What futures for EU livestock sectors?

Insights from the PATHWAYS project

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Content and key messages

1. A **diverse** livestock sector across the EU, whose evolutions have been driven by a **commodification** process
2. The **business-as-usual scenario** raises numerous social, environmental and economic **questions**: illustration from France
3. Four alternative scenarios from the PATHWAYS: contrasted **outcomes**, all **politically challenging**, but not exposed to the same **risks**
4. A matter of method: developing models to feed constructive dialogues for identifying **compromises**, **risks** and **opportunities**

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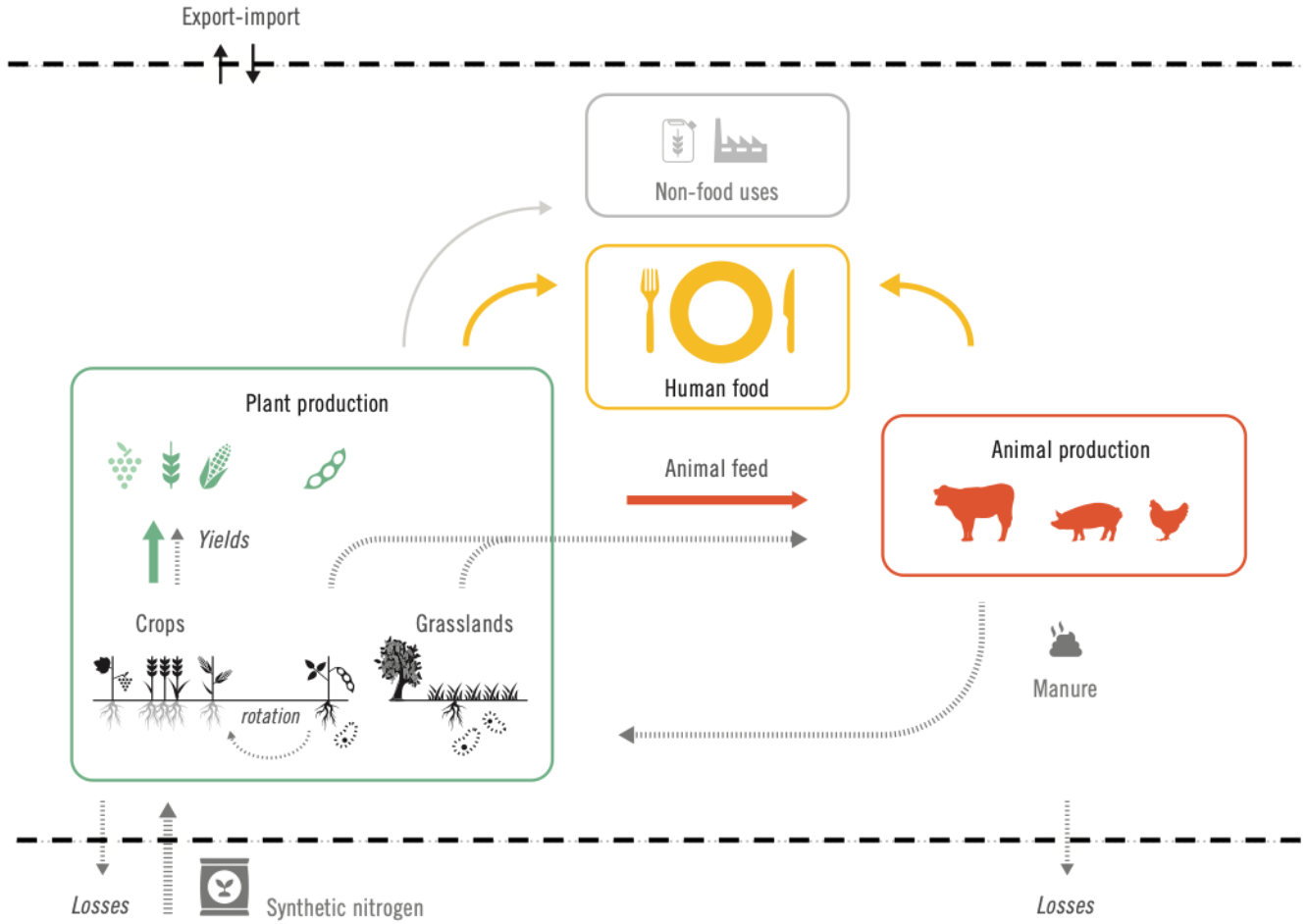
1. A diverse livestock sector

