

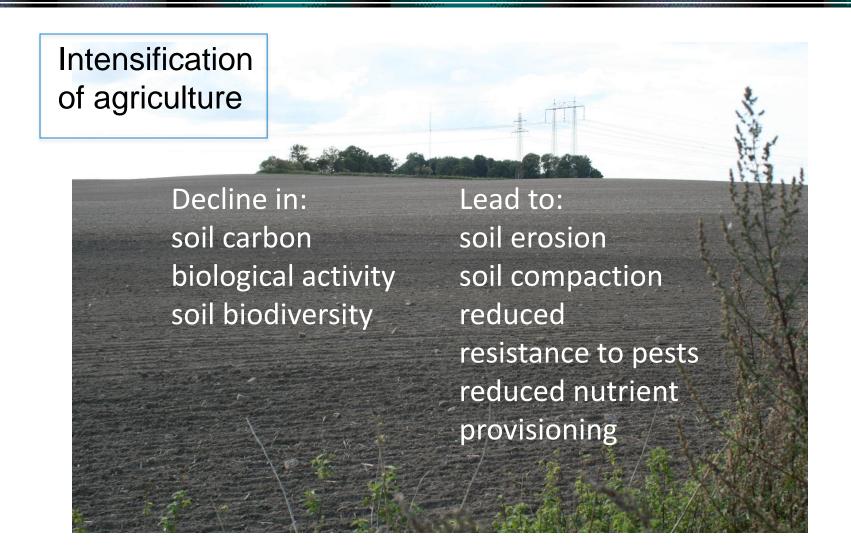


# Land use projections

- Production of goods is increasing
  - Food, biofuels, timber, water use
- Natural habitats are declining
- Mitigating climate change
  - Increased pressure on land for production of biomass

