Study on livestock scenarios for Belgium in 2050

A presentation of key results

Authors: Anton Riera, Clémentine Antier, Philippe Baret.

UCLouvain

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Agenda

1. Objectives and methodology

2. Key data about the livestock sector

3. Scenarios and their consequences

4. Discussion & conclusion

Objectives of the study

- To highlight the **current situation** of the livestock sectors in Belgium and the diversity of production systems.

- To examine **several scenarios** for the development of the livestock sector towards 2050 and assess their environmental consequences.

Potential outcomes of the study

- A framework to discuss the **relevance and feasibility** of various scenarios with the actors at the regional level (Flanders, Wallonia)

- A proposition to contribute to a **public debate** in Belgium on the current livestock system and food consumption patterns, with **a scientific basis**

Team and roles

Greenpeace

- Funding
- Objectives
- Choice of the scenarios
- Further communication

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- Methodology design
- Data collection
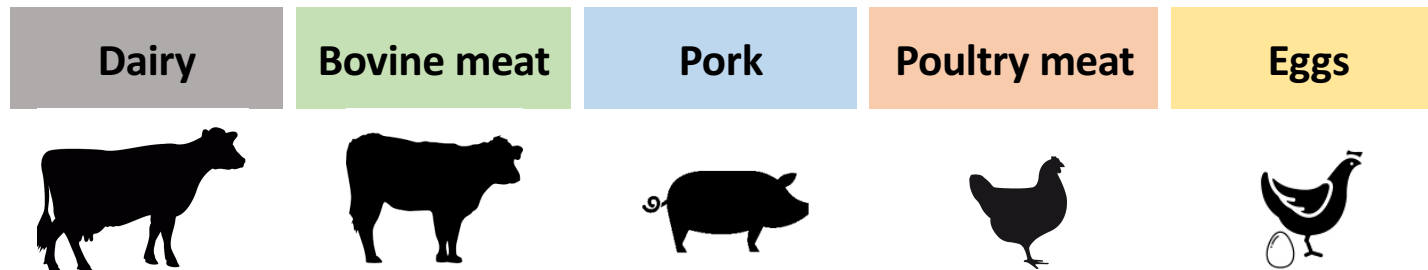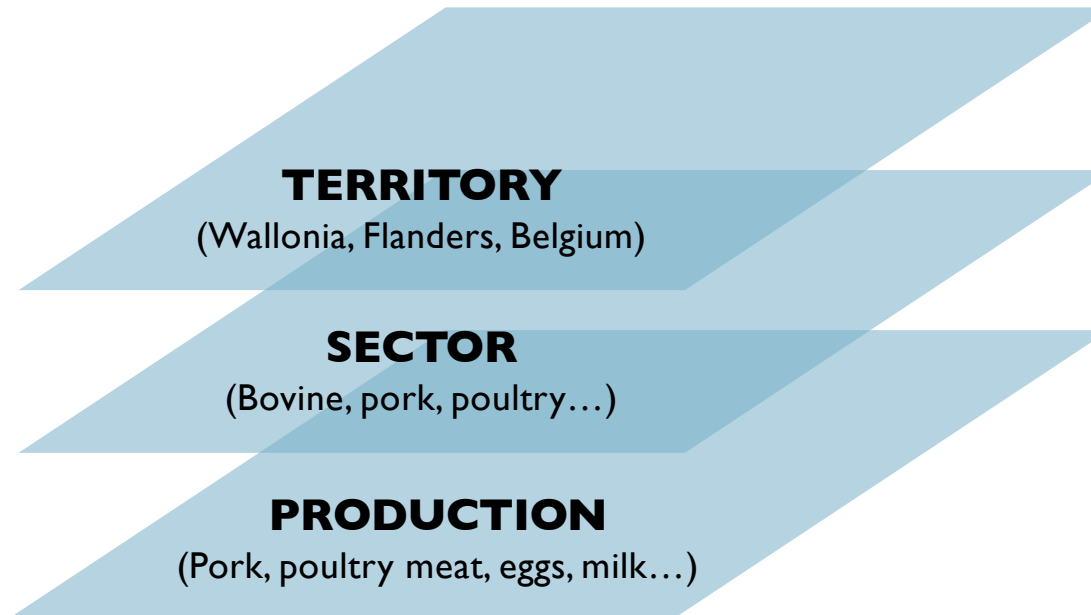- Scientific analysis
- Report

Data collection process

| DATA | ➤➤ | **Informed participatory research** | ➤➤ | ACTORS |

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Data collection process

DATA

ACTORS
50 regional actors

Statistics on livestock sectors

Other information

Informed participatory research

24 individual interviews

5 focus groups (July 2018)

Scope and scales

TERRITORY
(Wallonia, Flanders, Belgium)

SECTOR
(Bovine, pork, poultry…)

PRODUCTION
(Pork, poultry meat, eggs, milk…)

| Dairy | Bovine meat | Pork | Poultry meat | Eggs |

Environmental indicators

Environmental categories in LCA and scope of this study

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Environmental indicators

Acidification

Resource depletion

Photochemical ozone formation

Particulate matter

Ozone depletion

Land use or land occupation

Ionizing radiation

Biodiversity

Climate

Eutrophication

Ecotoxicity

Human toxicity

Estimated for each livestock system and overall

Estimated overall (total use of PPP related to livestock)

Environmental categories in LCA and scope of this study
Source of the LCA review: (McLelland et al. 2018)

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Livestock systems

Example: Poultry meat

System 1 (e.g. Conventional)

System 2 (e.g. Certified)

System 3 (e.g. Differentiated)

System 4 (e.g. Organic)

Methodology

Livestock systems → **Agronomic parameters** → **Environmental impacts**

Livestock systems	Agronomic parameters	Environmental impacts
System 1 *(e.g. Conventional)*	Productivity	Carbon emissions
System 2 *(e.g. Differentiated)*	Feeding practices	N emissions
System 3 *(e.g. Organic)*	Etc.	Biodiversity
		Animal welfare

Overall characterization of each sector
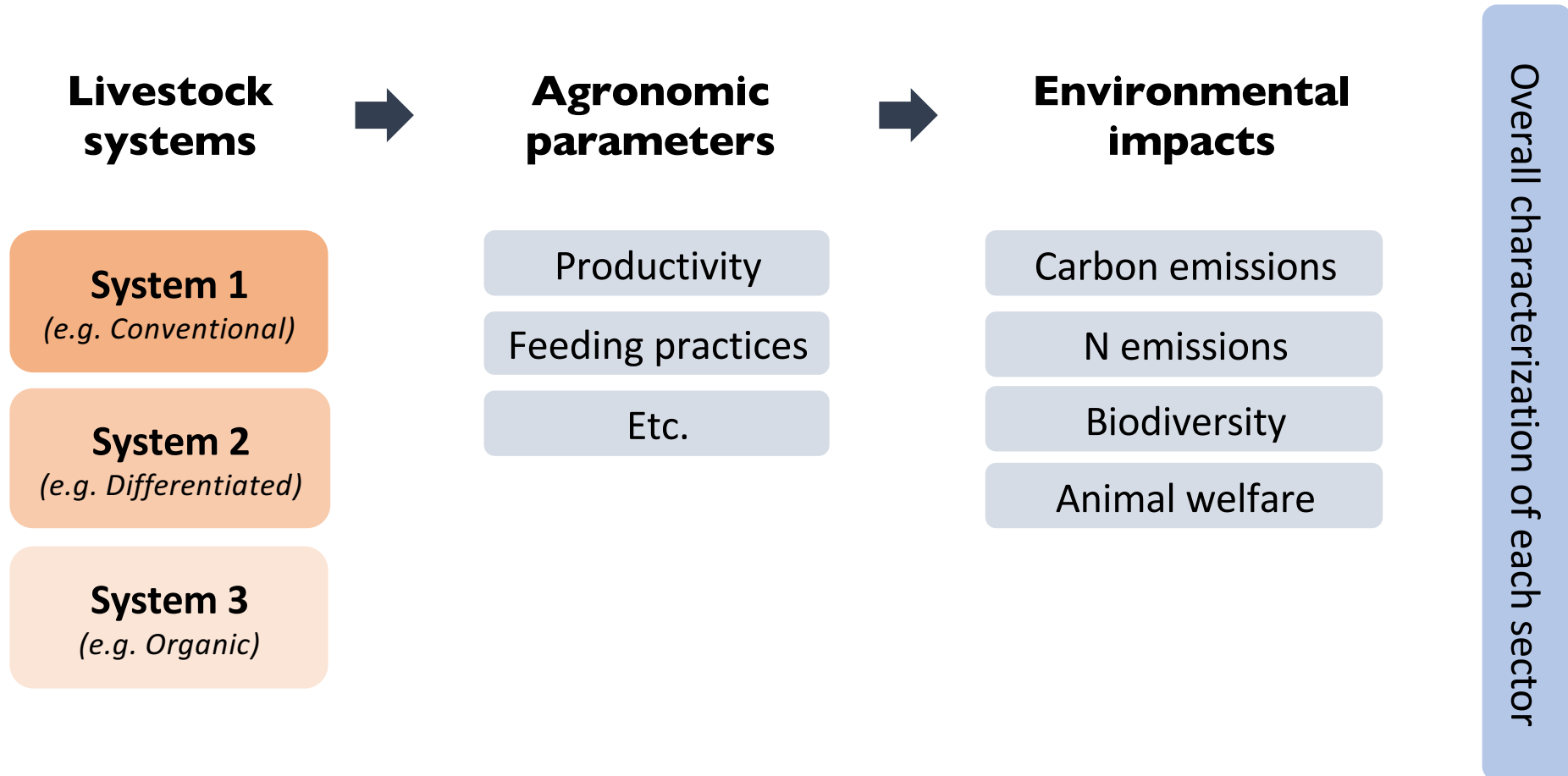
NB: livestock systems, agronomic parameters, environmental aspects as well as economic aspects were discussed during focus groups.

Data on the Belgian food and livestock system

Diets and protein consumption in Belgium

Current average protein intake
76 g prot/cap/day

35%   40%   26%
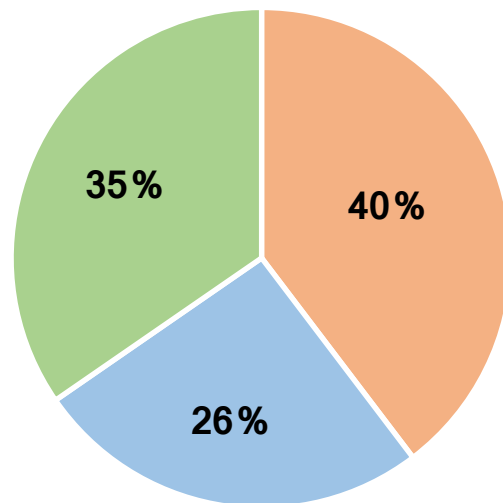
- Meat products
- Other animal-based products
- Vegetal and other products

