Livestock mitigation potential and technological improvements

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Animal and plants: two interlocked systems

ANIMALS AND PLANTS: TWO SYSTEMS INTERLOCKED

AGRICULTURAL PRODUCTION AND BREEDING

- agricultural waste:
  - compost production
  - co-generation energy
- manure:
  - organic fertiliser production
  - biogas

"CIRCULAR ECONOMY" REGENERATING RESOURCES, CREATE ZERO WASTE

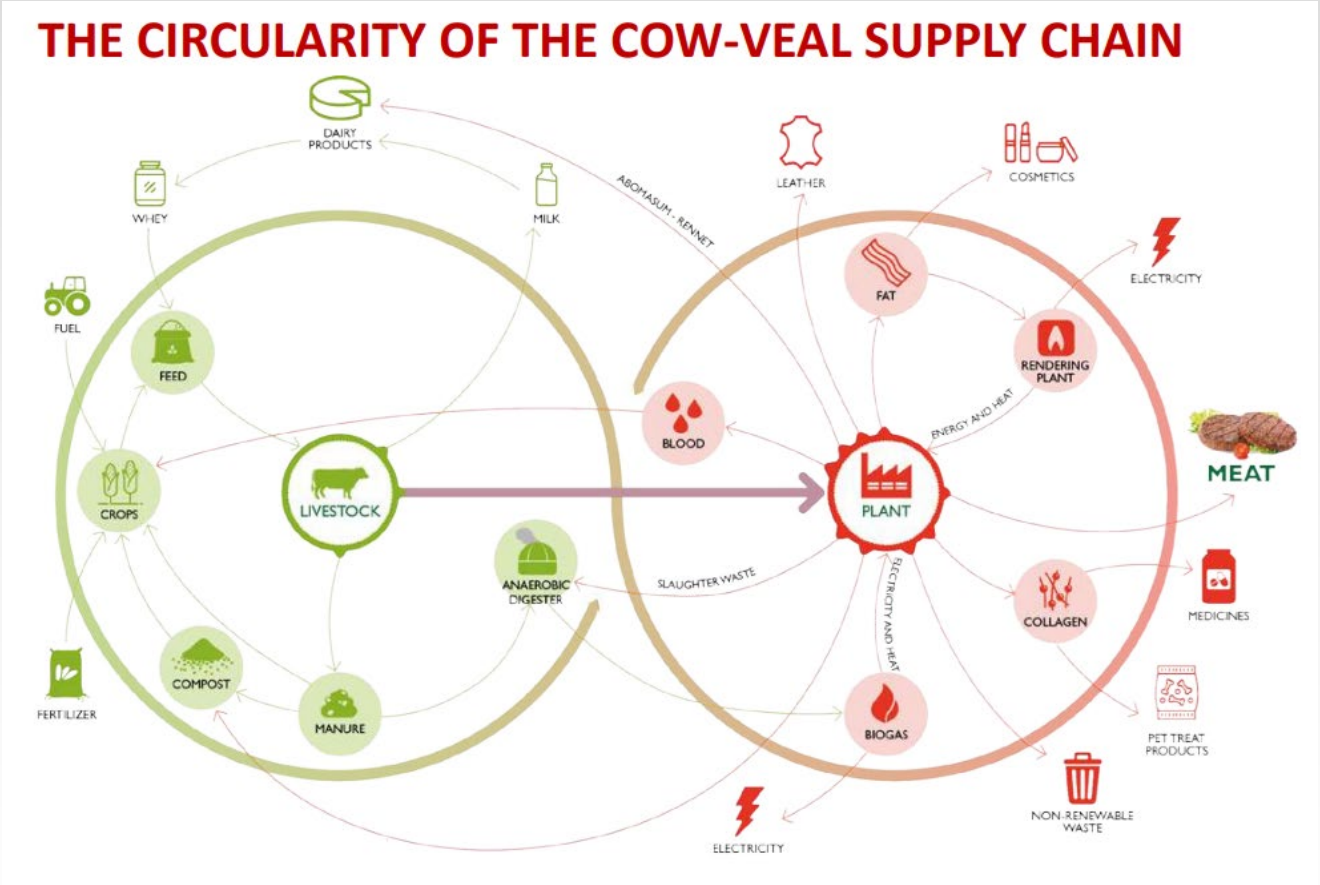
INDUSTRIAL PRODUCTION

- recycling of industrial waste
- co-generation energy from biomass derived from waste products
- compost production from production waste
- transformation of by-products, bones and skins for food, pharmaceutical, animal feed and fertiliser industries

