



CAP'2ER

The French environmental footprint calculator and decision making for ruminants production systems

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Introduction

- Our objectives for the dairy/beef sectors
 - Reducing the milk carbon footprint (20% from 2015 to 2025)....
 - ...and improve dairy sustainability
 - Implementing knowledge on environmental burdens and dairy/beef farming
 - Training advisers and farmers
 - Disseminating low carbon practices
 - Developing a national strategy and a multi stakeholders partnership
 - Measuring the progress
 - ...

CAP'2ER®

A sustainability analysis in livestock



Animal categories



Environmental burdens

 **Greenhouse gases emissions**

kg CH₄, kg N₂O, kg CO₂
→ kg CO₂ eq

 **Air quality (acidification)**

kg NH₃ emitted
→ kg SO₂ eq

 **Water quality (eutrophication)**

kg N and kg P leaching
→ kg PO₄ eq

 **Energy consumption**

Direct and indirect energy → MJ

Positives contributions

 **Carbon sequestration**

kg carbon /year

 **Conservation of biodiversity**

ha eq of biodiversity

 **Food performance**

Number of fed people/year Perfalim*

Durability indicators

 **Economic performances**

Production costs

 **Work conditions**

Quantity of work, painfulness...

CAP'2ER is following IPCC methodology

	Sources	Methodology
Methane	Enteric fermentation	IPCC 2006 – Tiers 3 Sauvant et al, 2014
	Manure	IPCC 2006 – Tiers 2
Nitrous oxide	Manure management, mineral fertilizers	IPCC 2006 – Tiers 1 and 2
Carbon dioxide	Energy consumption	French data base
	Inputs	Ecolinvent, Ecoalim, 2016

▶ CAP'2ER in accordance with

- ▶ LEAP (FAO) guidelines
- ▶ IDF guidelines



▶ CAP'2ER certified by



Consistency with other tools

- Comparisons in dairy production
 - CAP'2ER, Overseer – Done
 - CAP'2ER, Cool Farm Tool – Done
 - CAP'2ER, Farm Smart – In the next months
- Comparisons in beef production
 - CAP'2ER, Carbon navigator, NAIA - Done

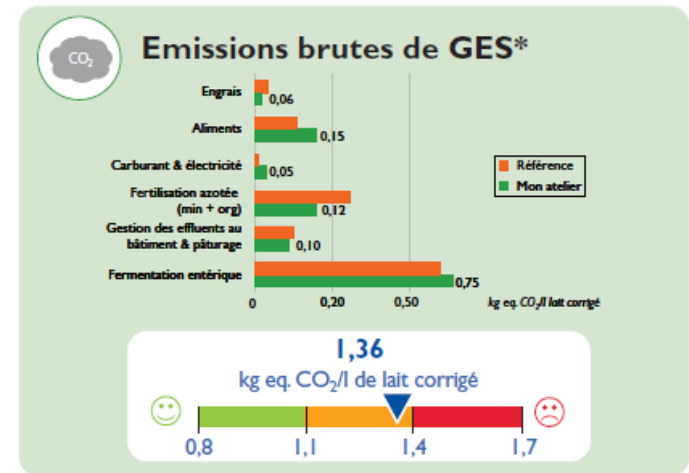
Two levels of assessment in CAP'2ER

▶ CAP'2ER Level 1

- ▶ A simplified analysis
- ▶ 29 activity data / 1 hour to collect data and to present results to farmers
- ▶ To develop an observatory
- ▶ To highlight the link between practices and environment

