Norges miljø- og biovitenskapelige universitet

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Citizen engagement research

Plan B for the show case Fredrikstad in SiEUGreen (WP3)

Professor Trine Hvoslef-Eide,
Faculty of BIOVIT, Norwegian University of Life Sciences (NMBU)

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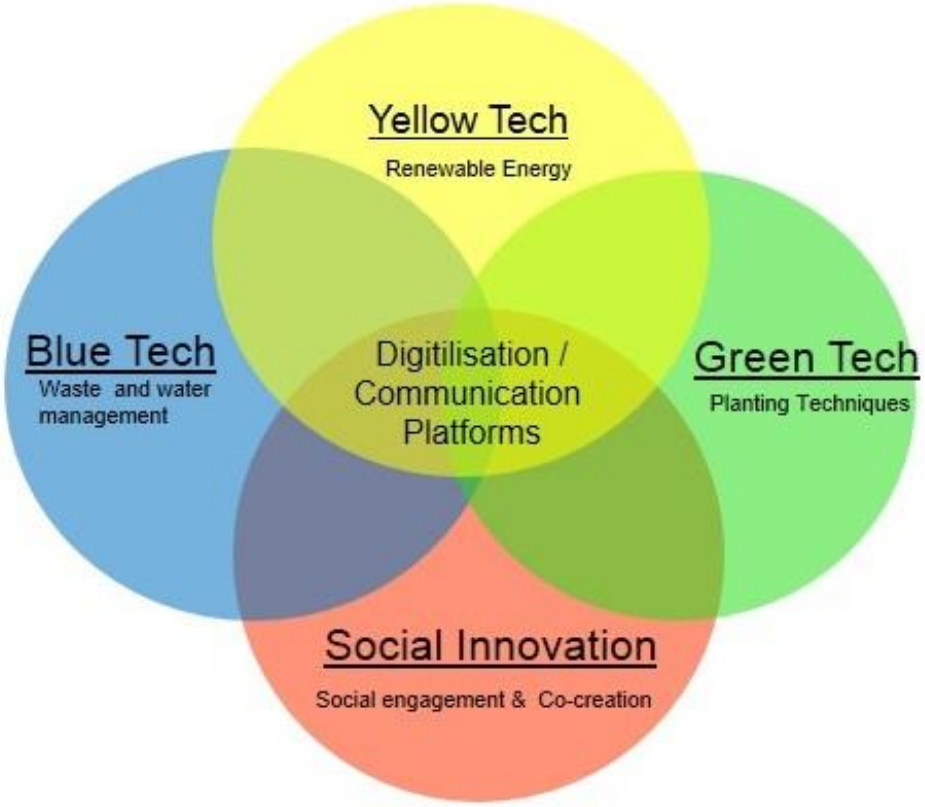
Coordinator
Petter D. Jenssen, NMBU

The SiEUGreen Innovation Principles – circular economy



Showcase – Fredrikstad

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How have we prepared for the show case in Fredrikstad?

- Vegetable/Herb/Berry production in different growth systems
  - –Kitchen bench
  - –Balconies
  - –Roof tops
- Investingating growth of different plants in various growth compost media and with compare with peat
  - –To find good alternatives to peat
  - –To test various products from the circular waste system in the future near zero waste in Fredrikstad

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Cracking of tomatoes – a result of irregular watering?

Growth systems – tomato on balconies 2018-2019

NMBU testing compost and growth systems

Master thesis Prune Lacotte, 2020

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Self watering containers – a solution to cracking?

- Roots quickly develop into the water reservoir below - 2 weeks after planting
- Yes - we do get significantly less cracking when grown in these containers compared to drip irrigation in buckets (Prune Lacote, Master thesis 2020)
- Calculated water consumption based on how much was consumed in the free availability shows that they need more water than expected

SiEUGreen WP3 objectives

- **Demonstrate circular economy in practice:**

through the example of innovative green, smart and inclusive cities.

