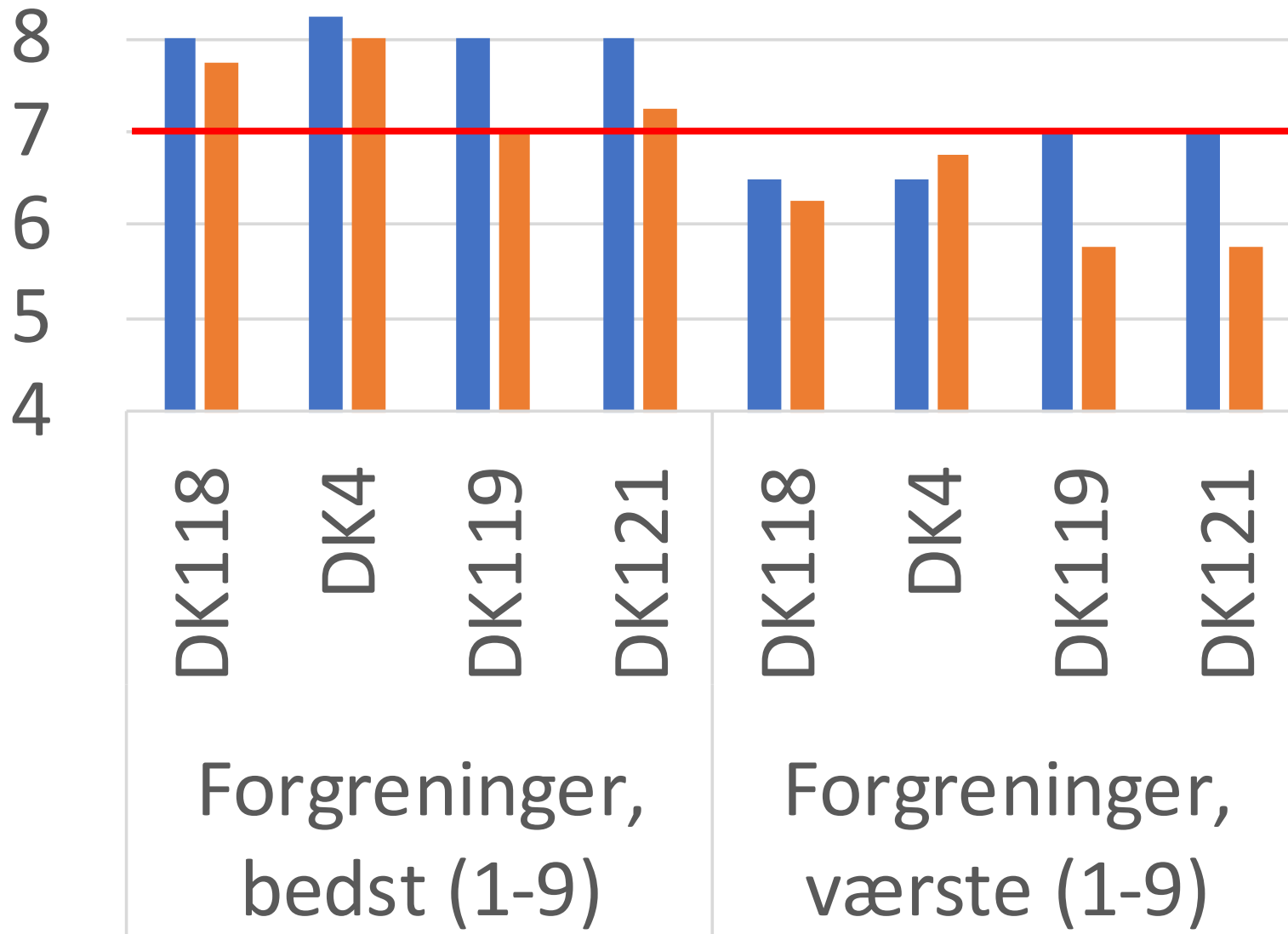




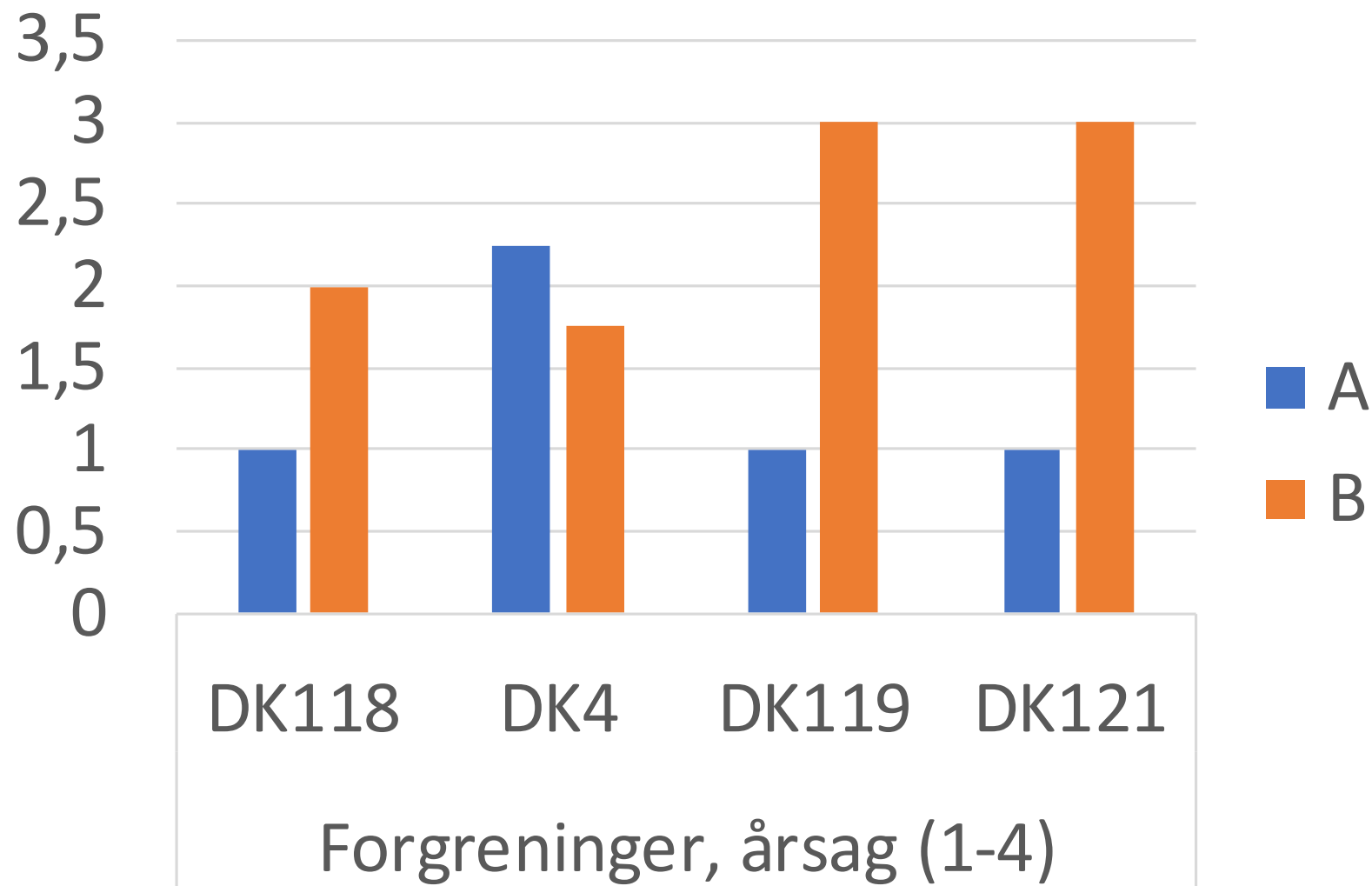
Roe uden grene

Gennemsnit af fire opgravninger i A og B