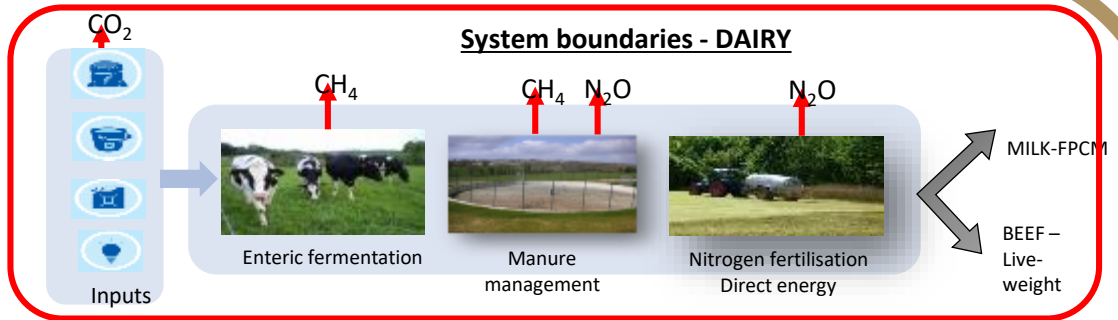
▶ CAP'2ER Level 2

- ▶ A Complete analysis
- ▶ 150 activity data / half day to collect data and to present results to farmers
- ▶ To simulate mitigation practices
- ▶ To build individual carbon action plans



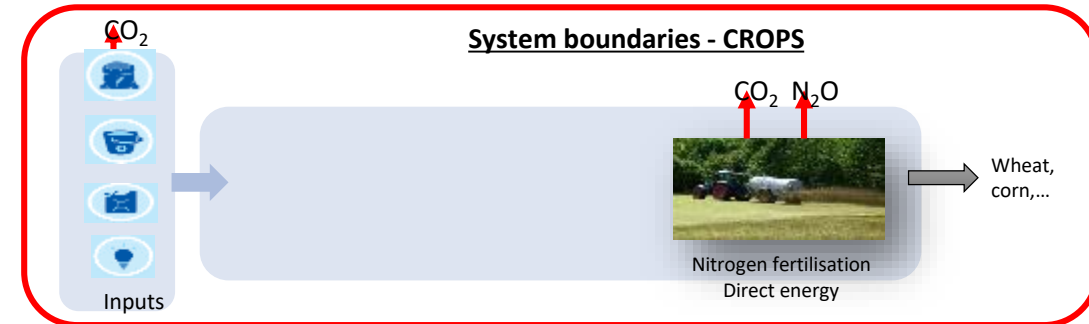
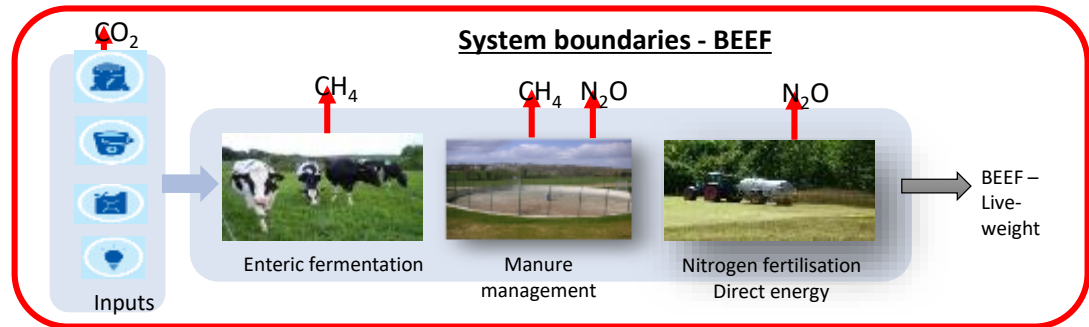
The system boundaries

