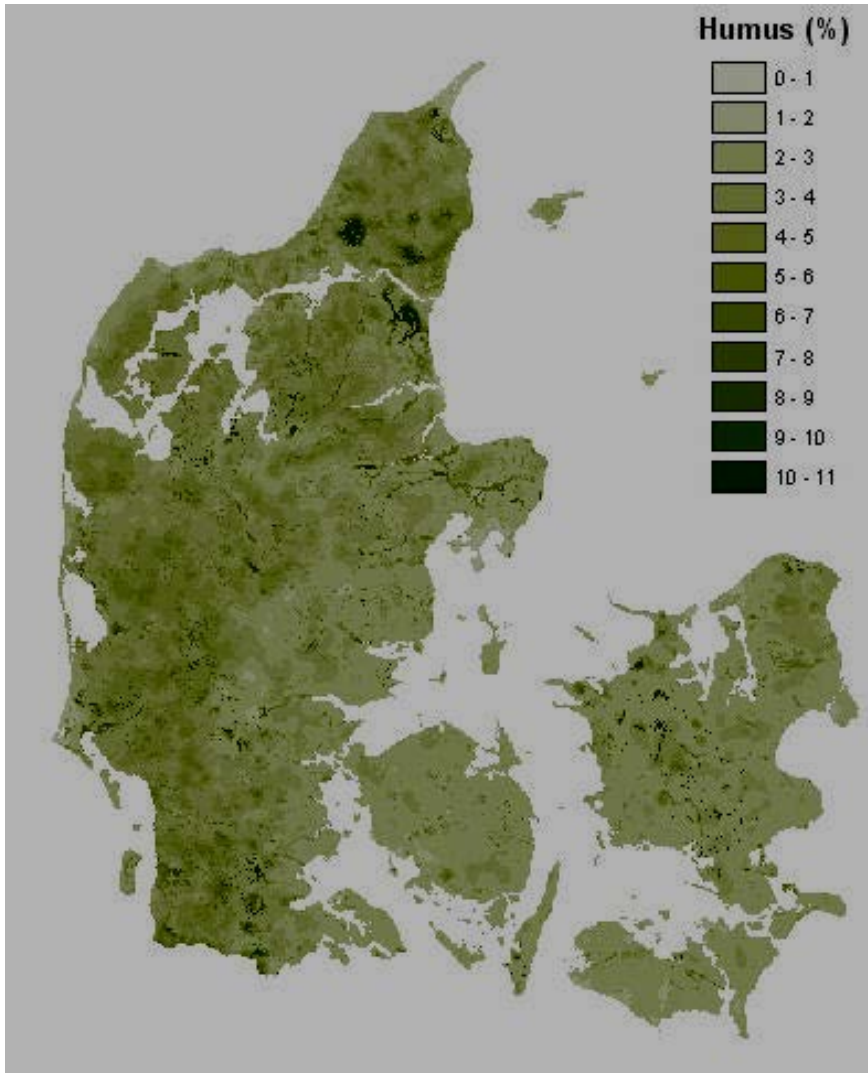


Thoughts on conservation tillage in Denmark

Professor Jørgen E. Olesen

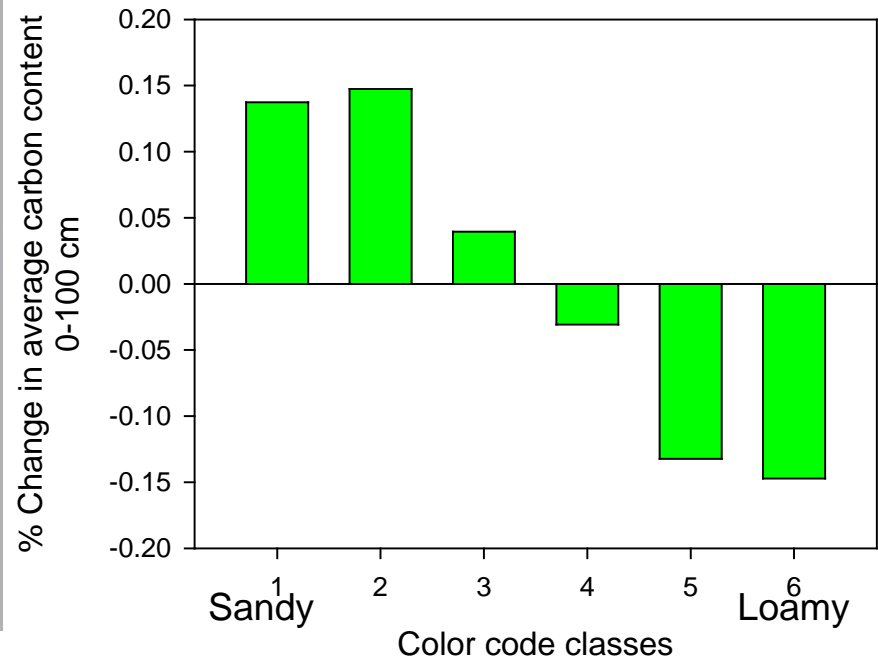


Where is soil carbon low?

