Setting the scene for carbon farming: best practices and challenges: Developping C farming schemes in a soil health perspective

Claire Chenu

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Developping C farming schemes in a soil health perspective

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Why ?   Soil organic matter is key to soil quality and soil health
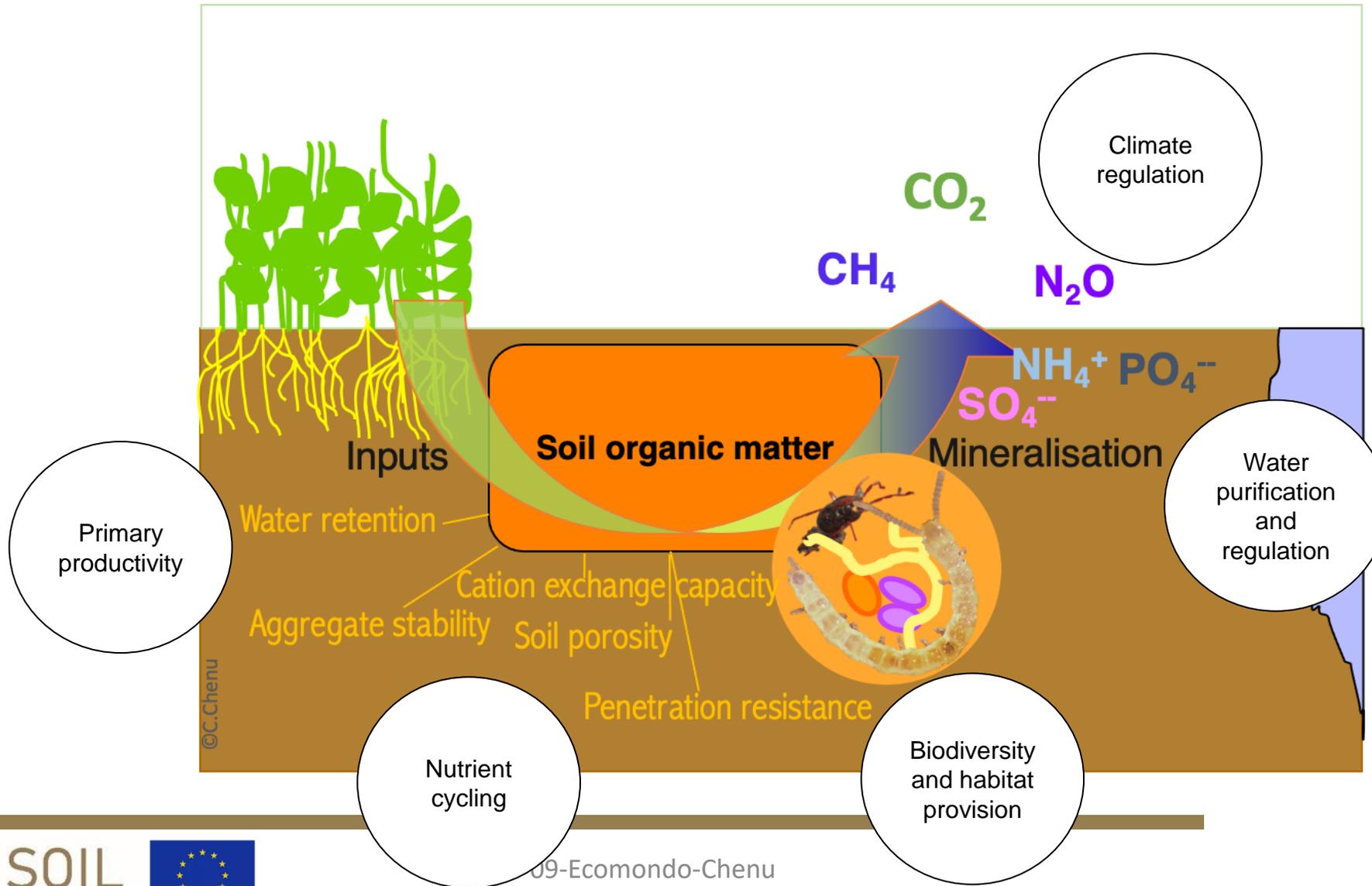
What does it mean? A wider perspective than soil C

**Accounting for synergies and trade-offs**

EJP SOIL
European Joint Programme

Expected outcome?