Areal A ■  
Areal B ■

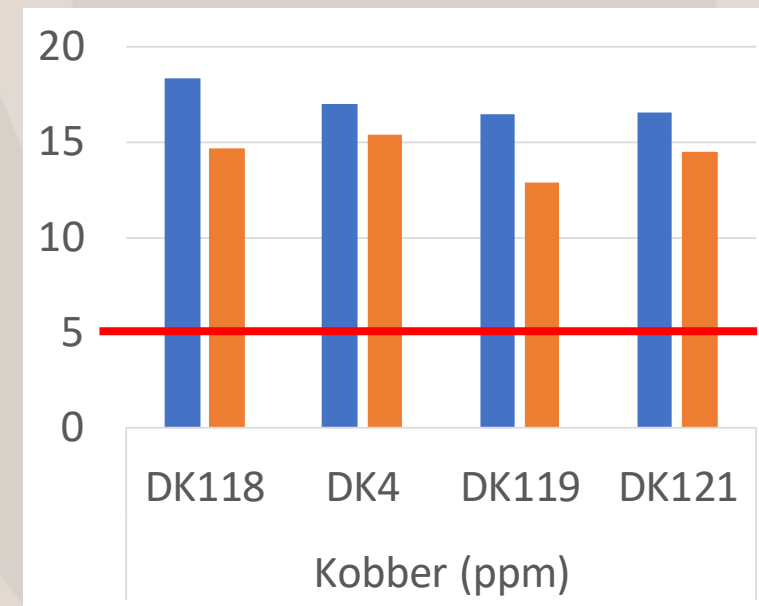
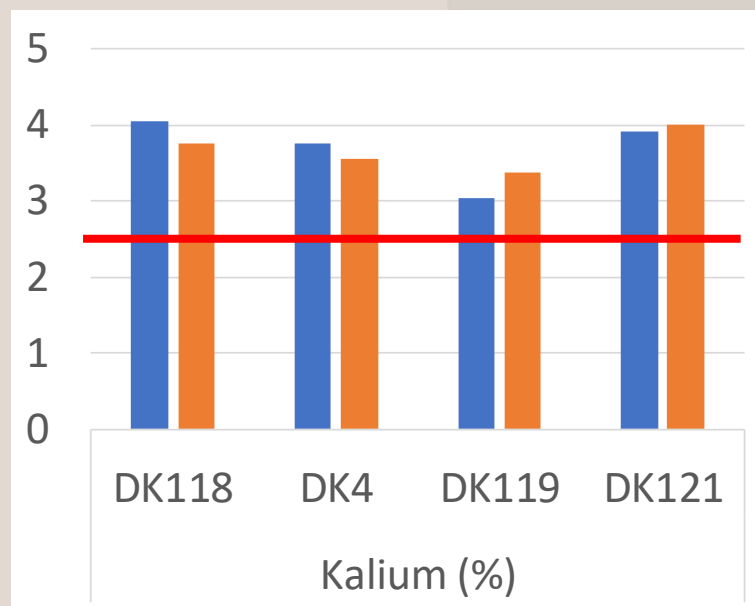
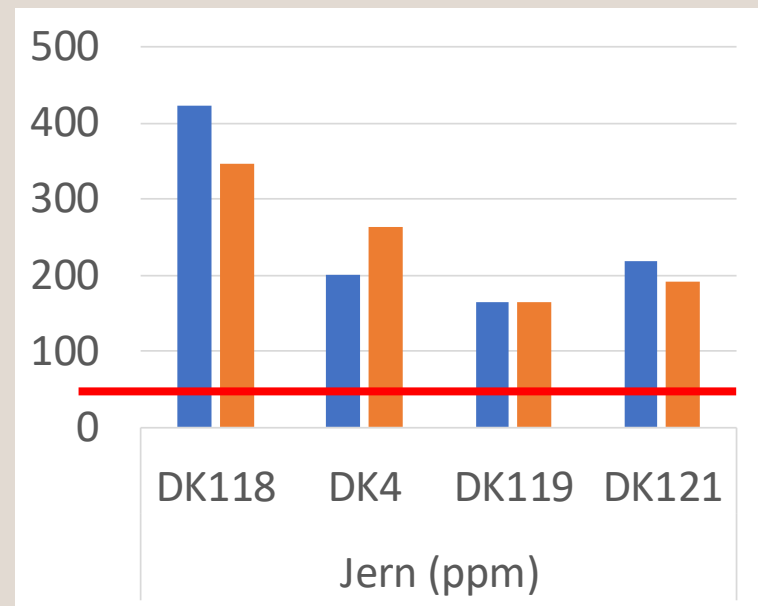