Currently, diets show an overconsumption of total protein as well as an imbalance between animal and vegetal protein sources
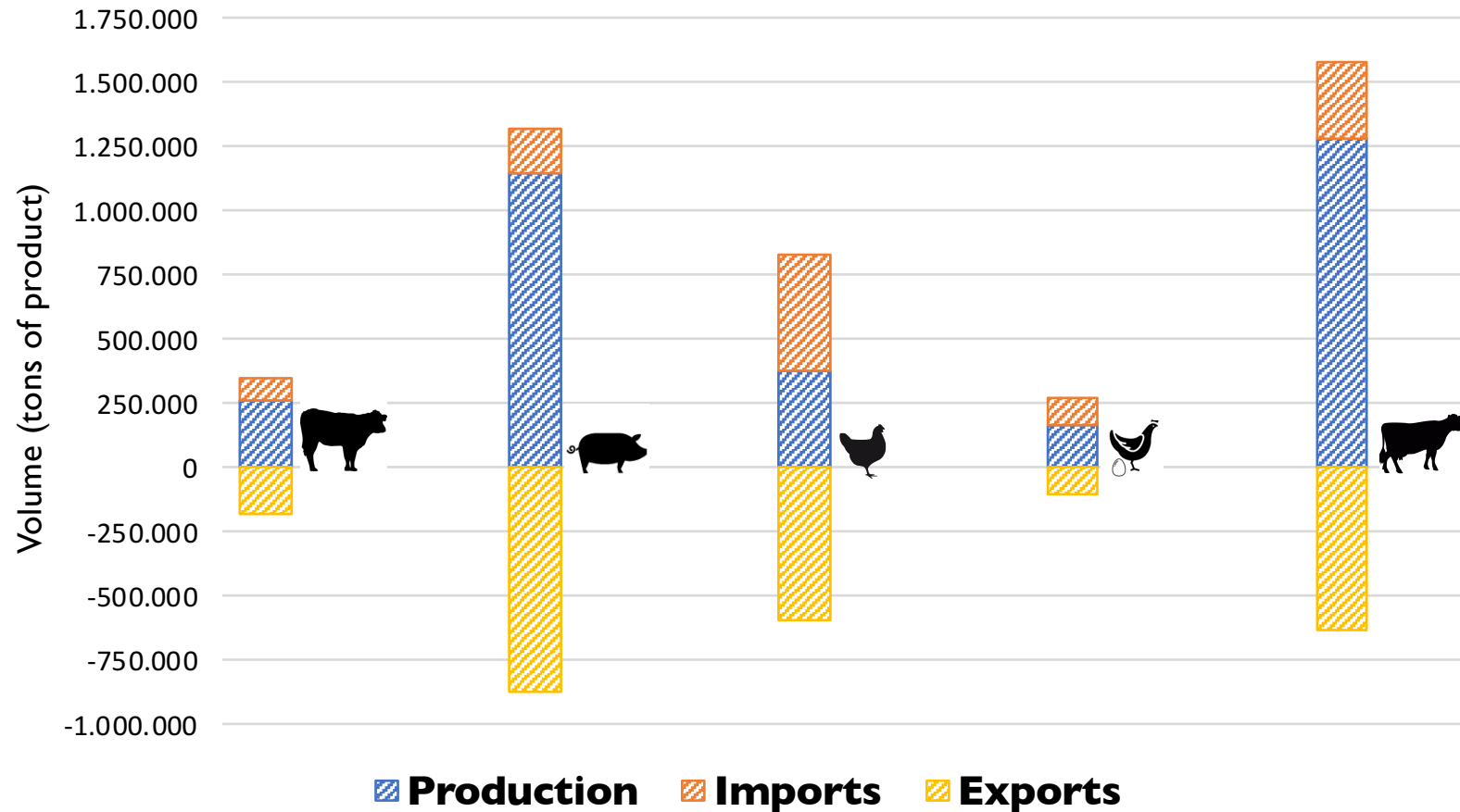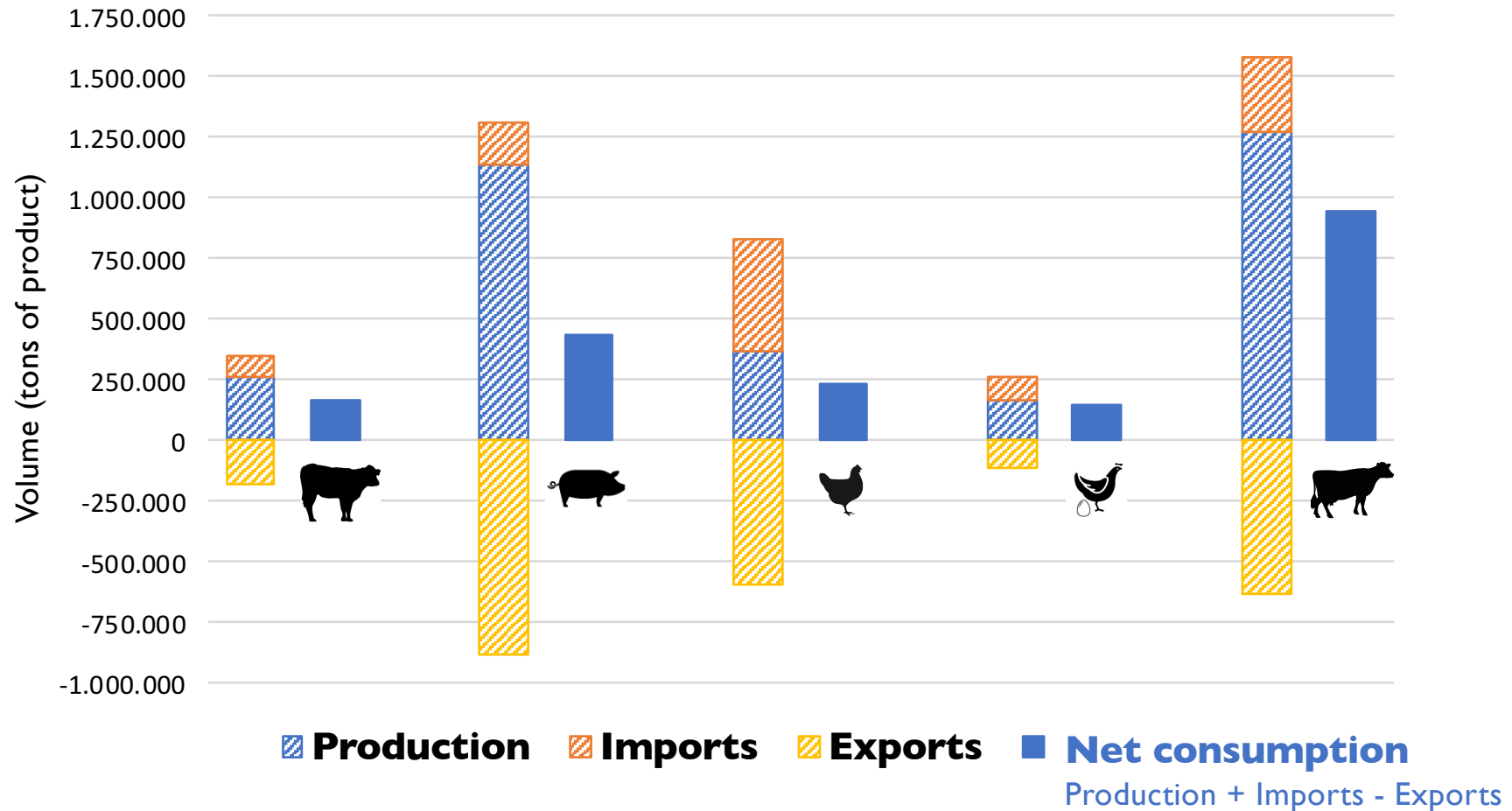
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Animal production: national balances
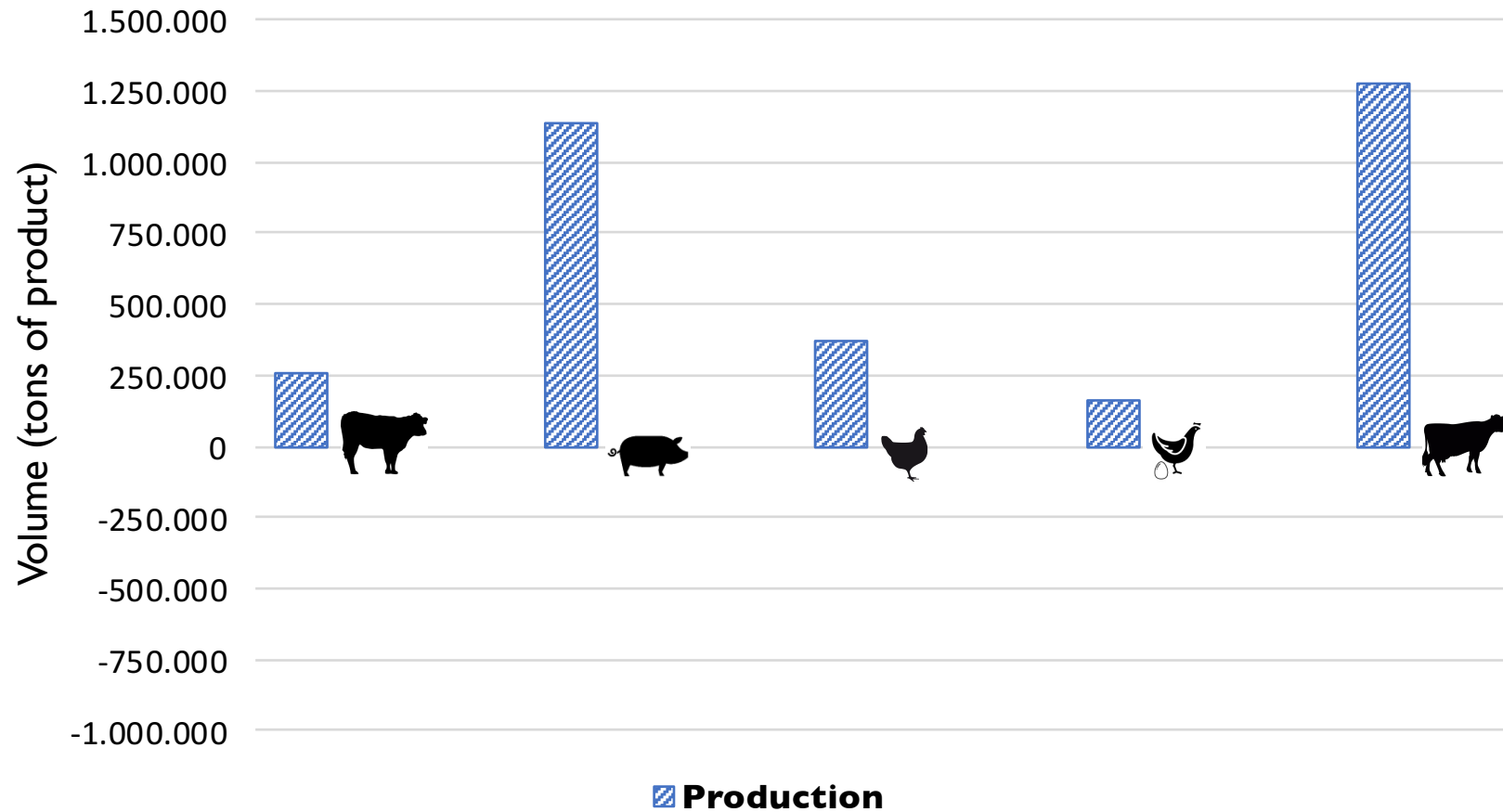
Animal production: national balances

There are significant international flows.