More Soil Organic Carbon for GHG mitigation & for soil health improvement

a)

Soil organic C stock

With implementation of a measure to enhance SOC

Business as usual (no implementation)

Time since implementation of a measure to enhance SOC

✓ SOC stock accrual
✓ C sequestration
✓ Net C removal
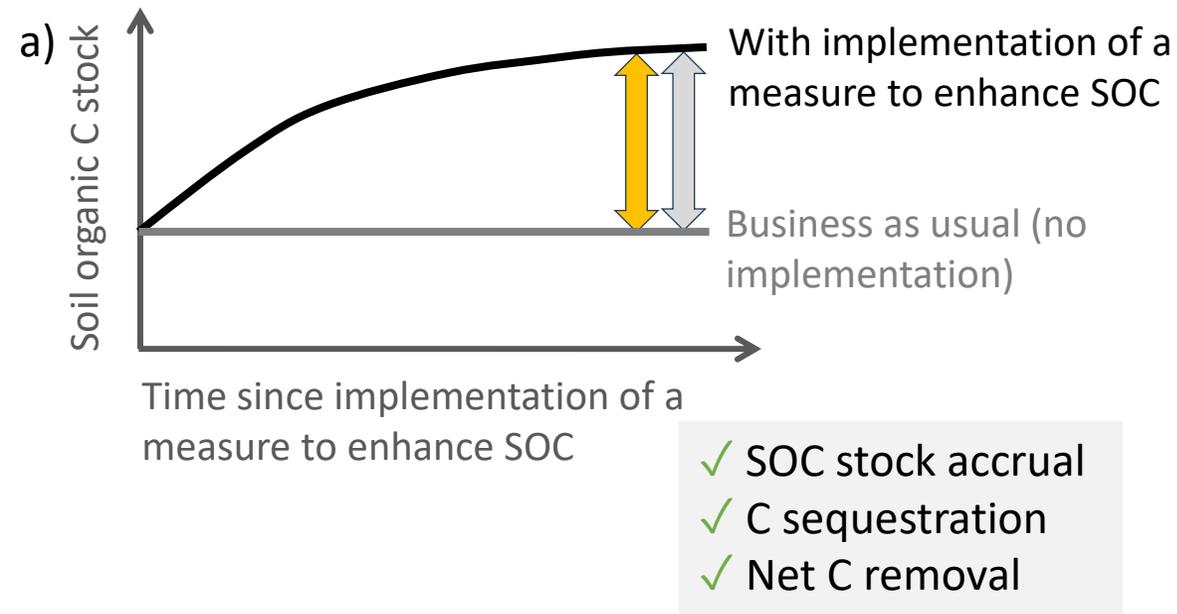
↕ SOC stock accrual   ↕ C sequestration in soil

b)

Soil organic C stock

With implementation of a measure to enhance SOC

BAU

Time since implementation

✓ SOC stock accrual
✓ C sequestration
✓ Net C removal

c)