A food system perspective



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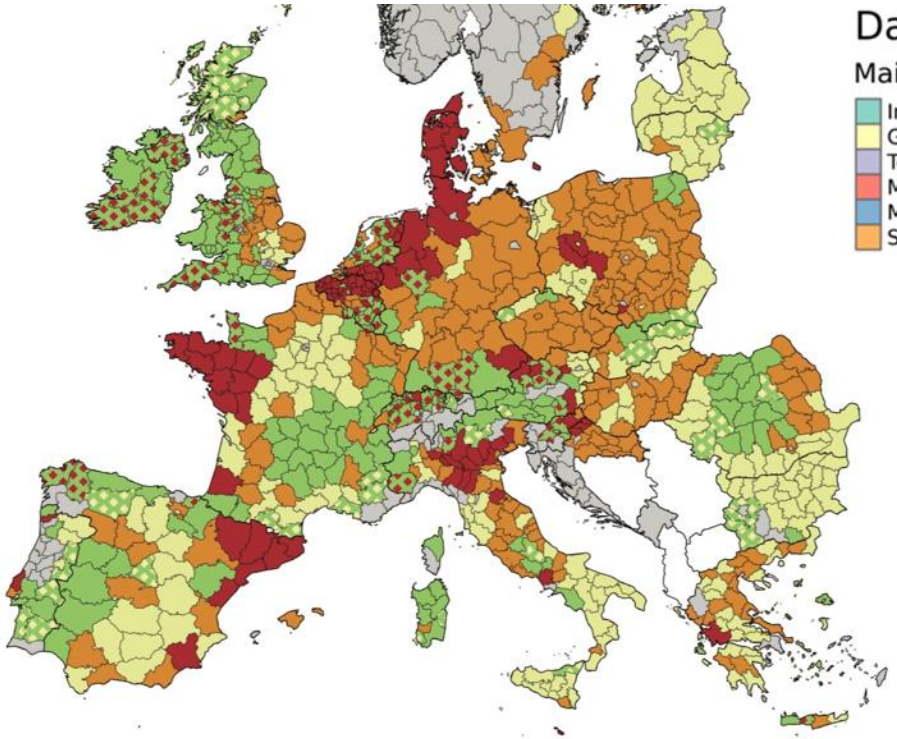
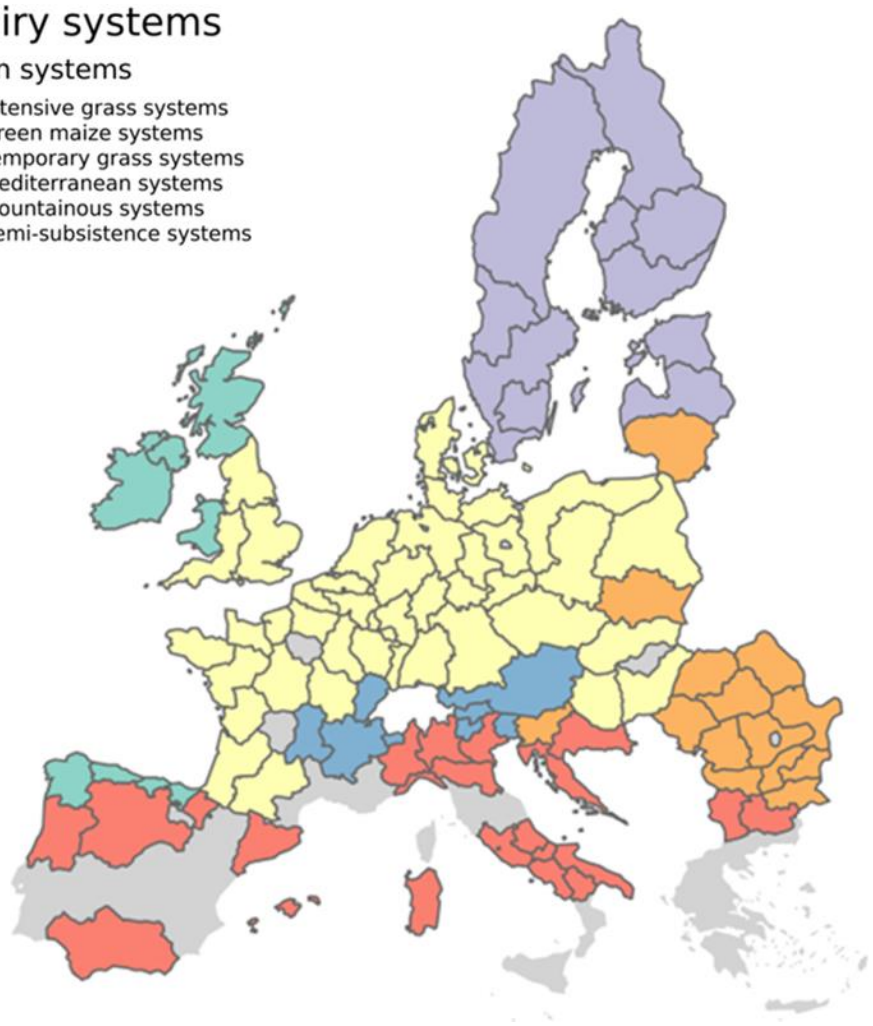
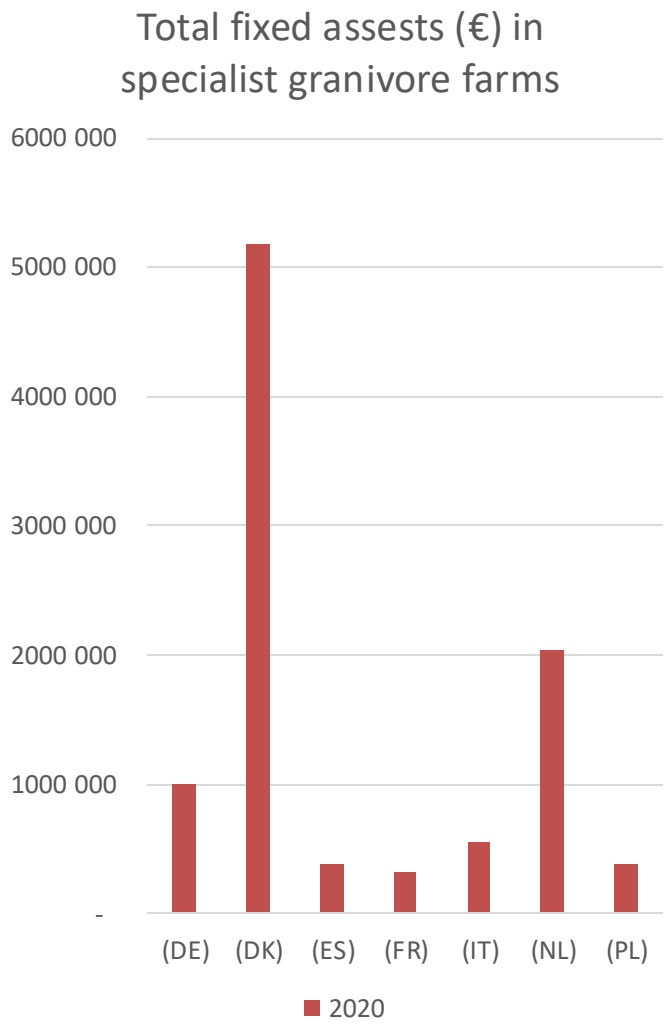
A diverse sector



Herbager, à haute densité animale
Herbager, à densité animale moyenne
Herbager, à faible densité animale
Peu herbager, à haute densité animale
Peu herbager, avec cohabitation cultures/élevage
Peu herbager, à faible densité animale
SAU / surface totale < 20 %





Hercule J., *et al.* (2017). Une typologie pour représenter la diversité des territoires d'élevage en Europe. *INRAE Productions Animales*, 30 (4), 285-302