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Animal production: national balances

Volume (tons of product)

Legend: Production | Imports | Exports | Net consumption
Production + Imports - Exports

Production is significantly higher than consumption for all livestock sectors

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Animal production: national balances

Self-sufficiency ratio : Production / Net consumption

Legend: Production | Imports | Exports | Net

Values shown: 158%, 261%, 158%, 109%, 135%

Y-axis: Volume (tons of product)

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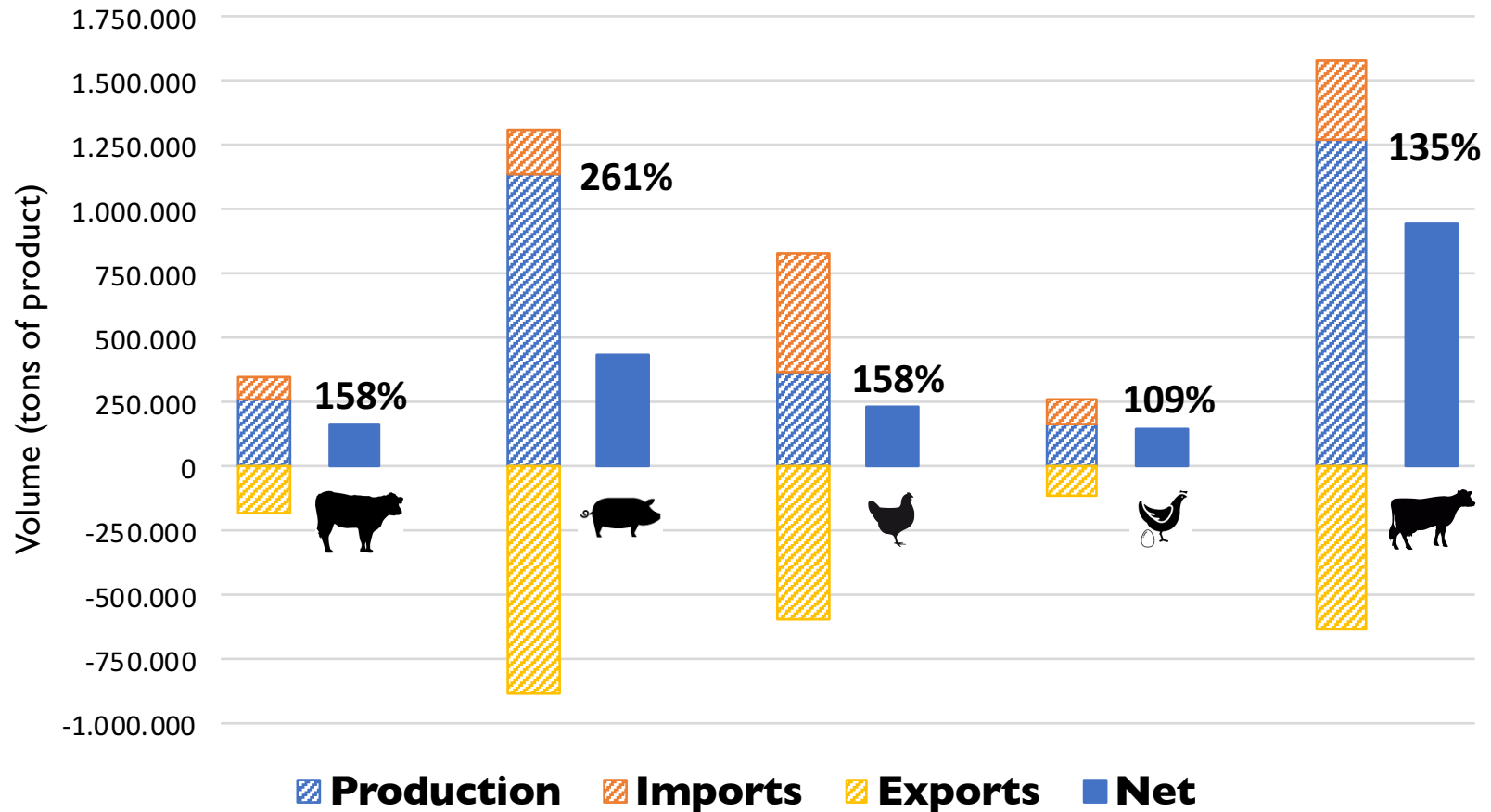
Animal production: national balances

Self-sufficiency ratio
(Production / Net Consumption)

109%

135%

158%

158%

261%

Production is significantly higher than national consumption for all livestock sectors.

Total GHG emissions from livestock sector

Livestock GHG emissions in 2015

13.850 kt CO_2e

Legend:
- Manure management
- Enteric fermentation
- Feed-related

Chart values: 15%, 32%, 54%
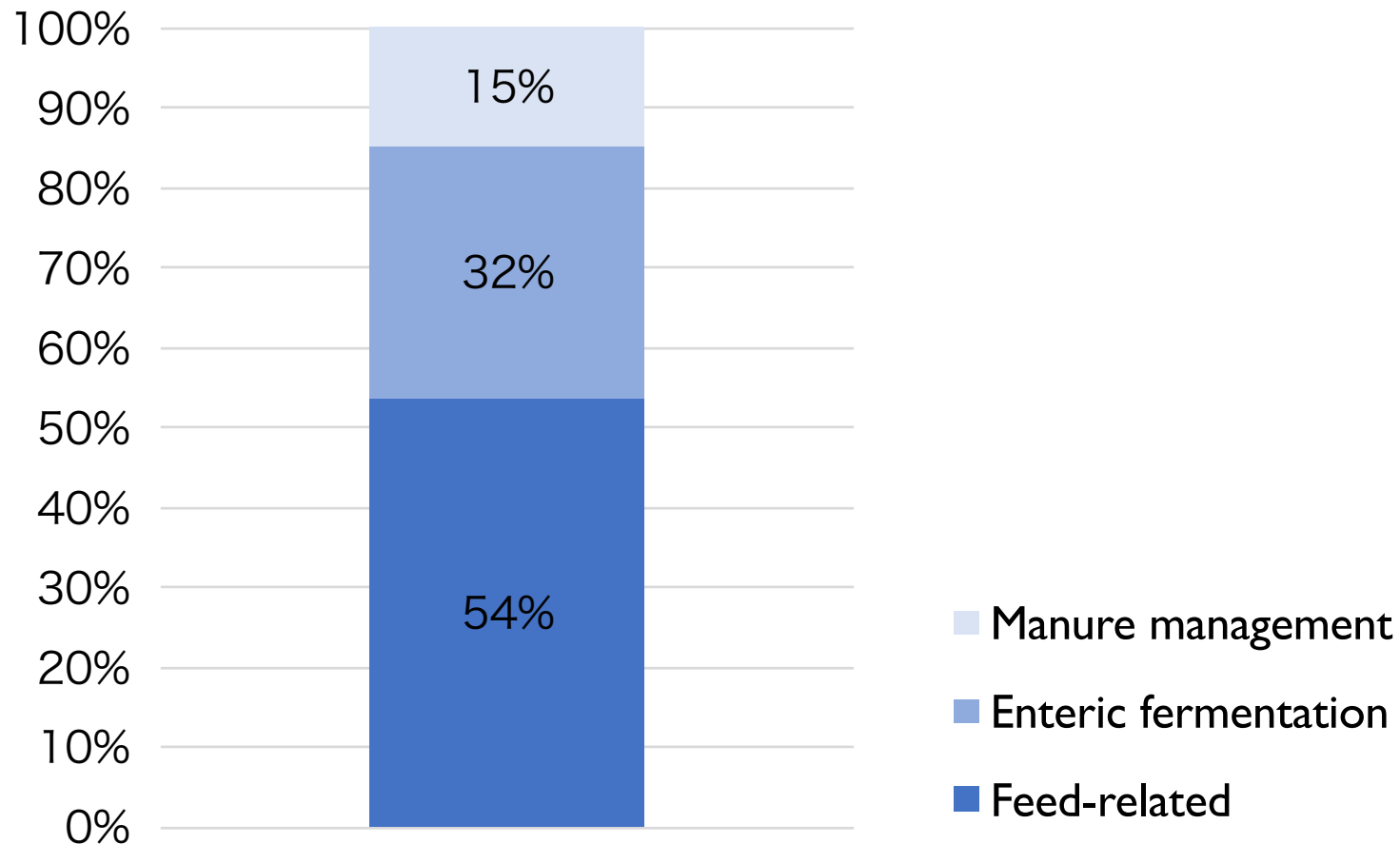
NB: Carbon sequestration in pastures is not taken into account, due to high data uncertainty.

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Total GHG emissions from livestock sector

Livestock GHG emissions in 2015

GHG national inventory
7.540 kt CO_2e
7% of BE emissions

- Manure management
- Enteric fermentation
- Feed-related
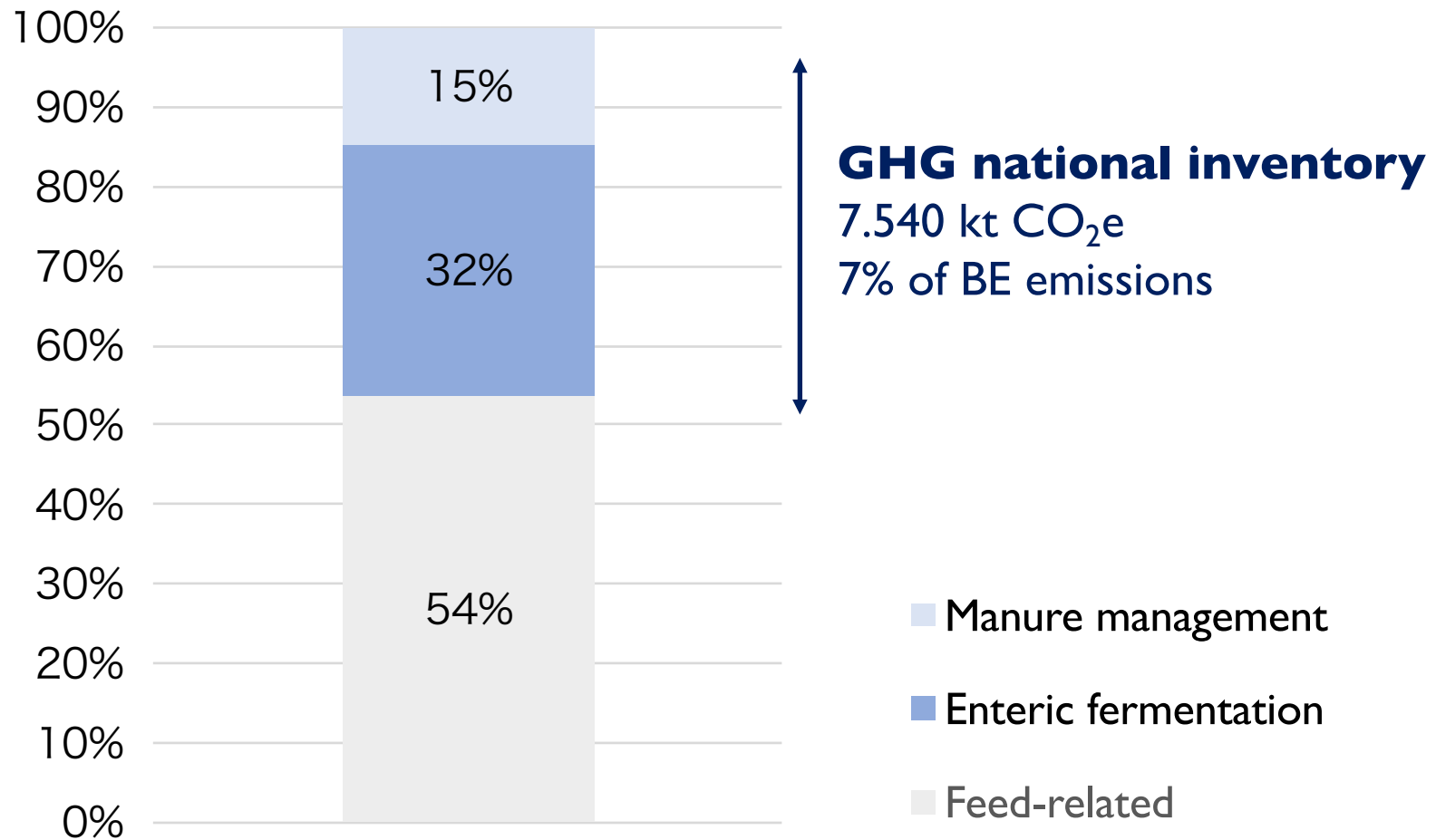
Total GHG emissions from livestock sector