Soil organic C stock

With implementation of a measure to enhance SOC

BAU

Time since implementation

✓ SOC stock accrual
✗ C sequestration
✗ Net C removal

A.Don et al. 2023 GCB
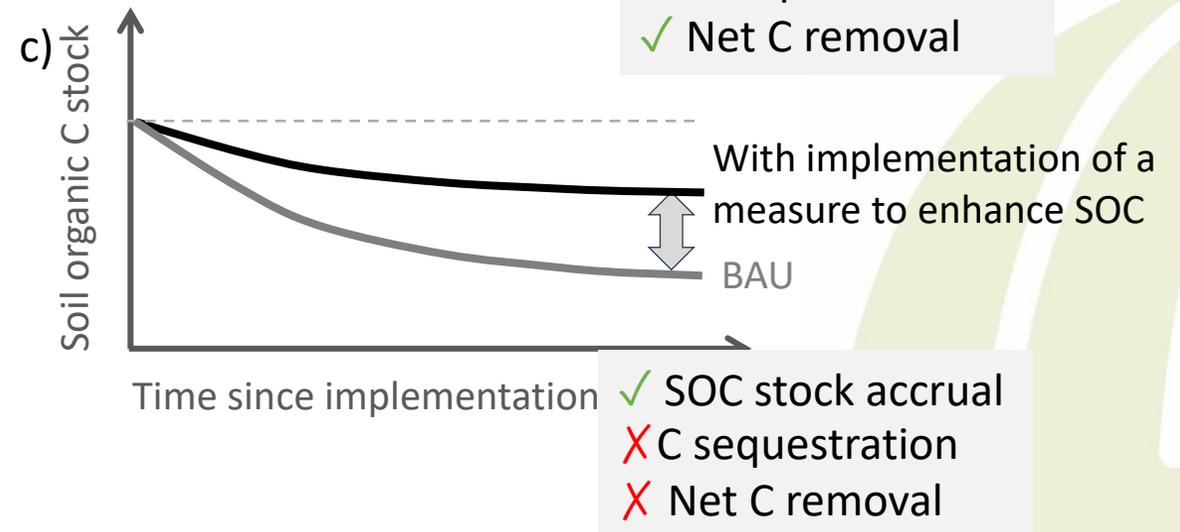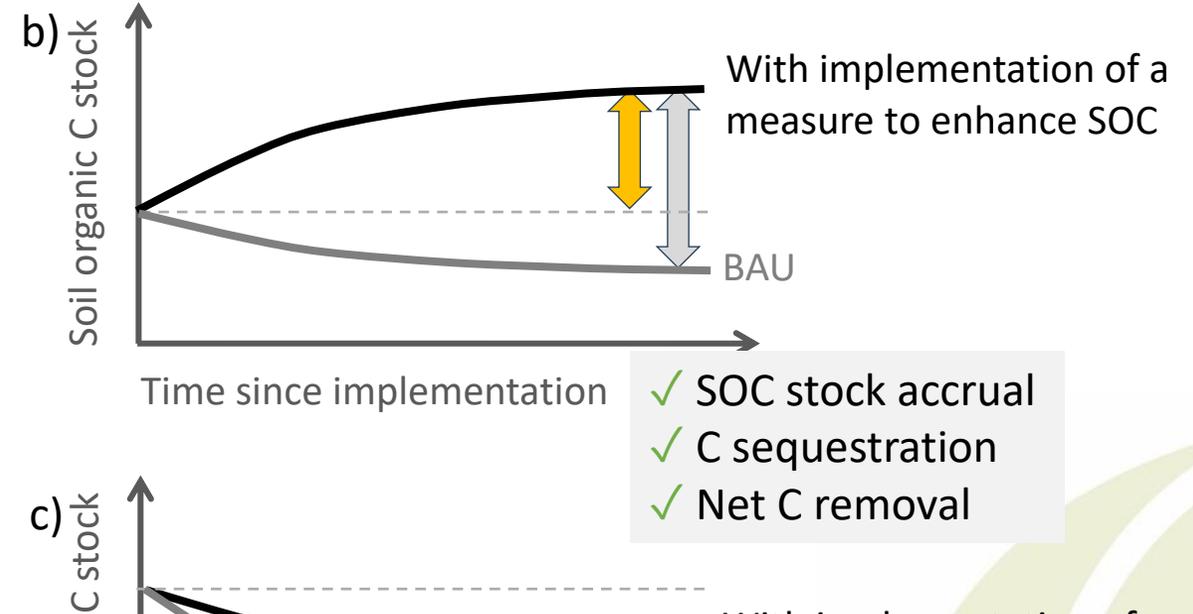
Expected outcome: C sequestration or only C loss mitigation?