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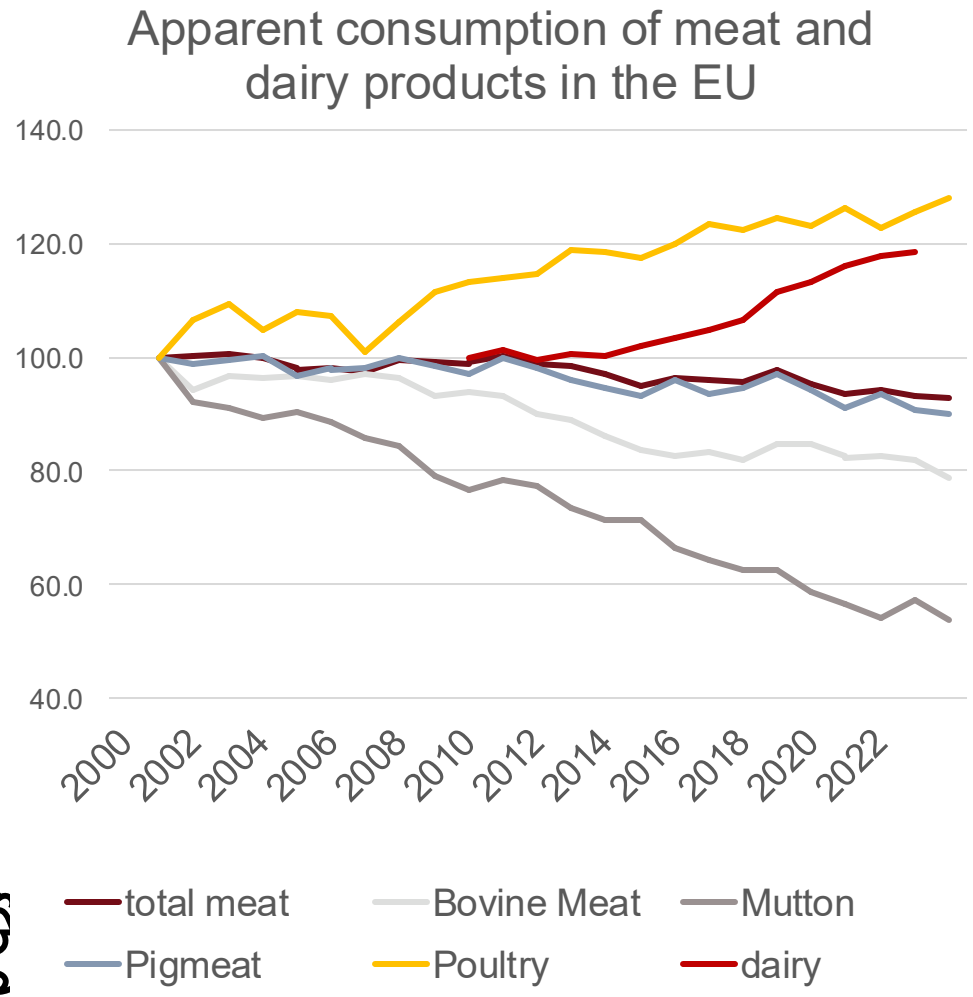
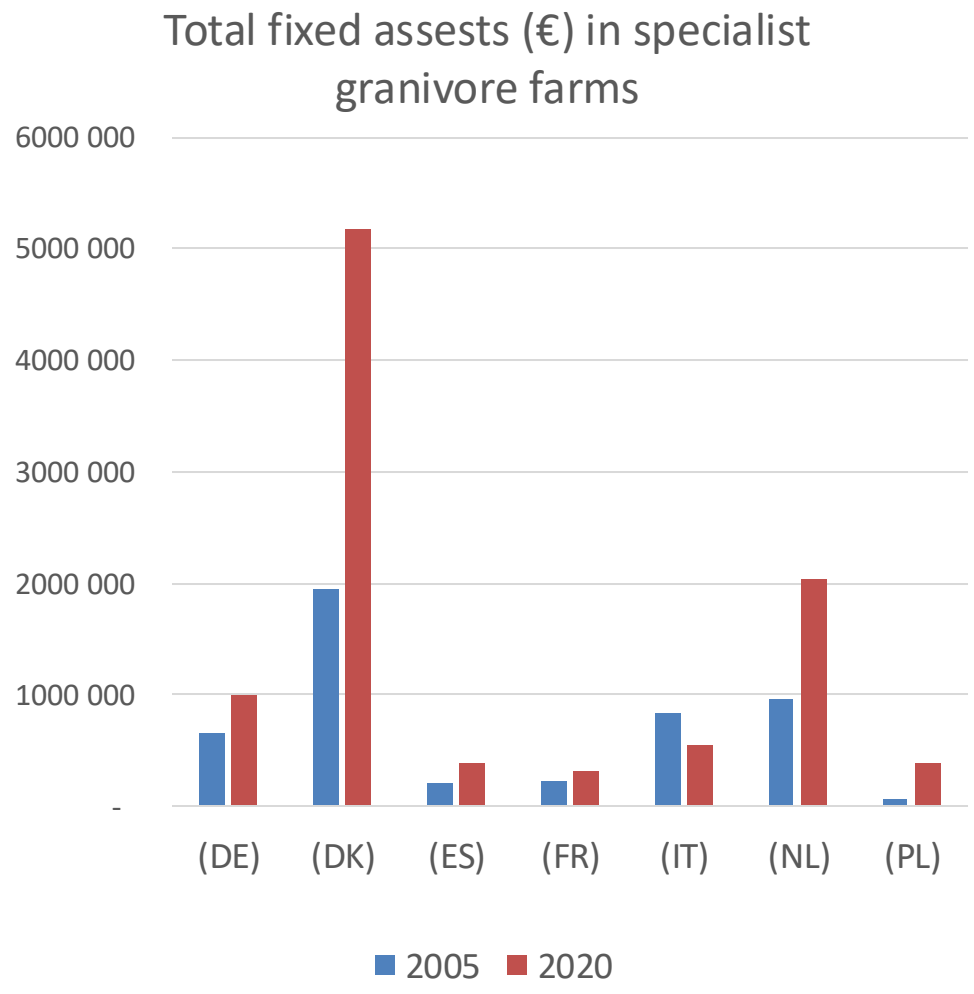
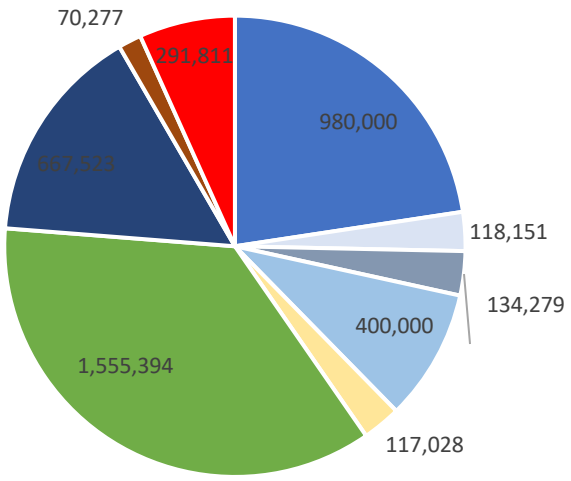
Commodification as a central driver