13.850 kt CO_2e
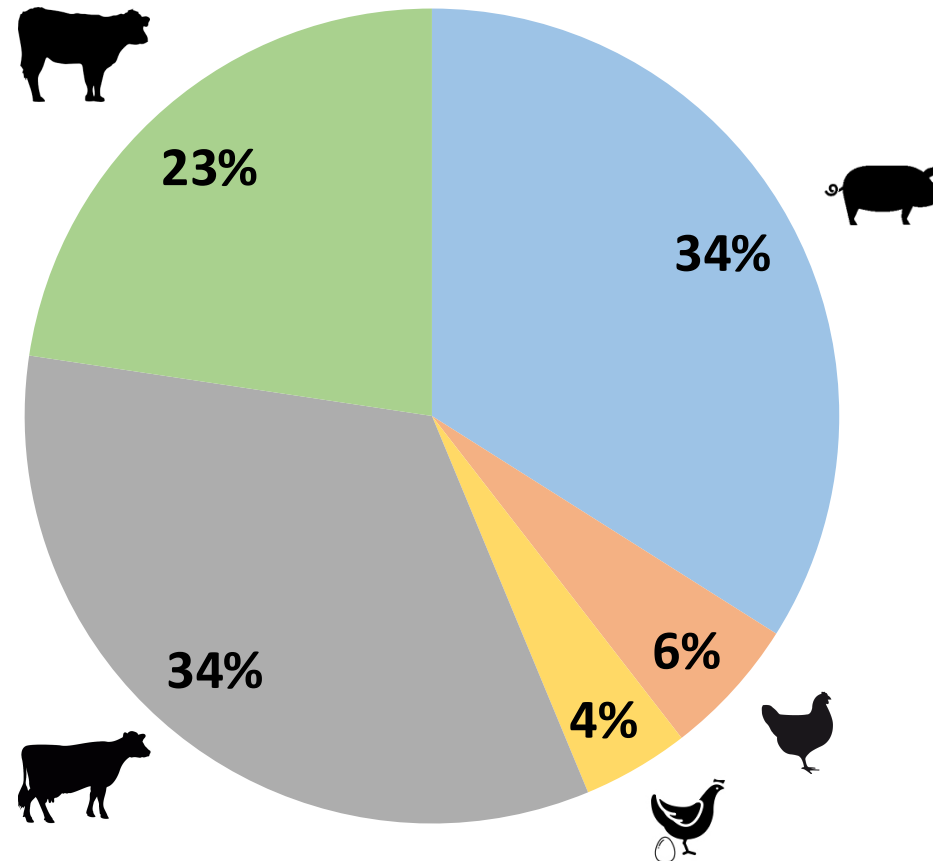
Emissions factors included: feed-related emissions, enteric fermentation, emissions from effluents.

Total GHG emissions (exported vs. consumed)

- 13%
- 21%
- 4%
- 2%
- 4%
- <1%
- 25%
- 9%
- 14%
- 8%

National consumption
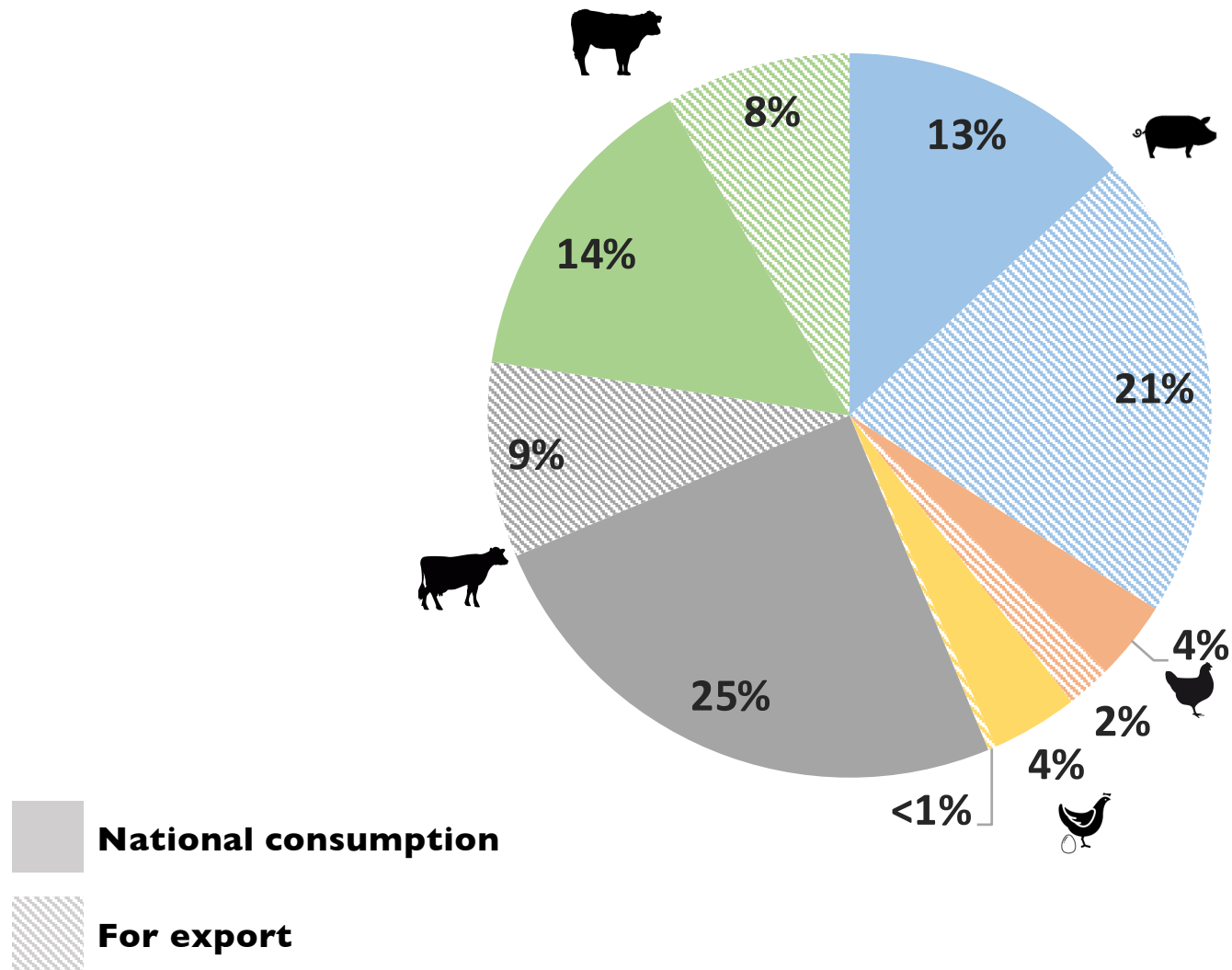
For export

Emissions factors included: feed-related emissions, enteric fermentation, emissions from effluents.

Total GHG emissions (exported vs. consumed)

GHG emissions (kt CO2e)

	Total	For nat. consump.	For export
	4.705	1.803	2.902
	766	485	281
	587	539	48
	4.658	3.450	1.208
	3.134	1.984	1.150
	13.850	8.260	5.590
		60%	40%

About 40% of the livestock sector's GHG emissions can be attributed to livestock products which are exported.
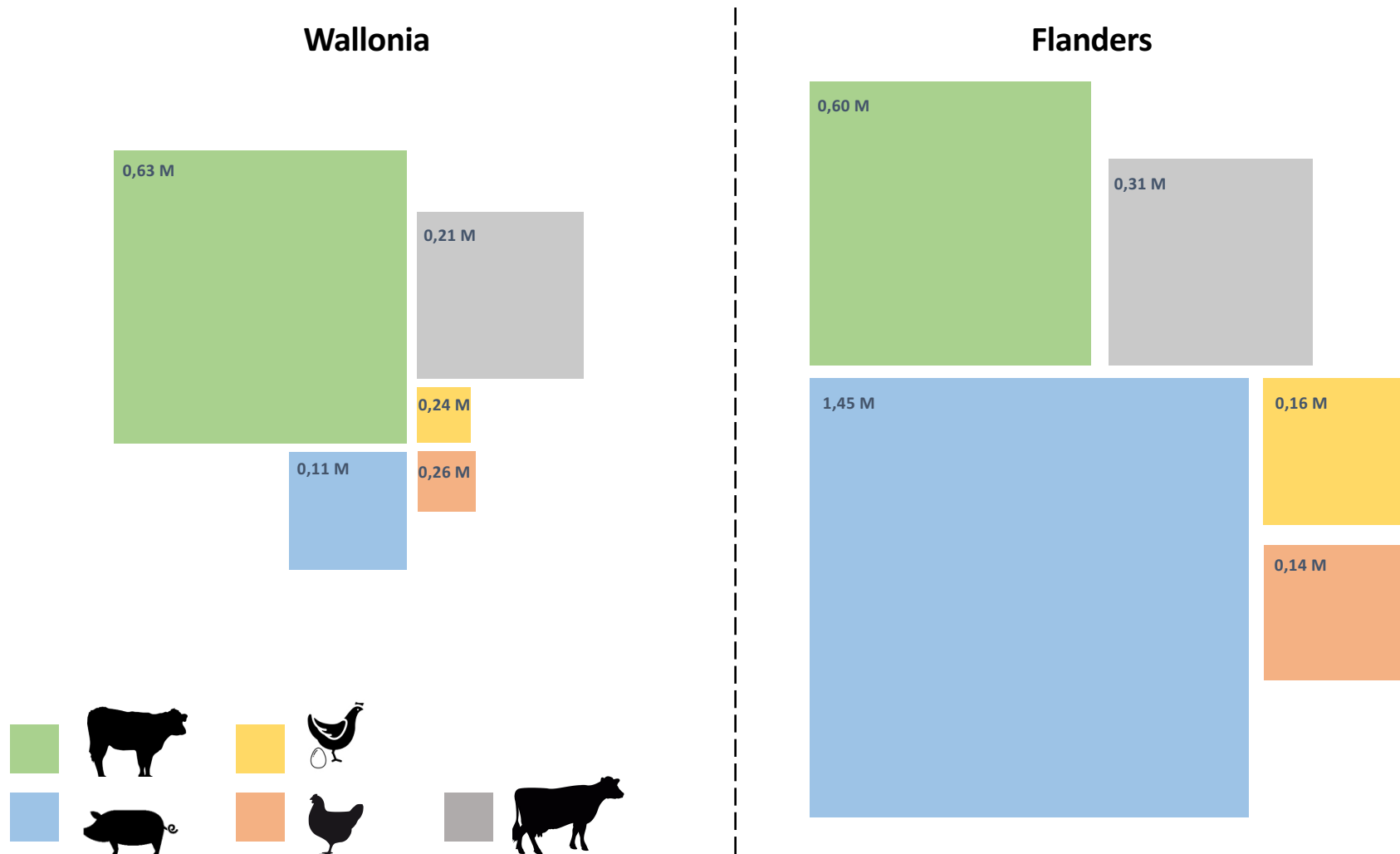
Key facts

- **Belgian average diet shows a significant over consumption of animal-based products.**

- **Production is significantly higher than national consumption for all sectors.**

- **40% of the livestock sector's GHG emissions can be attributed to livestock products which are exported.**

