



Low carbon label, a payment opportunity for French farmers who contribute to climate change mitigation


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On behalf of the Editorial Board of the LBC Method for Arable Crops



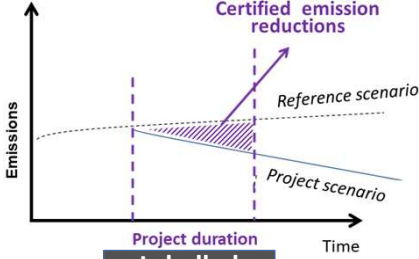
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= certification framework set up by France

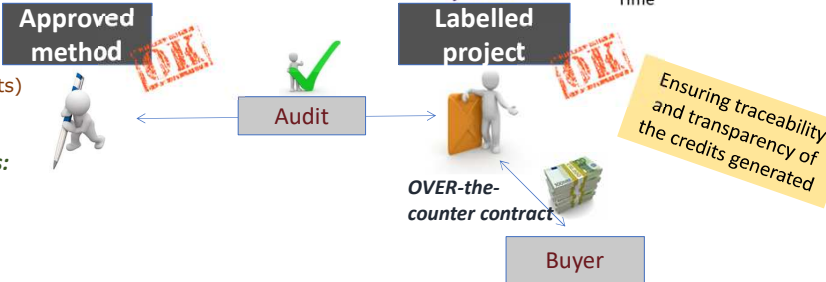
Since 2019

Accounting for GHG emission reductions that a territorial project sells over the counter




Methods approved to date
 CarbonAgri: **sectorial method** (ruminants)
 Hedges : **specific method**
 Orchards : **specific method**
More under investigation, among others:
 ArableCrops : **sectorial method**
 Impulse : **specific method**
 Etc.

Each method is self-carrying
 All methods must be interoperable




Ensuring traceability and transparency of the credits generated



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A LBC method for arable crops

has been submitted to the Ministry approval process

Sectoral method *Hold by the Consortium for LBC-arable crops :*

Changes in practices or systems in the sector of arable crops (with associated storage buildings)


On-going process

March 2020 Notification


March-October 2020..... Consultation of experts

December 2020..... Submission

On-going (1st half of 2021)..... Investigation




The chart shows a hierarchy starting with the 'Comité de pilotage exécutif' (AGPM, AGRS, FOP, CGB), followed by the 'Comité de rédaction' (ARVALIS, Terres Inovia, ITB, ARTB, agrosolutions). Below this are three committees: 'Comité scientifique' (IACE, INRAE, Ademe, DGE), 'Comité des experts associés groupes de travail' (INRAE et autres experts R&D), and 'Comité des usagers' (Ouvert aux potentiels usagers).



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LBC-Arable crops

Perimeter and general principles

- ✓ **Describe the farm by its cropping systems (CS)** (soil*rotations*practices) and associated reference scenari
- ✓ **Collect the data at field scale** before aggregation at the CS scale
- ✓ **Select the levers to be applied in the project** per CS (to have effect on GHG emissions and/or C storage)
- ✓ **Calculate the emission reductions (ER) :** Differences between the values of the **reference scenario** and the **project-scenario** (with the project levers implementation)

Because of the diversity in arable crops and related uses, ERs are accounted for **in $teqCO_2/ha$** over the duration of the project

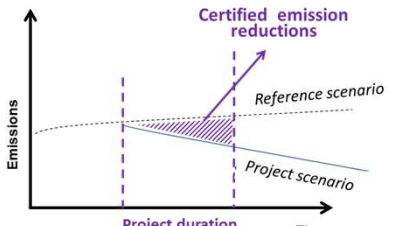
Exploitation agricole

Systèmes de culture en grandes cultures	Autres ateliers
Bâtiments de stockage/séchage en grandes cultures	Autres ateliers

Perimeter (indicated by arrows pointing to the first two rows)

12 proposed levers from 2 main categories


- ✓ The **nitrogen management**
- ✓ The **return of biomass to the ground**



The graph plots 'Emissions' on the y-axis and 'Time' on the x-axis. A dashed line represents the 'Reference scenario' (emissions increasing over time). A solid line represents the 'Project scenario' (emissions decreasing over time). The area between them is shaded and labeled 'Certified emission reductions'. A vertical dashed line marks the 'Project duration'.