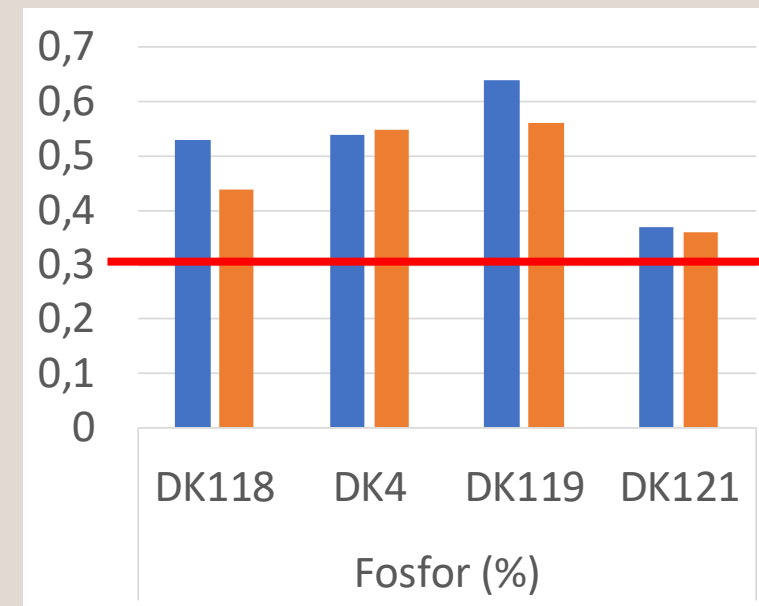
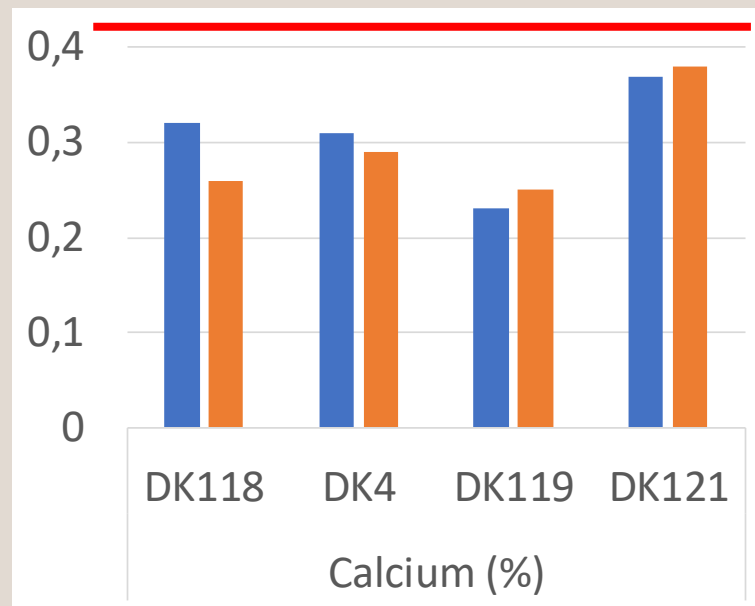
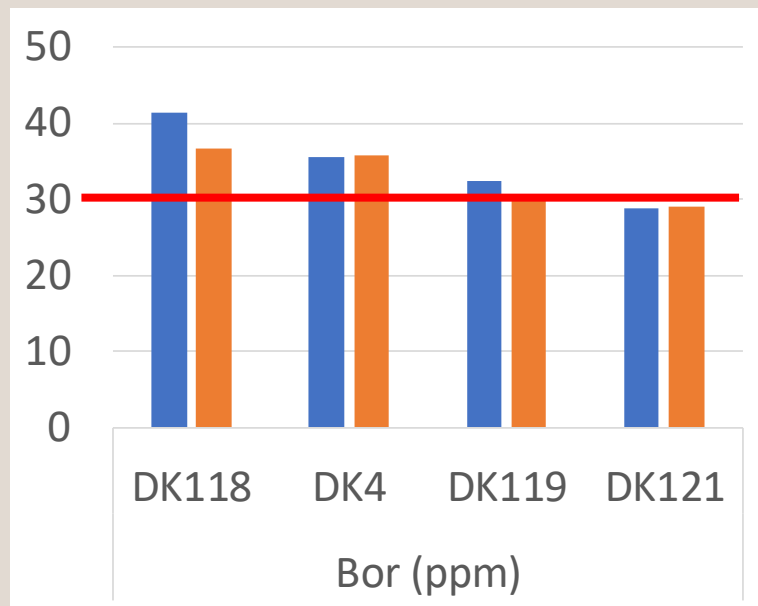