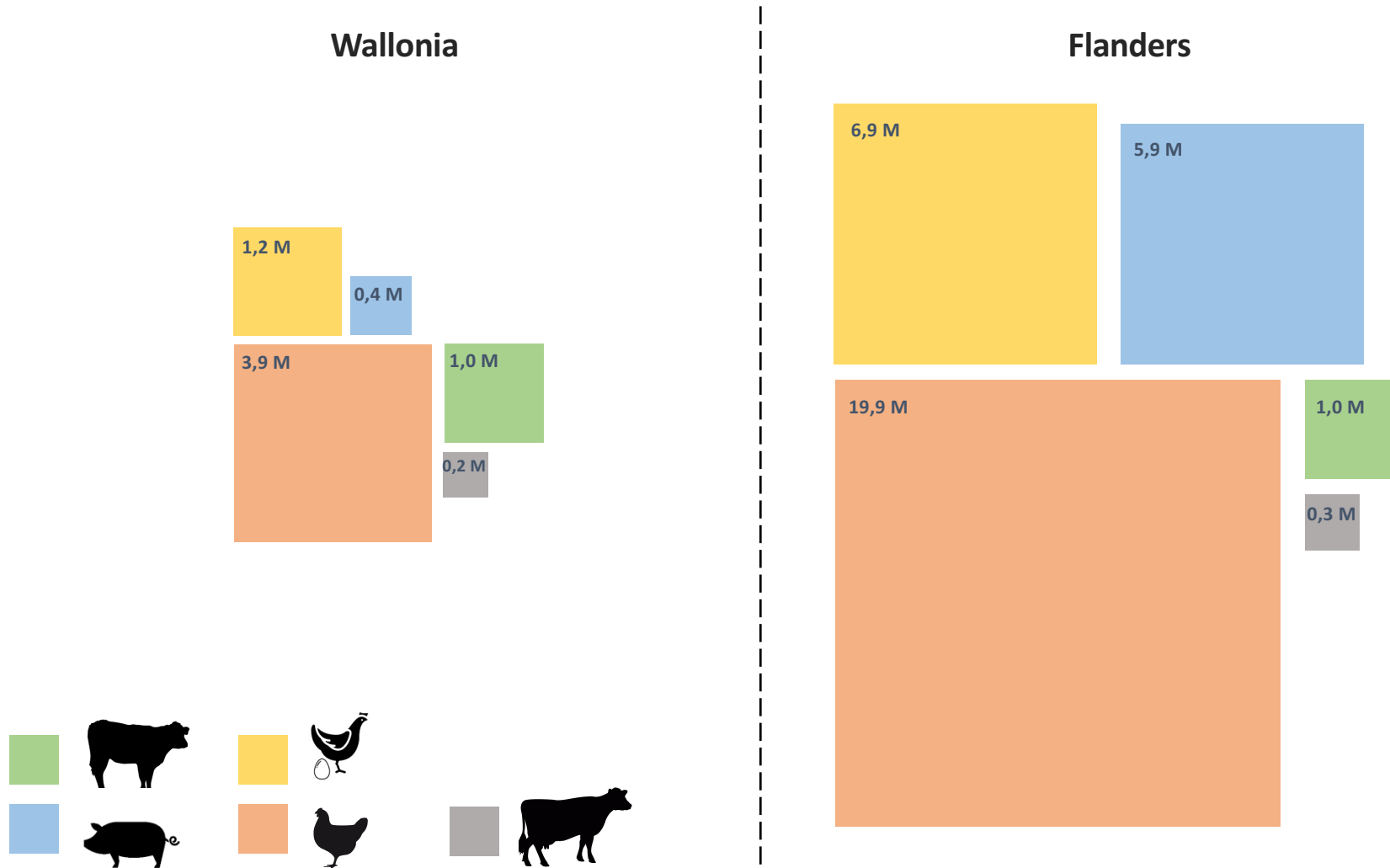# Livestock production systems in Belgium

Livestock populations

Wallonia

0,63 M

0,21 M

0,24 M

0,11 M

0,26 M

Flanders

0,60 M

0,31 M

1,45 M

0,16 M

0,14 M

There is a strong regional differentiation between Flanders and Wallonia in terms of animal productions (shown here in livestock units).

Sources: Statistics Belgium (2017); Eurostat (2013).
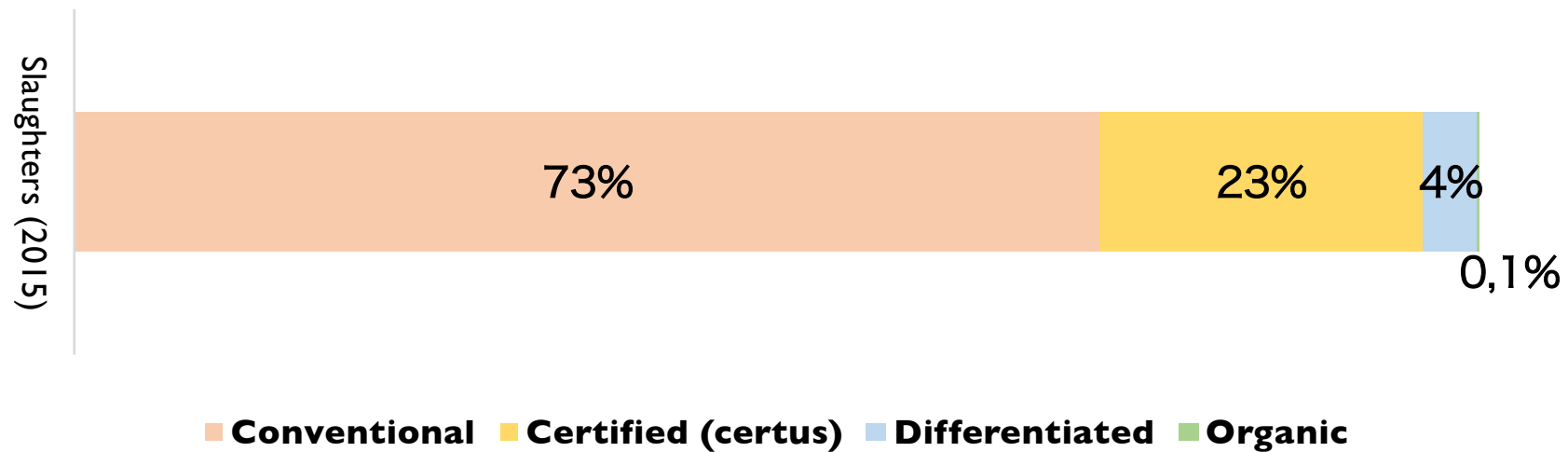
Livestock populations
in number of animals

Wallonia

Flanders

1,2 M

0,4 M

3,9 M

1,0 M

0,2 M

6,9 M

5,9 M

19,9 M

1,0 M

0,3 M

There is a strong regional differentiation between Flanders and Wallonia in terms of animal productions

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Pork production in Belgium

Belgium

Slaughters (2015)

73% — 23% — 4% — 0,1%

■ **Conventional** ■ **Certified (certus)** ■ **Differentiated** ■ **Organic**

NB: 94% of pigs are located in Flanders.
No data on the share of production systems at regional level yet.

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Laying hen production systems

Belgium

Share of laying hens population (2015)
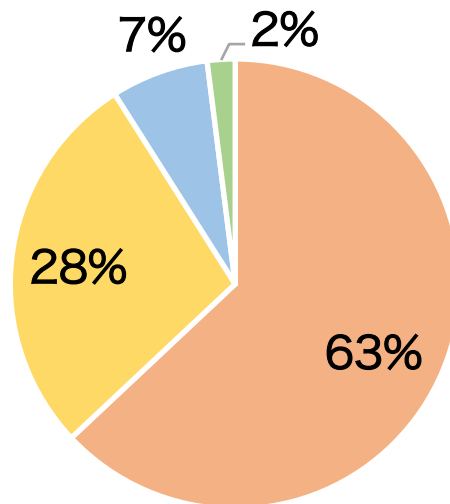
| 60% | 27% | 9% | 3% |

■ Enriched-cage   ■ Indoor   ■ Free range   ■ Organic
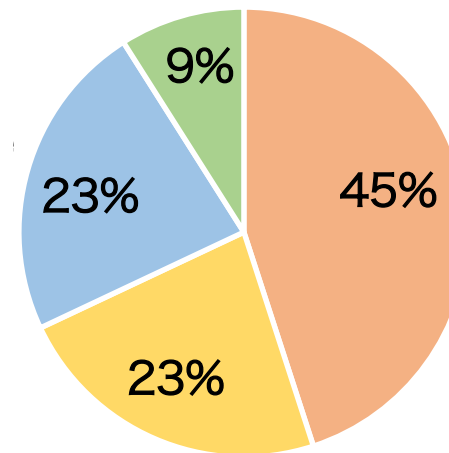
Laying hen production systems

Shares of egg production systems (in animal numbers)

Flanders
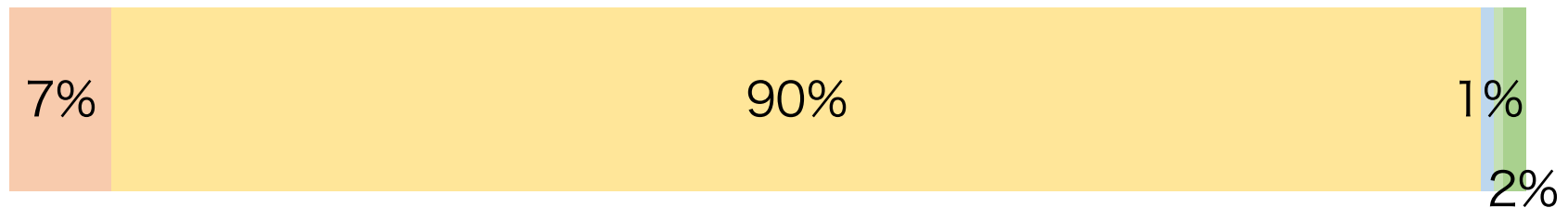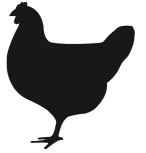85% of laying hens

Wallonia
15% of laying hens

- Enriched-cage
- Indoor
- Free range
- Organic

The vast majority of laying hens are located in Flanders and in conventional systems (enriched-cage or indoor).

Broiler sector production systems
Belgium

7%   90%   1%

2%

■ **Conventional**   ■ **Certified (Belplume)**   ■ **Differentiated**
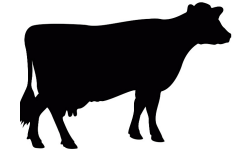
■ **Differentiated +**   ■ **Organic**

NB: 85% of broilers are located in Flanders.
No data on the share of production systems at regional level yet.
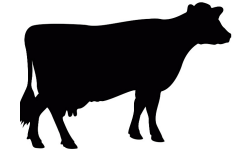
Dairy production systems
Belgium

| 65% | 26% | 9% |

- Intensive systems based on Grass and Maize
- Semi-intensive systems based on Grass and Maize
- Extensive and semi-intensive systems based on Grass

NB: A more detailed typology is provided in the study.
Sources: Petel et al. (2018) for Wallonia; actor interviews (2018) for Flanders.

