



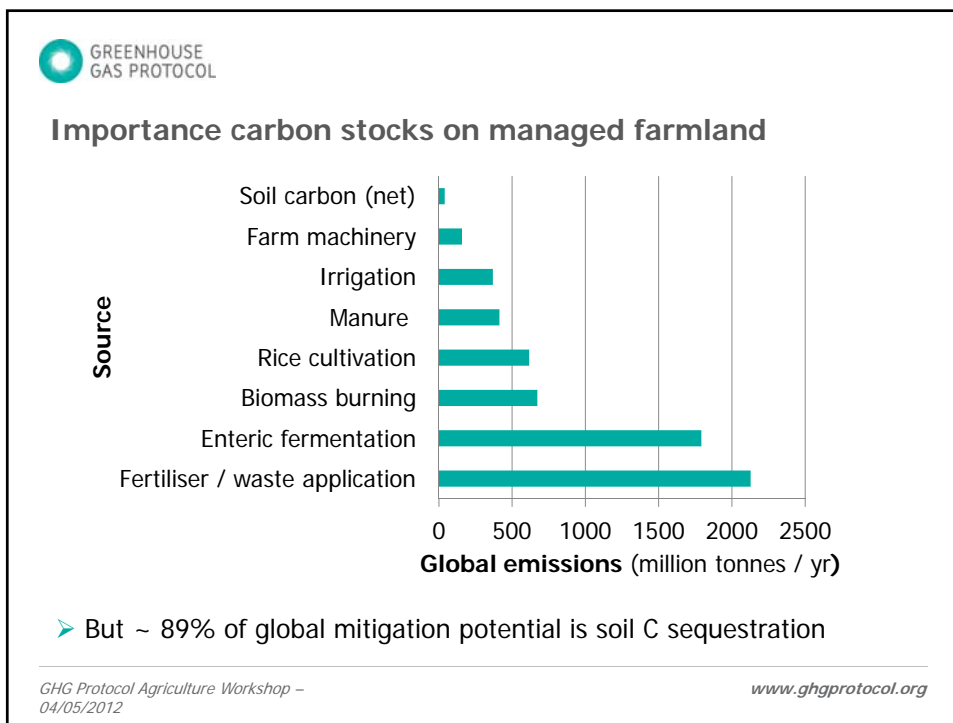
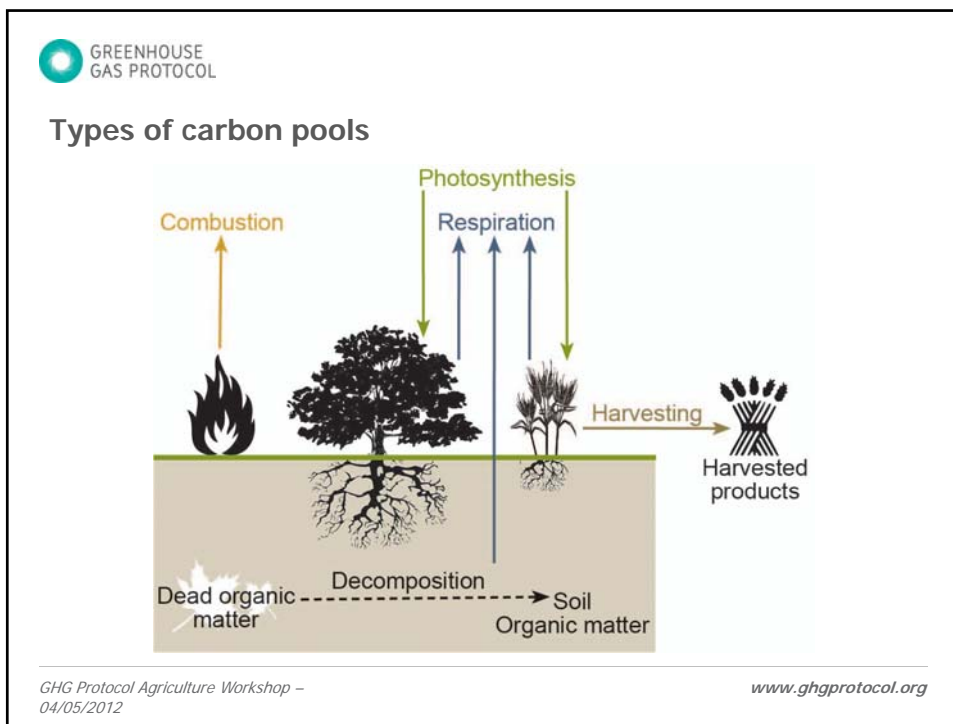
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