A.Don et al. 2023 GCB
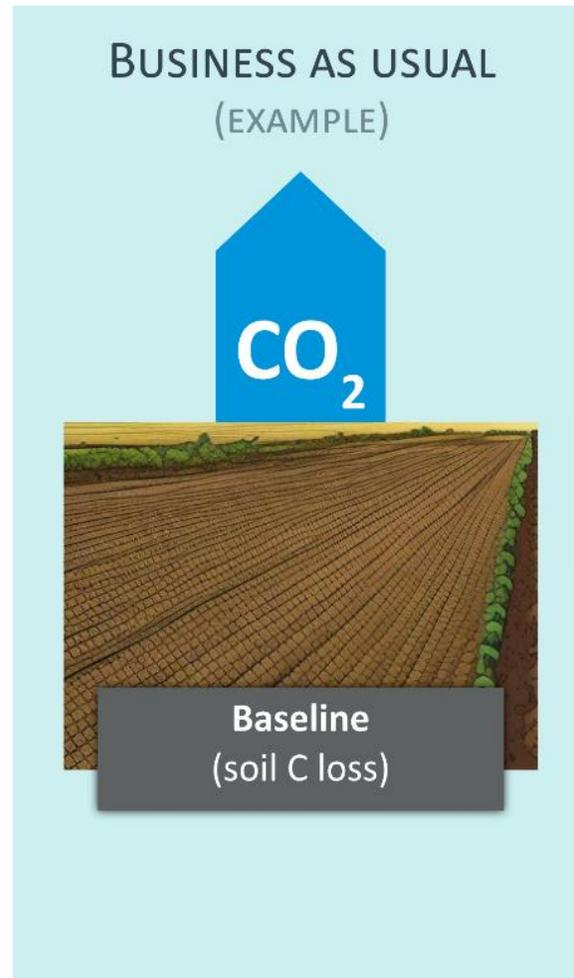
Trade-offs ?

