

Norwegian Centre for Organic Agriculture



Seaweeds for fertilization of agricultural crops

Anne-Kristin Løes

Seagriculture 2024, Torshavn June 20

Crops need nutrients

- Seaweeds have historically been applied as feed and soil amendments
- A well-balanced fertilizer may be made from a combination of marine animal and plant (by)-products
- Marine fertilizers fit well to organic growing



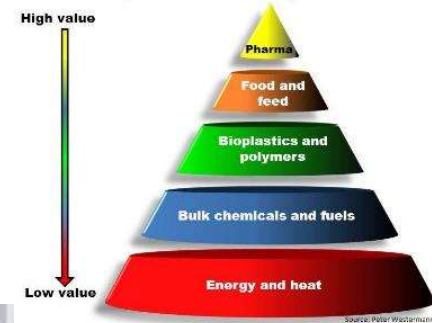
Fish backbones: N, P, Ca



Seaweed: K, Mg, S + Carbon



Fertilisers for crop plants must be relatively cheap!

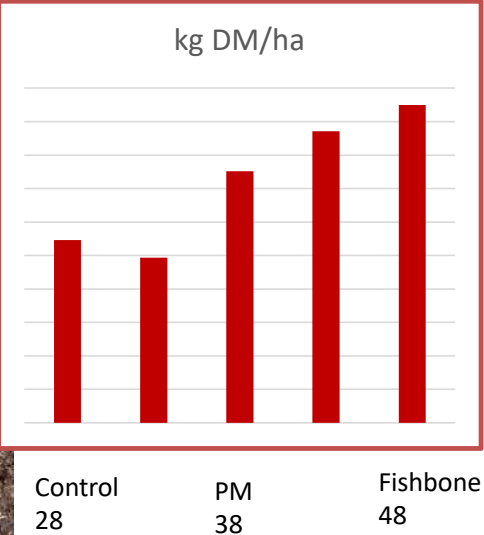


No fertilizer

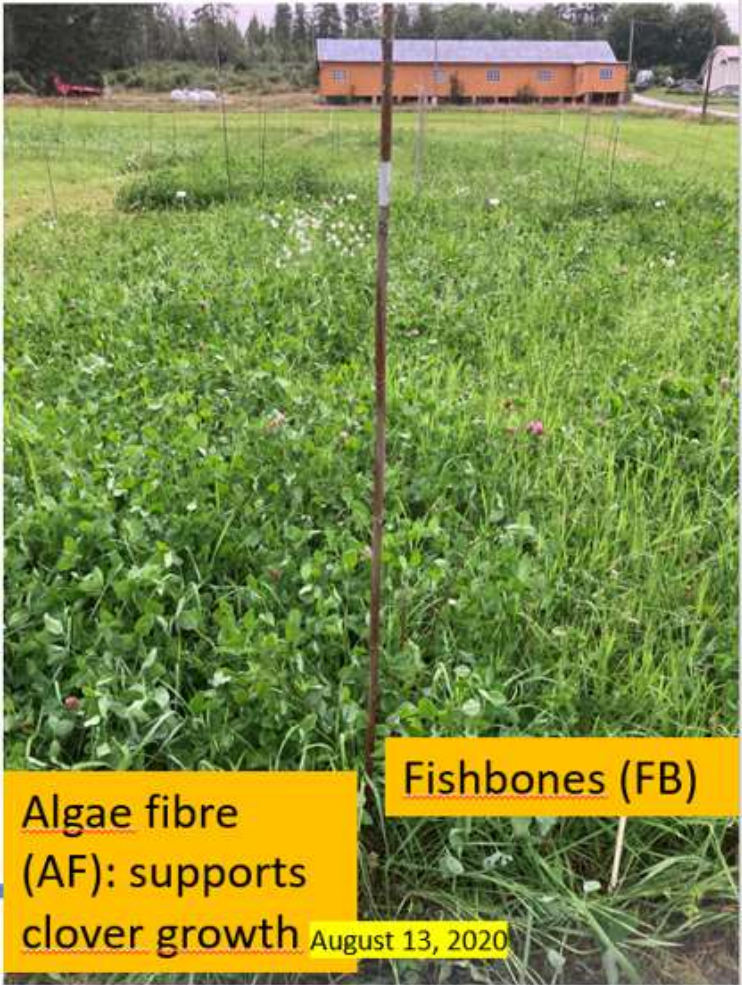


Complete fertilization
N P K Ca Mg S

2019: Fishbones > poultry manure (PM)



2020→:
Seaweeds
increase
subsequent
yields



Seaweed application regulated by heavy metals

- Brown seaweed contain potentially toxic elements (Cd, iAs, Pb, Hg, I ..)
- Application in Norway regulated by content of cadmium (Cd)
- Maximum rate over 10 years = 2 or 4 kg DM/m²
- Will a perennial ley survive such high rates of seaweed?



SeaSoil Demo plots May 11, 2023

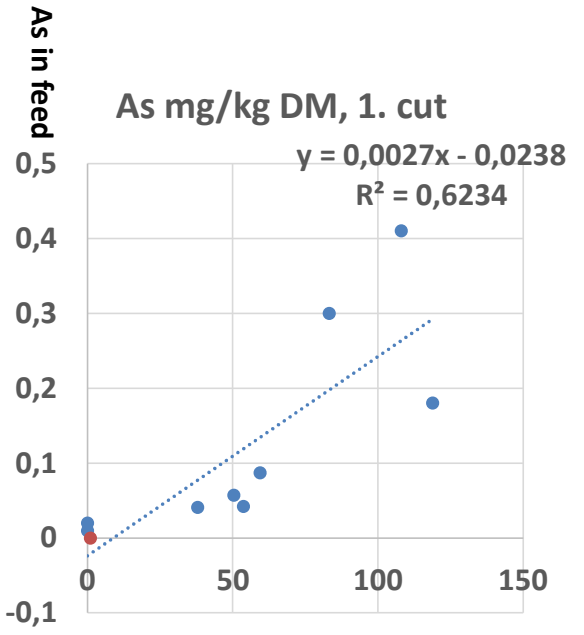
Plot size 1.5 m x 8 m, no replicates



Yes, the ley survived except for one liquid material, where perennial weeds took over



- High surplus of K/(Ca+Mg) in the feed
- Concentration of As, but not Cd increased with application



Early indication of As toxicity
<https://www.thenewleam.com/2017/09/arsenic-poisoning-water-rampant-cancer-outbreaks-north-india/>

Is this arsenic organic or inorganic?
 Do the plants take up As which is methylated by soil microorganisms?



www.norsok.no

Welcome to read more,
and to get in touch!

anne-kristin.loes@norsok.no

[https://www.seasoilproject.eu/SeaSoil Project](https://www.seasoilproject.eu/SeaSoil%20Project)

<https://www.youtube.com/playlist?list=PL7djK2IU32SNx3FznFodxnREywoiGA6eh>

<http://www.marigreen-project.eu/>