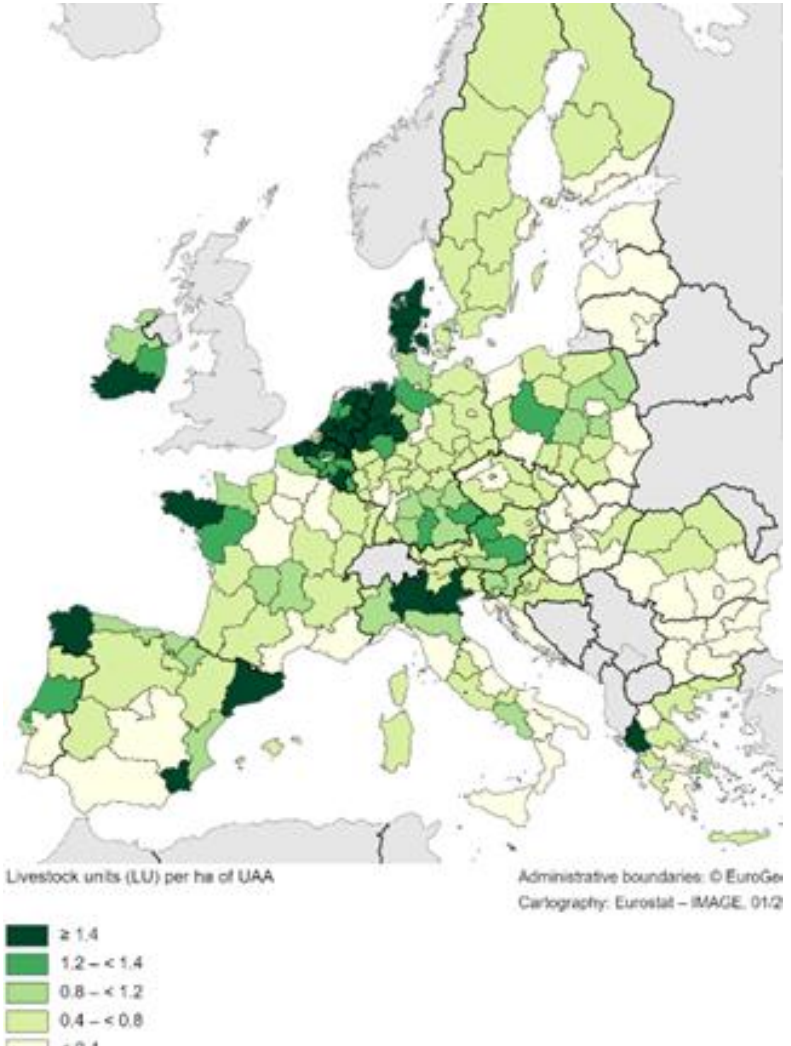


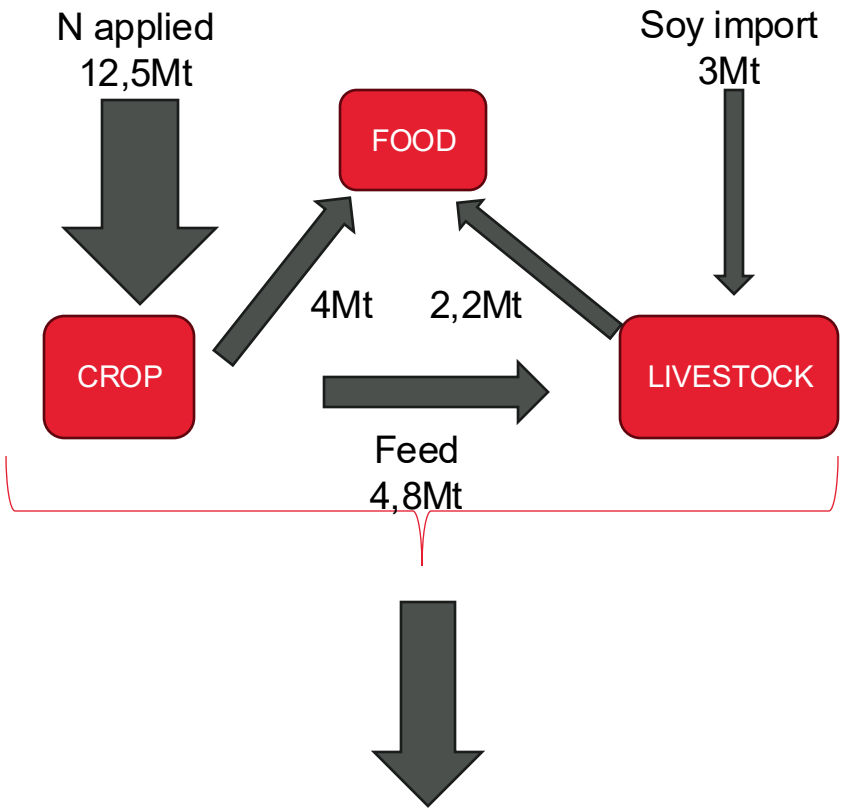
… and its implications

Total employment in the EU food processing industry (2020)



- Meat and meat products
- Fish and seafood processing
- Feed production
- Dairy processing
- Grain processing
- Bakery and farineous products
- other food products
- Oilseed processing
- Fresh fruits and vegetables