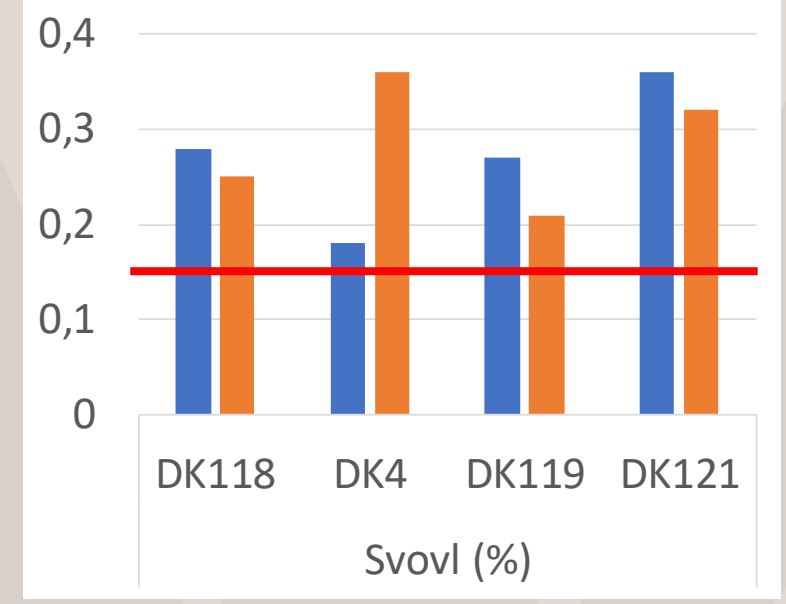
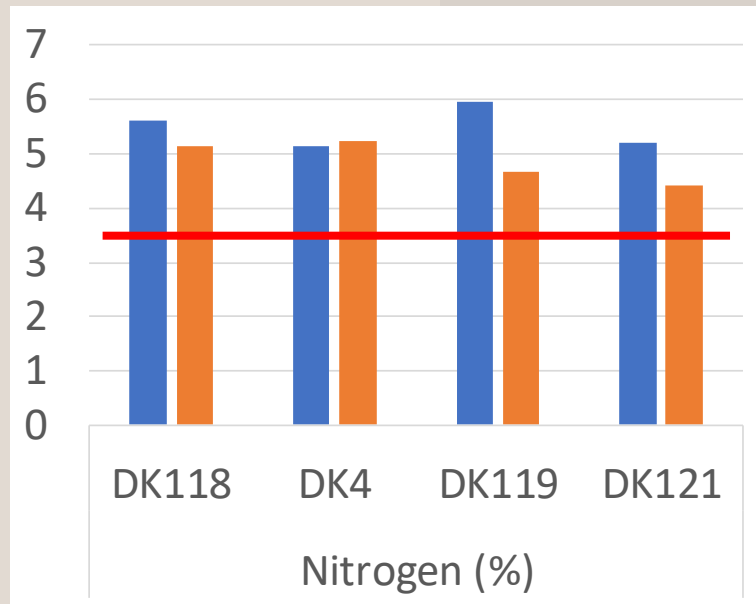
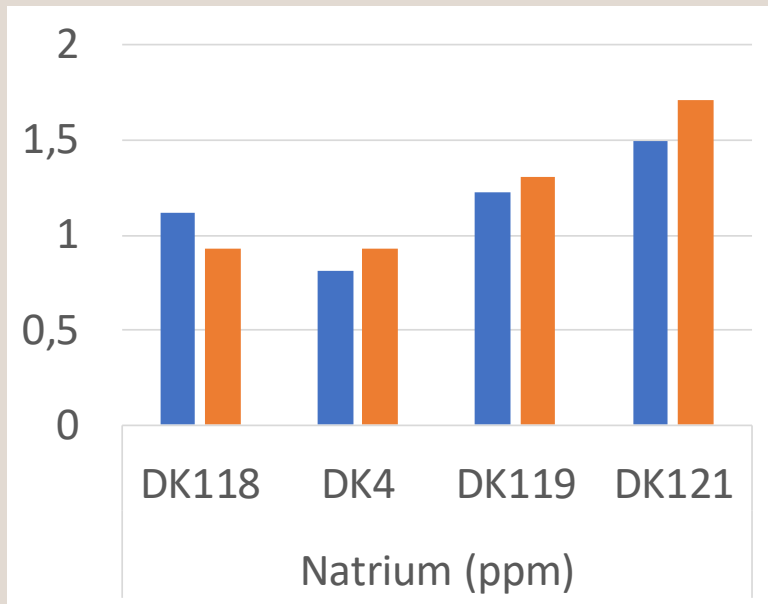