N$_2$O emissions
Organic amendments vs mineral fertilizers

Valkama et al. submitted
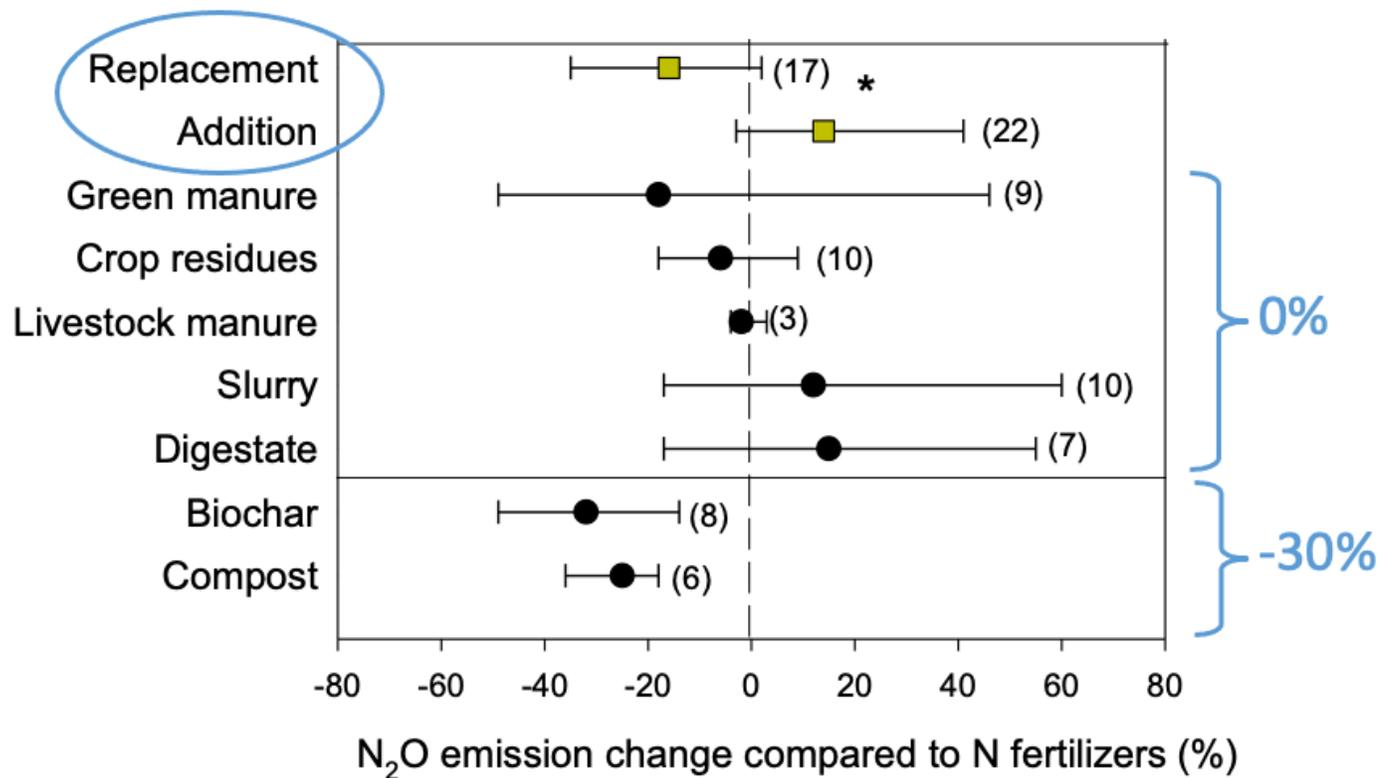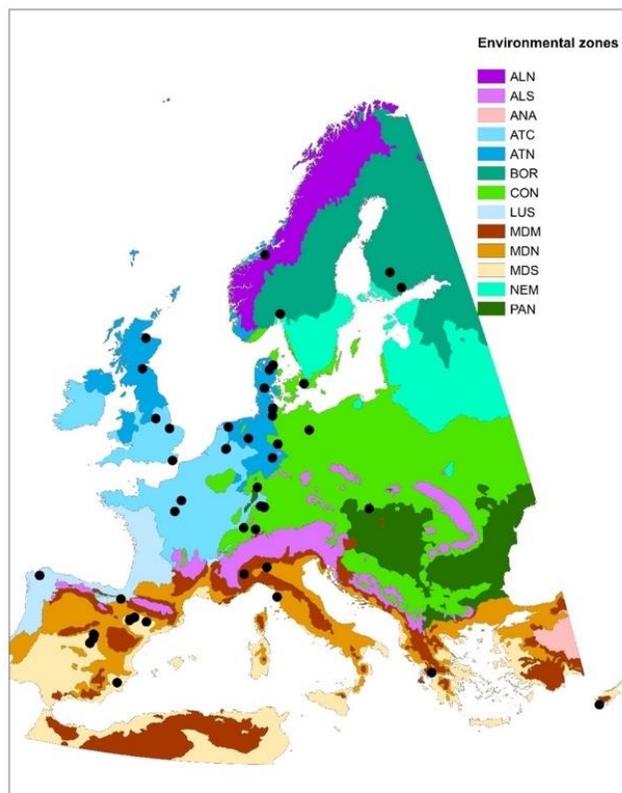
Measuring, reporting and verifying
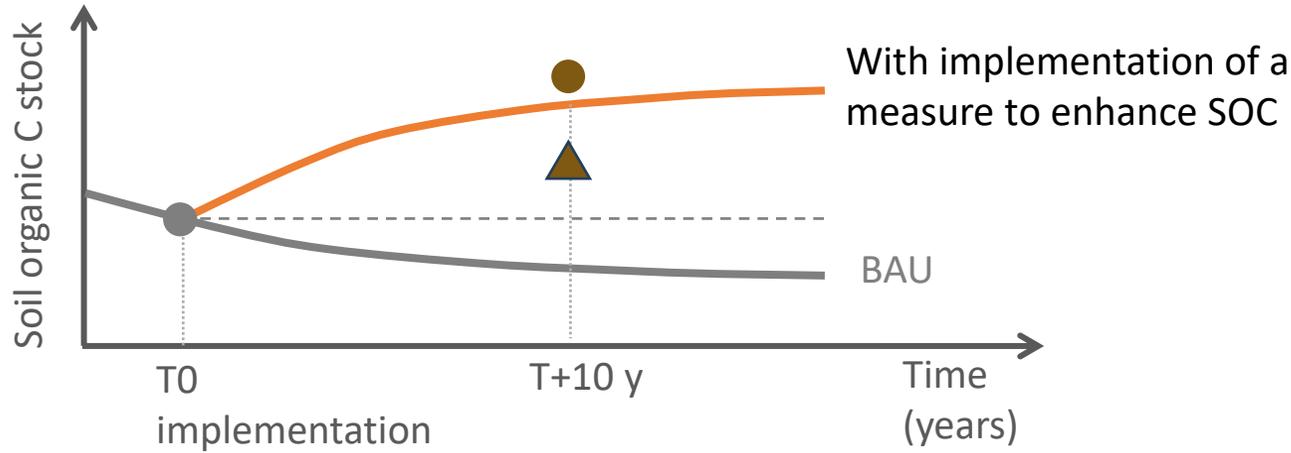
Modelling to predict

