

# How to pay for soil C: financial incentives and innovations

Peter Kuikman<sup>1</sup> and Gijs Kuneman<sup>2</sup>

<sup>1</sup> Alterra, Wageningen UR & <sup>2</sup> CLM, Centre for Agriculture and Environment



# Measures for **Good** Management of Soil Organic Matter

- **Import** of organic matter from elsewhere to the farm
- **Sequestration** of organic matter on farm
- **Conservation and reduced decomposition** of organic matter present in soils on farm





# Measures for **Good** Management of Soil Organic Matter

*Be aware of the 'rules of engagement':*

1. **Manage and conserve** existing carbon stocks in soil: minimize decomposition of organic matter stocked in soil
2. **Sequestration** of organic matter in soils on farm
3. **Import** of additional organic matter from elsewhere to the farm



# System of financial incentives

- Choices of (boundary) conditions and requirements
- Financial incentives
- Financial system, valuation and rewarding
- What would be the (financial) benefit?



# Best opportunities for financial incentives

- CAP greening measures (menu of choices on actions or certificate of 'green by definition')
- CAP pillar 2 climate programme in support of ESD and coupling of climate and agricultural policies
- Credits from voluntary emissions trading with (regional) fund governed by citizens, businesses and governments
- Regional funds

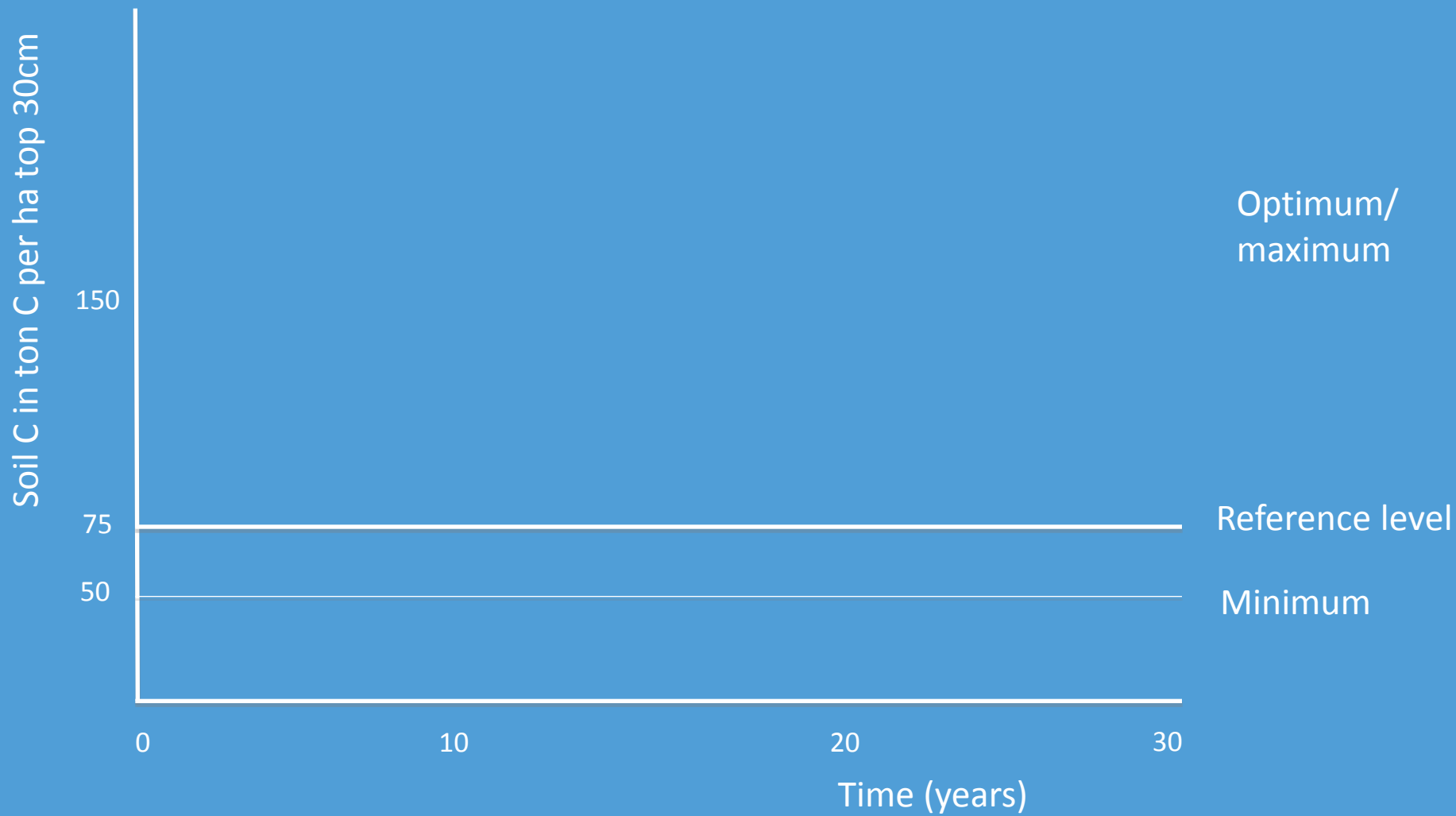


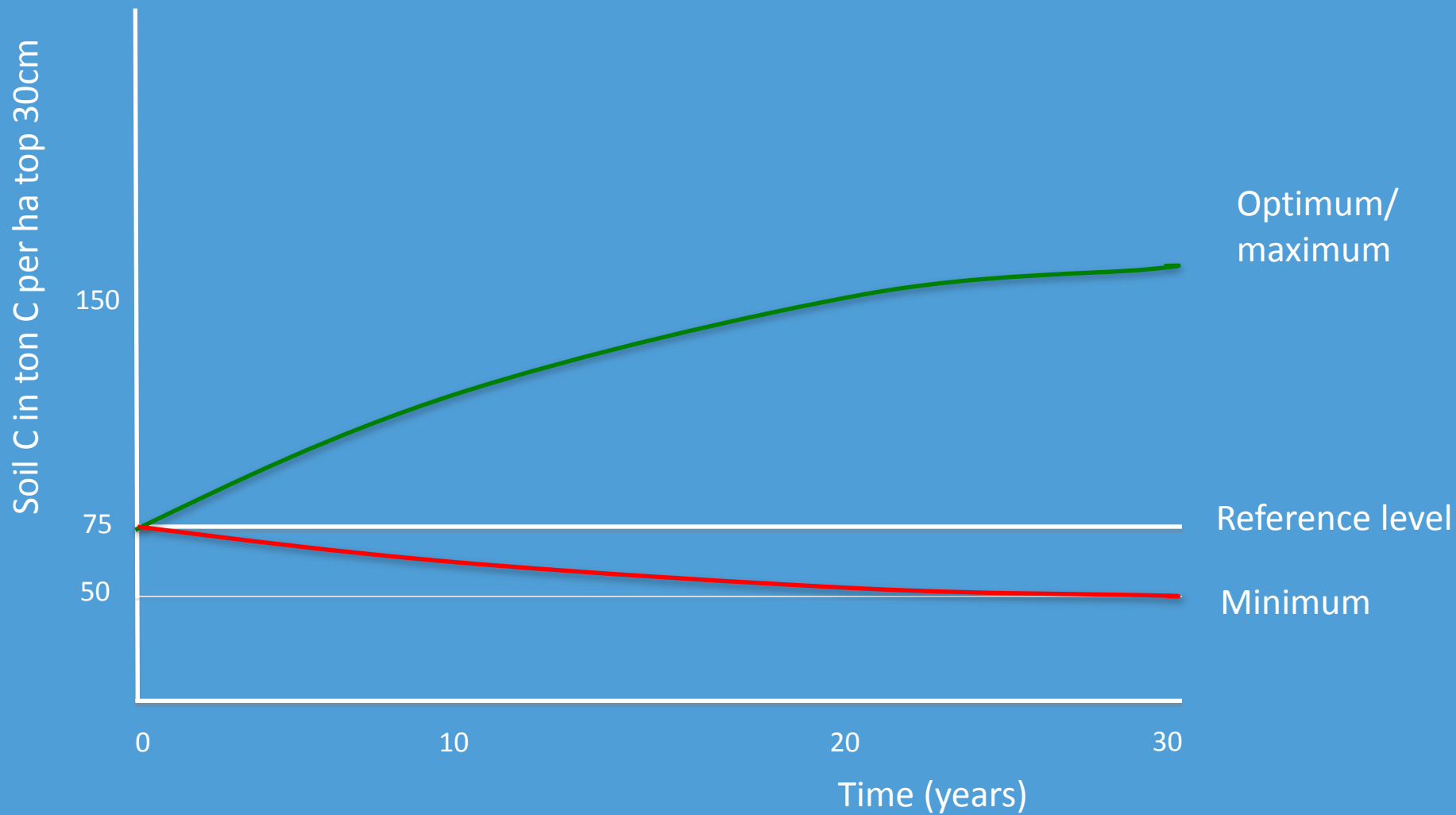
# Conditions for carbon credits on soil C (1)