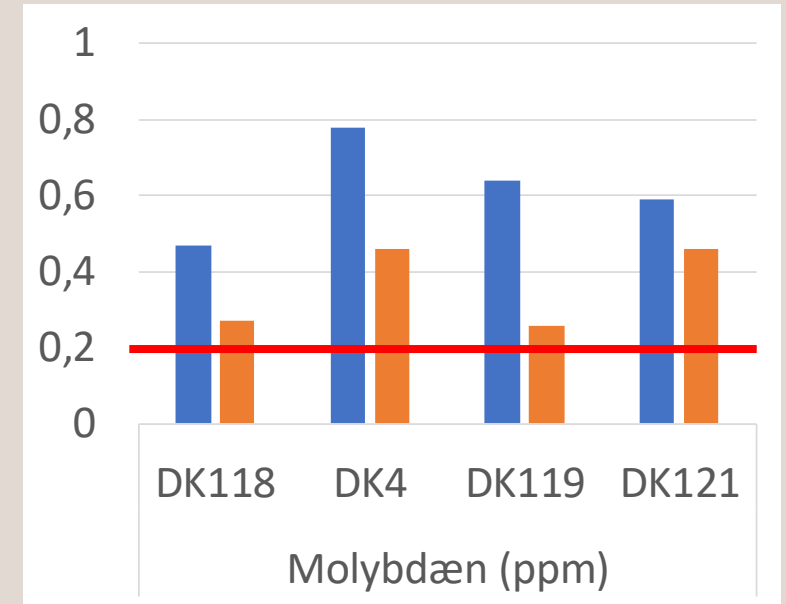
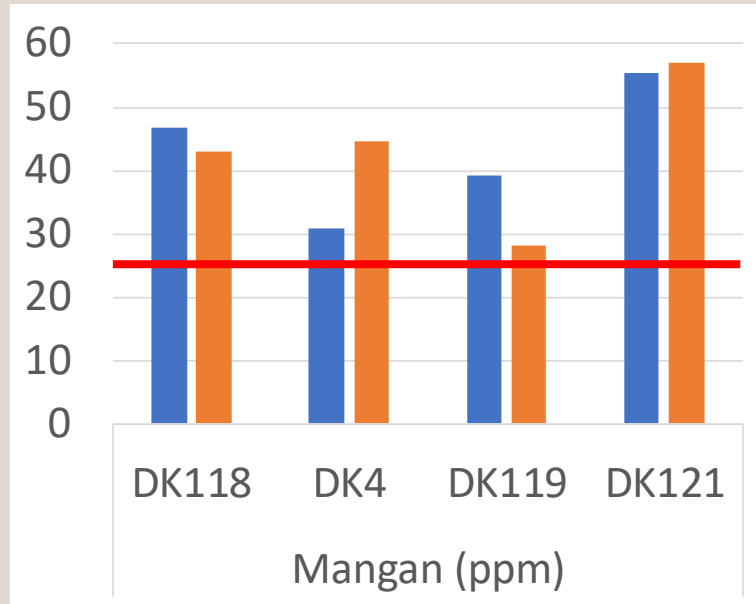
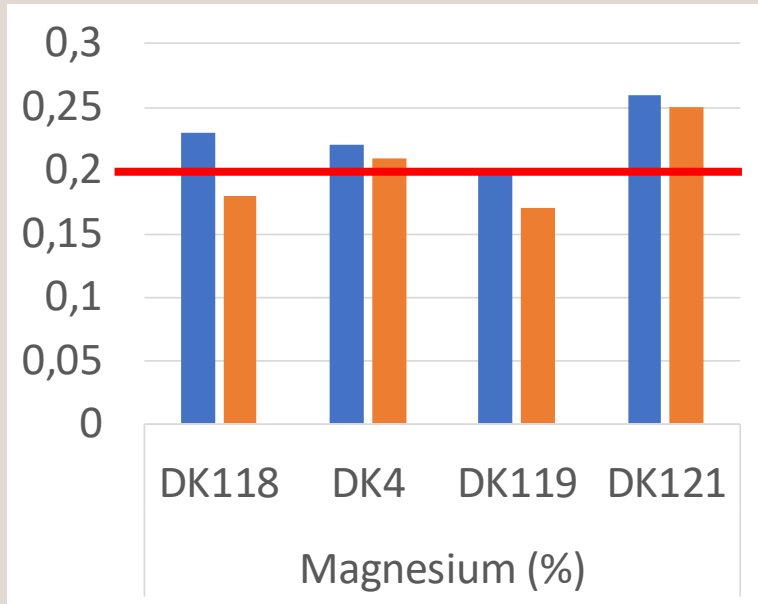