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Level 1

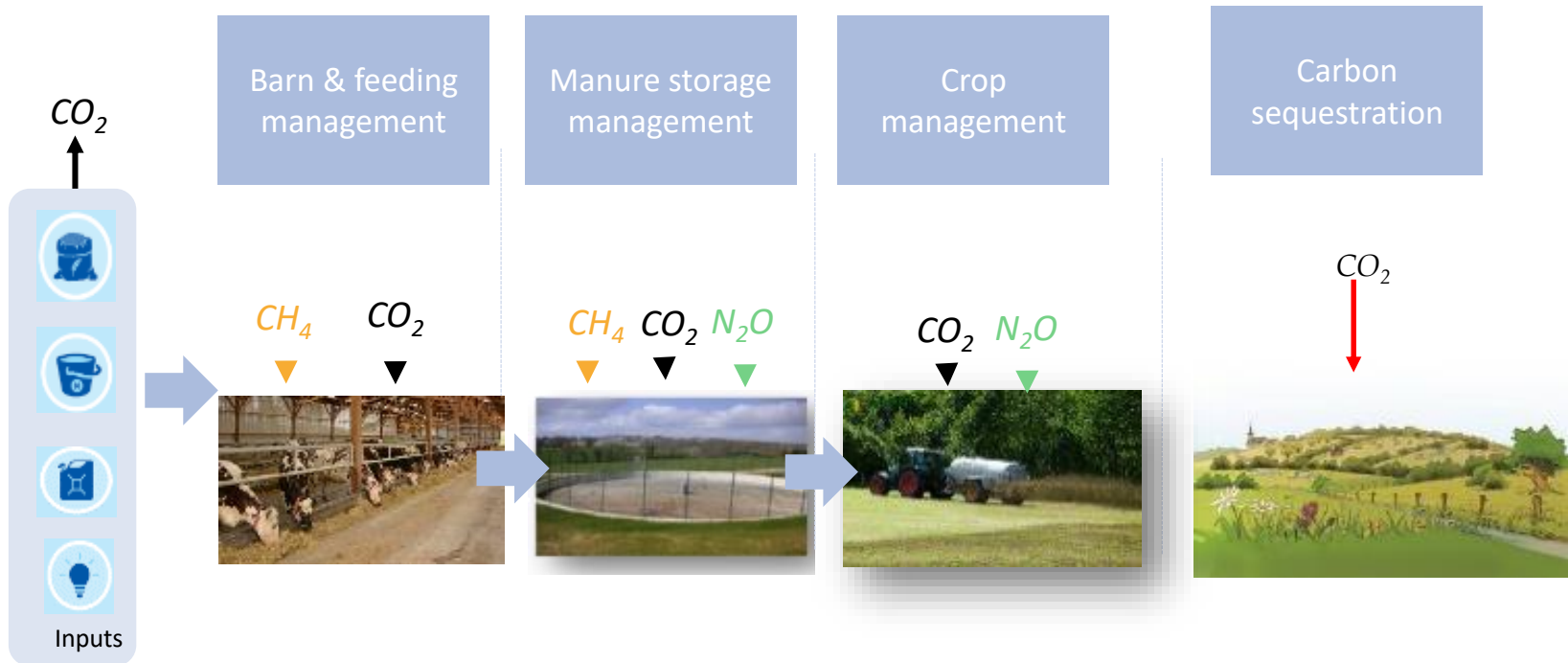


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Level 2

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Level 1



A LCA whole farm assessment



Activity data

Herd
(animal categories and number, yield,..)

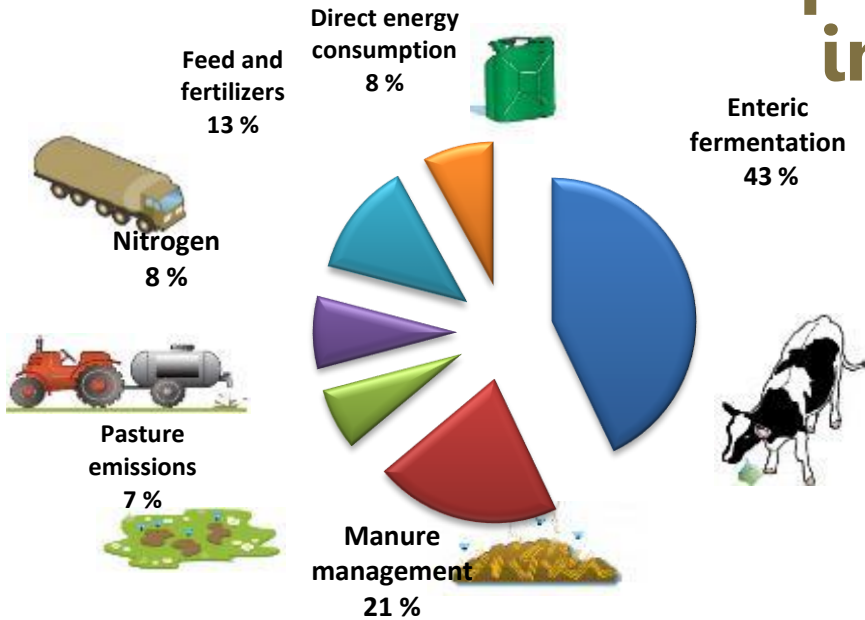
Manure management
(shed, storage,..)