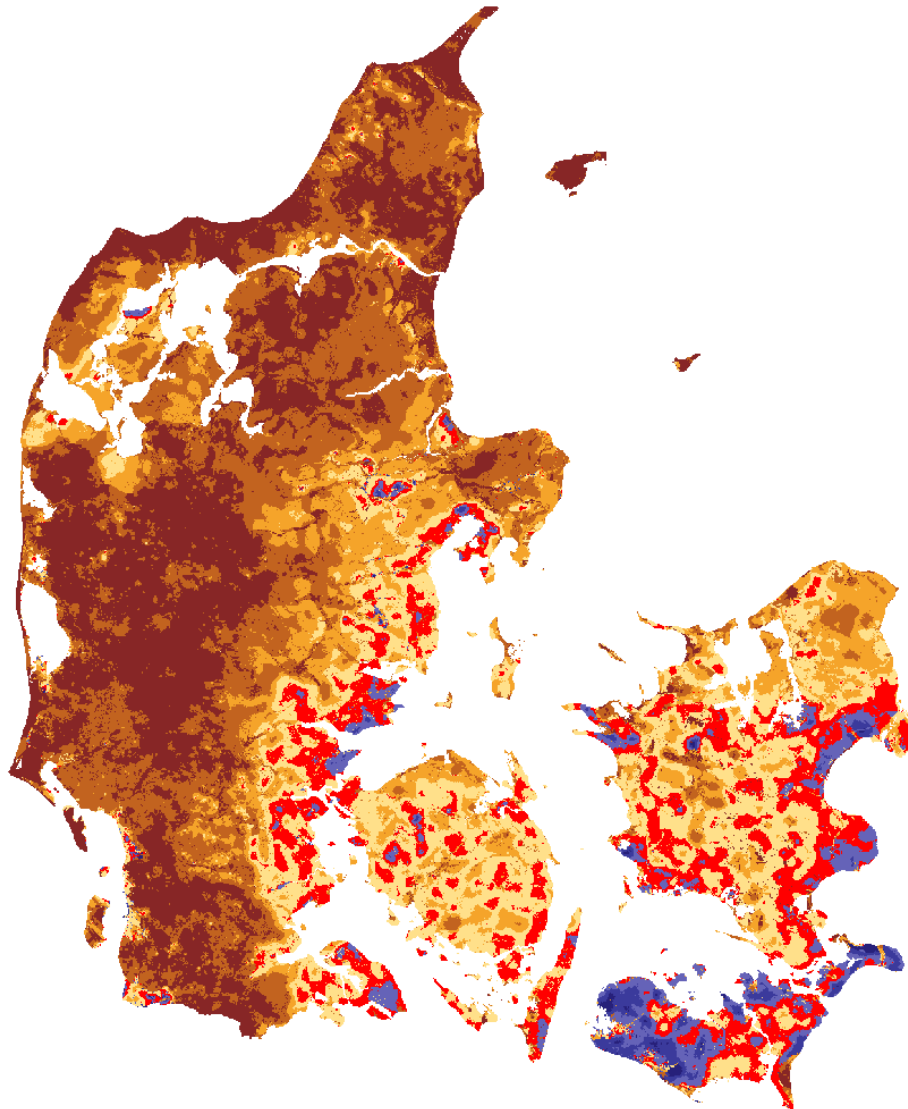


- Lowest on loamy soil
- Lowest on arable soils
- Declining on loamy soils

Change in carbon content (t/ha) from 0-100 cm between 1986 and 2009



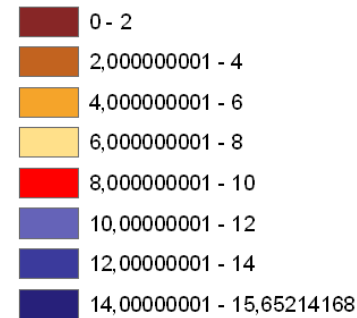
Is low soil carbon threatening soil functions?



Dexter Ratio

Dexter Ratio

<VALUE>



Dexter ratio is the ratio
of clay to soil organic C.

A Dexter ratio > 10
shows loss of soil functions

Why is soil carbon important?