- 1) Ingen forgreninger
- 2) Forgreninger skyldes hovedsagelig strukturskader
- 3) Forgreninger skyldes hovedsagelig skadegørere
- 4) Forgreninger skyldes både strukturskader og skadegørere











Samlet vurdering

|                            | DK118 |     | DK4 |      | DK119 |      | DK121 |      |
|----------------------------|-------|-----|-----|------|-------|------|-------|------|
|                            | A     | B   | A   | B    | A     | B    | A     | B    |
| Manglende planter (%)      | 12,8  | 9,2 | 3,8 | 10,2 | 9,6   | 28,8 | 18,5  | 21,5 |
| NDVI start                 |       |     |     |      |       |      |       |      |
| NDVI midt                  |       |     |     |      |       |      |       |      |
| NDVI slut                  |       |     |     |      |       |      |       |      |
| Udbytte                    |       |     |     |      |       |      |       |      |
| Forgreninger, bedst (1-9)  | 8,0   | 7,8 | 8,3 | 8,0  | 8,0   | 7,0  | 8,0   | 7,3  |
| Forgreninger, værste (1-9) | 6,5   | 6,3 | 6,5 | 6,8  | 7,0   | 5,8  | 7,0   | 5,8  |
| Forgreninger, årsag (1-4)  | 1,0   | 2,0 | 2,3 | 1,8  | 1,0   | 3,0  | 1,0   | 3,0  |
| Bor (ppm)                  | 42    | 37  | 36  | 36   | 32    | 30   | 29    | 29   |
| Calcium (%)                | 0,3   | 0,3 | 0,3 | 0,3  | 0,2   | 0,3  | 0,4   | 0,4  |
| Fosfor (%)                 | 0,5   | 0,4 | 0,5 | 0,6  | 0,6   | 0,6  | 0,4   | 0,4  |
| Jern (ppm)                 | 423   | 346 | 200 | 264  | 165   | 166  | 218   | 192  |
| Kalium (%)                 | 4,1   | 3,8 | 3,8 | 3,6  | 3,0   | 3,4  | 3,9   | 4,0  |
| Kobber (ppm)               | 18    | 15  | 17  | 15   | 17    | 13   | 17    | 15   |
| Magnesium (%)              | 0,2   | 0,2 | 0,2 | 0,2  | 0,2   | 0,2  | 0,3   | 0,3  |
| Mangan (ppm)               | 47    | 43  | 31  | 45   | 39    | 28   | 55    | 57   |
| Molybdæn (ppm)             | 0,5   | 0,3 | 0,8 | 0,5  | 0,6   | 0,3  | 0,6   | 0,5  |
| Nitrogen (%)               | 5,6   | 5,2 | 5,2 | 5,2  | 6,0   | 4,7  | 5,2   | 4,4  |
| Svovl (%)                  | 0,3   | 0,3 | 0,2 | 0,4  | 0,3   | 0,2  | 0,4   | 0,3  |
| Zink (ppm)                 | 58    | 43  | 47  | 49   | 62    | 43   | 44    | 37   |