5-year projects, renewable at term for a new 5-year term

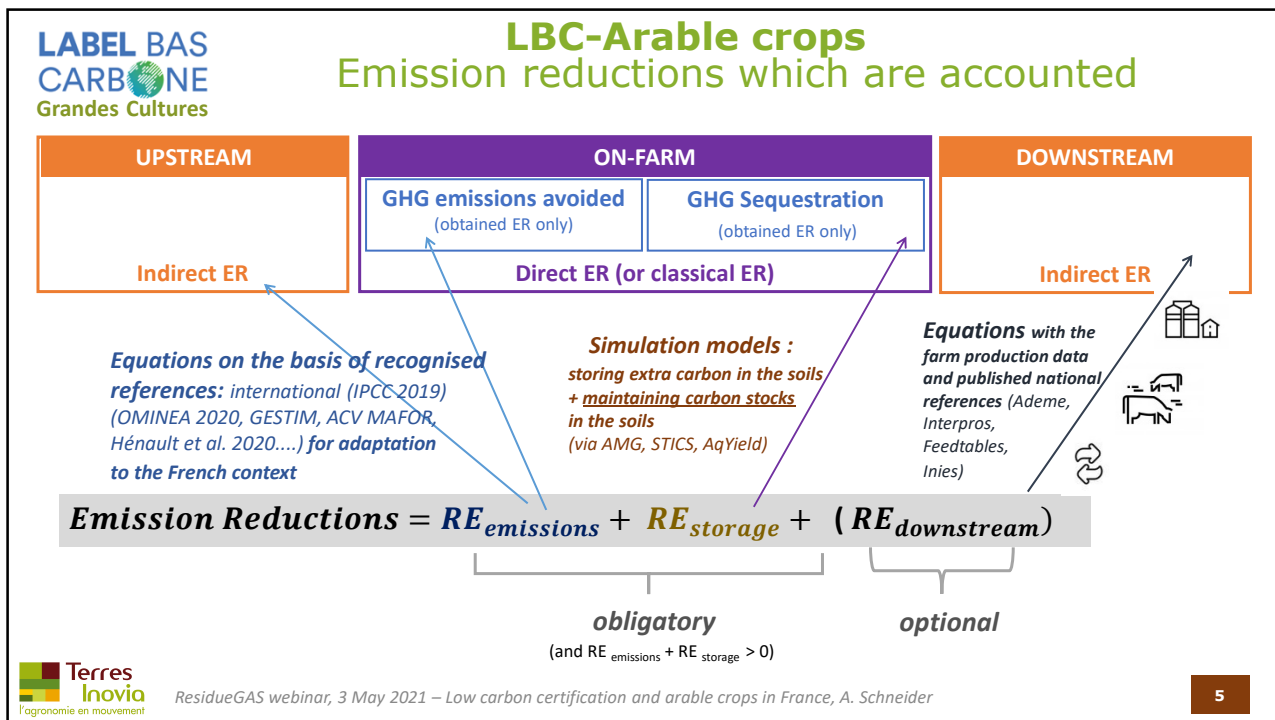
Collective project: 5 EAs minimum and audit through sampling