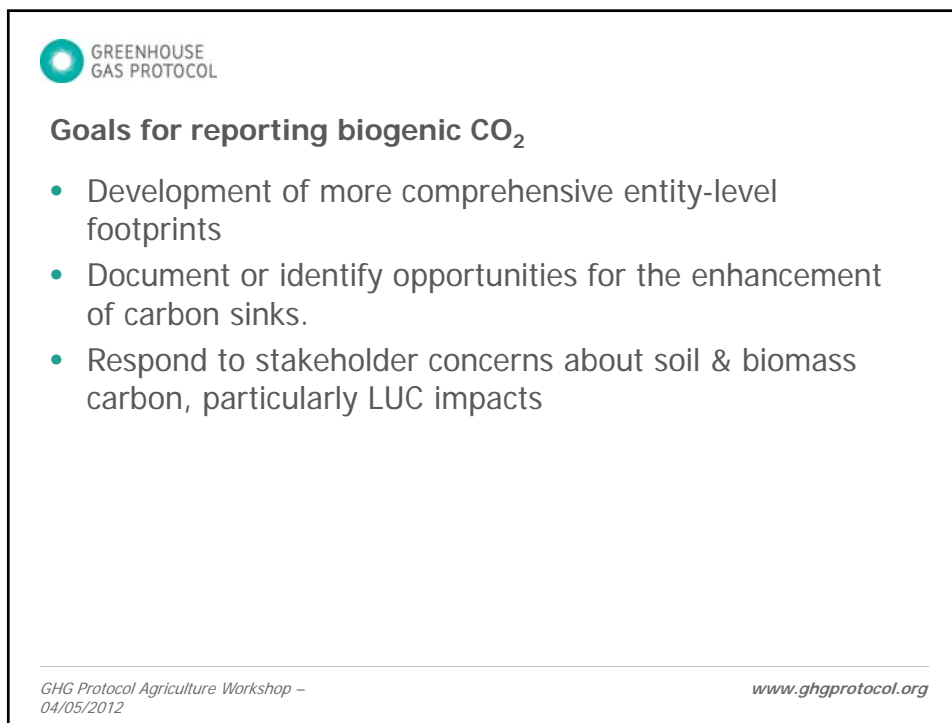
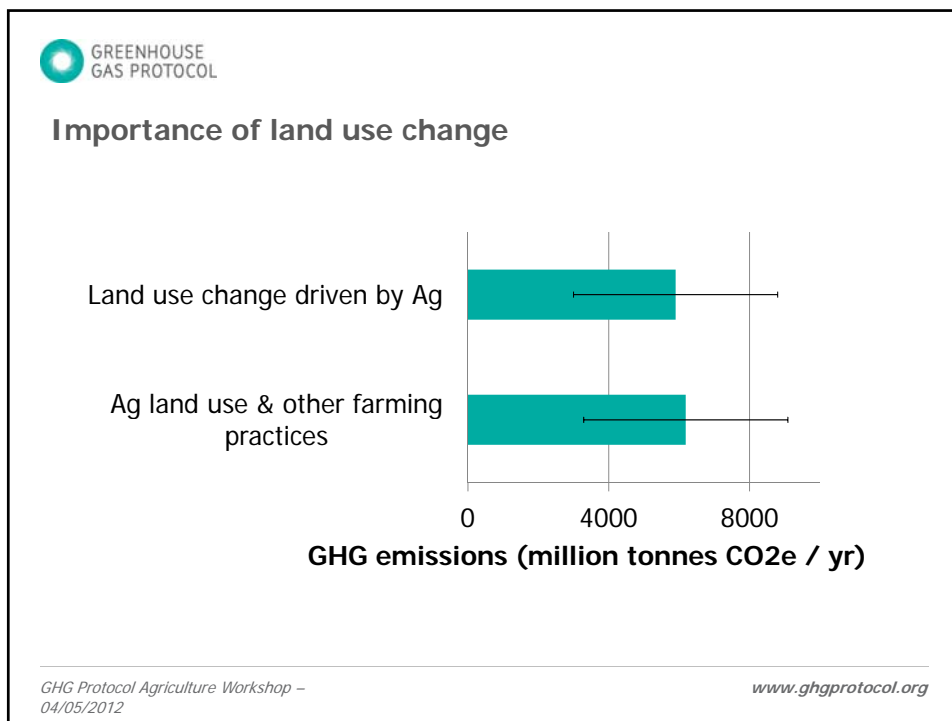
Accounting for carbon stocks