Problematisk

Formodentligt OK

Godt

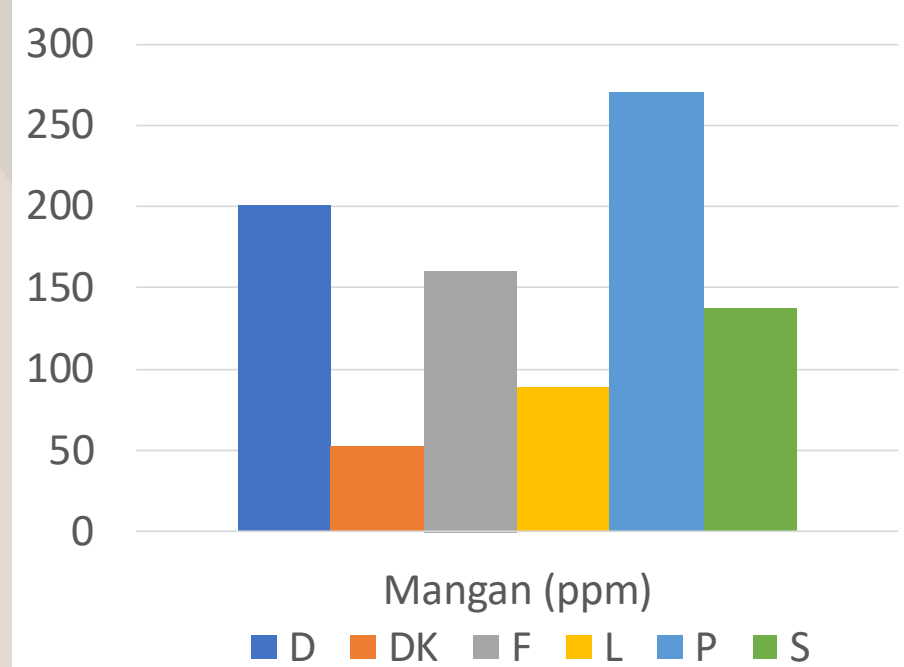
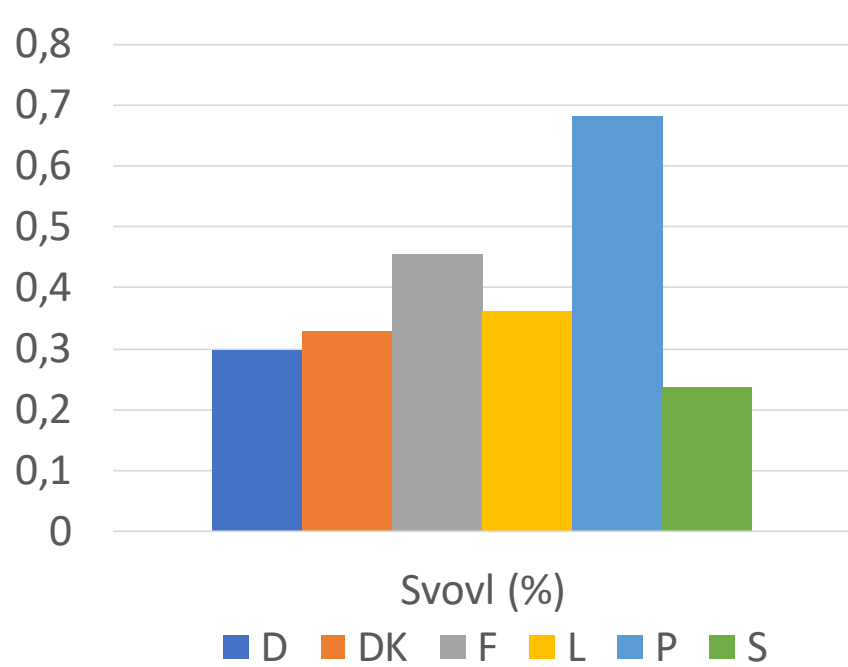
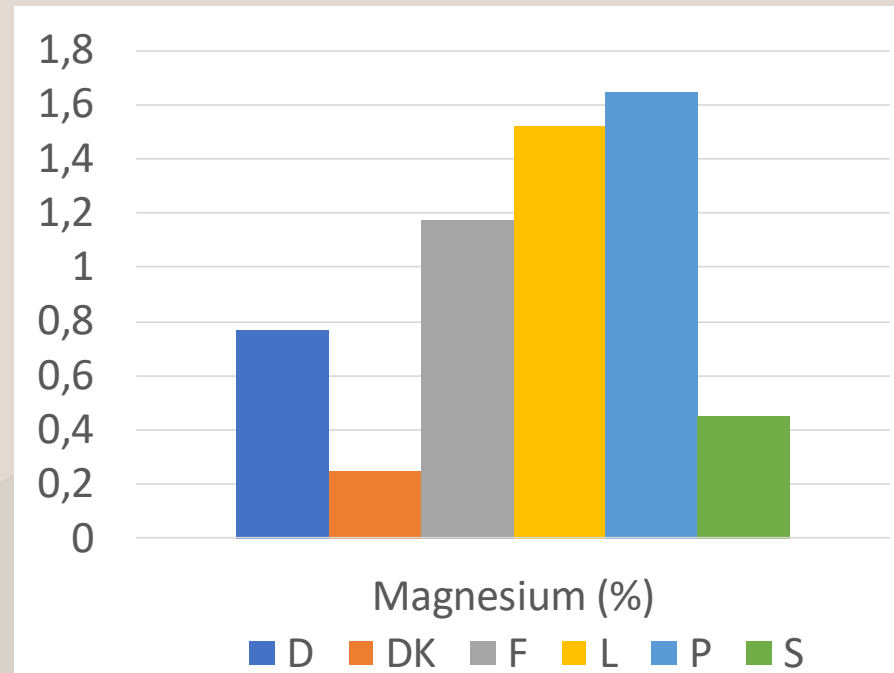
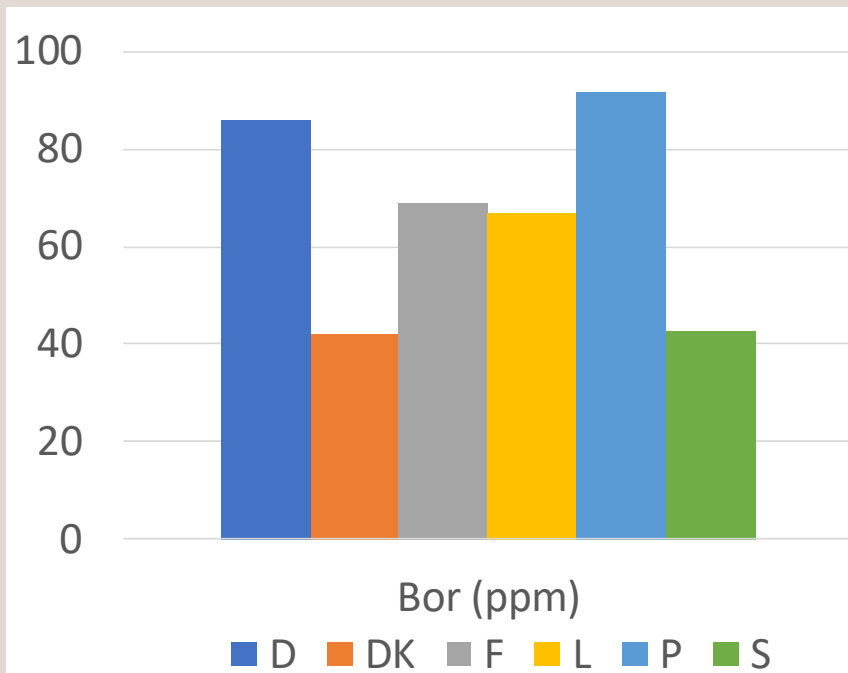
For højt ?