Dairy production systems

Shares of dairy production systems in terms of dairy cattle in Belgium in 2015

Wallonia
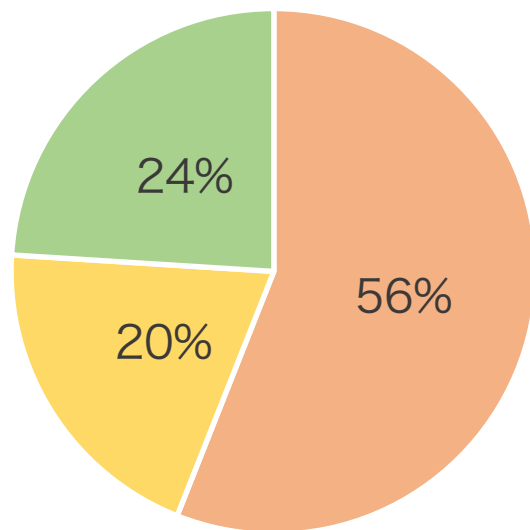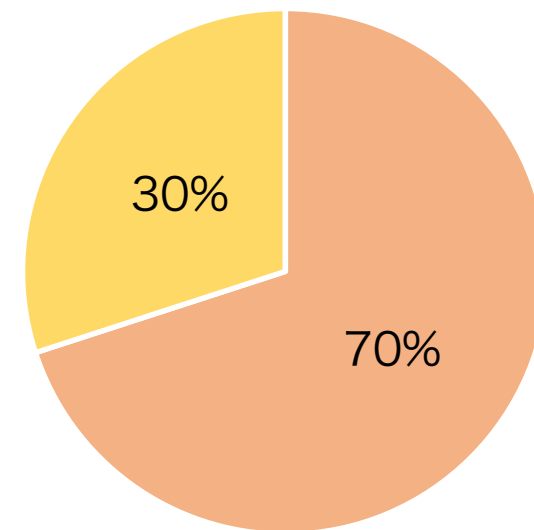
56%
20%
24%

Flanders

30%
70%

- Intensive systems based on Grass and Maize
- Semi-intensive systems based on Grass and Maize
- Extensive systems based on Grass

Sources: Petel et al. (2018) for Wallonia; actor interviews (2018) for Flanders.

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Bovine fattening systems
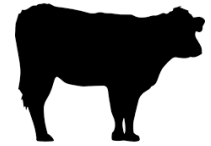
Flanders
2/3 of bull fattening

Bull slaughters in Flanders

| 70% | 20% | 10% |

■ BWB Intensive   ■ BWB semi-intensive   ■ FR Semi-intensive
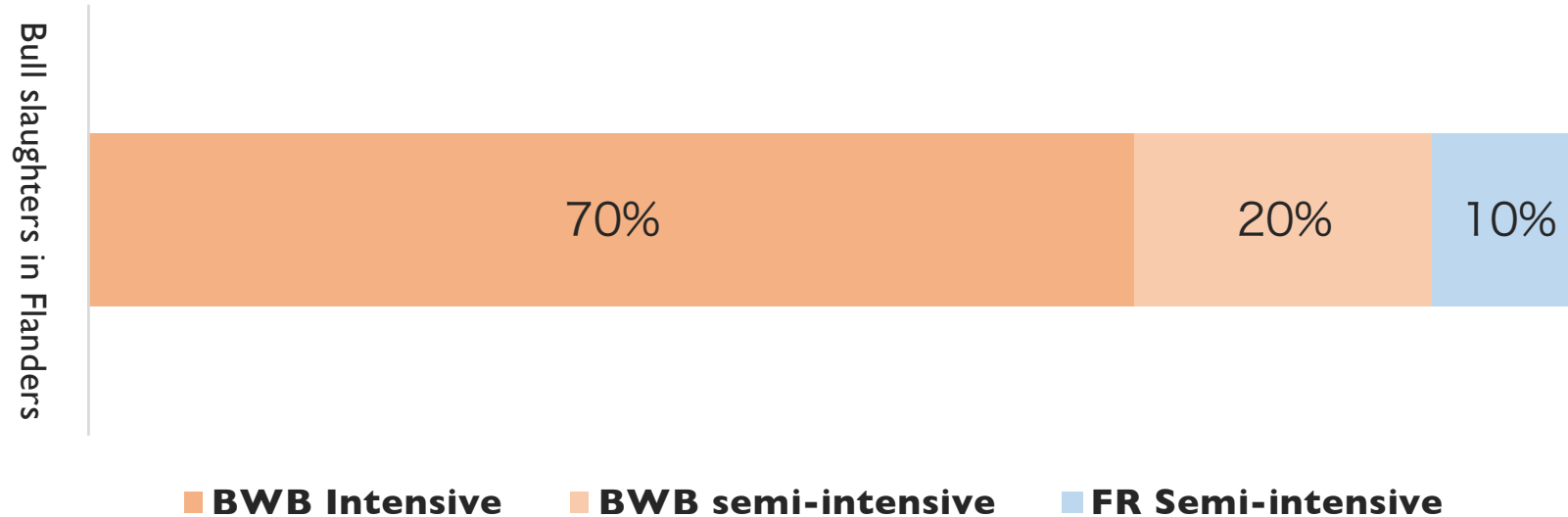
90% of bull slaughters are from the Belgian Blue breed.

70% are fattened intensively.

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Key facts

- **Poultry and pigs population are mostly located in Flanders (85% of laying hens and broilers, 94% of pigs).**

- **Bovine livestock is located in both regions (60% of dairy cows in Flanders, 61% of suckler cow in Wallonia while fattening is largely located in Flanders).**

- **Organic production: <3% in each sector.**

- **Wallonia has a higher proportion of extensive systems compared to Flanders.**

Scenarios
and their consequences

Methodology – Choice of the scenarios

BAU

BUSINESS-AS-USUAL scenario
- The scenario continues the **trends** from the past 10 years

T1

TRANSITION 1
- **organic and extensive systems**
- cereals feed: using only national (BE) resources

T2

TRANSITION 2
- **Only organic systems**
- No cereal feed: only regional (EU) coproducts for animal feed

Pastures and bovine systems

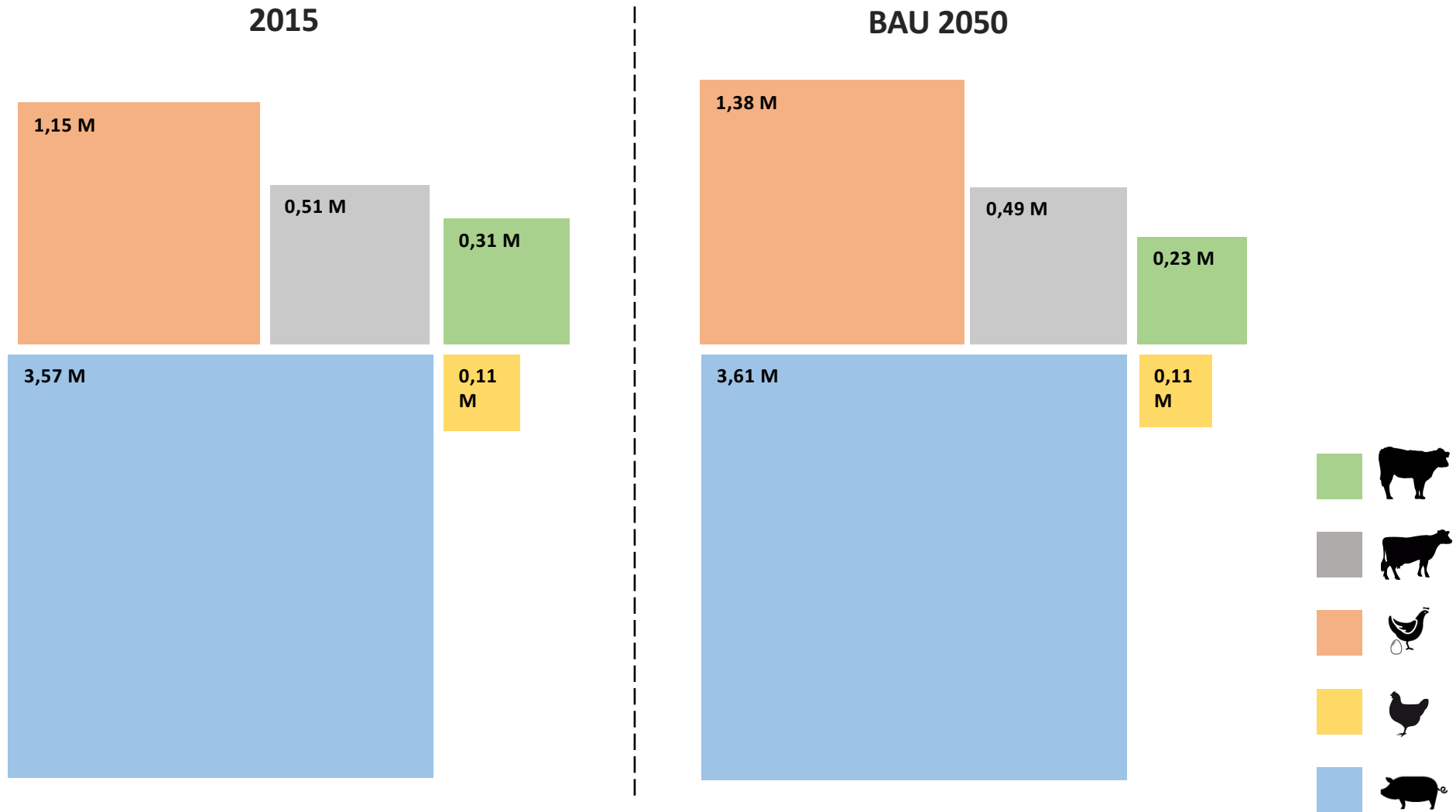|	2015	BAU	T1	T2
Pastures* **area**	556.845 ha	**427.551 ha** **-23%**	556.845 ha	556.845 ha
Bovine systems	Dairy Meat	Dairy Meat	**Mixed dairy systems**	**Mixed dairy systems**

*permanent and temporary pastures

BAU scenario: Evolution of livestock populations
in livestock units

2015

BAU 2050

1,15 M

0,51 M

0,31 M

0,11 M

3,57 M

1,38 M

0,49 M

0,23 M

0,11 M

3,61 M

Sources for 2015: Statistics Belgium (2017); Eurostat (2013)

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The BUSINESS-AS-USUAL scenario

Livestock population	Organic production	GHG emissions
=	Less than **6%** in each livestock sector (vs 3% in 2015)	**-13%** mainly due to technical optimisation
No major change in livestock population.		