Questions for discussion: carbon stocks

- 1) What do you think of the draft recommendations for including biogenic carbon from soils and biomass in inventories?
- 2) Do you think these methods are sensible and practicable?
- 3) Do they strike the right balance amongst the five accounting principles?
- 4) What additional guidance would be useful?







Existing guidance in the Corporate Standard

Source	Ch 9: Must report direct CO ₂ from biologically sequestered carbon as memo item	Appendix B: Report CO ₂ removals as memo item (optional)
Emissions		
CO₂ from Land use		
- Soil C oxidation	X	
- Crop residues	X	
CO₂ from LUC		
- Soil C oxidation	X	
- Biomass combustion	X	
CH₄ and N₂O from LU or LUC	Report within the scopes	
Removals		
CH ₄ from LUC		
C from LU and LUC		X

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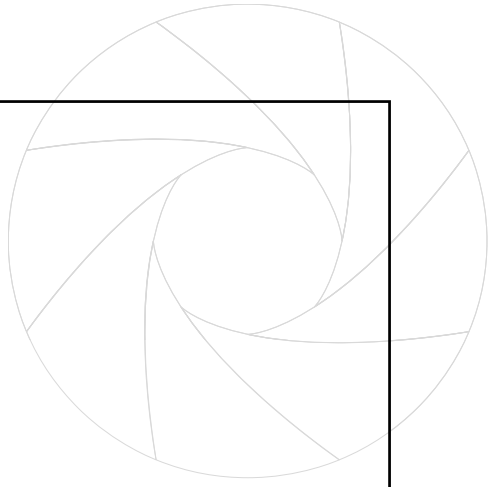


Voluntary program guidance on biogenic C accounting

Program	CO ₂ emissions from biomass combustion	Biogenic CO ₂ from soils/forestry
TCR	Direct emissions are reported as memo item	Need not be reported
DEFRA	Memo item (may not be reported within scopes 1, 2 or 3)	<ul style="list-style-type: none"> • Report within scopes • (removals reported outside of scopes but are netted from gross emissions)
CDP	Direct emissions are reported as memo item	
ISO 14064-1	Quantify separately	
1605(b)	CO ₂ from crop residue burning N/A; Otherwise, include in inventory	Include in inventory

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New requirements in the draft Agricultural Protocol

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'Land use change' versus 'land use management'

Land use change	Land use management
<ul style="list-style-type: none"> • When one type of land category is converted into another • Example: conversion of savannah into cropland 	<ul style="list-style-type: none"> • Changes in the management of specific types of land use categories that do not result in land use change • Example: change in tilling frequency or crop rotation schedule on cropland

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1. Which carbon stocks to report?: land use change

- Net CO₂ fluxes from all carbon stocks must be reported , but separately from the scopes