DISTRIBUTION AND CONSUMPTION

- reducing packaging at product's expiry date
- recyclability of packaging through recycling

The sustainability of meat and cured meat in Italy (2016) – Elisabetta Bernardi, Ettore Capri, Giuseppina Pulina – Nutrition aspect, food safety, environmental impact, animal welfare, circular economy, no waste



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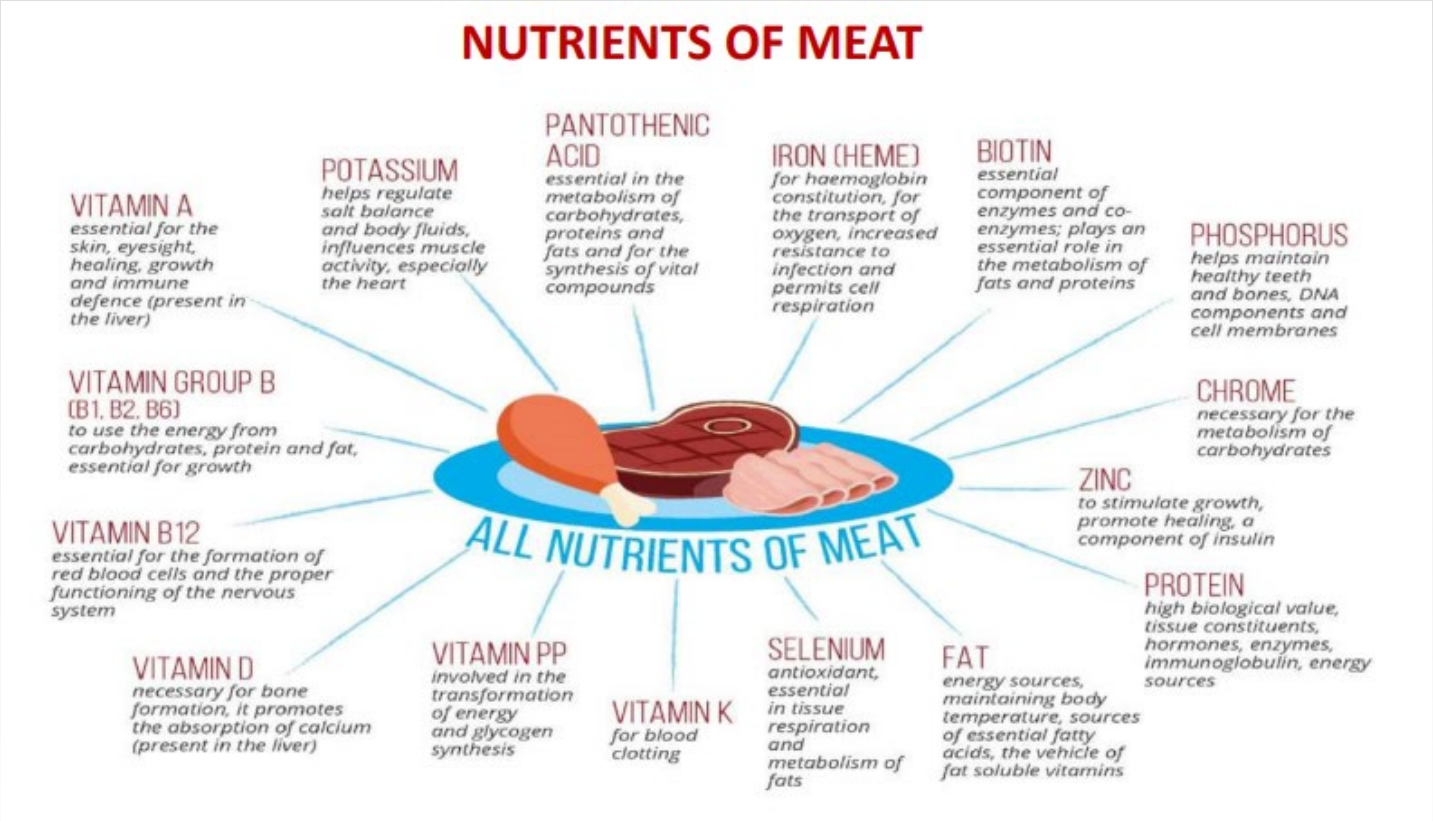

