

Webinar

‘Increasing possibilities for compost production and use’

June 15th 2023

Welcome by Hanne L. Kristensen

SoilCom+ 2019-2023

Sustainable soils by quality compost

SoilCom+ change in green economy!

Intensive farming and soil degradation ask for soil-improvers in the North Sea Region.

SoilCom+ has:

- designed tailor-made compost from waste (local and regional scales)
- tested and defined quality standards for specific uses in crop production
- increased awareness, production and use of compost
- developed guidelines to improve certification and regulation for quality compost

Detailed and programme specific objectives

1. Guidelines are communicated to improve policy of compost production and use
2. Specific quality compost is produced and used to improve soil and crop resilience
3. Transnational transfer of knowledge from research to quality compost producers and users



- 2.1 Promote the development and adoption of products, services and processes to accelerate greening of the North Sea Region



Output indicators

SoilCom+ status mid 2022

Green products, services and processes piloted or adopted by project **25** (goal 28)

Enterprises participating in transnational or interregional research projects **24** (goal 50)

Research institutions participating in transnational research projects **11** (goal 4)

Organizations/enterprises adopting new solutions **184** (goal 330)

Organizations/enterprises informed about new solutions **9496** (goal 1500)

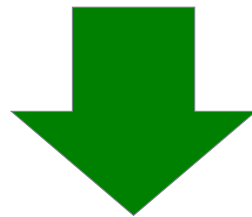


SoilCom+ project results

Utilized amount of water, pesticides and inorganic fertilizers
-7% per farm/enterprise

Crop productivity
+10%

Utilized amount of quality compost
+20 %



Uptake of climate-friendly solutions



Benefit of compost on crop and soil

1. Improve soil structure (decrease soil bulk density)
2. Increase soil life (microbial biomass, activity, abundance; mesofauna)
3. Increase soil organic matter, carbon and total nitrogen
4. Increase water infiltration (reduce erosion)
5. Increase soil water retention (affect pore size distribution, increase soil moisture)
6. Counteract soil acidification
7. Increase slowly released nutrients
8. Maintain or increase crop yields (alleviate drought stress)
 - > Short-term and long-term effects
 - > Depend on feedstock chemical and physical properties, composting method, rate of application

References: VLACO (2020), Willekens et al. (2014), Norris & Congreves (2018), Luo et al. (2018), Kranz et al. (2020), Hefner et al. (accepted), Konnerup et al. (in preparation)

Benefit of compost on soil life

Graph removed due to
publication plans



SoilCom pot trial of five composts Hefner et al. (accepted)



Compost affect microbial C and N metabolism depending on specific qualities

Benefit of compost on soil life

nmol g ⁻¹	C ₀	C ₁₅	C ₄₅
Total	15,51 ^a	16,47 ^a	19,63 ^b
G+ bacteria	2,69 ^a	2,92 ^a	3,56 ^b
G- bacteria	1,65 ^a	1,70 ^a	2,05 ^b
Actinomycetes	1,21 ^a	1,25 ^a	1,54 ^b
Fungi 18:1ω9	0,92 ^a	0,97 ^a	1,17 ^b
AMF	0,72 ^a	0,84 ^a	1,10 ^b

Willekens et al. (2014)



Compost application in field trials affect microbial abundance

Benefit of compost on soil C

3 years

9 years

Graphs removed due to
publication plans

11 years

15 years

SoilCom long-term field trials
Konnerup et al. (in preparation)



Compost increase soil carbon content across four SoilCom long-term field trials

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Thank you to **SoilCom+** and **ComCrop** funders!



SoilCom+ 10. meeting Sept. 2022 Boskoop NL

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