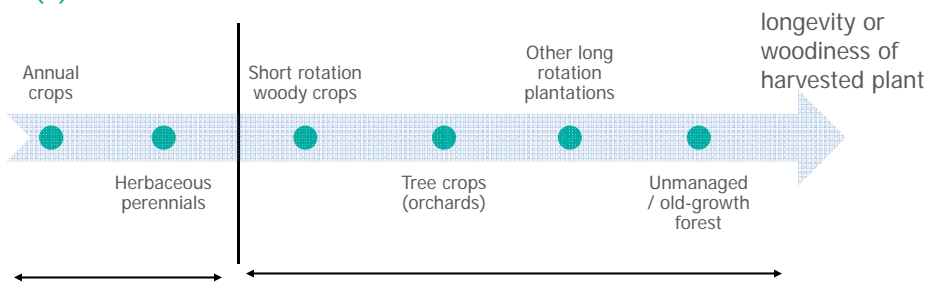
Types of land use categories	
Artificial surfaces	Urban fabric, transport units, construction sites, etc
Agricultural areas	Arable land
	Permanent crops
	Pastures
	Heterogeneous agricultural areas
Forests and semi-natural areas	Forests
	Shrub and/or herbaceous vegetation association
	Open spaces with little or no vegetation
Wetlands	Inland wetlands
	Coastal wetlands

EU's CORINE definitions



2. Which carbon stocks to report?: land use management

- (a) Net CO₂ fluxes from soil carbon stocks must also be reported, but separately from the scopes
- (b) What about biomass stocks?



• Net CO₂ fluxes from biomass stocks need not be reported

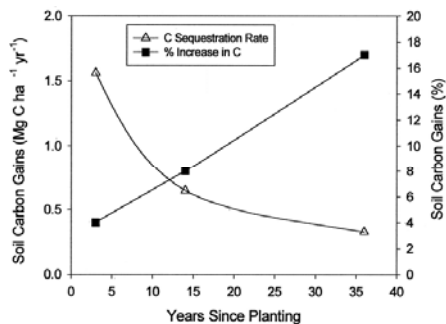
• Net CO₂ fluxes from biomass stocks must be reported as memo item



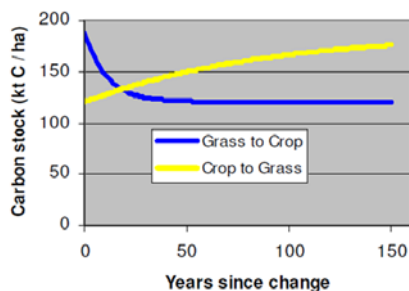
3. How to account for changes in required carbon stocks