Measuring to verify

2023-11-09-Ecomondo-Chenu
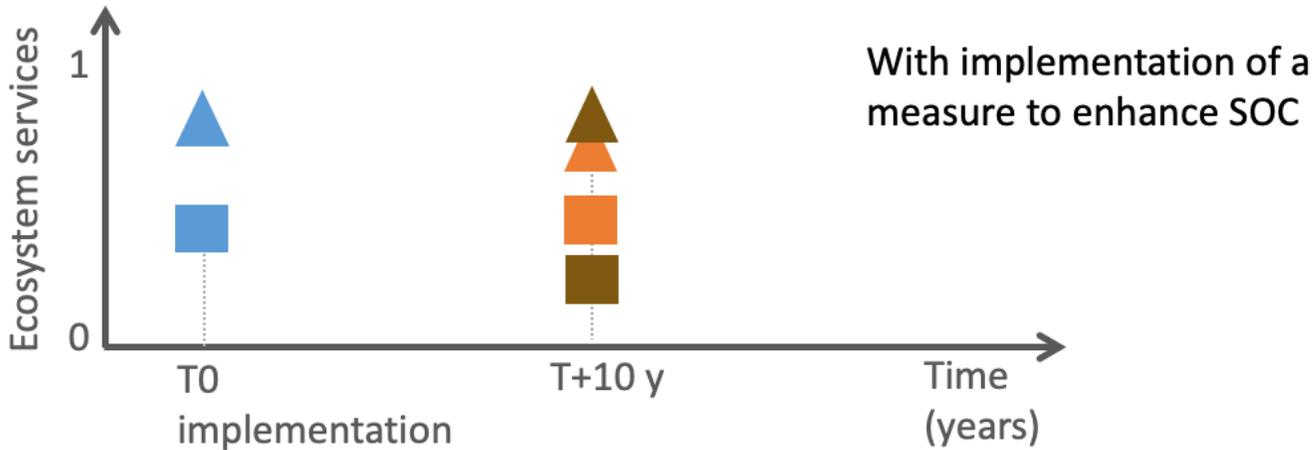
Conclusion: developing C farming in a soil health perspective?

Desirable, challenging, possible

The way forward : combining at best

Knowledge on the effect of (practices x pedoclimatic conditions) on SOC, GHG, ecosystem services

Modelling to predict SOC, GHG, ecosystem services

Measuring SOC, GHG, soil health indicators

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