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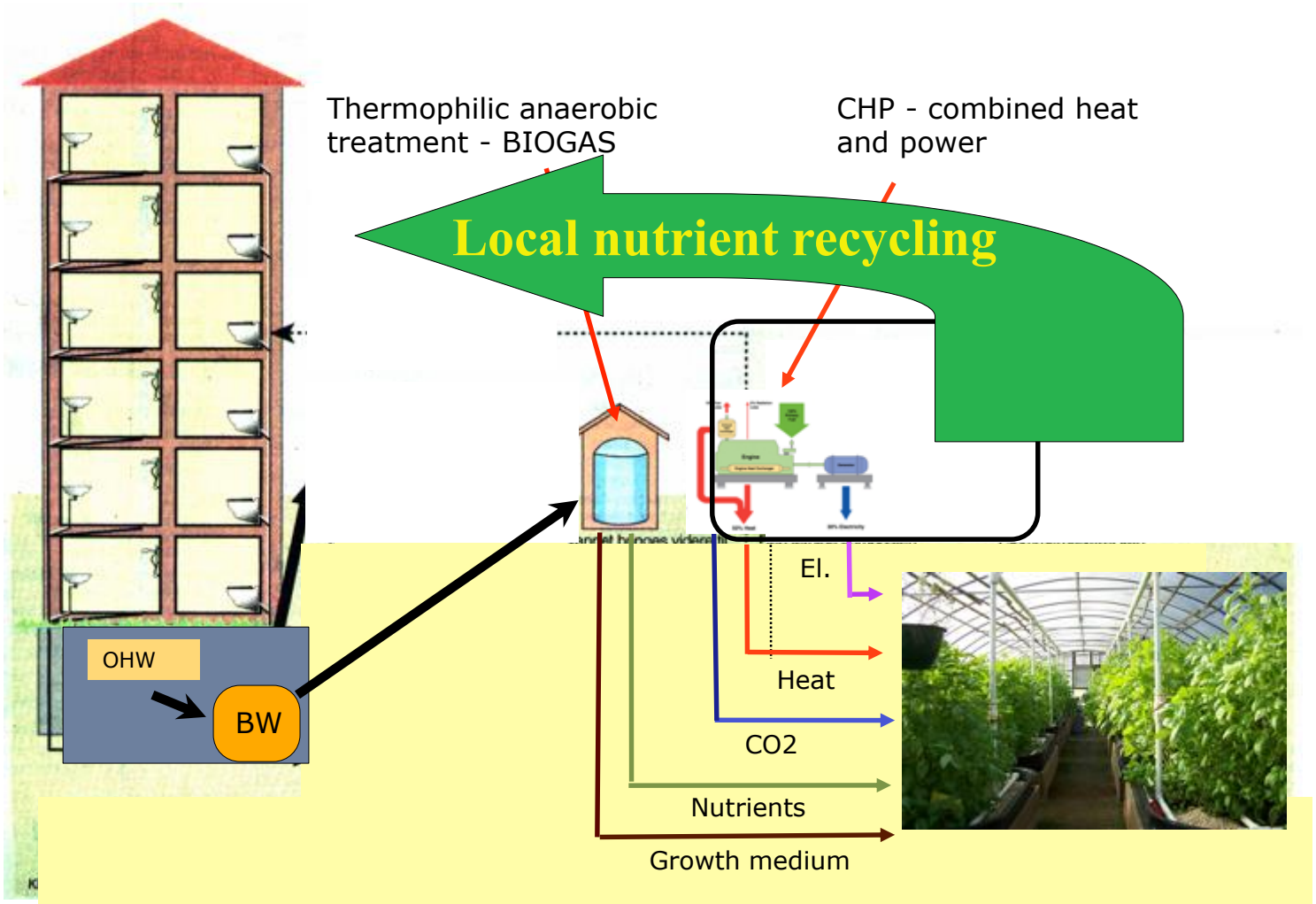
SIEUGreen Showcase Fredrikstad



Show case (WP3) implementation

- Fredrikstad is delayed
- Needed to implement Plan B for the growing season of 2020

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Plan B

- 102 volunteer households engaged

- Each household grew tomato ‘Tastery’ in peat based growth medium and compared this to Lindum compost

- Lindum compost is composed of garden waste compost mixed with household waste composted in Vermicompost (using earth worms)

- The peat based compost can be one of 5 recommended by us

- All grew in selfwatering containers – the participants bought these themselves at a reduced price

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Tomato plants grown at NMBU before handing out May2020

One truck load of containers arrived


Korleis nyttar eg BLØME?
Enkelt! Anten..:
Strø ei spiseskei på planten
Vann som normalt
...Eller:
Bland to spiseskeier i ein liter med vatn
Bruk dette til å vatna plantene