Areas
(practices, rotation, fertilizers,..)

Feed (forage, concentrate,
quality/quantity)

Energy consumption

GHG and carbon sequestration to monitor carbon intensity



Grassland



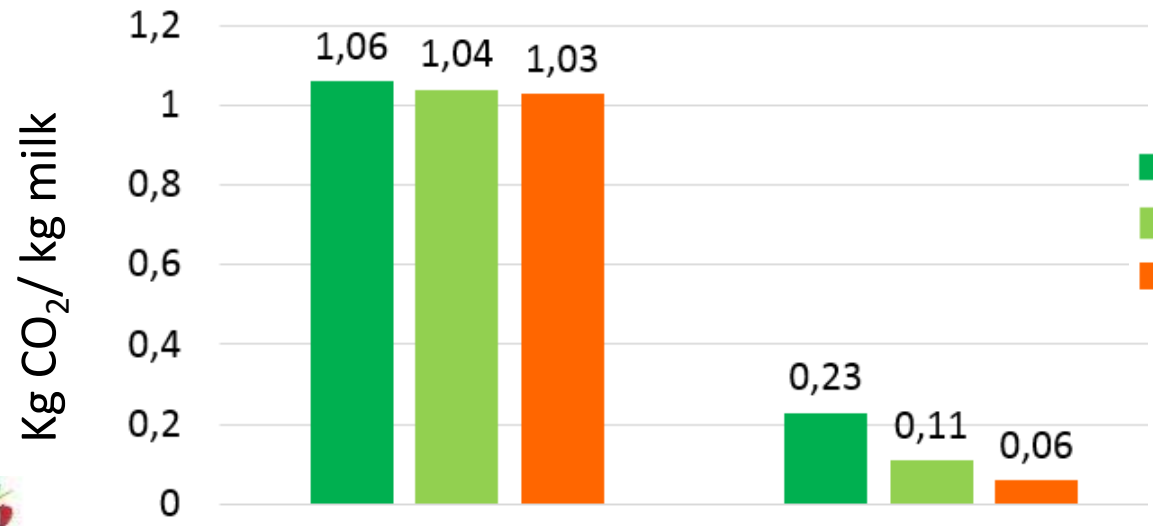
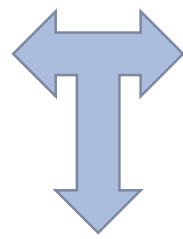
Crops