N losses (NO_x, N_2O, NO_3^-…)
9Mt > 60% of inputs

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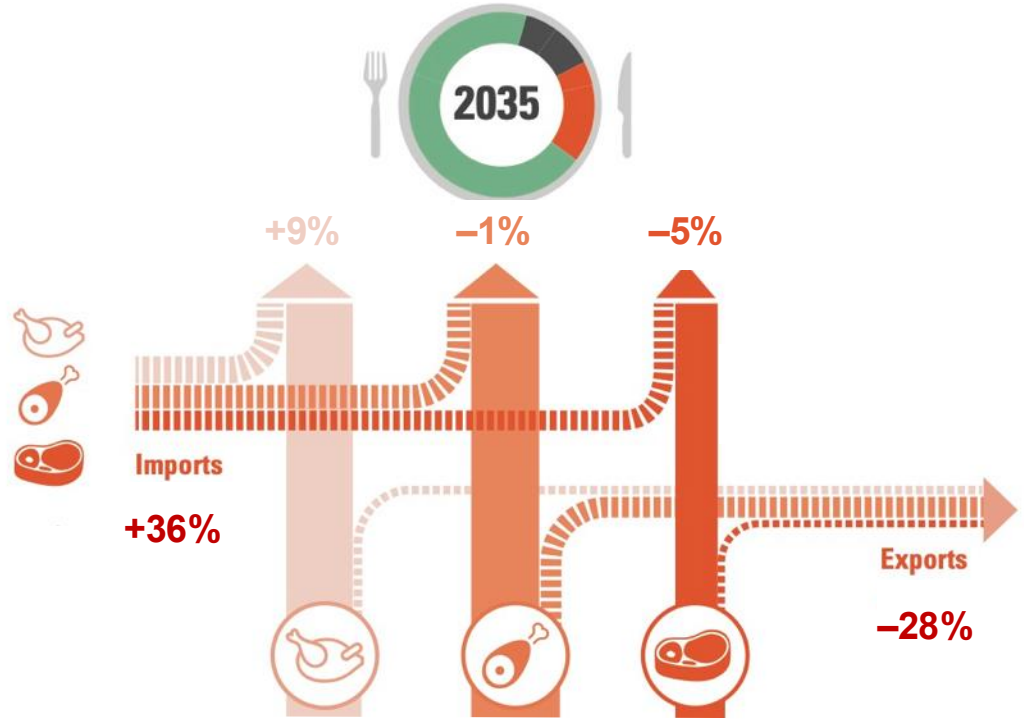
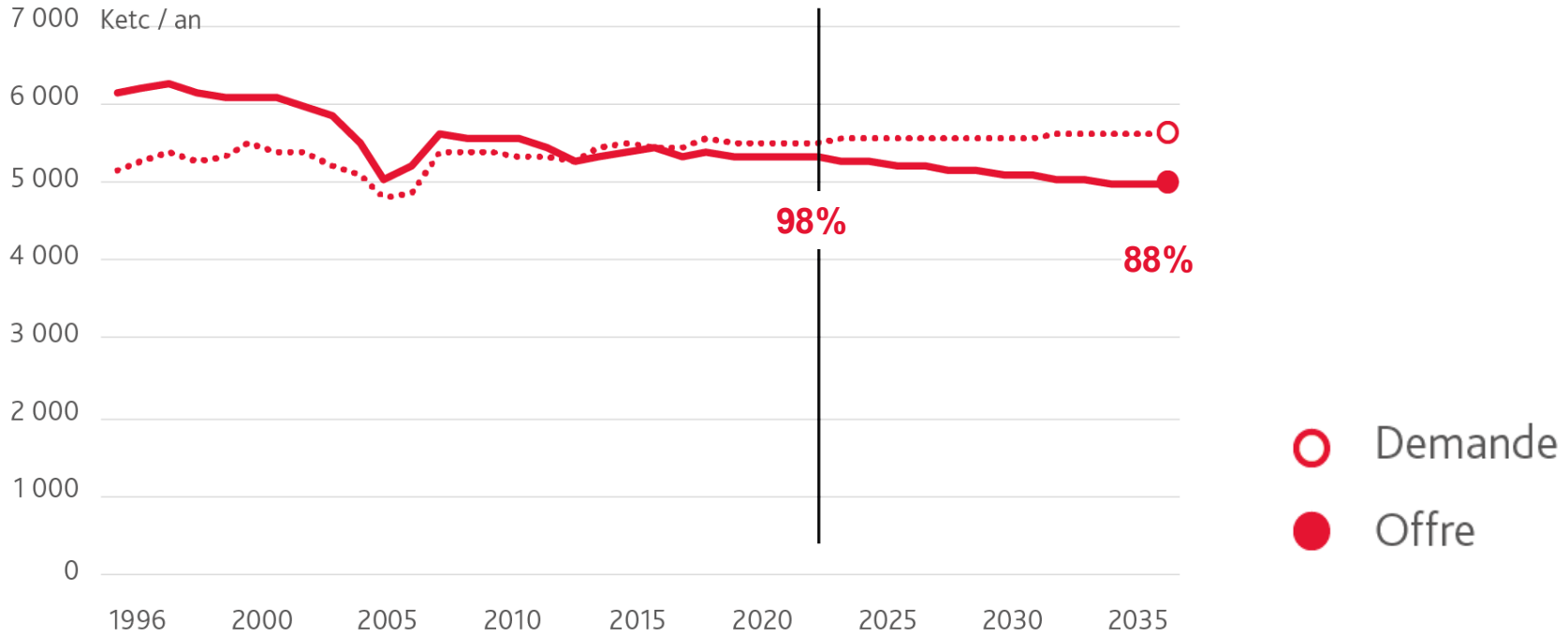
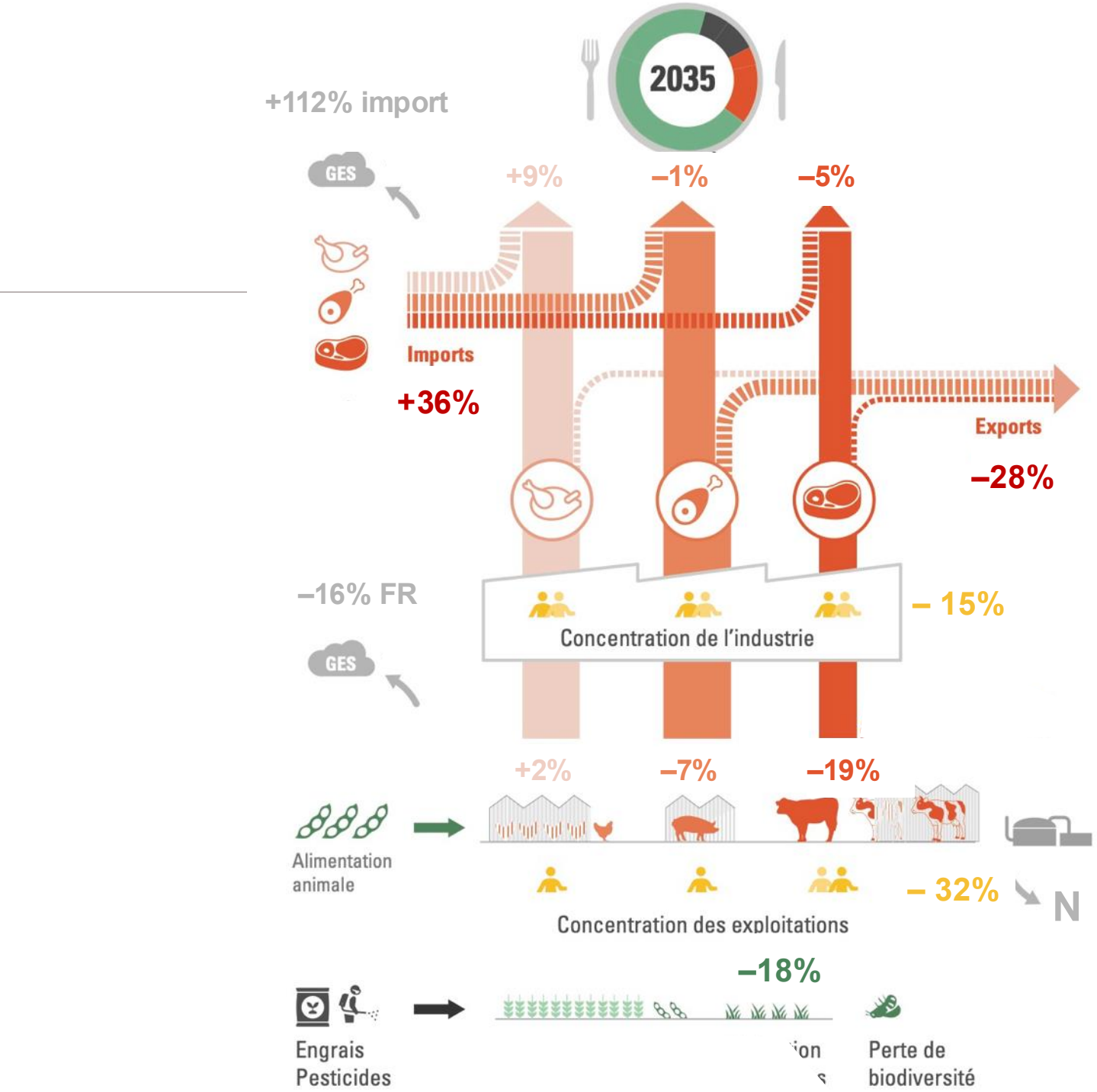
2. A BAU sccenario that raises many questions!

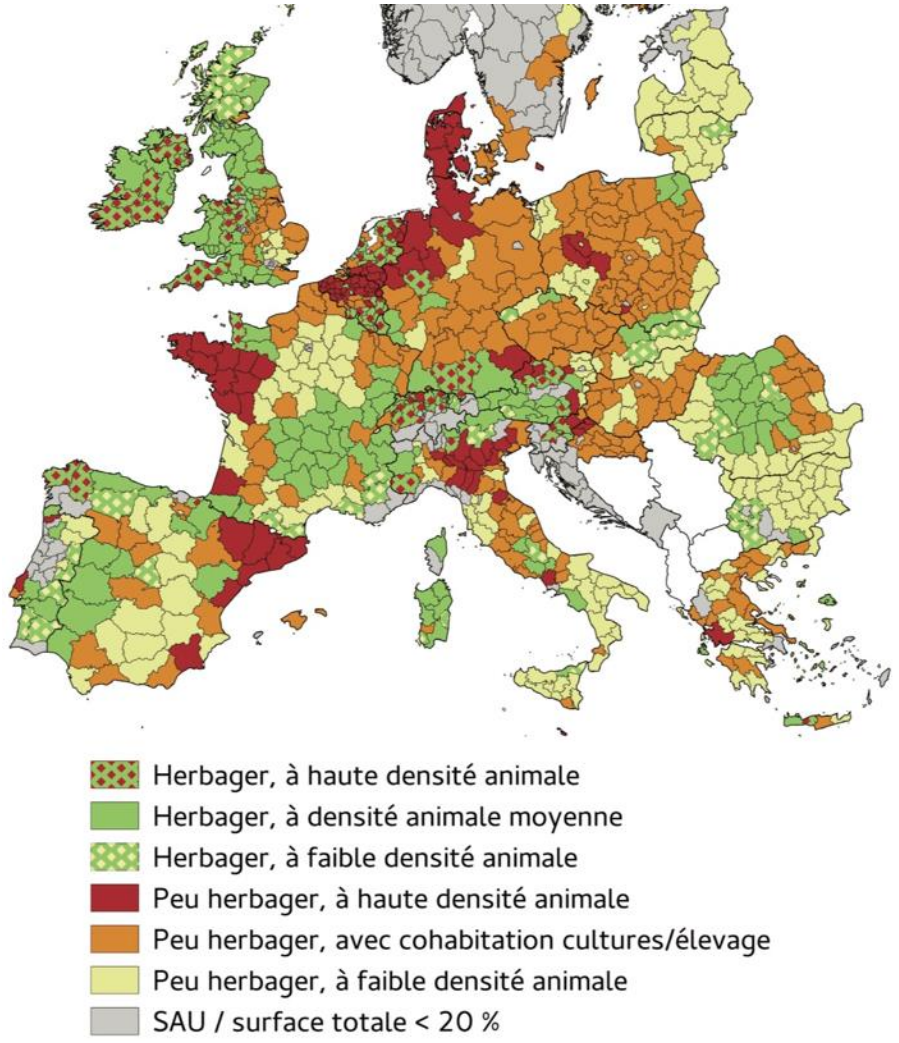

2035
+9%
–1%
–5%
Imports
+36%
Exports
–28%


7 000
Ketc / an
6 000
5 000
4 000
3 000
2 000
1 000
0
1996
2000
2005
2010
2015
2020
2025
2030
2035
98%
88%
Demande
Offre