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Photo: Cristel Munster

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Photo: Cristel Munster

Blossom end rot (Griffelråte) – calcium deficiency

Browning of leaves in the peat compared to compost

Compost

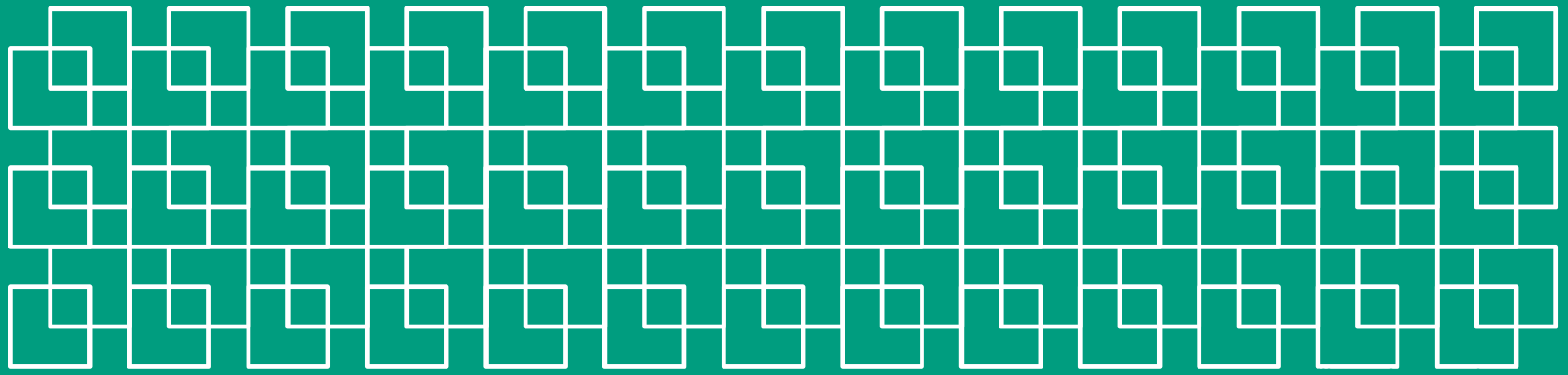
Peat

Photos 16.07.2020 by Lennart Kyllesø

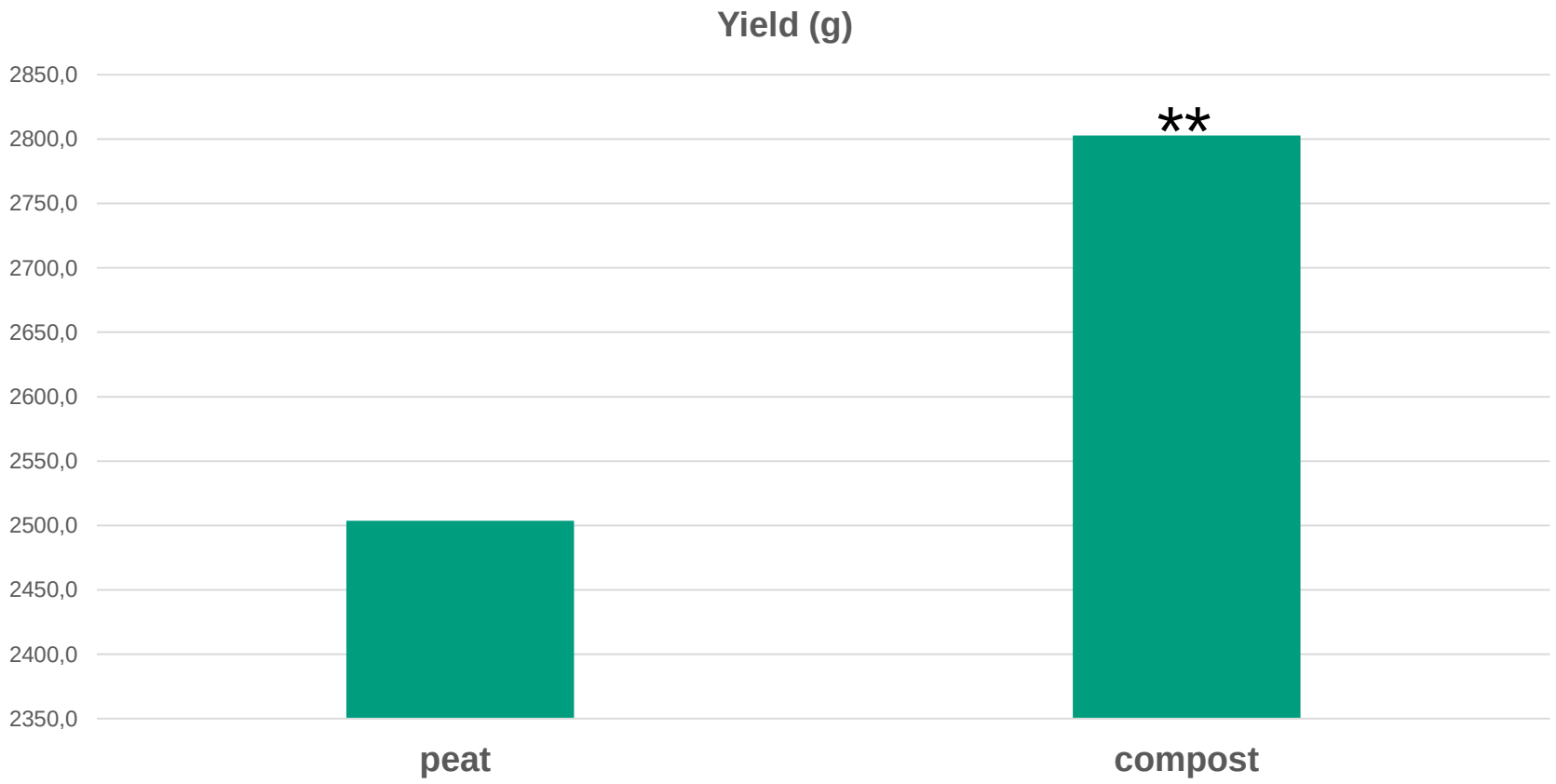
Later in the season – this got worse in some cases