Hedges



Agroforestry

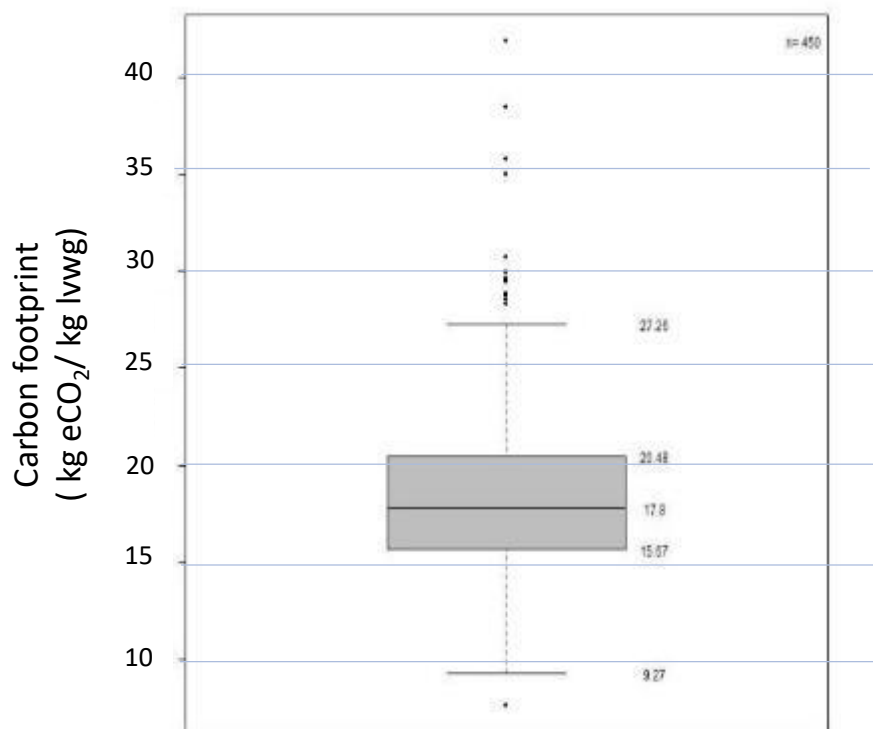


3 200 dairy farms

- Grass system (247)
- Mixte system (1 519)
- Maize system (1 434)