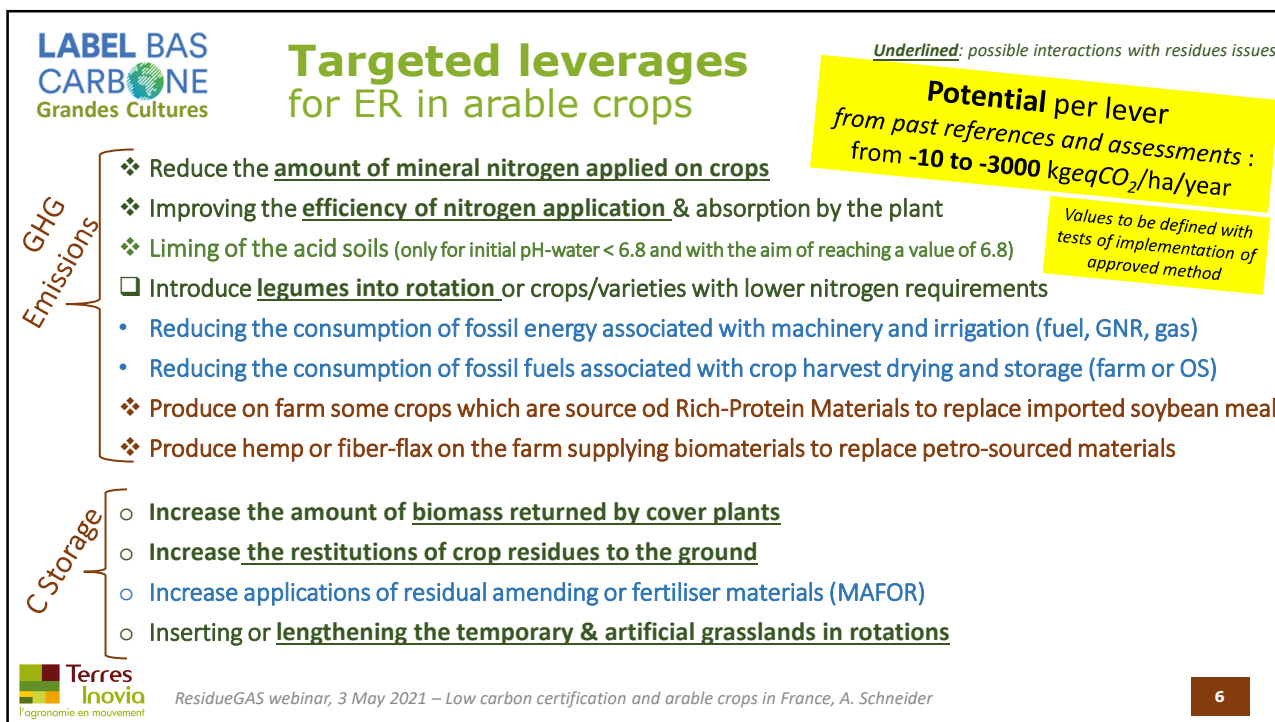
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More or less GHG emissions according to ... crop species

Example: Climate Impact (in kg eqCO₂ per ha) of crops, on an average scale in France, at field exit

Source : ECOALIM lifecycle analyses version 01/10/2019, with AgriBalyse methodology.


Less than 1000 kgeqCO₂/ha

- Hemp
- Soya
- Pea
- Faba bean




Leading to a reduction from 70% to 80% (with -2200 kgeqCO₂/ha) when it replaces a dominant fertilised crop such as cereals

+ Reduced nitrogen inputs on subsequent crops in the system [- 170 kgeqCO₂/ha for corn following soybean and -230 kgeqCO₂/ha for wheat following pea (ECOALIM references)



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Carbon storage in the soils are favoured by ...

- ✓ **some crops** when [inputs in humified C – C outputs (mineralisation)] > 0
- ✓ **the presence of cover plants** which tend to enhance the balance-sheet « C storage/ C removal » in the soils

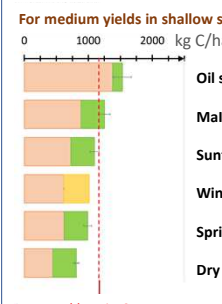
Returns of crop residues to the ground

► highly dependent on yields and crop species, as well as soil dynamics.
(Simulations AMG, projet Solebiom, 2018)

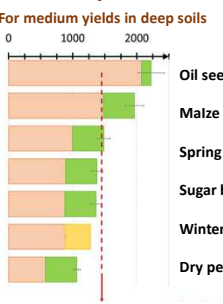
Higher return to the ground
- with Oil Seed rape and Maize
- with cover plants

Humified carbon for different crops and cover plants

For medium yields in shallow soils




For medium yields in deep soils



Annual loss in C shallow clay-limestone soils (with 3% of organic matter)

Annual loss in C Deep limonous soil (1.6% of organic matter)



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Conclusions



- ✓ **Low carbon label projects** = quantifying and allocating value to farmers' efforts
- ✓ **The French Consortium for arable crops** has submitted a sectorial method for arable crops for this LBC certification
- ✓ **The French Technical Institutes** = references and training for agriculture transition for both **mitigating climate change** AND **enhancing farm multicriteria performances**



Thanks for your attention !

**Terres
Inovia**
l'agronomie en mouvement

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