Photos: Gry Skjeseth

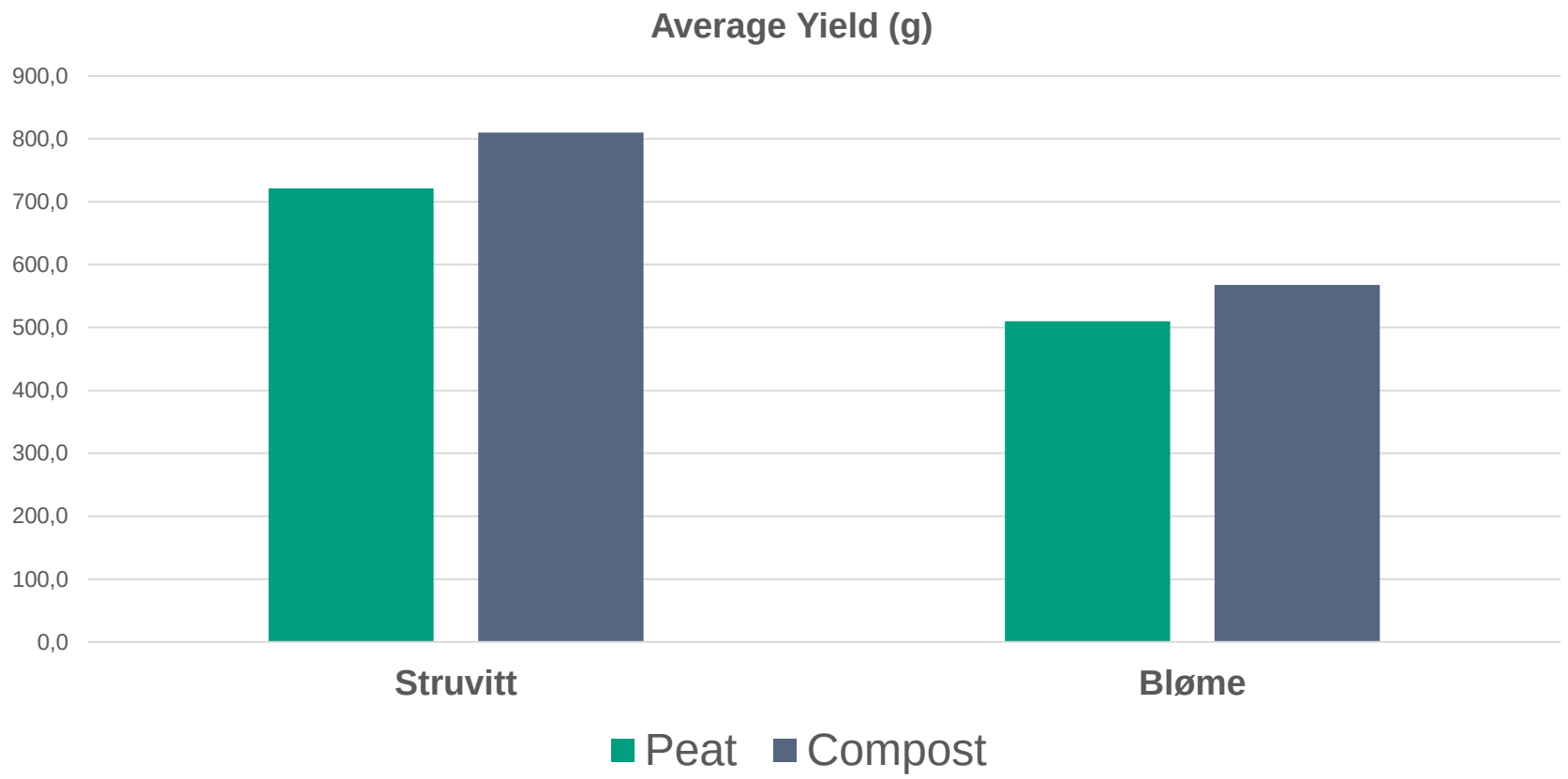
Results



Yield significant at p< 0.01 (**)



Slow release fertilizer (p< 0.01 **)