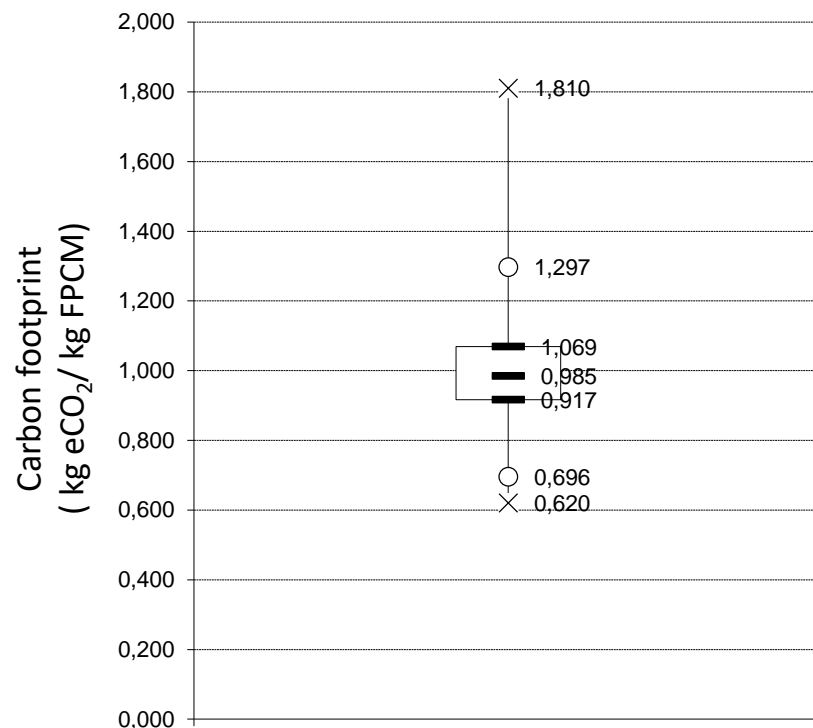
Milk and beef carbon footprint

Huge differences between farms



BEEF

Suckler to weanling systems



DAIRY

All systems

More than 40 mitigations practices

GHG emissions



Inputs

Pasture management,
Concentrates and fertilizers,
Legumes, Crops rotation



Fuel and electricity

No-till cultivation,
Power and equipment,
Working organization



Crops management & fertilization

Legume fodder crops,
Optimization of fertilizers uses



Herd management

Increasing productivity
reducing number of unproductive
animals



Feed

Feed efficiency,
Forage quality and yield



Manure management

Time spent in shed vs pasture,
Biogas production



Carbon sequestration

Cover crops


Introduce more
intermediate crops,
more row intercropping
and more
grass strips

Avoid bare soil


Never leave
soil bare
and work it less,
for example by