## Reference level:

- Soil C well above any level of perceived risk (cf. still draft EU Soil Strategy Bodemstrategie)
- A reference level of 75 ton per ha stabile organic carbon in soils
- Likely to depend on and to be differentiated for soil types and/or regions across EU







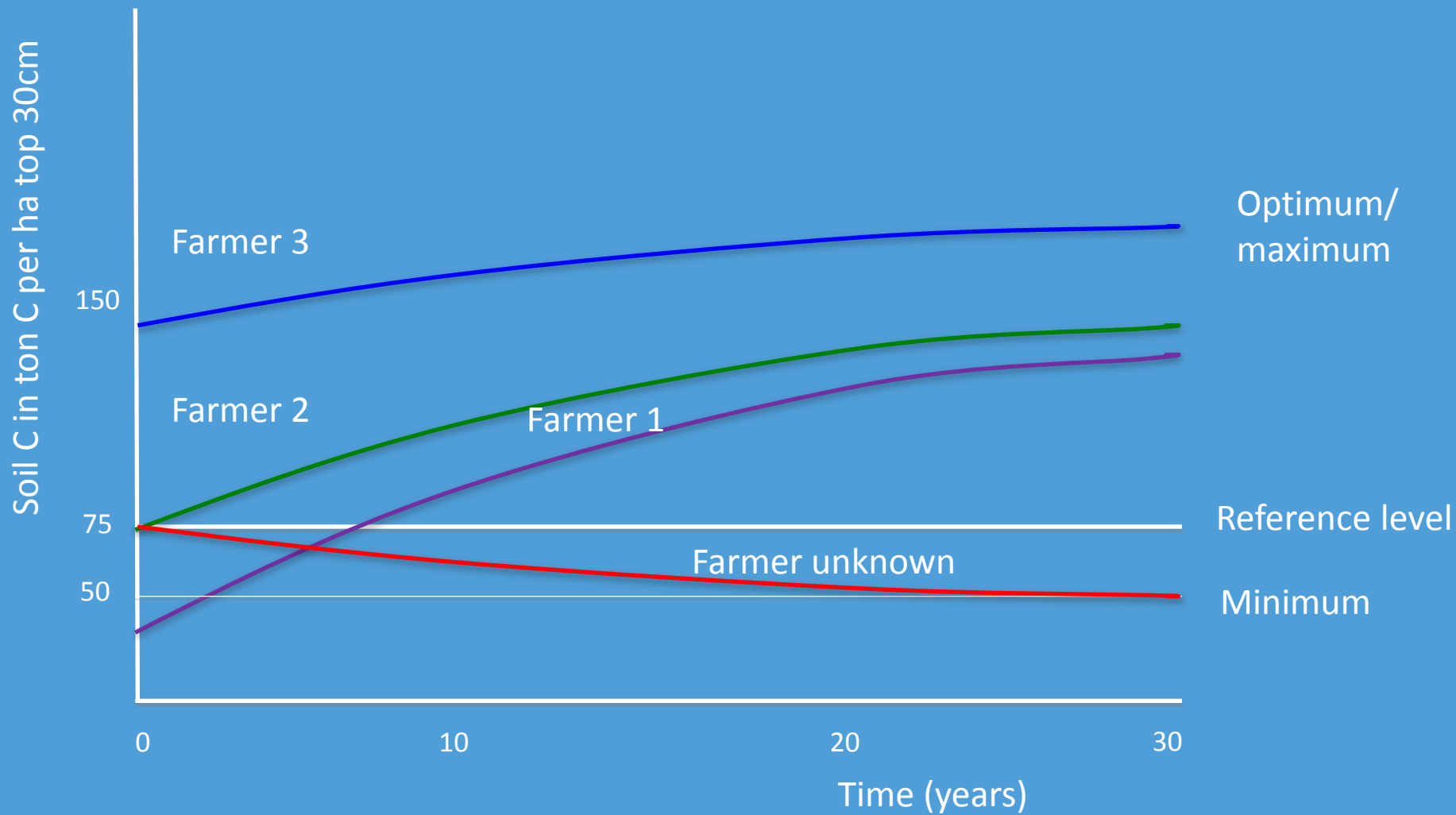


# Requirements and conditions (2)

What to do:

- Manage (soil) C!
- Monitor (soil) C (take measures if required and start calculations and preparation of balance sheets per farm)
- Assure level playing field & equal opportunities





# Requirements and conditions (3)

## Basis for payments:

- Stock and flux
- Up to a reference level for soil C, require proof of C increase on basis of balance sheet, *payment 1*
- Above and over the reference level for soil C, require C increase or retain level of soil carbon on basis of balance sheet, more C preserved give more €, *payment 2*
- Both based on positive net balance of C as basis for payment (net flux and stock dynamics)
- No payments for negative balance