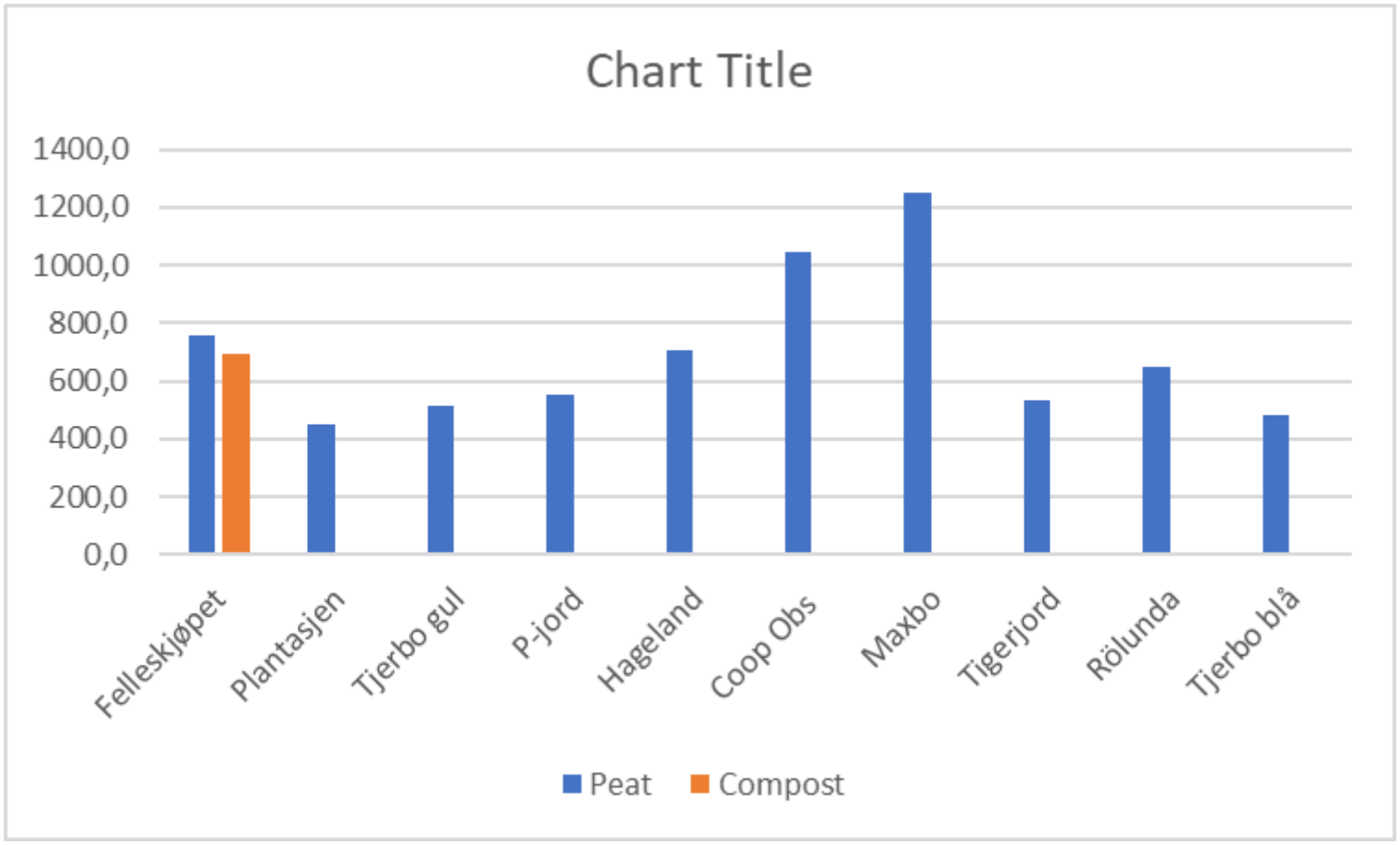


Outdoors (2) vs greenhouse (1) & winter garden (2)

Comparisons significant at the 0.05 level are indicated by ***.