... when stocks can take decades to reach equilibrium and changes are non-linear

Switch to no-till



LUC between crop and grassland



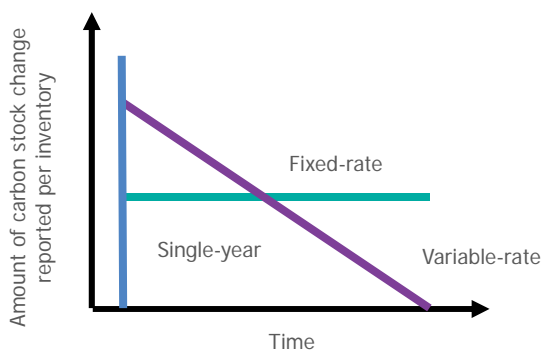
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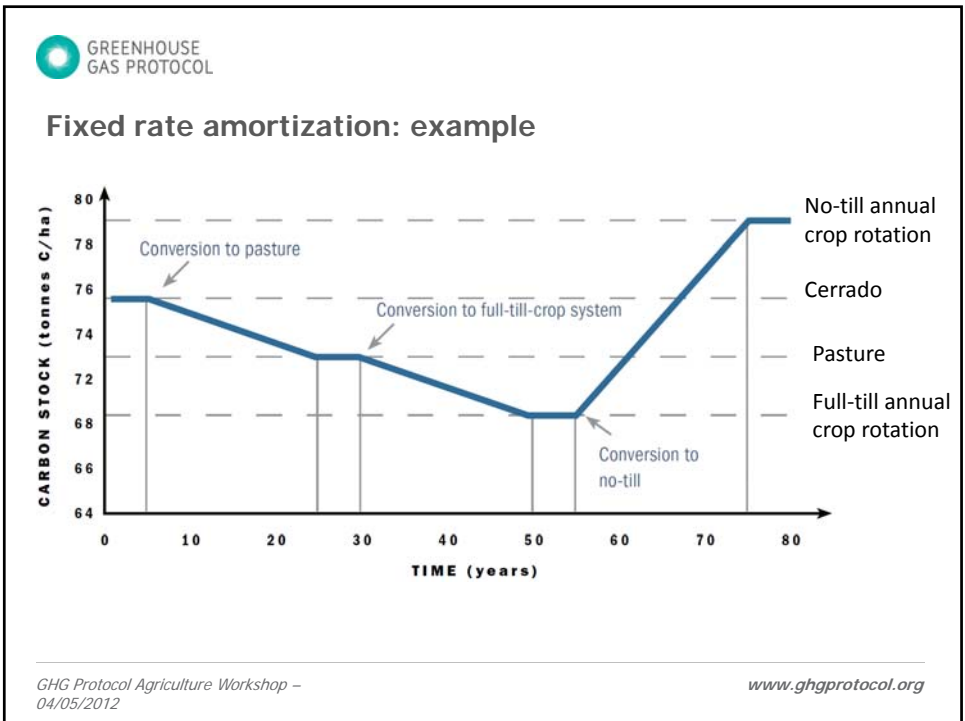
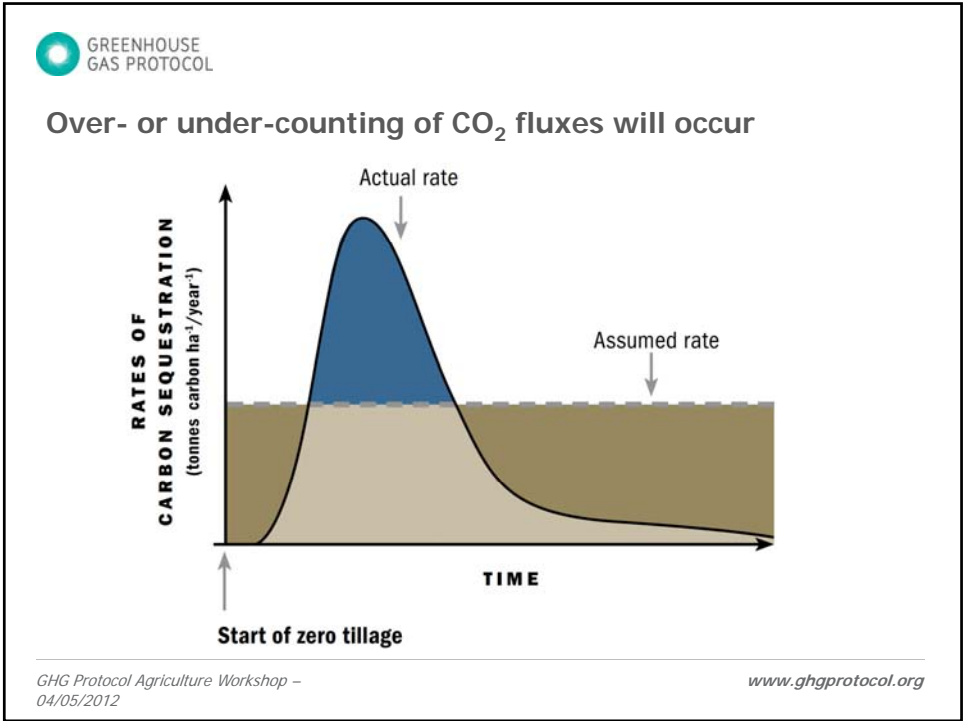
Pros and cons of the different approaches ^{S1}