Meat production	Meat consumption	Self-sufficiency of meat
743kt	**70g** meat/cap/day versus 87g meat/cap/day in 2015 (trend)	**228%** versus 209% in 2015
Similar to 2015		
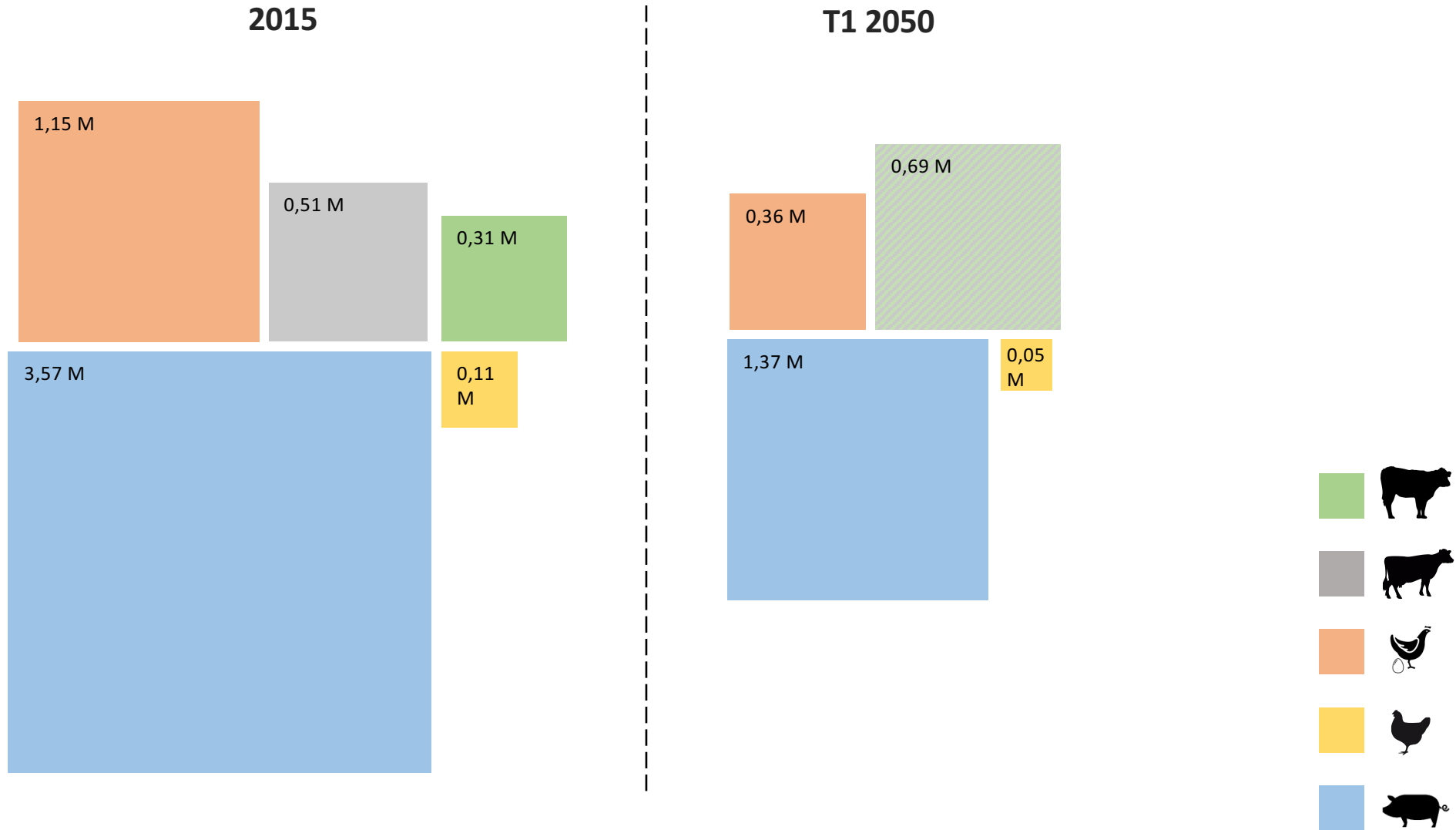
T1: Evolution of livestock populations
in livestock units

2015

T1 2050

1,15 M

0,51 M

0,31 M

3,57 M

0,11 M

0,36 M

0,69 M

1,37 M

0,05 M

Sources for 2015: Statistics Belgium (2017); Eurostat (2013)

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The BUSINESS-AS-USUAL scenario

Livestock population	Organic production	GHG emissions
Significant decrease	**30%** in each livestock sector	**-48%** due to decrease in livestock population

Meat production	Meat consumption	Self-sufficiency of meat
296 kt versus 740 kt in 2015	**64g** meat/cap/day versus 87g meat/cap/day in 2015	**100%** (no export capacity)

T2: Evolution of livestock populations

in livestock units

2015

T2 2050

1,15 M

0,51 M

0,31 M

3,57 M

0,11 M

0,69 M

0,09 M

0,01 M

0,34 M

Sources for 2015: Statistics Belgium (2017); Eurostat (2013)

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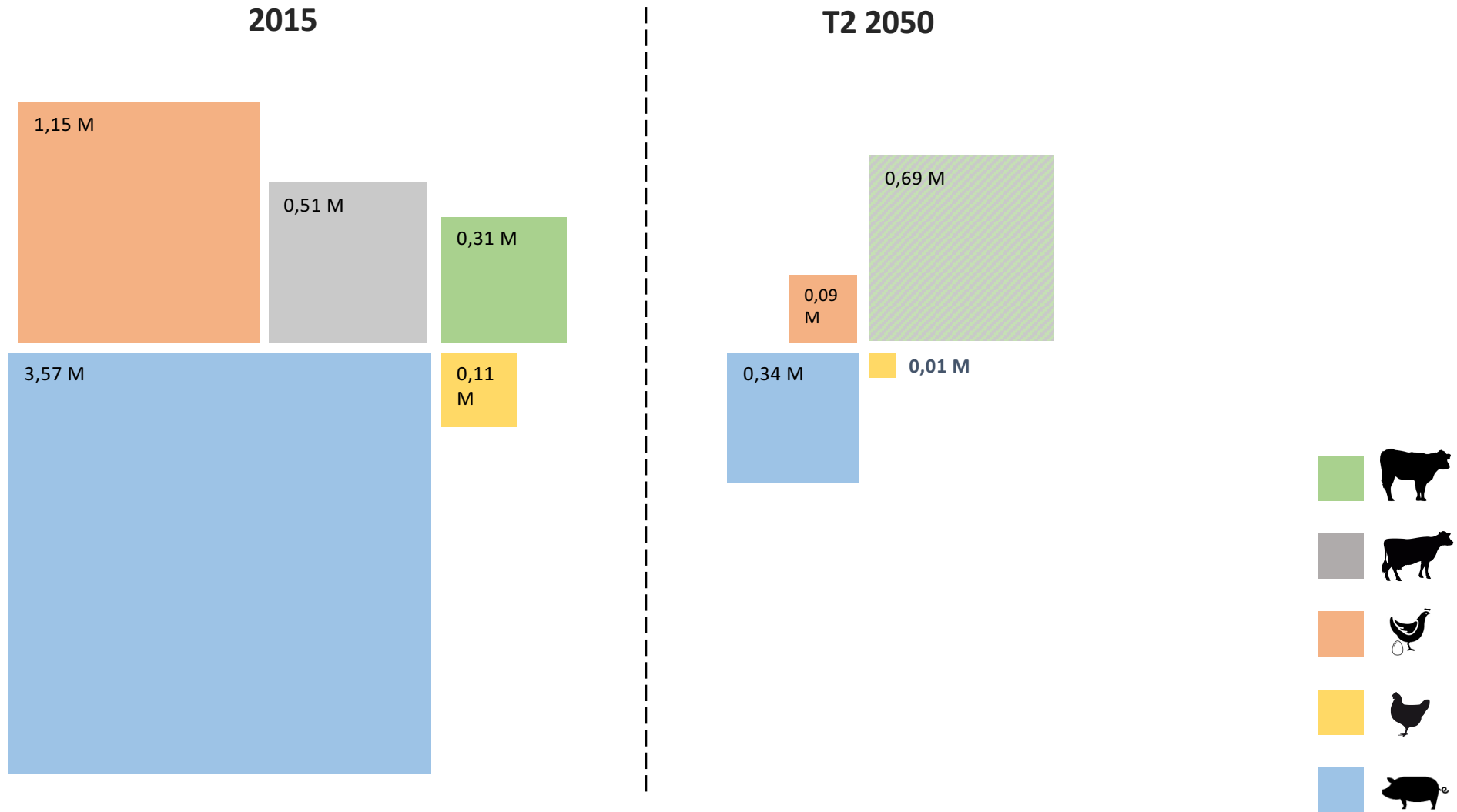
The **TRANSITION** 2 scenario

Livestock population	Organic production	GHG emissions
⬇️ Very strong decrease	**100%** for all livestock sector	**-58%** due to decrease in livestock population

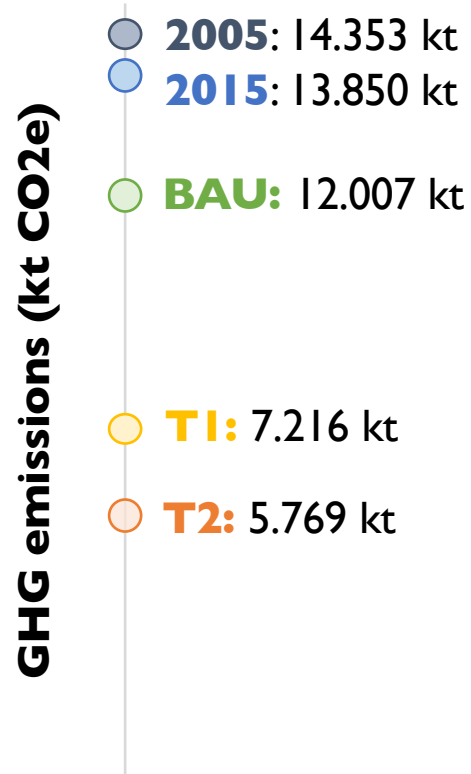| Meat production	Meat consumption	Self-sufficiency of meat
125kt versus 740 kt in 2015	**27g** meat/cap/day versus 87g meat/cap/day in 2015	Based on a **shift in diets** no export capacity

Key learnings from scenarios

- **Trends lead to little changes in production. Consumption of meat will decrease (-20%).**