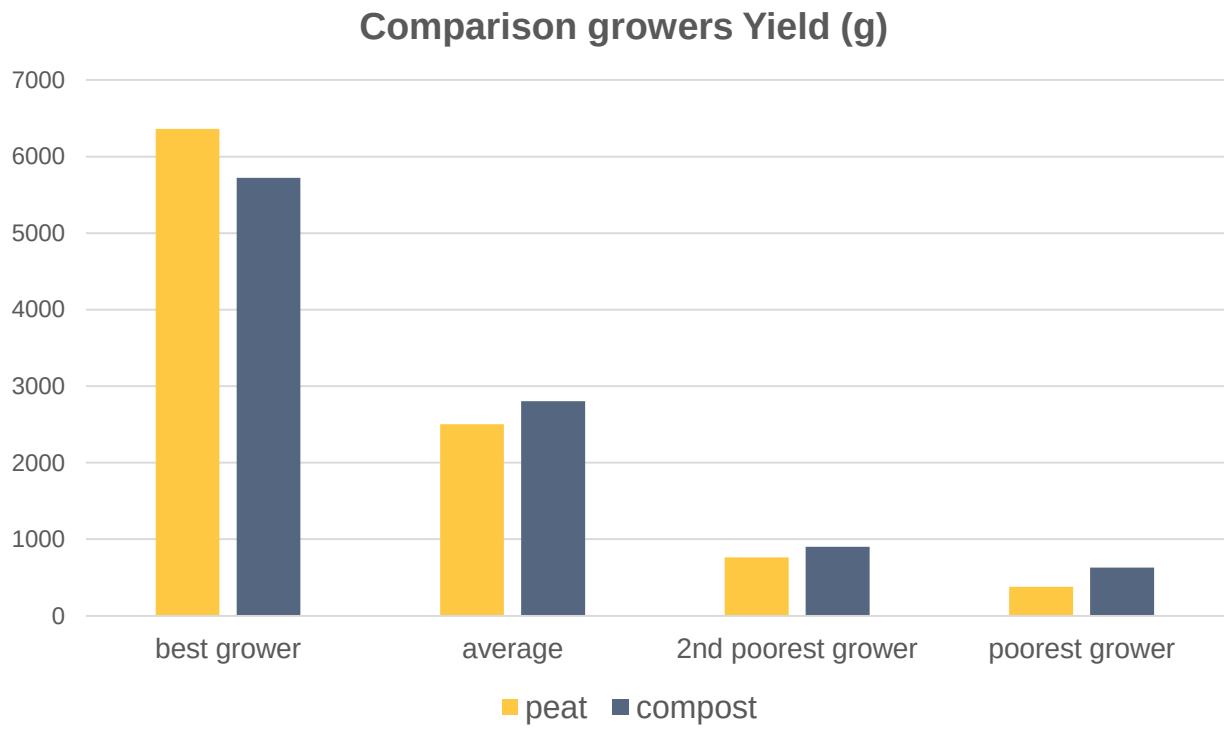
place Comparison	Difference Between Means	95% Confidence Limits		
2 - 1	260.4	-864.9	1385.8	
2 - 3	1813.4	261.0	3365.9	***
1 - 2	-260.4	-1385.8	864.9	
1 - 3	1553.0	-299.4	3405.4	
3 - 2	-1813.4	-3365.9	-261.0	***
3 - 1	-1553.0	-3405.4	299.4	

Compost compared to various peat types 1-9



NO significant differences between peat types

Large variation between growers



All used **Bløme**
Best outdoors
Poorest in winter garden

Best grower: urine & bokashi **Poorest grower:** a second dose of Bløme

Conclusions

- Lindum compost is signficantly better than all peat types (except those mixed with compost)
- Struvite was superior to Bløme
- Winter garden was not a good idea
- ‘Tastery’ was a tasty tomato with i high longevity
- The self-watering containers are easy to grow in
- A high percentage of participants have submitted their results (66%)

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LUNCH

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One problem with the containers….
(if you are too strong when mounting them)