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FATS AND CHOLESTEROLS: A PROBLEM SOLVED

BEEF	FATS (%)		REDUCTION
	1996	2007	
EYE ROUND	2.8	1.1	-61%
TENDERLOIN	5.0	2.2	-56%
STRIPLOIN	5.2	2.9	-44%

PORK	FATS (%)		REDUCTION
	1993	2011	
BAKED HAM	14.7	7.6	-49%
HAM (San Daniele IGP)	23.0	18.6	-19%
MORTADELLA	28.1	25.0	-11%

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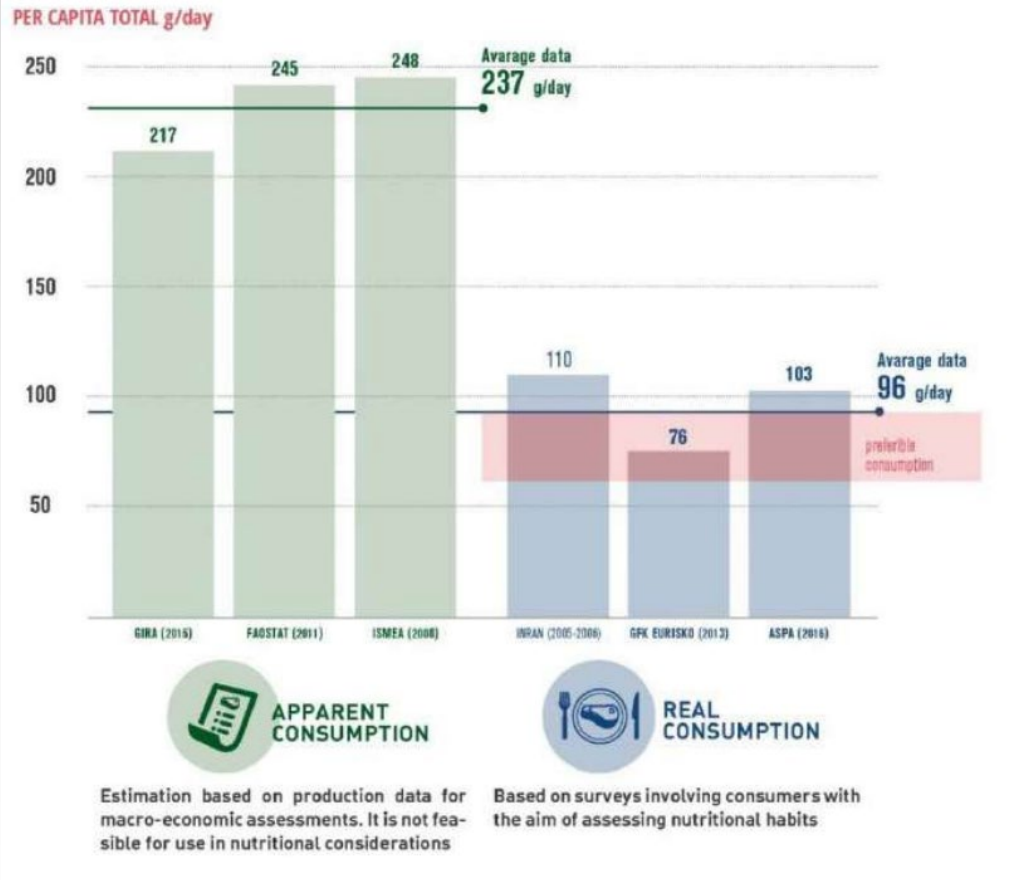

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The livestock value chain Thanks to the technology can improve its environmental performance…

According to the FAO the keywords are:

- *Knowledge sharing and agricultural support services*
- *Research and development in cooperation with less efficient countries*
- *Financial incentives to upgrade the value chain*
- *International agreements to avoid importing environmental inefficient foodstuff*

Let's see what has happened in the last 20 years….