using no-till methods

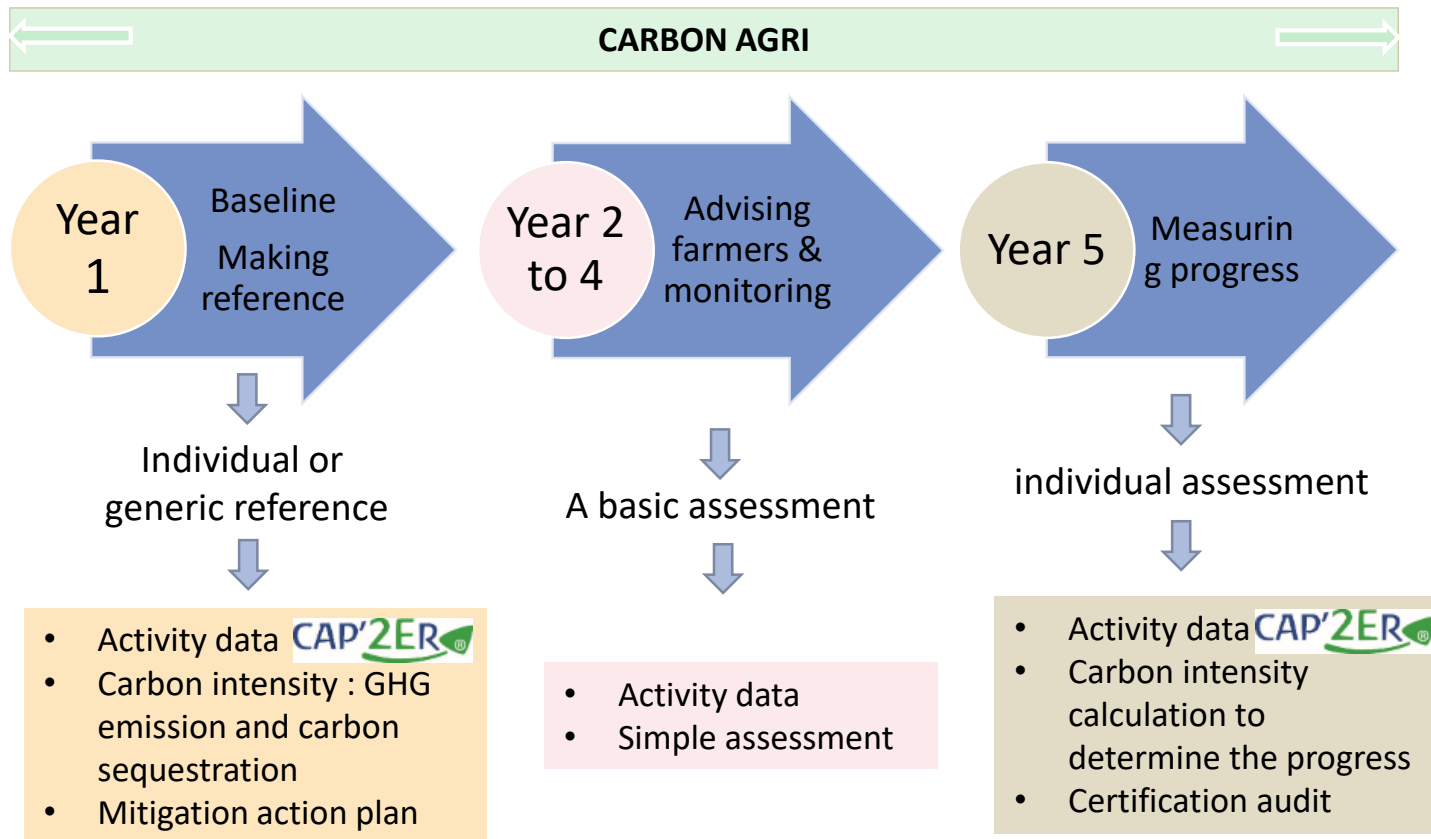
Agroforestry


Add to the
hedges at field
boundaries
and develop
agroforestry

Grassland management

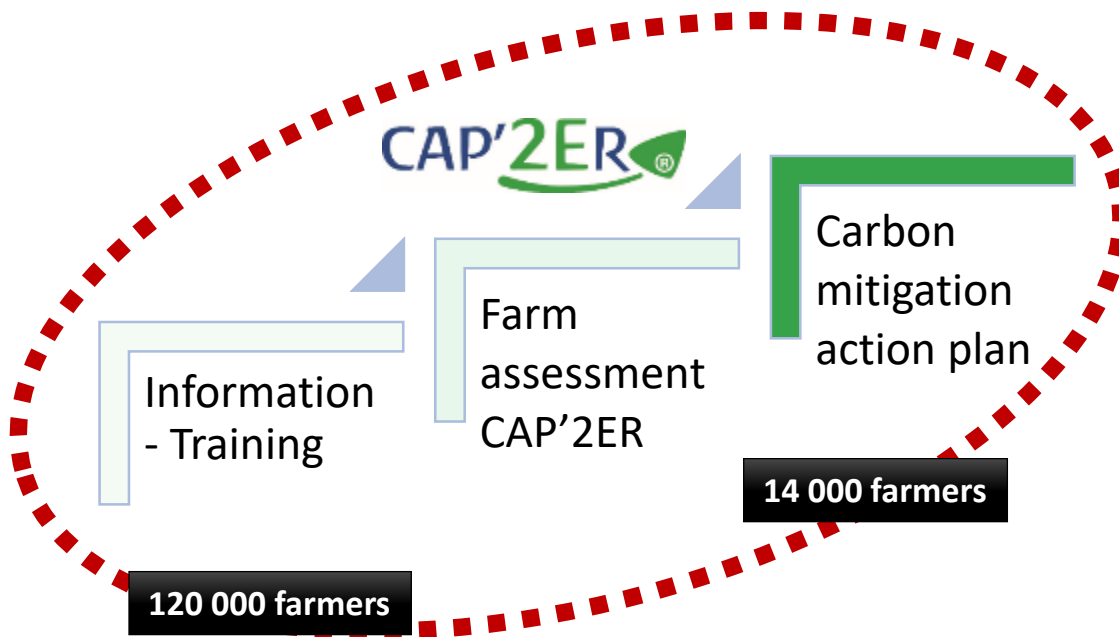

Optimize
pasture management
- with longer
grazing periods,
for example

CAP'2ER for monitoring the progress



Involving farmers in a national carbon action plan

- **Several steps for involving cattle farmers**

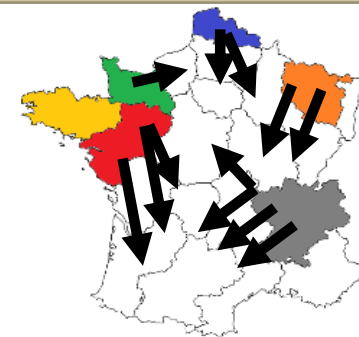


Two initiatives in course to reduce carbon intensity by using



Target : Reducing by 15 to 20 % the milk and beef carbon footprint

□ LOW CARBON DAIRY FARMS

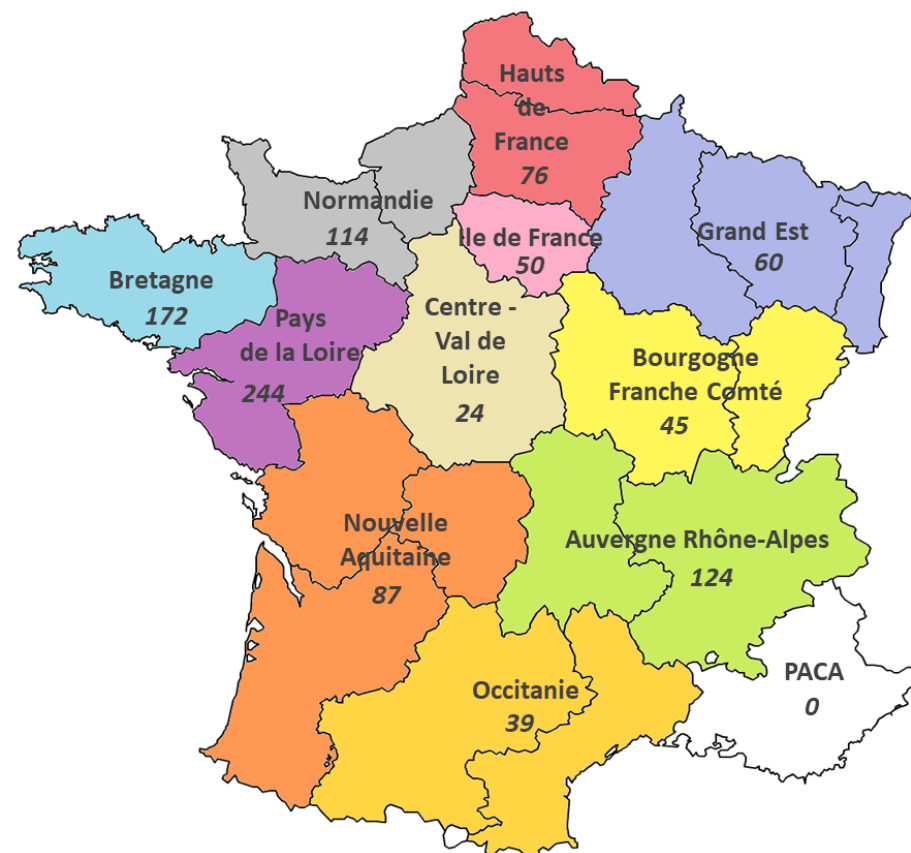


□ BEEF CARBON



CAP'2ER[®] dissemination

- 05/11/2020 :
 - 250 organisations
 - 1 200 advisers trained,



number of advisers trained

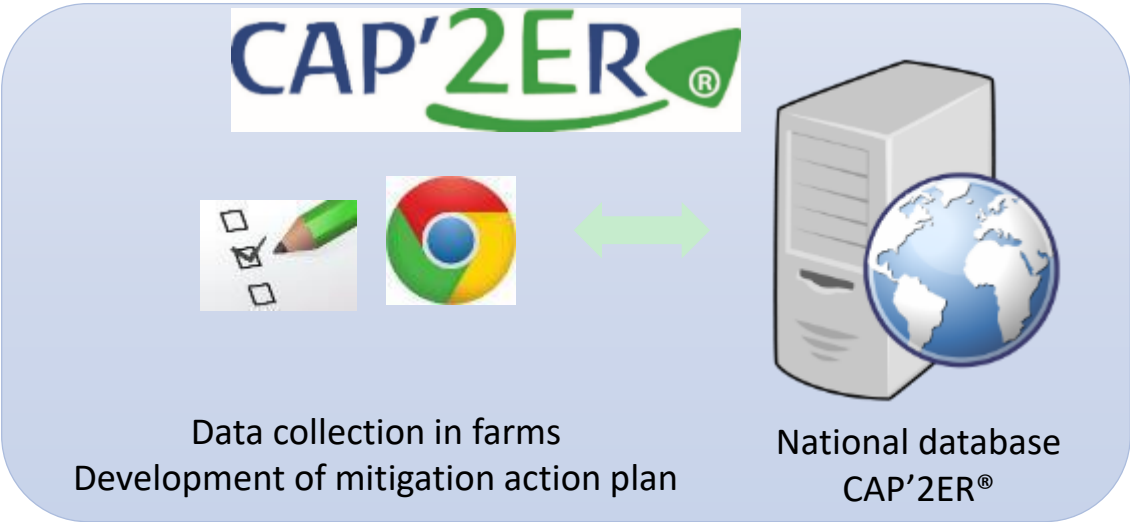
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Steering committee

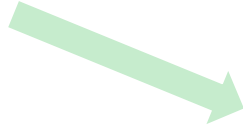


CAP'2ER Software

Technical database



National and regional synthesis



Database export

Development of CAP'2ER EU version

- Switzerland AGRIDEA : dairy and beef level 2
- Romania : milk and meat sheep farms level 1 and 2 – LIFE GREENSHEEP
- Italy Sardinia AGRIS : milk sheep level 1 and 2 – LIFE GREENSHEEP
- Italy CREA : beef and dairy Production level 1 and 2
- Under discussion
 - Poland
 - Spain

Conclusion



- A national initiative and national tool for
 - Launching a national dynamic
 - Measuring environmental burdens with a common methodology
 - Developing a national observatory
 - Involving farmers and stakeholders
 - Reducing environmental burdens
 - Monitoring and measuring the progress
 - ...



Thanks for you attention

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