- **Significant reduction of livestock-related GHG emissions can only be obtained through a decrease in livestock populations. (Benefits of optimization measures are limited).**
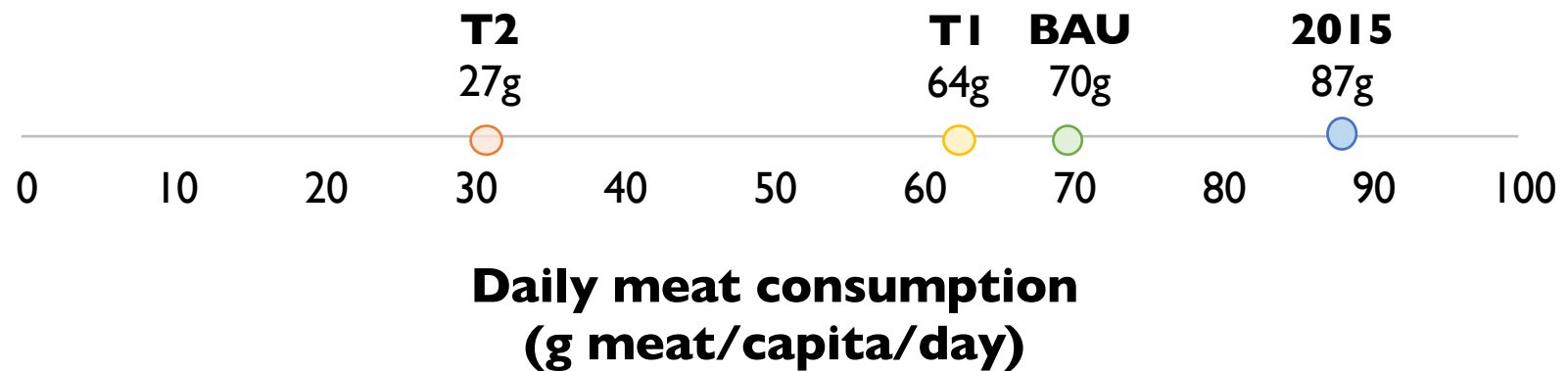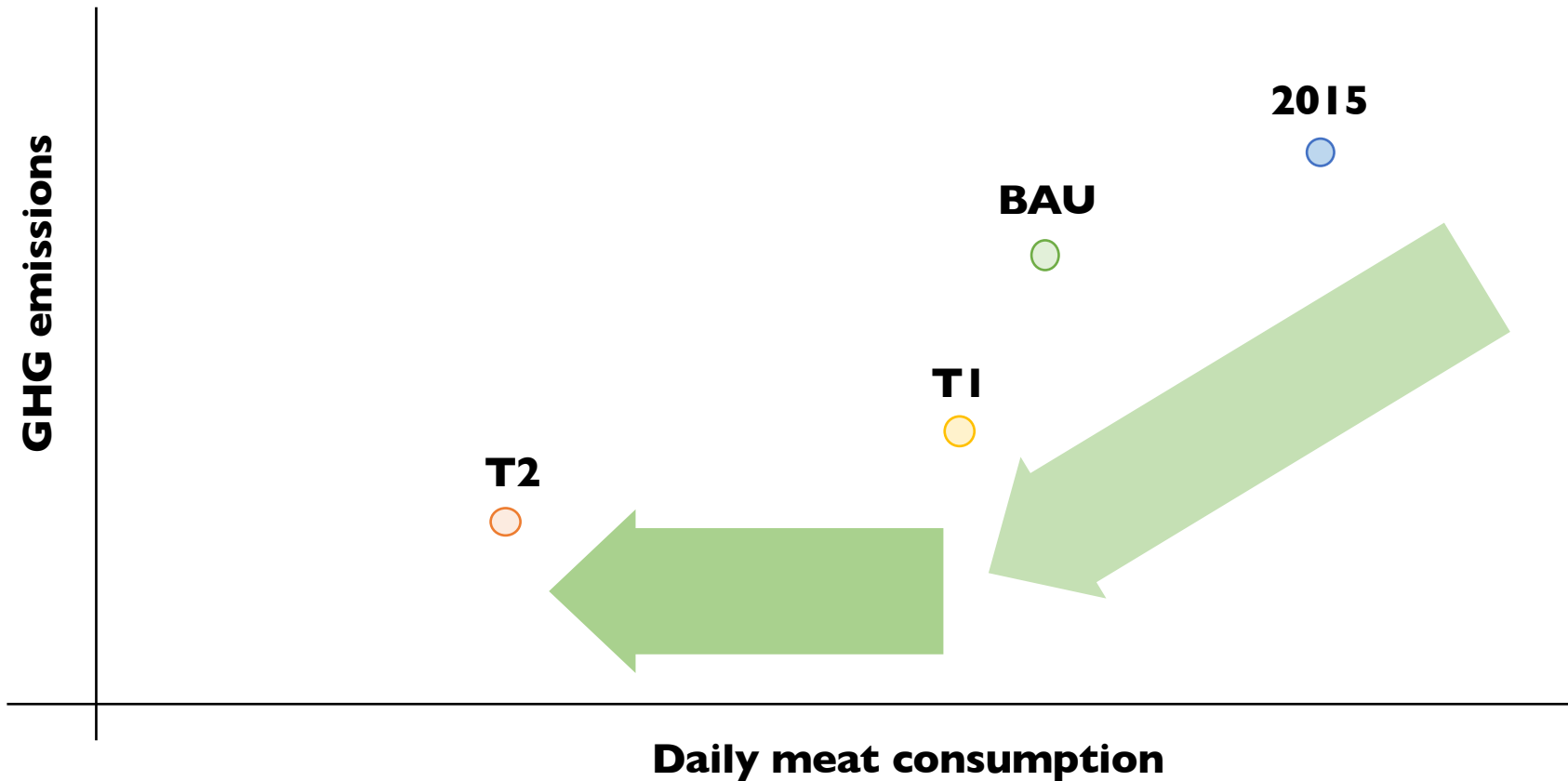
Consequences of the scenarios:
GHG emissions

GHG emissions (kt CO2e)

2005: 14.353 kt
2015: 13.850 kt

BAU: 12.007 kt

T1: 7.216 kt

T2: 5.769 kt

Consequences of the scenarios:
Meat consumption

	T2			T1	BAU		2015	
	27g			64g	70g		87g	

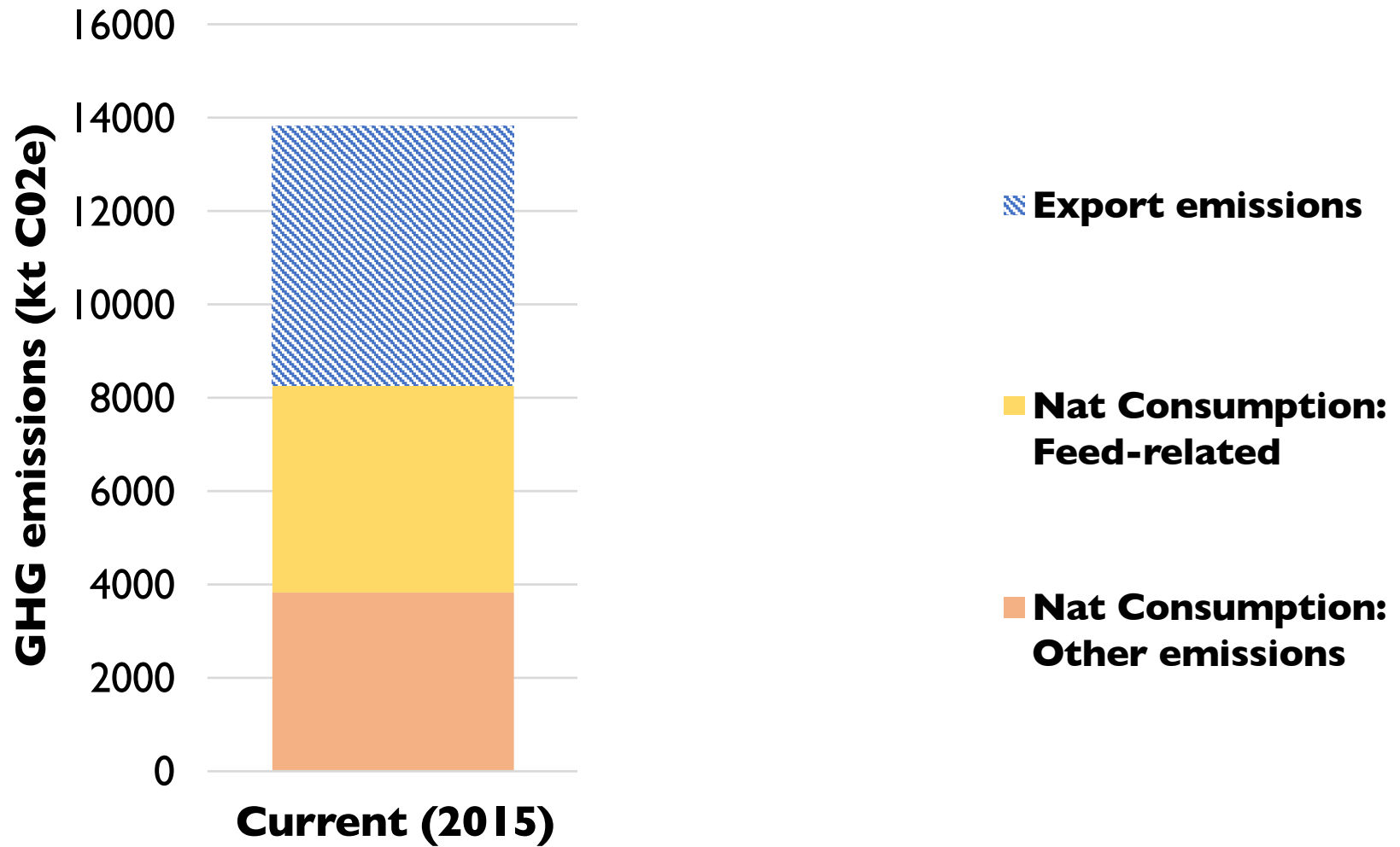**Daily meat consumption
(g meat/capita/day)**

Consequences of the scenarios:
Protein consumption and GHG emissions

A scenario based on environmentally-sound production systems ad resulting in a great reduction of GHG emissions is possible if there is a shift to low-meat diets.
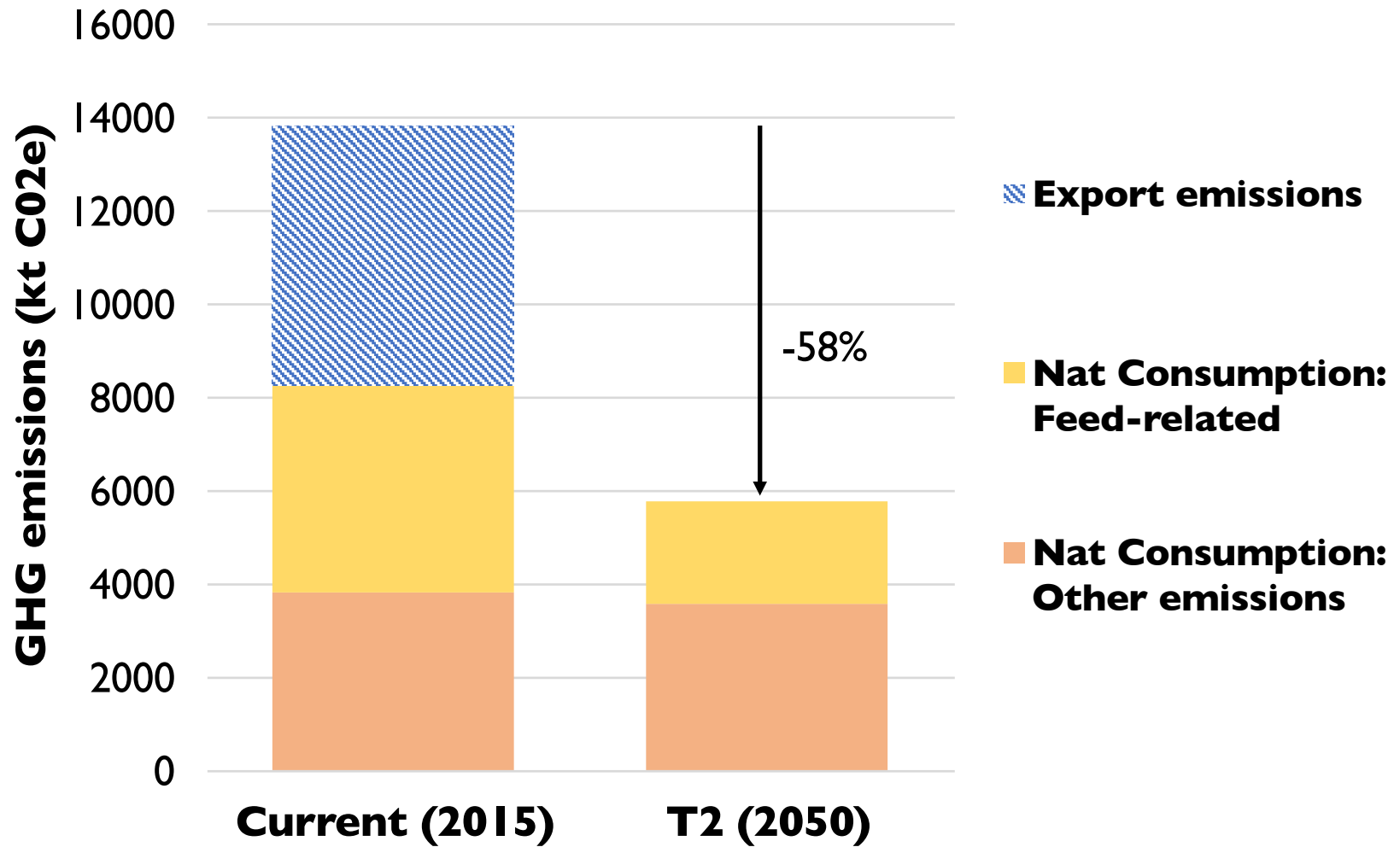
GHG emissions in scenario T2

GHG emissions in scenario T2

Thank you for attending

Research team

Philippe Baret
Philippe.Baret@uclouvain.be

Clémentine Antier
Tél. 32 (0)10 47 90 83
GSM +32 (0)4 96 56 7100
Clementine.Antier@uclouvain.be

Anton Riera
Anton.riera@uclouvain.be

INCLUSIVE SCENARIOS
FOR A RADICAL TRANSITION