Source:

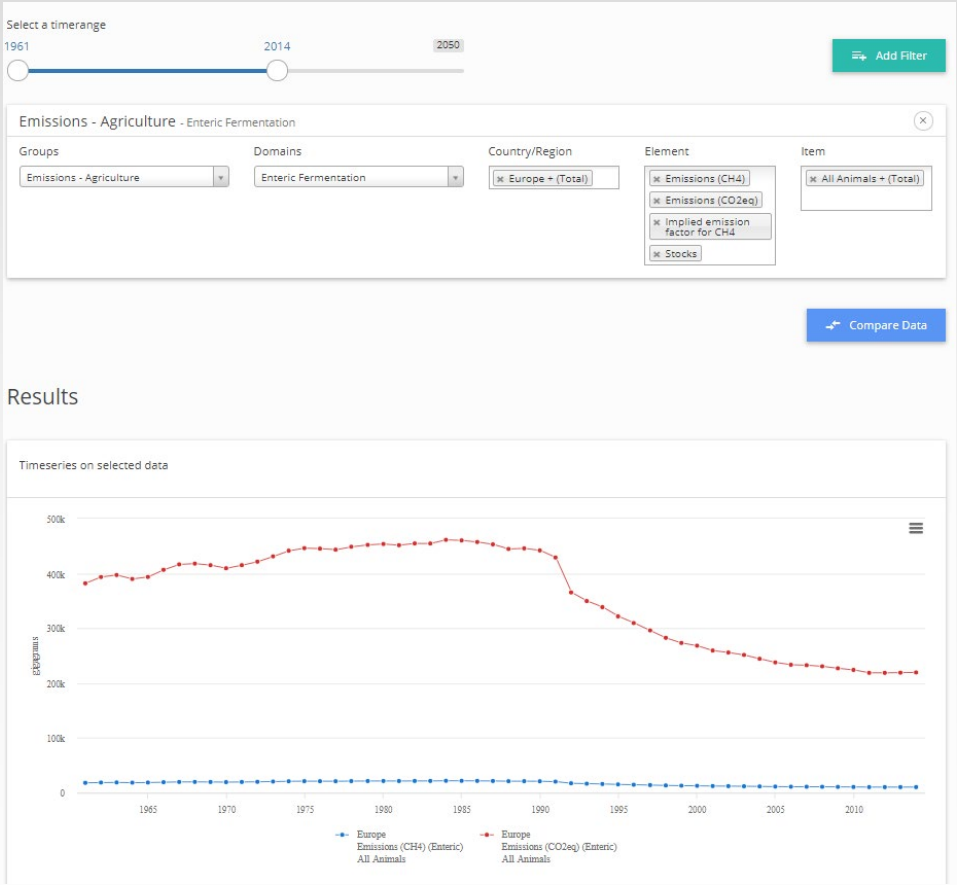
FAOstat

"compare function"

1990 = 377 CO2eq

2014 = 187 CO2eq

-51%



Source:

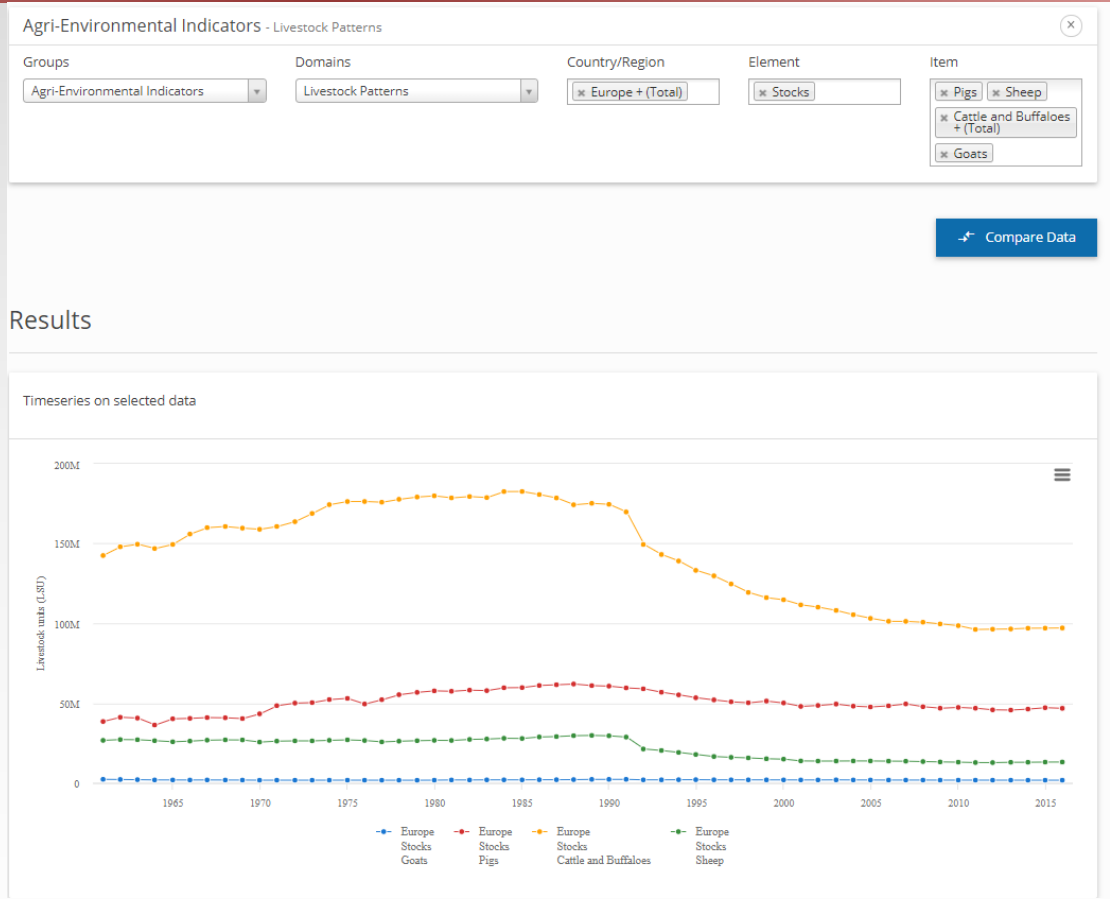
FAOstat

"compare function"

1990 = 175M cattle

2014 = 97M cattle

-44%



Between 1990 and 2014 the number of cattle dropped 44% circa

And the emission 51% circa

If we do not consider the reduction of the number of animal,

In 24 years the sector has been able to reduce (thanks to technology)

7% circa its CO2eq emissions, the public sector can accelerate these

Improvements.

It is a matter of methodology!!!

Water Footprint Network

⇒ 15.415 L H_2O/Kg LW

⇒ 1.020 L H_2O/L of milk IRREALISTIC!

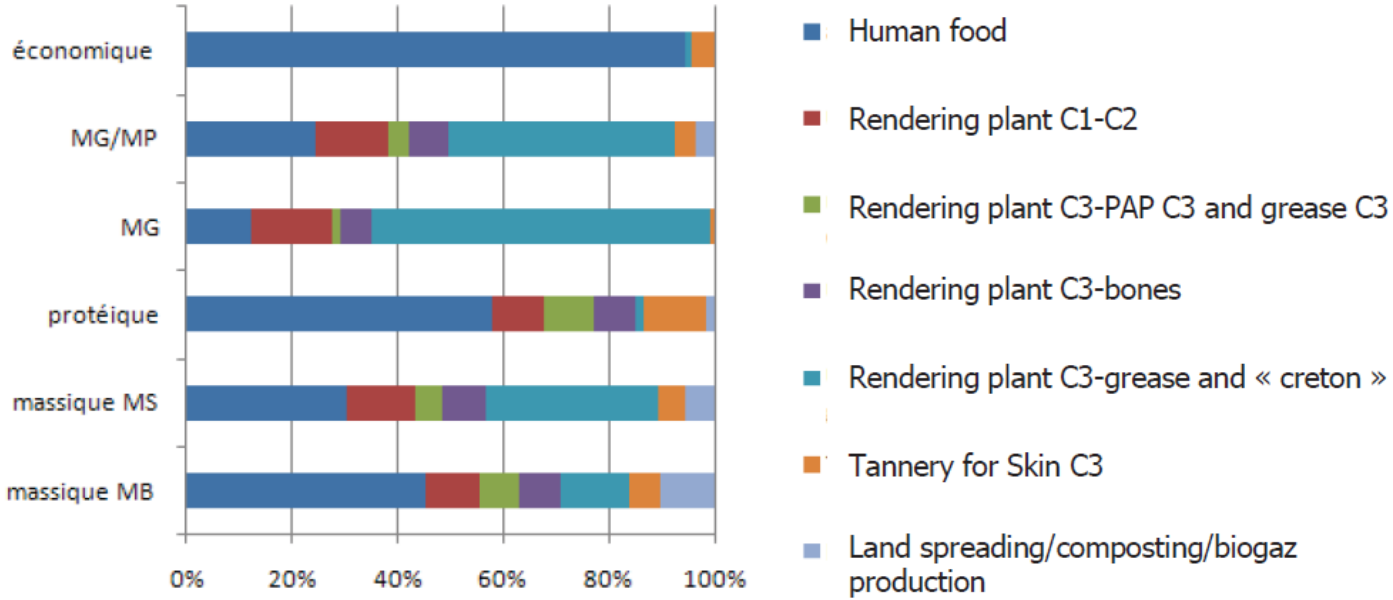
* Real ressource impact: Standard ISO 14046