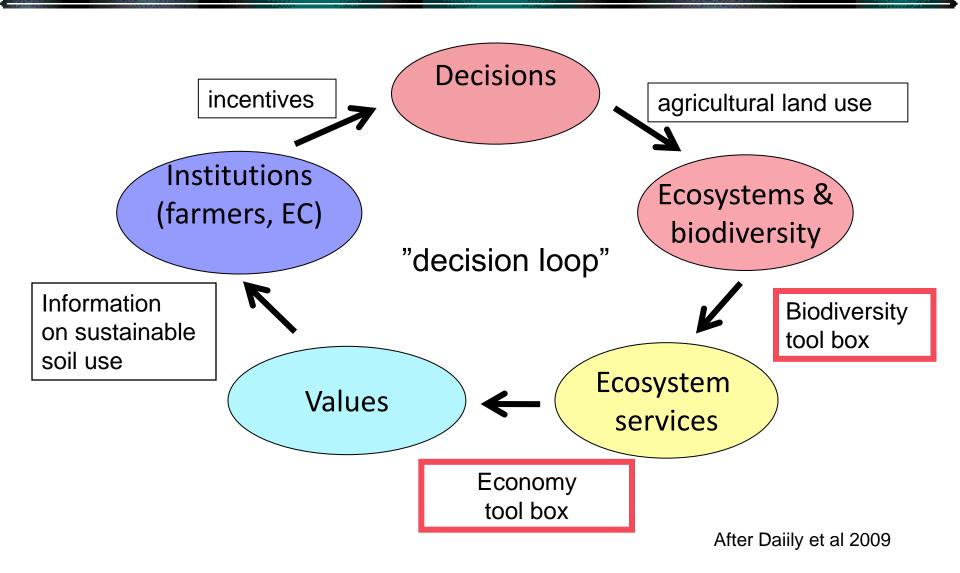


# Agriculture and soil threats





## Using ecosystem services for decisions





# SOIL SERVICE study regions

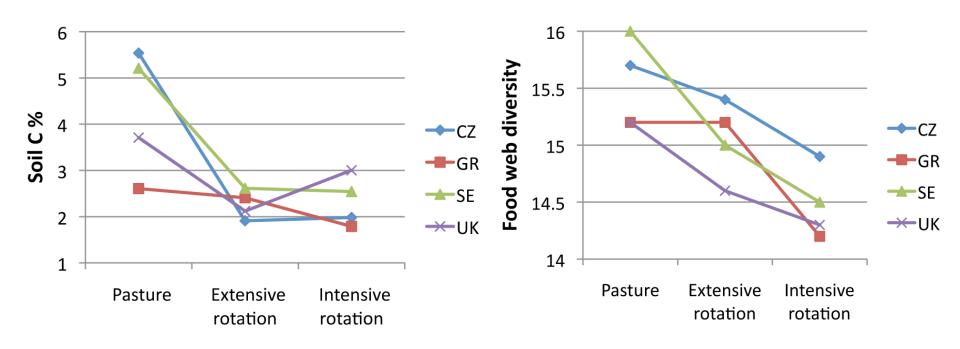


Regions for soil biodiversity and farm economy studies



## Soil biodiversity and agriculture

#### soil biodiversity—correlated to ecosystem services

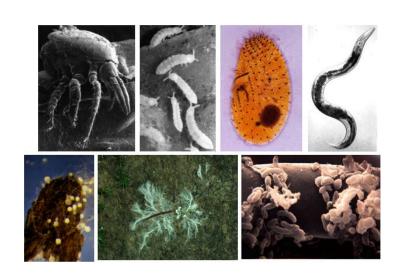




# Soil biodiversity & intensive agriculture

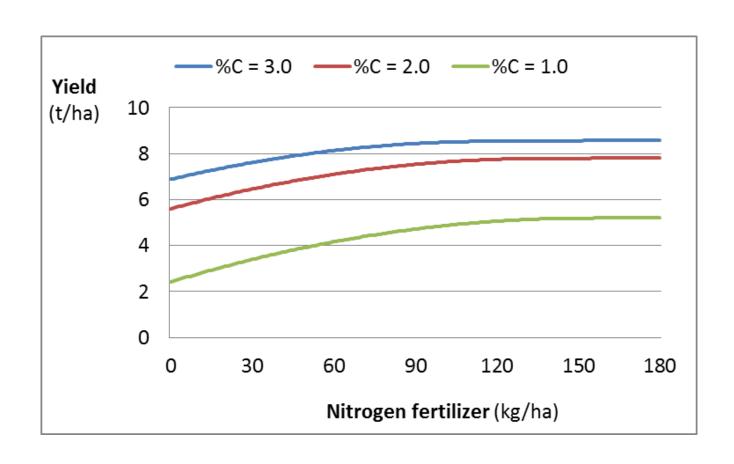
#### Pastures to crop rotation:

- Reduce species diversity
- Lower food chain length
- Soil carbon: 10 0.8 %C
- Soil nitrogen: 0.4 0.1%N
- Phosphorous uptake by AM fungi: from 150 to 15 kg/ha
- Reduced soil mixing: from 100 to 5 tons/ha





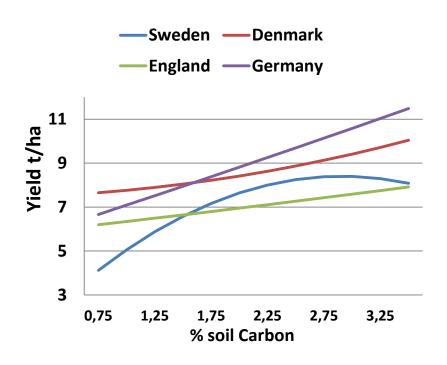
# Economic valuation: Carbon a currency for natural capital



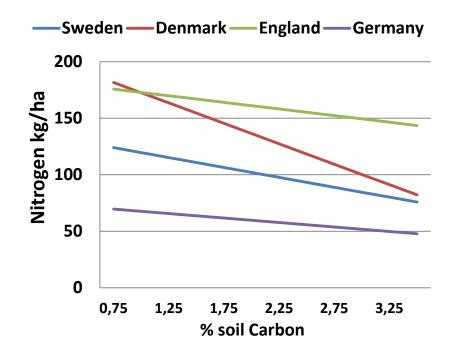


# Optimal use of soil C

#### Optimal yield

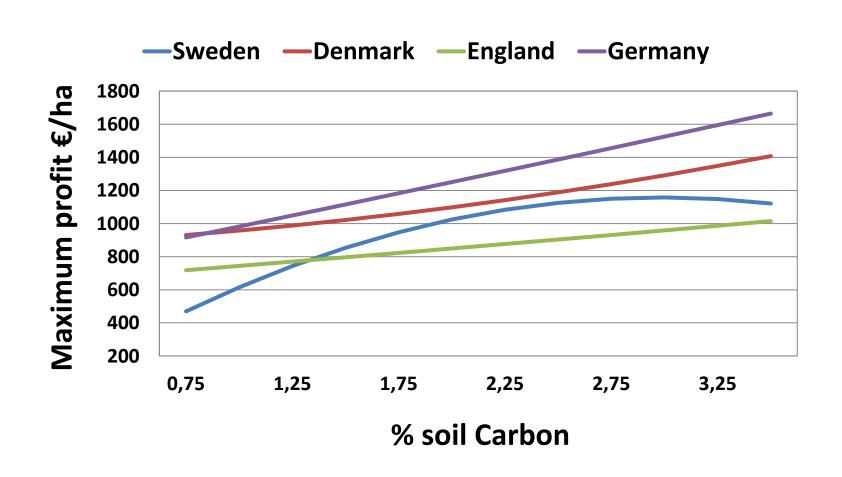


#### Optimal fertiliser use





# Carbon a natural capital





## How can we affect Soil C

Management	C decline per year	r
Intensive cereal production	-1.0%	UK
Inorganic fertilisers	-0.5%	SE
Farm yard manure (5 ton/ha)	-0.2%	SE
Straw addition (3 ton/ha)	-0.2%	DK

Management	C increase per year	
Cover crops	0.2%	FR
Straw addition (12 ton/ha)	0.3%	DK
Farm yard manure (35 ton/ha)	0.4%	UK
Sewage sludge	0.9%	SE
Miscanthus grass (bioenergy)	?	



# SOIL SERVICE project





















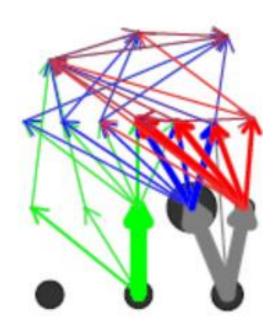


## Information transfer

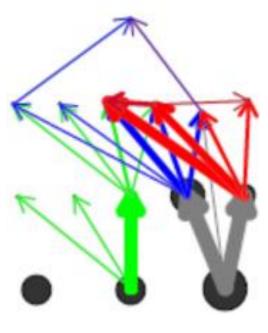




#### Soil food webs



Grassland web



Wheat field web