+112% import
2035
GES
+9%
–1%
–5%
Imports
+36%
Exports
–28%
–16% FR
GES
Concentration de l'industrie
– 15%
+2%
–7%
–19%
Alimentation animale
– 32%
N
Concentration des exploitations
–18%
Engrais
Pesticides
Perte de biodiversité

A French “BAU” that raises many questions!

- A supply-demand disequilibrium, as French competitiveness declines while demand remains ~ stable
- … coming along with social, economic and environmental impacts
- A problem not only for France!
- Combining supply and demand scenarios to explore alternatives to the BAU
- … and assess their outcomes, their exposition risks and their political feasibility



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3. Four contrasted scenarios for the EU livestock sector

The PATHWAYS storylines

- Efficiency first: **increased feed conversion efficiency** enables to reach environmental performance along with competitiveness. Beyond the farm gate, the processing industry also transitions following a strong “industrial ecology” approach => meat remains a commodity
- Feed no food: **feed-food competition is reduced to its minimum**, while agrobiodiversity conservation is integrated into agricultural practices => requires some sort of “decommodification”
- Rural renaissance: livestock sector transformations contribute to **revitalize rural communities** through the maintenance of strong agricultural dynamics across landscapes => leads to a form of *dualization*
- High animal welfare: maximize the **positive experience of animals throughout the value chains**, and increase **animals agency** over their own lives, e.g., by providing interesting indoor and outdoor spaces, which encourages individual choice => requires as well a “decommodification”

… tested against three variant on the demand side

	Beef	Pork	Poultry	Meat
2020	100	100	100	100
BAU	81	94	144	108
TRAMe	81	84	98	88
TYFA 2035	76	74	66	72

- Demand BAU (Aubert P-M., Poux X., 2024).
- Demand TRAMe (Saujot M., Rogissart L., 2025).
- Demand TYFA (à 2035) (Poux X., Aubert P-M, 2018).