⇒ 20-50 L H_2O/Kg LW

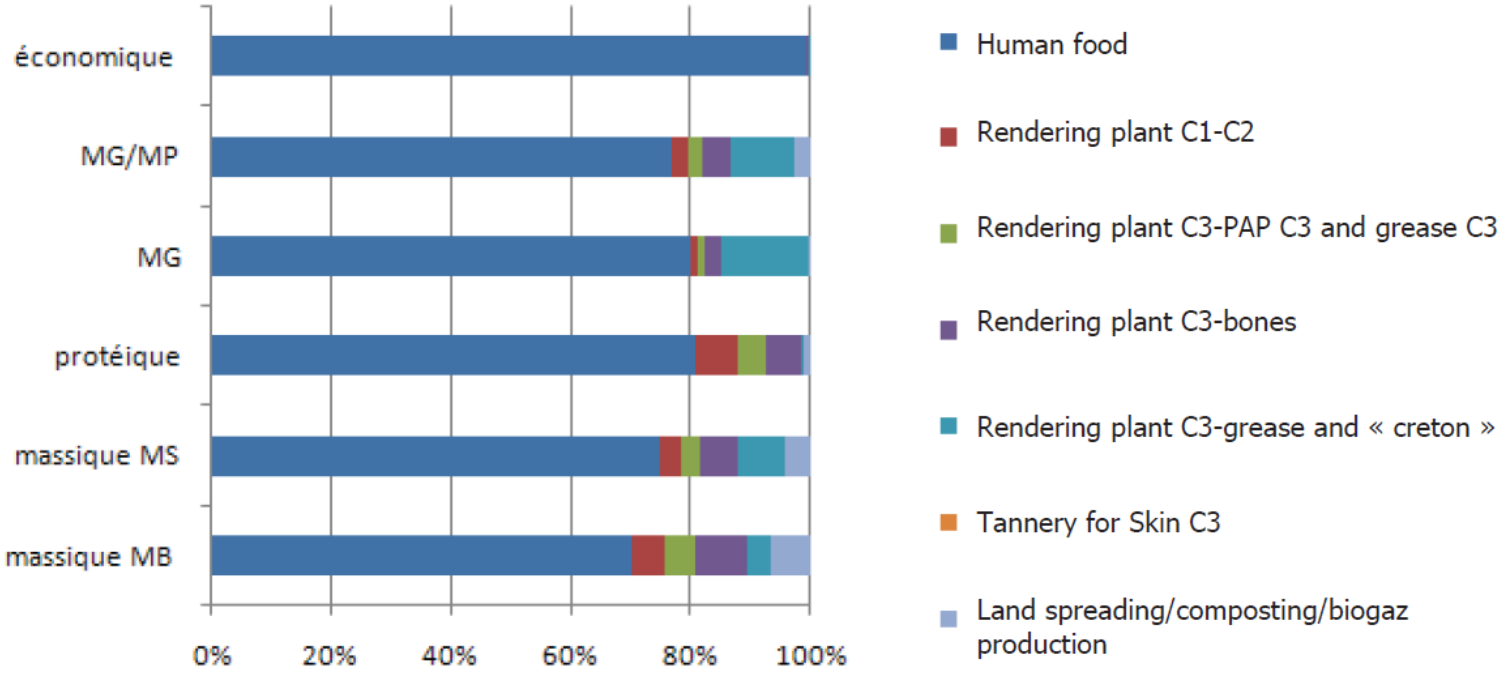
⇒ 2,7-16 L H_2O/L lait

Beef

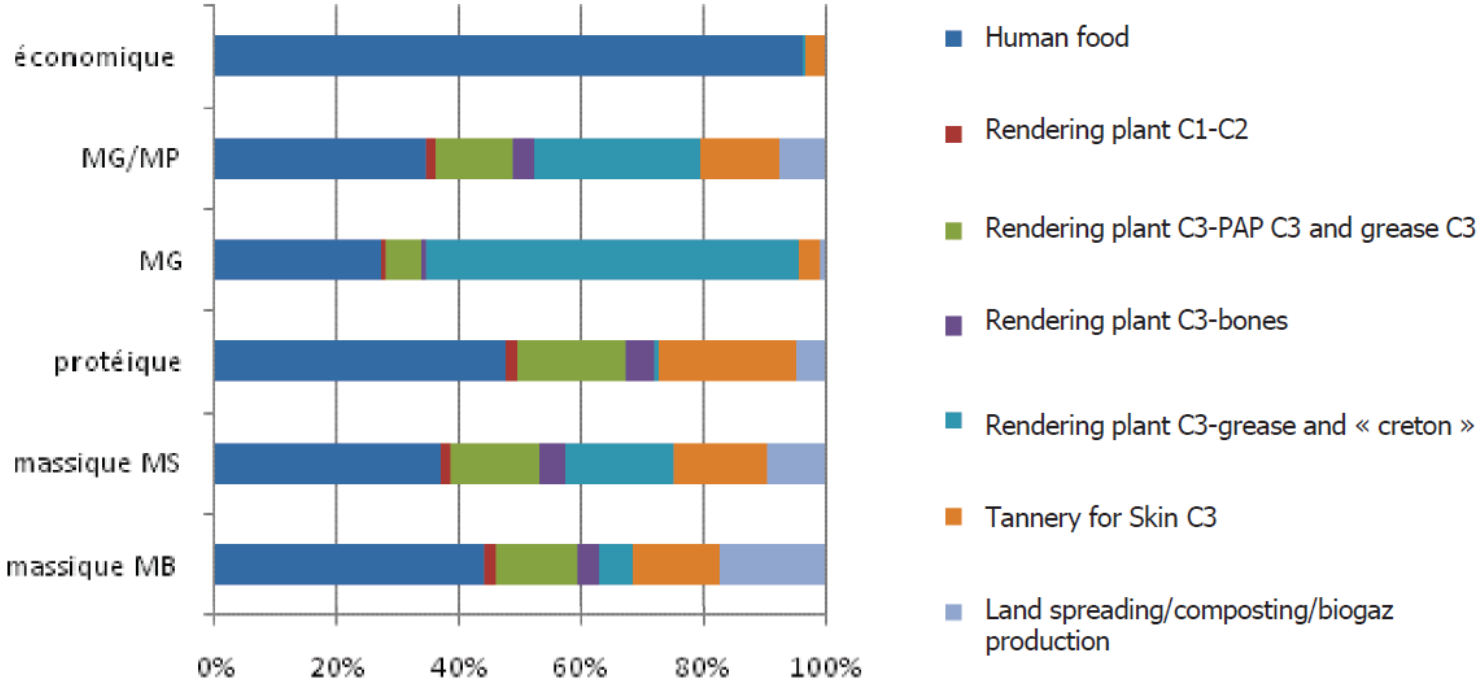
Rq : MG/MP = fat content and protein content avarage figure



Pork


économique
MG/MP
MG
protéique
massique MS
massique MB
0%
20%
40%
60%
80%
100%
Human food
Rendering plant C1-C2
Rendering plant C3-PAP C3 and grease C3
Rendering plant C3-bones
Rendering plant C3-grease and « creton »
Tannery for Skin C3
Land spreading/composting/biogaz production