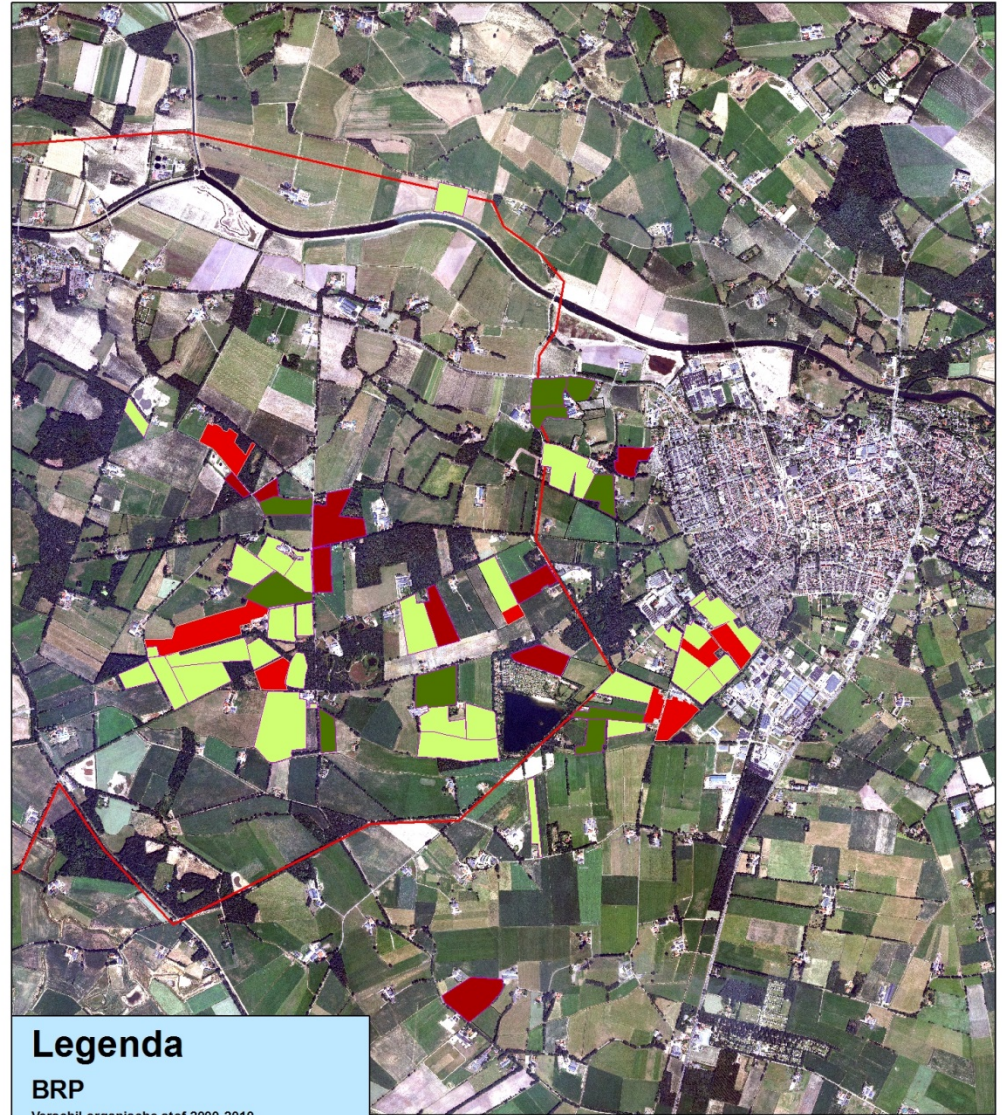


# Farms & practice



**WAGENINGEN UR**  
For quality of life

## Organische Stof 2010



### Legenda

#### BRP

Vershil organische stof 2000-2010

- |  |                      |
|--|----------------------|
|  | ontbrekende gegevens |
|  | afname > 1%          |
|  | afname tot 1%        |
|  | stabiel              |
|  | toename              |

---

# As a result .....

- A payment for STOCK would depend on:
  - The actual C-stock at a parcel or farm
  - The reference C-stock at a parcel/farm
  - Price of CO<sub>2</sub> at the market
  - Project duration (of avoiding CO<sub>2</sub> emission)
  - Assurance payment into a fund for securing C sequestration from natural disasters
  
- A payment for FLUX would depend on :
  - Realisation of a positive balance and net C input to the system
  - Price of CO<sub>2</sub> at the market



# And the yield .....

- FLUX - 10 euro / ton CO<sub>2</sub> and net-balance of 250 kg C ha<sup>-1</sup> year<sup>-1</sup> gives a value/income of 9 Euro ha<sup>-1</sup> year<sup>-1</sup>
- STOCK - 10 euro / ton CO<sub>2</sub> and a reference value of 75 ton C per ha and conservation of an actual C stock of 100 ton gives a value/income of 93 Euro ha<sup>-1</sup> year<sup>-1</sup>
- A STOCK payment would likely yield 10x more than a flux payment would.



---

Thank you for  
your attention.

---

[www.smartsoil.eu](http://www.smartsoil.eu)

[www.fertiplus.eu](http://www.fertiplus.eu)

[www.animalchange.eu](http://www.animalchange.eu)

[www.recare.eu](http://www.recare.eu)



**WAGENINGEN UR**  
*For quality of life*