## Relativt lavere udbytte skyldtes (i prioriteret orden):

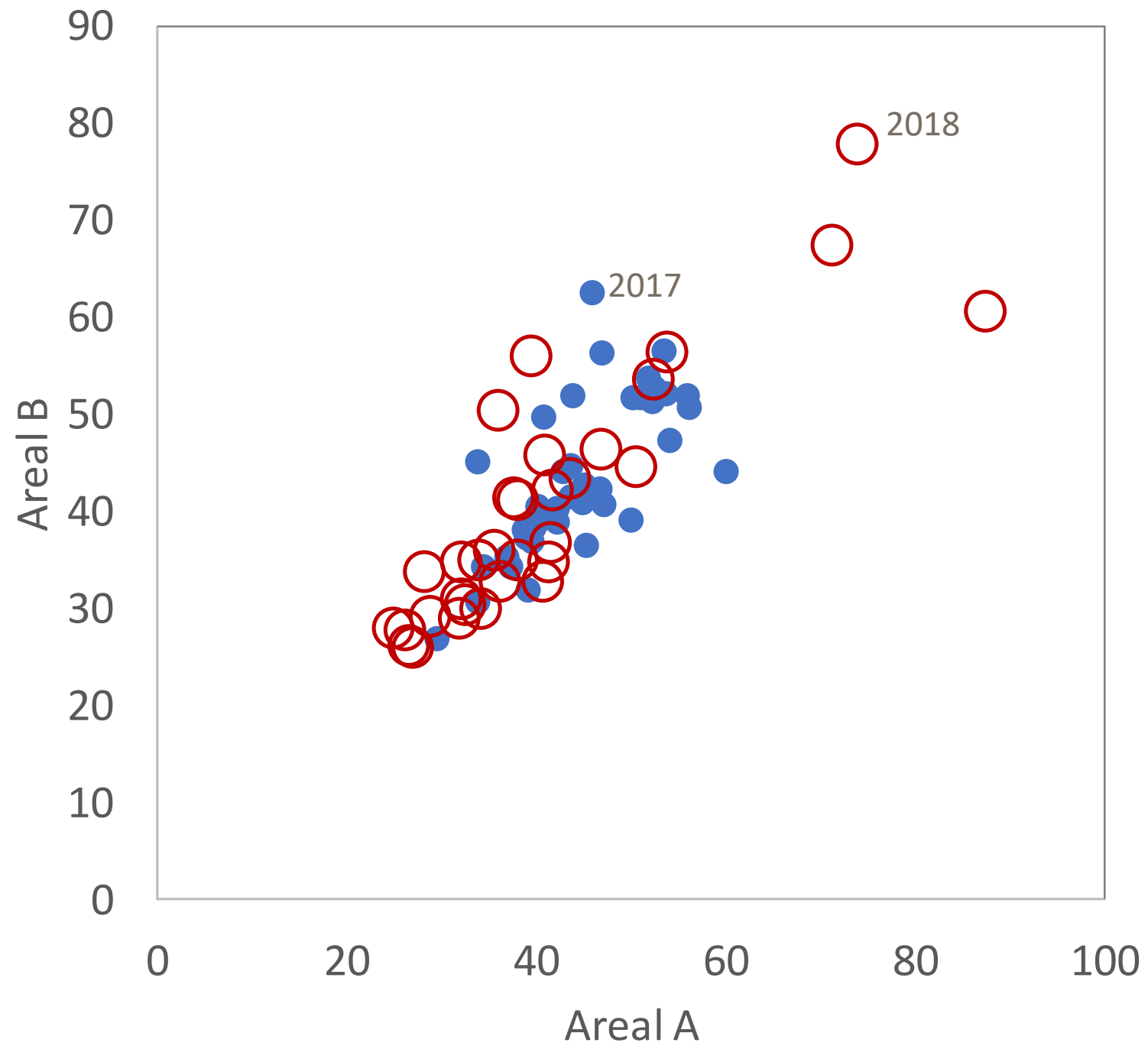
- 1) Angreb af roecystenematoder i områder i marken
- 2) For lavt plantetal (i dårlige områder)
- 3) Tørkestress midt på vækstsæsonen
- 4) Bormangel ?
- 5) Svovlmangel ?
- 6) Løs jord







Bor





# Magnesium