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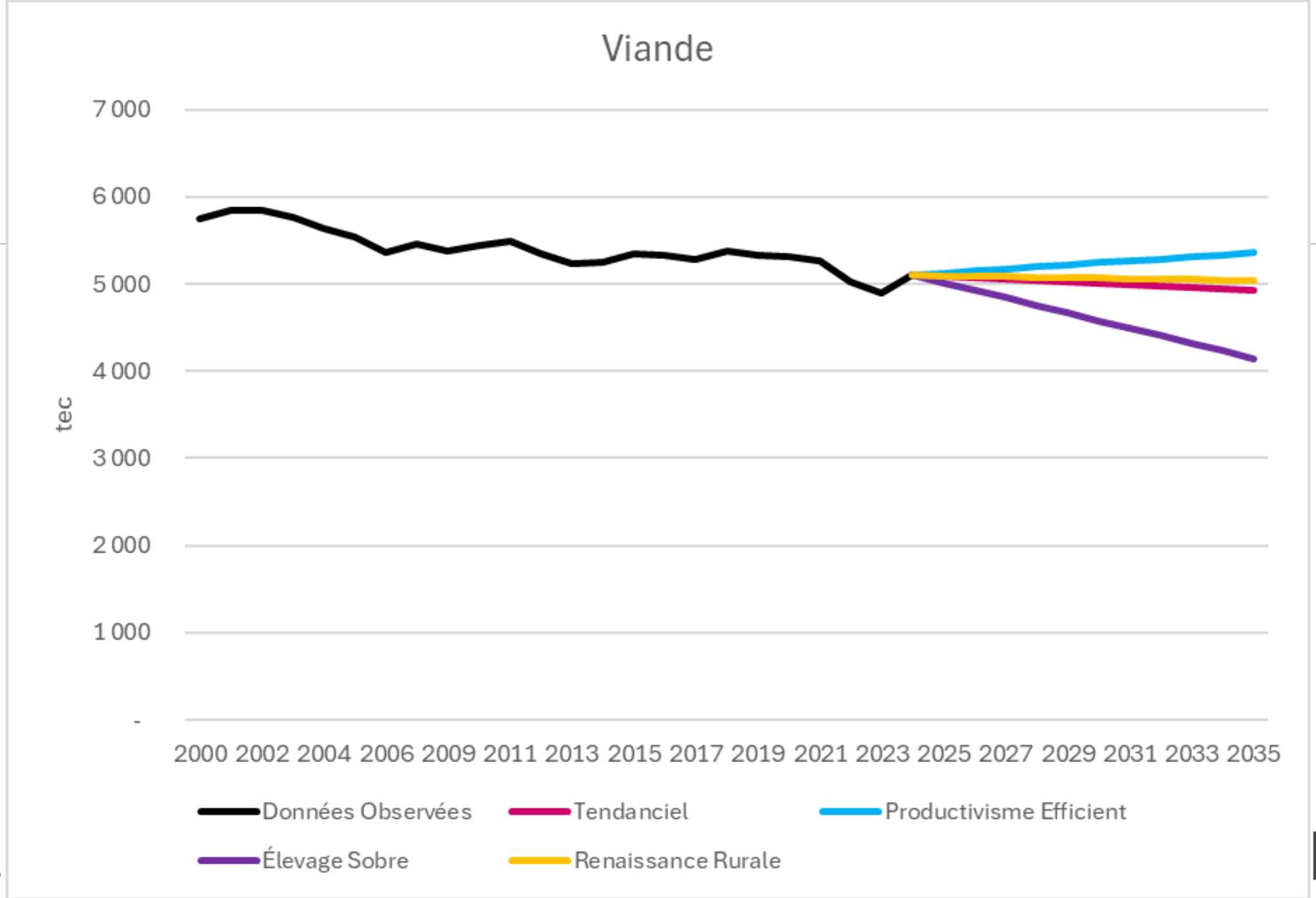
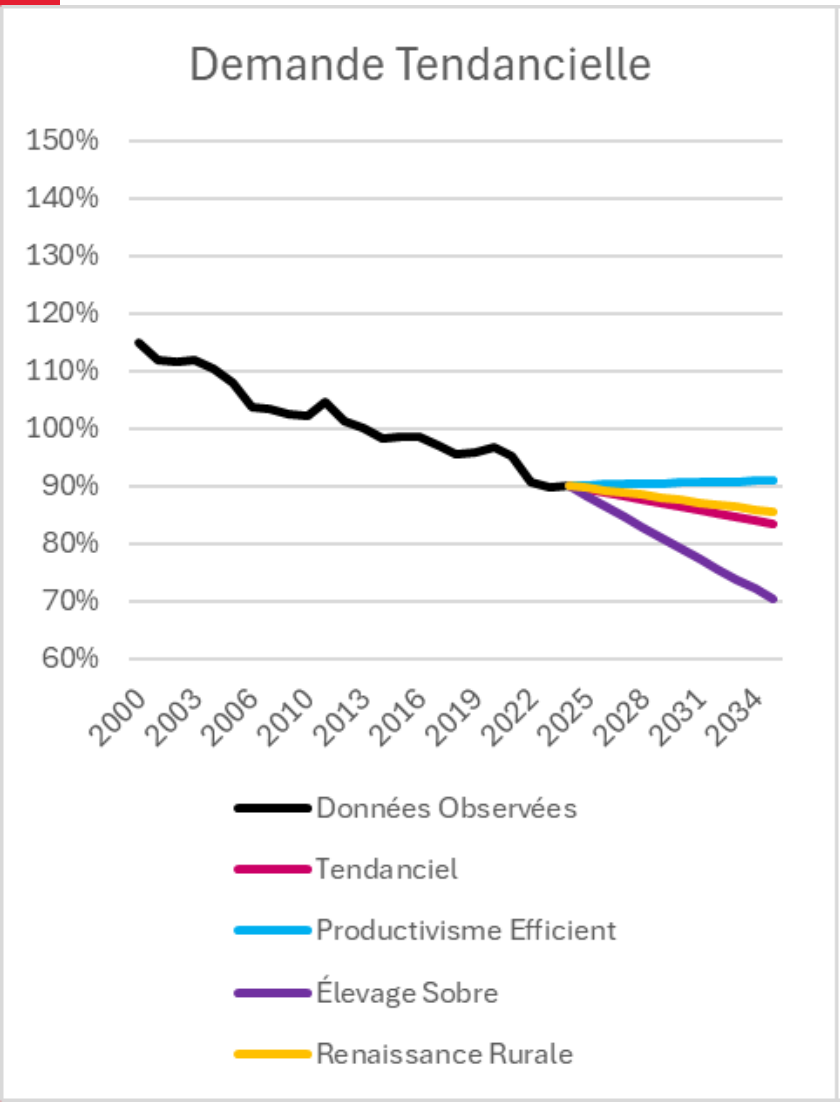
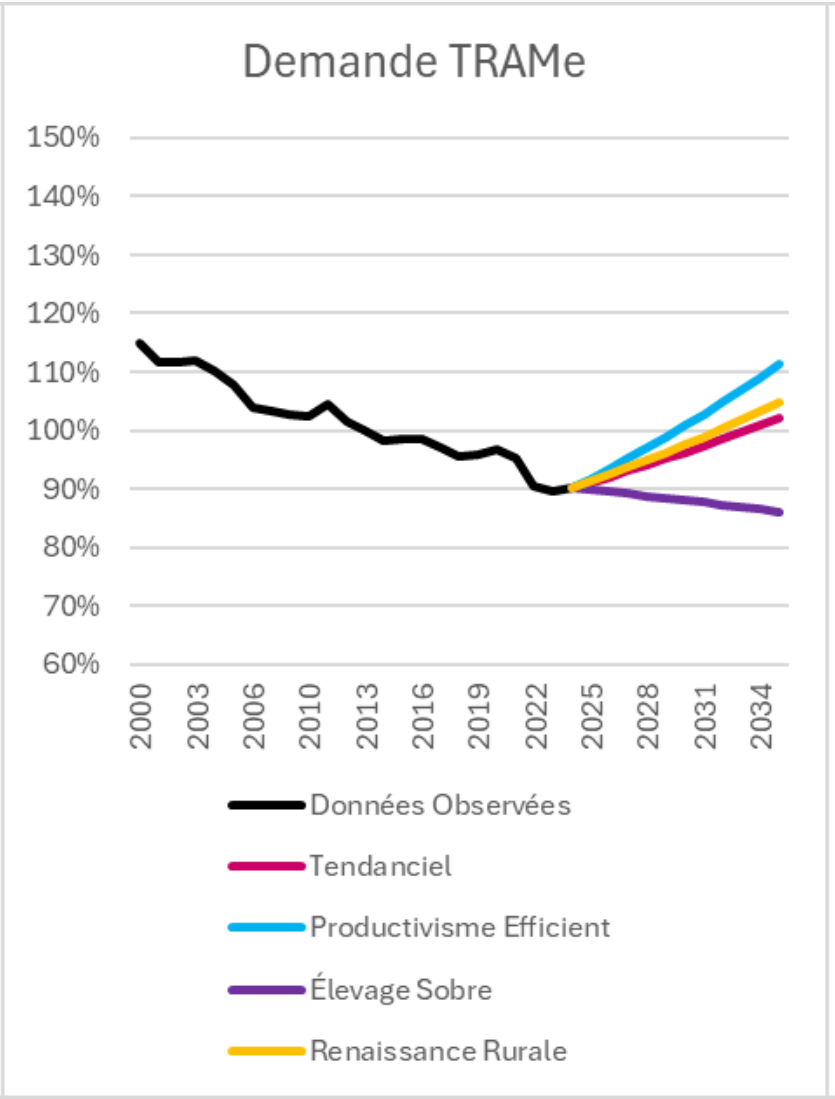
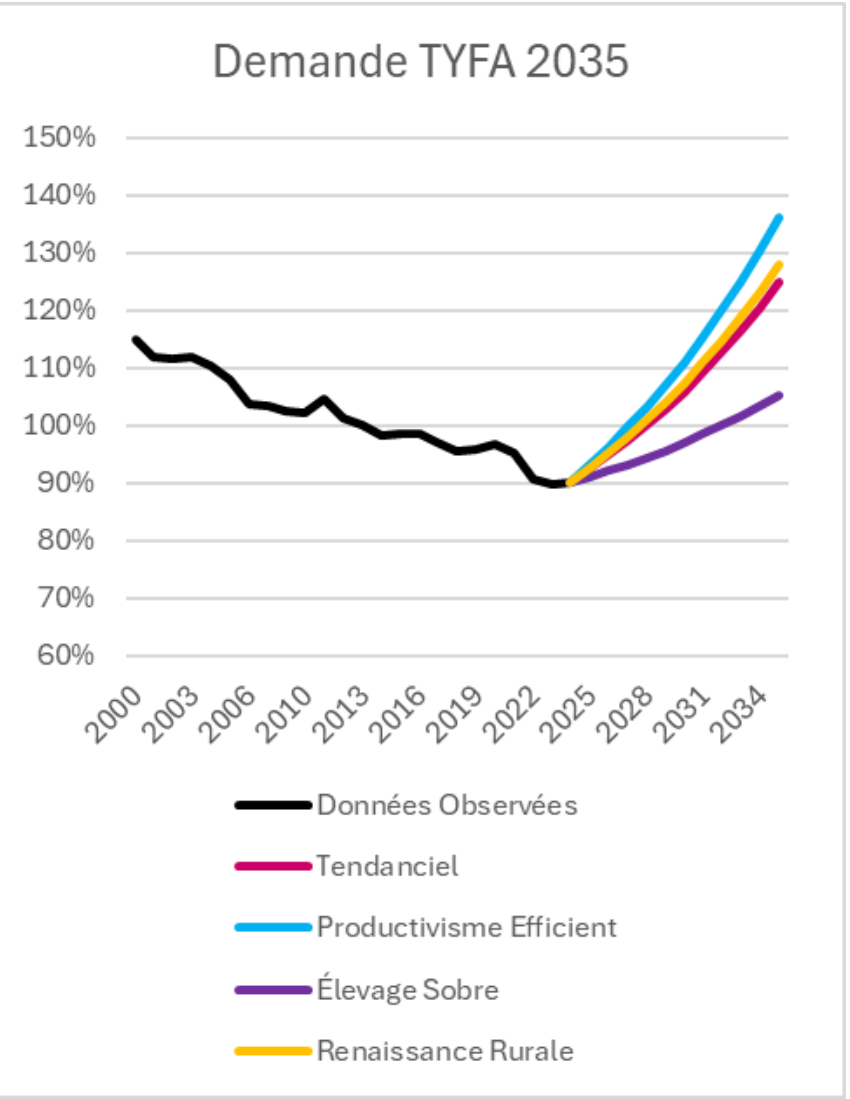