Clay minerals

Electrically charged surfaces

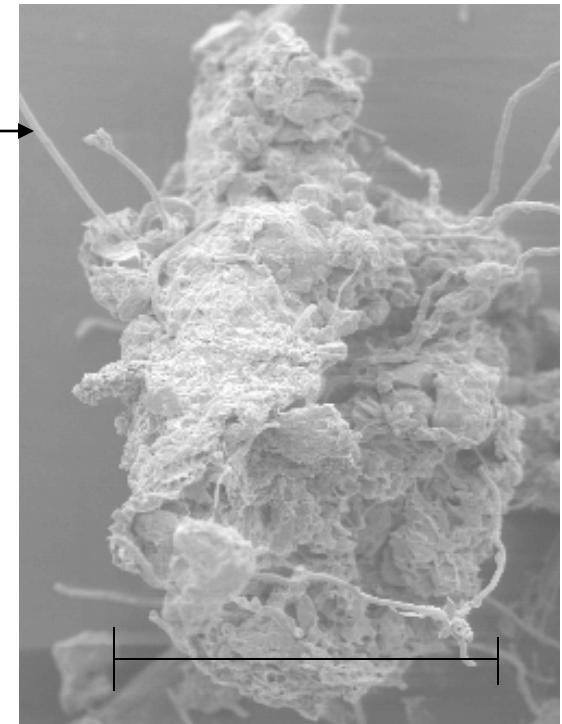


0.004 mm

Aggregates

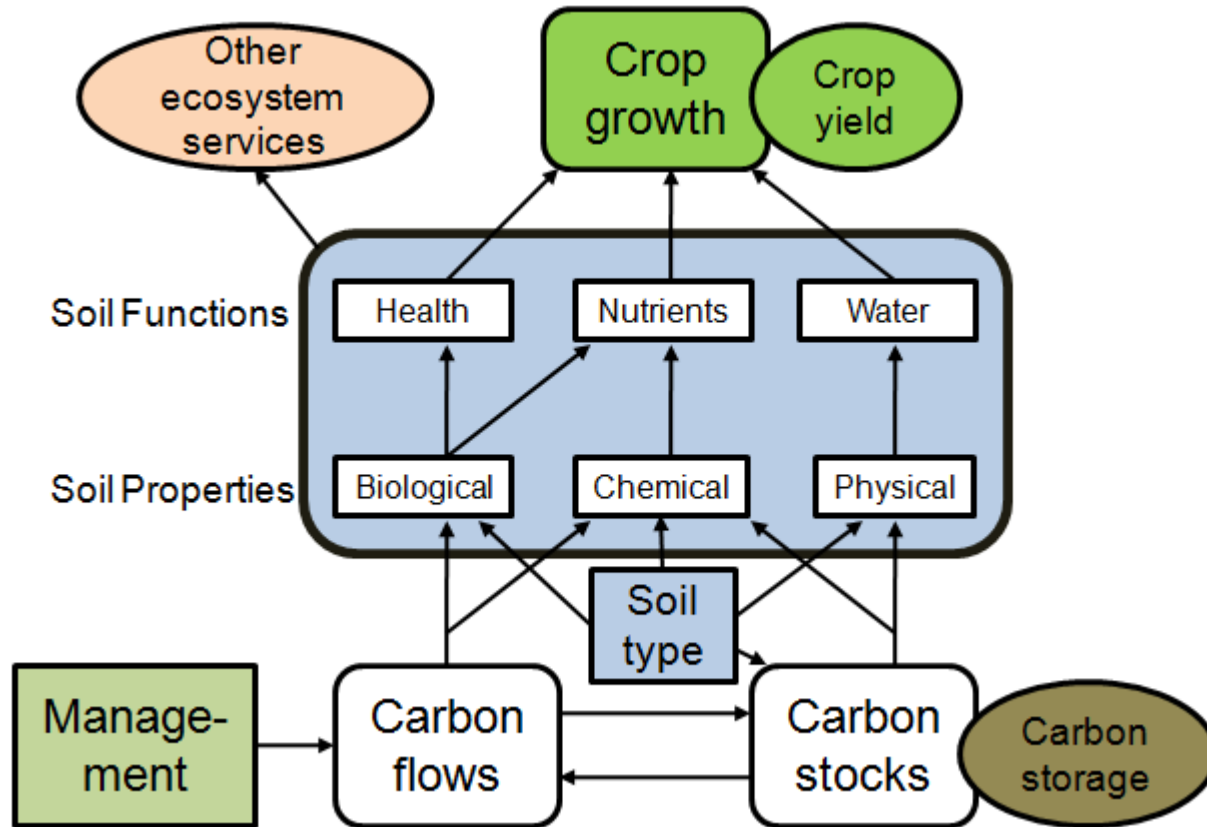
Sand, clay, silt & OM

Fungi
~ 0.003 mm



Ca. 0.2 mm

How does soil carbon contribute to yield?



What should we do?

- › Increase organic matter inputs
 - › Root input is particularly important (cover/catch crops)
 - › Retain crop residues where organic matter is low

- › Reduce tillage intensity (and depth)
 - › Retaining soil organic matter near soil surface
 - › Increase bulk density on sandy soils (most soils in DK)
 - › Controlled traffic (avoiding compaction) is needed

- › Concerns
 - › Need to increase crop yields
 - › Need to adapt to more extreme climates
 - › Reduced tillage will do little to increase soil carbon alone