Lamb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CONCLUSIONS

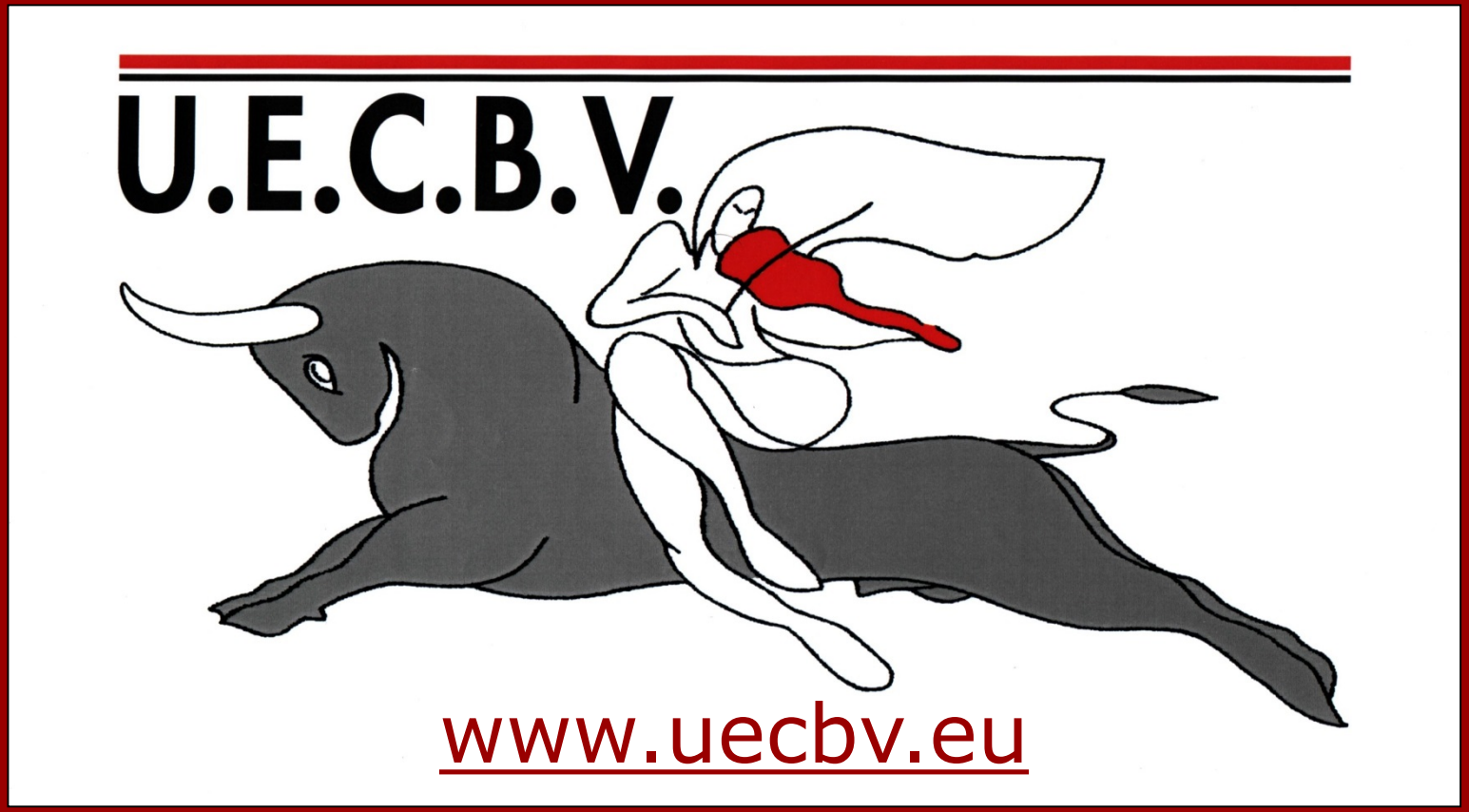
- A lot can still be done thanks to relevant scientific and technological efforts (additives, insects for proteins, genetic improvement, biogas, digitization, smart sensors, wastewater Treatments, P and N leaks, H20 use efficiency)

- Carbon Storage is a very important variable

and the avoided agrochemicals fertilizers used shall be calculated

- Also the avoided fossile fuel energy consumed is relevant

- It is a matter of metric and methodology used



Thank you very much for your attention!