Viande
7 000
6 000
5 000
4 000
3 000
2 000
1 000
-
tec
2000 2002 2004 2006 2009 2011 2013 2015 2017 2019 2021 2023 2025 2027 2029 2031 2033 2035
Données Observées
Tendanciel
Productivisme Efficient
Élevage Sobre
Renaissance Rurale

Self sufficiency levels for contrasted demands







Climate impacts

- GHG emissions, in $CO_{2\ eql}$, with imported emissions included – 2020 = 100
- **Red** cells indicate a supply-demand configuration that does not meet French climate targets
- **Green** ones indicate a configuration that does meet French climate targets

			Supply			
	viande	2020	BAU	Efficiency first	Feed no Food	Rural renaissance
Demand	2020	100				
	Tendancielle		87	81	81	83
	TRAMe		83	76	76	78
	TYFA 2035		75	68	69	70

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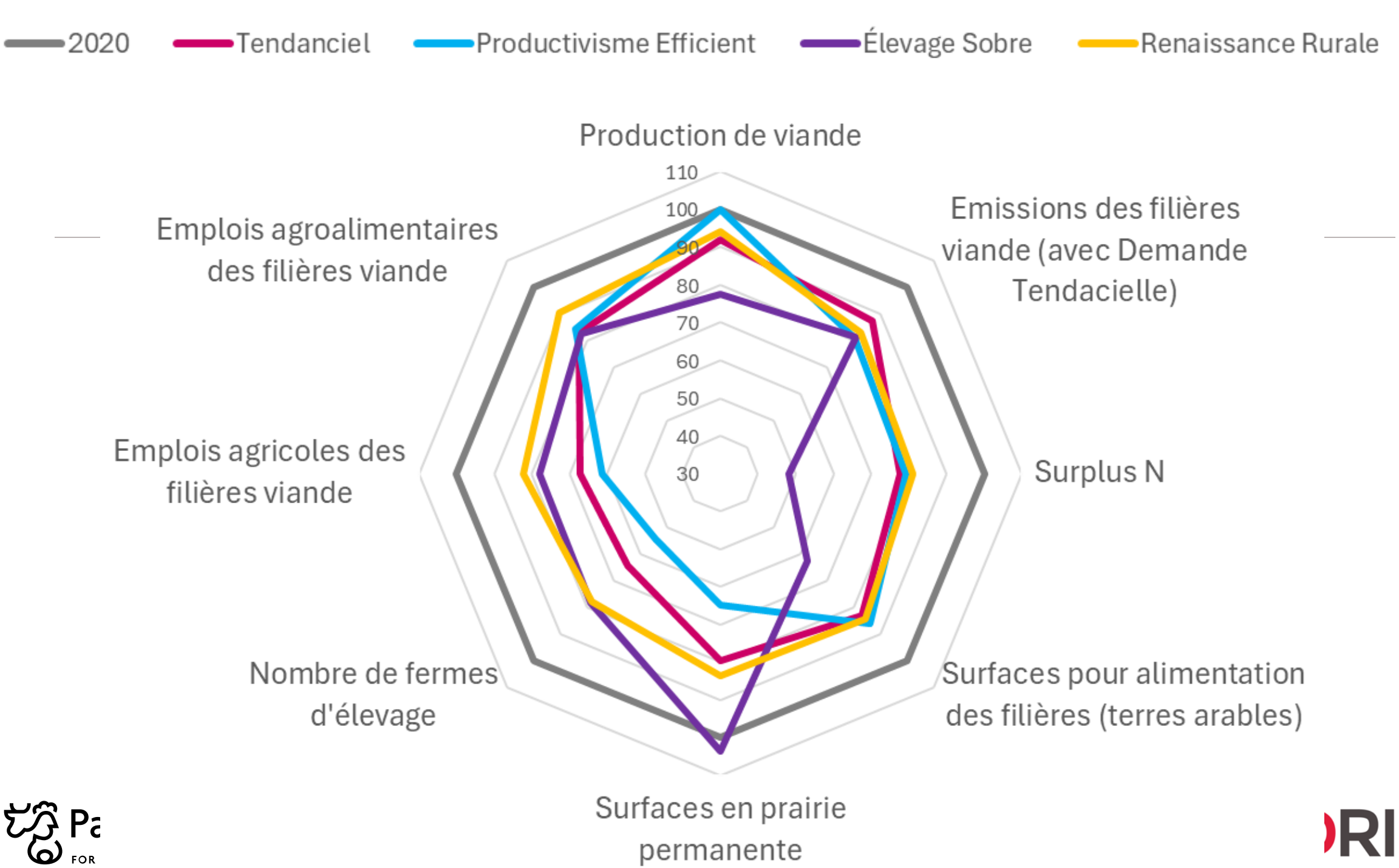
2020
Tendanciel
Productivisme Efficient
Élevage Sobre
Renaissance Rurale
Production de viande
Emissions des filières viande (avec Demande Tendacielle)
Surplus N
Surfaces pour alimentation des filières (terres arables)
Surfaces en prairie permanente
Nombre de fermes d'élevage
Emplois agricoles des filières viande
Emplois agroalimentaires des filières viande
110
100
90
80
70
60
50
40
30

From outcomes to risks and political feasibility

- Each scenario has its own strengths and weaknesses
- None meets French climate objectives without changes in the demand!
- All are politically challenging – but not for the same reasons:
  - Efficiency first: requires important investments + a “social deal” to support livestock intensification
  - Feed no food: requires significant dietary shifts + profound evolutions of market conditions
  - Rural renaissance: the most “realistic”? Yet, it looks like what happened in France over the last decades: a highly segmented market that led to loss of competitiveness
- And all are exposed to risks, but of ≠ nature
  - EF: intends to mitigate market risks by becoming more competitive / efficient, but does not (easily) lead to a $\Delta-$ of EU structural dependencies + negative externalities remain + job losses
  - FnF: reduce structural dependencies, but what about market dynamics?
  - RR: maintain structural dependencies, with less potential to catch up on competitiveness. A risky avenue?

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3. Conclusion

A question of method!

- The need to build a (series of) **vision** for the EU livestock sectorS…
- Build on a common understanding of **outcomes, risks and feasibility** of ≠ options
- … fed by **robust enough modelling**
  - Identifying **opportunities to be seized**
  - … as well as the **potential losses**
- **Market conditions** are key:
  - EU dietary patterns
  - EU common market
  - Trade rules with third countries

The food (livestock) system we want

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Thanks for your attention!

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