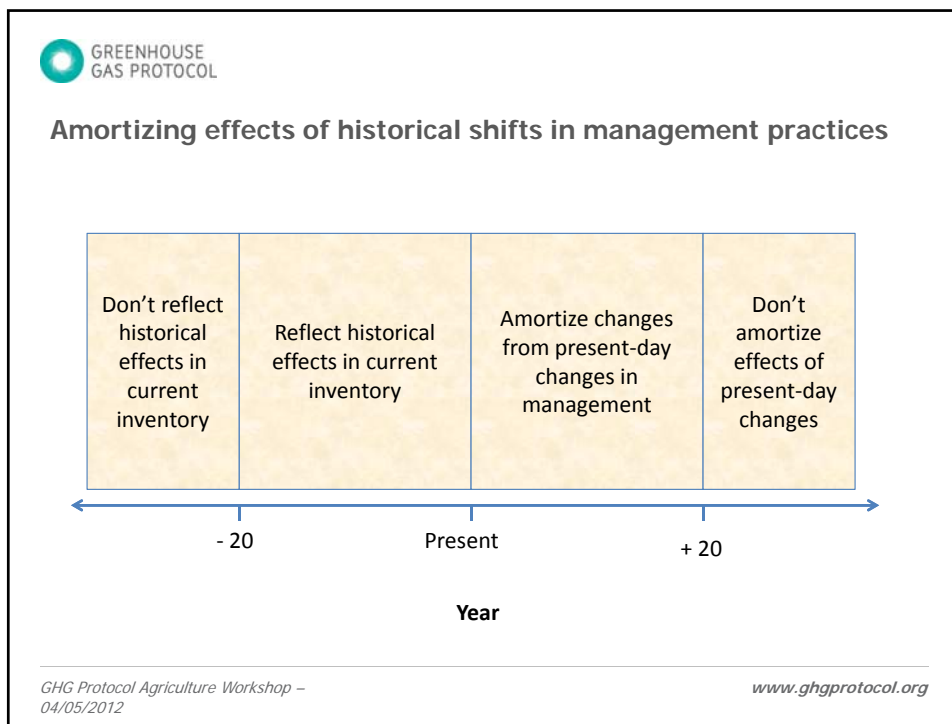
Reporting approach	
Fixed-rate	The same amount of change is amortized in each inventory (and is calculated by dividing the total amount of change by the number of years in the amortization period)
Variable-rate	Different amounts of change are amortized in each accounting period, until the total amount of change has been amortized
Single-year	All change is reported in the inventory period during which the management change occurred
Partial	Only a percentage of the total change is ever reported




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Summary of requirements

Type of system		Report net CO ₂ fluxes from	
		Soil stocks	Biomass stocks
Managed agricultural land	Perennial herbaceous and annual crops (e.g., switchgrass, sugarcane)	Yes	No
	Short rotation woody crops (e.g., poplar, willow)	Yes	Yes
	Tree crops (e.g., apple, coffee)	Yes	
LUC		Yes	Yes

- Changes are amortized over a (default) 20-year timeframe and are reported separately from the scopes
- All CO₂ emissions from all biomass combustion reported as a memo item

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Summary of requirements and comparison with Product Std.

Type of system		Report net CO ₂ fluxes from		
		Soil stocks	Biomass stocks	
Managed agricultural land	Perennial herbaceous and annual crops (e.g., switchgrass, sugarcane)	No	Yes	LCA requirements
	Short rotation woody crops (e.g., poplar, willow)	No	Yes	
	Tree crops (e.g., apple, coffee)	No	Yes	
LUC		No	Yes	

- Changes are amortized over a (default) 20-year timeframe and are reported separately from the scopes
- All CO₂ emissions from all biomass combustion reported as a memo item

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